Fisheries New Zealand
Tini a Tangaroa

Appendix Two:

Review of sustainability measures for the 2024 April round

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1 Introduction

1. This paper seeks your decisions in relation to the April 2024 sustainability round. You are asked to make decisions on sustainability measures and allowances for ten different fish stocks (summarised below in Table 1).

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
- allowances for other sources of mortality to stocks from fishing
- setting or varying the Total Allowable Commercial Catch (**TACC**)

Recreational season

- opening the Kaikōura pāua fishery for a recreational fishing season in 2024 and setting an appropriate duration for the season

Recreational daily limit

- varying the recreational daily limit in the Gisborne spiny rock lobster fishery (CRA 3)

3. In addition to the above, you are asked to consider the use of proposed management procedures in guiding the TACC settings for the Otago and southern spiny rock lobster fisheries (CRA 7 and CRA 8, respectively). A management procedure (also known as a harvest control rule) is not in itself a sustainability measure, but it can help to guide in when and how TACCs are reviewed.[1]

4. A list of all fish stocks proposed for changes as part of the April 2024 sustainability round is presented below in Table 1, with a summary of what you are being asked to consider for each.

Table 1: Summary of stocks and measures reviewed for catch limits and allowances as part of the April 2024 sustainability round.

Stock	You are asked to consider
Deepwater stocks	
Gemfish – SKI 3 & SKI 7 South Island, Chatham Rise, West Coast off Taranaki and Wellington	Options to increase the TACs, other mortality allowances, and TACCs of both stocks in response to information suggesting their abundance is high and has continued to increase.
Silver warehou – SWA 4 Eastern Chatham Rise, Sub-Antarctic	Options to increase the TAC, other mortality allowance, and TACC in response to information suggesting high abundance.
Southern blue whiting – SBW 6B Bounty Plateau	An option to increase the TAC, other mortality allowance, and TACC based on an updated Harvest Control Rule (which indicates an increase would be sustainable).
Highly migratory stocks	
Southern bluefin tuna – STN 1 All of New Zealand and Extraterritorial	An option to increase the TAC during the current season and apply the same increase to the full fishing year beginning 1 October 2024. This increase to New Zealand's allocation is in accordance with recommendations from the Commission for the Conservation of Southern Bluefin Tuna (**CCSBT**). It is proposed that the increase is allocated towards the recreational allowance and the TACC.
Inshore stocks	
Pāua – PAU 3A and part of PAU 7 Kaikōura	Opening the wider Kaikōura recreational pāua fishery from 22 April 2024, with options to have the season run for a period of two months or three months.
Spiny rock lobster – CRA 7 & CRA 8 Otago, Southland, Fiordland, Stewart Island & Auckland Islands	Options to re-establish the use of management procedures in both fisheries, and for CRA 8, an option to increase the TAC, allowances and TACC in line with the most recent stock assessment information and proposed management procedure.
Spiny rock lobster – CRA 3 Gisborne	Options to maintain or reduce the TAC, other mortality allowance, TACC, and the recreational daily limit in response to sustainability concerns following the recent cyclones.

[1] We have provided further information on management procedures in the relevant chapter of advice for CRA 7 & 8 later within this document (page 138, heading 5 '*Proposed management procedures*').

5. Fisheries New Zealand (**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.

6. We have provided for input and participation of tangata whenua on these decisions, primarily through Iwi Fisheries Forums, which have been set up to support that engagement. We have identified species and areas over which these groups have expressed kaitiakitanga[2], to which you must have particular regard when making these decisions.

7. Input and participation and submissions have been summarised where relevant for each stock. However, should you wish to view full submissions on the proposals, these have been provided separately to your office (document titled: "*Public Submissions Received for the 2024 April Sustainability Round").*

1.1 Implementation of decisions

8. Some of the fish stocks being reviewed in this round have an April fishing year; this includes the rock lobster stocks and southern blue whiting. Decisions on their catch limits and allowances will need to be gazetted before the end of March 2024 for them to take effect from the beginning of the next fishing year on 1 April 2024.

9. Other fish stocks in this round have an October fishing year; this includes gemfish, silver warehou, southern bluefin tuna, and pāua. The decisions on their catch limits and allowances would therefore take effect from 1 October 2024 (though note that no catch limit or allowance changes are being proposed for pāua).

10. The review of southern bluefin tuna (STN 1) proposes an in-season increase to the TAC, and to then apply the same increase to the TAC from the full fishing year. The in-season increase is proposed to come into effect from April 2024, and then the full year increase would come into effect from 1 October 2024.

11. Measures implemented under section 11 of the Fisheries Act 1996 (**the Act**) (such as the proposed opening of the wider Kaikōura recreational pāua fishery) and changes to recreational daily limits (as proposed for CRA 3) are not bound to a fishing year. However, FNZ will ensure that those measures can take effect as soon as is practicable after the decisions are made.

1.2 Note regarding the use of citations and references in this document

12. Throughout this advice document we have used in-text citations and have compiled a list of the references at the end of the document following the final stock chapter (see '*Referenced Reports*'). FNZ has included these citations and references to show where statements are supported by relevant science and information. Some information presented, such as commercial catch data, does not include citations because the data was sourced internally from FNZ databases.

13. All information required for your decision making is presented within this document itself and you are not expected to read any of the references that have been cited.

2 Overview of powers and obligations under the Fisheries Act 1996

2.1 Decisions Ministers may make in relation to sustainability reviews

14. Provisions of 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

- Make allowances for Māori customary and recreational fishing and all other mortality to the stock caused by fishing.

[2] 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.

- Set and vary the TACC.
- Set deemed value rates to provide an incentive for fishers not to exceed the available annual catch entitlement (**ACE**).[3]

15. 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

2.2.1 Application of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 – section 5(b)

16. You must act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (**the Settlement Act**). Section 5(b) of the Act requires that the Act be interpreted and people making decisions under the Act to do so in a manner that is consistent with the Settlement Act. Section 10 of the Settlement Act provides that non-commercial customary fishing rights continue to be subject to the principles of the Treaty of Waitangi and give rise to Treaty obligations on the Crown.

17. Section 10 of the Settlement Act also requires you to consult and develop policies to recognise the use and management practices of tangata whenua in the exercise of non-commercial fishing. Consistent with this section, FNZ has worked with iwi to develop engagement processes that enable iwi to work together to reach a consensus where possible and to inform FNZ on how tangata whenua wish to exercise kaitiakitanga with respect to fish stocks in which they share rights and interests and how those rights and interests may be affected by sustainability measures proposed by FNZ.

2.2.2 Application of international obligations – section 5(a)

18. You must also act in a manner consistent with New Zealand's international obligations relating to fishing. The international obligations FNZ considers most relevant are the United Nations Convention on the Law of the Sea (**UNCLOS**)[4] and the United Nations Convention on Biological Diversity (**Biodiversity Convention**).[5]

19. UNCLOS provides that States have the sovereign right to exploit their natural resources subject to an overriding duty to protect and preserve the marine environment (articles 192 and 193). Articles 61 and 62 of the UNCLOS are particularly relevant. It was recognised that these articles "drive the focus of the Fisheries Act on exploitation of fishery stocks within sustainability limits" by the Court of Appeal in the Sanford case.[6] The requirements in Article 61, and the general duty to protect and preserve the marine environment in article 192 have the effect of requiring you to consider the effects of fishing on the wider ecosystem. These ecosystem considerations are also acknowledged in the Act (via the requirement for you to consider the interdependence of species under section 13 of the Act when making a decision as to TAC, as well as through sections 9 and 11 of the Act).[7]

20. The Biodiversity Convention is the international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources".[8] It sets out a range of obligations on its signatories. Although New Zealand gives effect to this convention in a variety of ways (including under other legislation), the Act specifically recognises the importance of biodiversity in section 9(b) of the Act and the requirement to ensure the sustainability of the aquatic environment (section 8 of the Act).

2.2.3 The purpose of the Act – section 8

21. The Act's purpose is to "provide for the utilisation of fisheries resources while ensuring sustainability."

[3] However, you are not being asked to vary deemed value rates for any fish stocks as part of this sustainability round.
[4] Convention on the Law of the Sea 1833 UNTS 397 (opened for signature 10 December 1982, came into force 16 November 1994).
[5] Convention on Biological Diversity 1760 UNTS 79 (opened for signature 5 June 1992, came into force 29 December 1993).
[6] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [25].
[7] As stated in *Environmental Law Initiative v Minister for Oceans and Fisheries* [2022] NZHC 2969 at [16].
[8] Convention on Biological Diversity 1760 UNTS 79 (opened for signature 5 June 1992, came into force 29 December 1993), art 1.

- "*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".
- "*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."

22. The High Court has said the purpose of the Act "is broadly to create an environmental 'bottom-line' of sustainability and the key lever in ensuring sustainability is the administration of the Quota Management System (**QMS**), through the setting of the TAC, with sustainability as the 'guiding criterion'".[9]

23. 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".[10] It has also stated "in the attribution of due weight to each policy that [the weight] given to utilisation must not be such as to jeopardise sustainability. Fisheries are to be utilised, but sustainability is to be ensured".[11]

24. The practical effect of section 8 is that, when deciding something under a particular section of the Act (such as operating provisions like sections 13 and 20) your powers must be exercised to promote the policy and objectives of the Act. That is, in deciding whether a proposal fits within the scope of the Act, you must keep section 8 in mind and act in a way that promotes the Act's objectives. Subject to this constraint, however, "the nature and scope of [your] powers and the restrictions on them are as is provided for in the operating provisions of the Act".[12]

2.2.4 Environmental principles (section 9 of the Act)

25. The environmental principles you must take into account when considering sustainability measures are as follows:

    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.

26. 'Associated or dependent species' is interpreted in the Act to mean any non-harvested species taken or otherwise affected by the taking of any harvested species. 'Biological diversity' means the variability among living organisms, including diversity within species, between species, and of ecosystems.

27. 'Habitat of particular significance for fisheries management' is not defined in the Act. FNZ recently consulted on draft guidance for identifying a habitat of particular significance for fisheries management and the operational proposals to take into account the need for these habitats to be protected. In this context, protection means taking measures that would avoid, remedy, or mitigate the adverse effect of a decision that could undermine the function the habitat providing for the fisheries resource and ecosystem. Submissions on the draft guidance have been considered and work is underway to finalise the guidance.

2.2.5 Information principles: Uncertainties and unknowns (section 10 of Act)

28. Under section 10 of the Act, decision-makers are required to take into account four information principles:

    a) decisions should be based on the best available information[13]
    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.

[9] Environmental Law Initiative v Minister for Oceans and Fisheries [2022] NZHC 2969 at [11].
[10] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [39].
[11] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [39].
[12] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [59].
[13] Section 2(1) of the Act defines "best available information" to mean "the best information that, in the particular circumstances, is available without unreasonable costs, effort, or time".

29. Sections 12 and 21 of the Act require you to consult before making decisions on sustainability measures, and the TACC, respectively. These sections are set out in Table 2 below.

2.3 Statutory considerations relevant to decisions on sustainability measures and setting the TAC and TACC

30. Table 2 provides a summary of your main statutory considerations for varying sustainability measures under the Act, and the more specific statutory considerations for setting a TAC and TACC. The stock-specific details relating to these considerations have been set out later within the individual stock chapters of this document.

Table 2: 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. 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 must 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 services[14] or fisheries services[15]; 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	(3) 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 for inshore, deepwater and highly migratory species, the Hauraki Gulf fisheries, the Foveaux Strait oyster fishery, PAU 3 (A & B) and PAU 4 (Chatham Islands).

[14] **Conservation services** means **outputs** produced in relation to the adverse effects of commercial fishing on protected species, as agreed between the Minister responsible for the administration of the Conservation Act 1987 and the Director-General of the Department of Conservation, including:
(a) research relating to those effects on protected species,
(b) research on measures to mitigate the adverse effects of commercial fishing on protected species, or
(c) the development of population management plans under the Wildlife Act 1953 and Marine Mammals Protection Act 1978.
Outputs means the goods and services that are produced by a department, Crown entity, Office of Parliament, or any other person or body.

[15] **Fisheries services** means **outputs** produced for the purpose of this Act as agreed between the Minister and the chief executive; and includes:
(a) the management of fisheries resources, fishing, and fish farming,
(b) the enforcement of provisions relating to fisheries resources, fishing, and fish farming,
(c) research relating to fisheries resources, fishing, and fish farming, including stock assessment and the effects of fishing and fish farming on the aquatic environment,
(d) the performance or exercise, by the Minister or the chief executive or any other person, of a function, duty, or power conferred or imposed relating to fisheries resources, fishing, or fish farming (including any observer performing or exercising a function, duty, or power in accordance with the observer programme),
(e) the provision, installation, and maintenance of electronic and other equipment on fishing vessels to observe fishing and related activities, including the return, abandonment, processing, or sorting of fish, transportation connected with fishing, measures to avoid, remedy, or mitigate fishing-related mortality and/or the submission, storage, and review of electronic and other data from activities described in paragraph (e).

Decisions you may make	Requirements – things you must do when making decisions
Section 12 Before making decisions, you must consult	(1) (a) you must consult with such persons or organisations as you consider 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 must 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 must provide the reasons for your decisions to the people consulted.
Section 13 You must set and may vary, a TAC for stocks in the Quota Management System (QMS)	(2) you must set (and may vary – subsection (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 must 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 must have regard to the TAC and allow for (a)(i) Māori customary interests; and (ii) Recreational interests; and (b) all other mortality to the stock caused by fishing. (2-3) you must 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 section 186: (b) any area closure or method restrictions/prohibitions imposed under section 186A. (5) When allowing for recreational interests you must take into account any regulations that prohibit or restrict fishing under section 311.

2.4 Judicial guidance

2.4.1 East Coast Tarakihi decisions

2021 High Court judgment

31. In December 2019, Forest and Bird New Zealand filed proceedings seeking judicial review of the 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."

32. The judgment was delivered on 16 June 2021, with the following key findings:[16]

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

2023 Court of Appeal judgment

33. The High Court judgment was subsequently appealed by Fisheries Inshore New Zealand Ltd. with the Crown cross appealing on a technical point. On 10 August 2023 the Court of Appeal released a judgment with the majority dismissing the appeal and cross-appeal.[17]

34. The issues on appeal were:

- Is the "appropriate period" within which the rebuild must occur under section 13(2)(b)(ii) to be determined separately from the "way and rate" of rebuild under section 13(2)(b)(i), and can social, cultural, and economic factors be taken into account in determining the "appropriate period"?
- The 70 per cent probability of achieving rebuild plan as a relevant consideration.

35. On issue 1, the majority agreed with the High Court's decision and concluded (at [151]) that:

- When setting the TAC under section 13, the Minister is required to determine the "period appropriate to the stock" by reference solely to the scientific factors specified in section 13(2)(b)(ii), and separately from the way and rate of rebuild. It is, however, not necessary for the Minister to decide on the "period appropriate to the stock" before determining the "way in which and rate at which" the stock is moved towards MSY, though doing so is likely to be more practical.
- In deciding the "period appropriate to the stock" under section 13(2)(b)(ii), the Minister is not entitled to take social, cultural, or economic factors into account. Those factors are relevant only to the way and rate of the rebuild.
- The Industry Rebuild Plan was an irrelevant consideration in identifying the "period appropriate to the stock" under section 13(2)(b)(ii).

[16] *Royal Forest and Bird Protection Society of New Zealand Inc v Minister of Fisheries* [2021] NZHC 1427.
[17] *Fisheries Inshore New Zealand Ltd v Royal Forest and Bird Protection Society of New Zealand Inc* [2023] NZCA 359.

36. On issue 2, the majority found the Harvest Strategy Standard does specify a default [18] probability standard for rebuild of 70 per cent and this standard, and the reasons for it, were implied mandatory considerations in setting the 2019 TAC.[19]

37. The Court accepted the Harvest Strategy Standard qualifies as "best available information" under section 10(a) of the Act. As a consequence, it did not consider it necessary to determine the status of the Operational Guidelines.

38. These decisions have implications for what matters you must, and must not, consider when deciding to set or vary a stock's TAC.

39. The judgment has provided direction on the application of section 13(2)(b) which pertains to any stock whose current level is below that which can produce Maximum Sustainable Yield (***MSY***).[20] Section 13(2)(b) of the Act does not apply to your decision making for any fish stocks in this sustainability round. However, FNZ notes that in considering the way in which and rate at which a stock is moved towards or above a level that can produce MSY under section 13(2A), you must also have regard to social, cultural, and economic factors as you consider relevant, and this may be relevant to your decision making for CRA 3 (Gisborne spiny rock lobster) in this round. FNZ has reflected this within our advice to you on CRA 3 (see heading 8 '*Considerations for setting the TAC - section 13 of the Act*' within the CRA 3 advice chapter).

40. The broader findings of these judgments have been considered in our advice to you for all fish stocks in this round. In relation to the relevance of the Harvest Strategy Standard, FNZ has provided an overview below under heading 3.2 '*Overview of the Harvest Strategy Standard*', and then more specific advice on its relevance within the individual advice chapters for each stock.

2.4.2 Allocation decisions under section 21

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

42. 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 interests, recreational fishing interests, and all other sources of fishing-related mortality, the remainder constitutes the TACC.[21] 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 TACC.[22] That does not, however, mandate any particular outcome.[23]

43. Importantly, the Act does not confer priority for any interest over the other[24] and does not limit the relative weight which you may give to the interests of competing sectors.[25] It leaves that judgement to you.

44. 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.[26] The requirement to "allow for" the recreational interest can be construed as meaning to "allow for in whole or part".[27] 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.[28]

45. 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.[29] The

[18] The majority emphasised (at [149]) that this does not mean the Minister is bound to apply that probability (it is only a default).
[19] At [152].
[20] Refer to section 3.1 below for an explanation of Maximum Sustainable Yield.
[21] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [53].
[22] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [55].
[23] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [57].
[24] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [65].
[25] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [61].
[26] *Roach v Kidd* HC Wellington CP715/91, 12 October 1992 at 16 per McGechan J.
[27] *New Zealand Federation of Commercial Fishermen Inc v Minister of Fisheries* HC Wellington CP237/95, 24 April 1997 at 150 per McGechan J.
[28] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [65].
[29] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [53].

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.[30]

46. In terms of recreational interests, the Supreme Court stated that: [31]

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.

47. 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.[32] Further, the Court of Appeal said: [33]

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.…

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.

48. The High Court said earlier in that case: [34]

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.

49. 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: [35]

[W]hen 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."

50. 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.[36]

51. With respect to quota granted to iwi under the Settlement Act and the Māori Fisheries Act 1989, in the Snapper 1 case the Court of Appeal said: [37]

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….

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 has 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.

[30] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [61].
[31] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [56].
[32] *New Zealand Fishing Industry Association Inc v Minister of Fisheries* CA82/97, 22 July 1997 at 18.
[33] New Zealand Fishing Industry Association Inc v Minister of Fisheries CA82/97, 22 July 1997 at 17-18.
[34] New Zealand Federation of Commercial Fishermen Inc v Minister of Fisheries HC Wellington CP237/95, 24 April 1997 at 89 per McGechan J.
[35] New Zealand Federation of Commercial Fishermen Inc v Minister of Fisheries HC Wellington CP237/95, 24 April 1997 at 102 per McGechan J.
[36] *New Zealand Recreational Fishing Council Inc v Minister of Fisheries* HC Auckland CIV 2005-404-4495, 21 March 2007 at [110]-[126] per Harrison J.
[37] *New Zealand Fishing Industry Association Inc v Minister of Fisheries* CA82/97, 22 July 1997 at 20-21.

52. 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 (*MSY*)

53. As noted above in Table 2, 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 *MSY*.

54. *MSY* is defined under the Act as the greatest yield that can be achieved over time while maintaining the stock's productive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock. 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.

55. Scientific working groups often estimate *MSY*-compatible reference points for stocks based on the best available information, and management working groups can set fishery or stock targets that consider these estimates as an input. Where *MSY*-compatible reference points are not available for a stock, FNZ will use the default reference points of the Harvest Strategy Standard (see heading 3.2 below).

56. 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. Proposals for changes in catch limits for these stocks have been based on the best available information and are considered to be 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* as provided for by section 13(2A) of the Act.

3.2 Overview of the Harvest Strategy Standard

57. 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.

58. 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).

59. 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.

60. The High Court (as confirmed by the Court of Appeal) 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.[38] 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 default probability levels for rebuilding stocks (as well as for other matters relevant to the interpretation of section 13).

61. 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 3):

[38] *Fisheries Inshore New Zealand Ltd v Royal Forest and Bird Protection Society of New Zealand Inc* [2023] NZCA 359.

Table 3: 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}[39] 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[40]. T_{min} is the number of years to rebuild a stock to the target, in the absence of fishing.

3.2.1 Categories used to describe stock status in relation to the target and limits

62. In cases where a fish stock's status is known in relation to its management target and/or hard or soft limit,[41] we use probability categories to define the status and surrounding uncertainty. These categories relate to the probability of stocks being 'at or above' biomass targets, below biomass limits, and above overfishing thresholds. Categorisations are derived from our Fisheries Assessment Plenary.[42] Table 4 below provides a summary of the category descriptions and their associated probabilities.

Table 4: Descriptions of stock status and their represented probabilities.

Description	Probability
Virtually Certain	> 99 %
Very Likely	> 90 %
Likely	> 60 %
About as Likely as Not	40 – 60 %
Unlikely	< 40 %
Very Unlikely	< 10 %
Exceptionally Unlikely	< 1 %

63. For example, if a fish stock is described as 'Very Likely' to be at or above management target, this means that there is a more than 90% probability that the fish stock is at or above its management target (in this case the stock is most likely well above its target). Note that the designations reflect both the model-based estimates and the level of robustness of the models as determined by FNZ's peer review processes.

[39] B_{MSY} is the biomass that enables a fish stock to deliver the maximum sustainable yield.
[40] 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%.
[41] This is the case for fish stocks in which TACs are being set or varied under section 13(2)(a), (b), or (c) of the Act.
[42] Fisheries Assessment Plenaries summarise fisheries, biological, environmental, and stock assessment information for NZ's commercial fish species and groups. The Plenaries, which are released annually in May and November (two different versions covering different stocks) provide our best available information on stock status for QMS fish stocks, including rock lobster. FNZ incorporates new research and information into the Plenaries on an annual basis. This research and information is reviewed through a plenary working group process (led by FNZ's science team) that includes input from fisheries scientists, subject matter experts and fisheries stakeholders.

64. Fish stocks fluctuate due to environmental variation and can never be maintained 'at' a particular level: fisheries managers aim to ensure that stocks fluctuate around their management targets, and TAC/TACC changes are employed to keep the stocks near those management targets. Generally, this means that FNZ attempts to manage fisheries so that stocks are at least About as Likely as Not (40-60% probability) to be at or above their management targets.

65. Within our advice to you, we have used these categories where applicable and included the associated probabilities within parentheses.

3.3 Relevant strategies and plans

66. 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 (including those plans which you must take into account or have regard to under the Act).

67. 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.[43] 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:

68. **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.

69. **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.
- **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.

70. FNZ is working with the Department of Conservation and other agencies on implementation plans for the strategy. As part of those plans, we have identified areas of focus and actions for FNZ in delivering Government biodiversity objectives including progression to a more integrated ecosystem-based approach to managing fisheries. In that context, the advice chapters within this document contain information on potential impacts on biodiversity,

[43] 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.

ecosystem function, and habitat, associated with adjustments to sustainability measures. This is consistent with your legislative obligations and the intent of Te Mana o te Taiao.

4 Input and participation of tangata whenua

71. Section 10 of the Settlement Act requires you to develop policies to recognise the use and management practices of tangata whenua.

72. 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 with respect to 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 April 2024 sustainability round

73. As noted above in Table 2, section 12(1)(b) of the 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 aquatic environment in the area concerned.

74. In considering the views of tangata whenua, you are required to have particular regard to kaitiakitanga. The Court of Appeal noted in the Sanford Kahawai 1 case that having particular regard "*Involves a greater obligation on the decision-maker than the requirement to have "regard" to a consideration."*[44]

75. Input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established to support that engagement.

76. 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.[45]

77. 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.

78. The main pathway used by Iwi Fisheries Forums to provide feedback on proposals is through scheduled hui attended by FNZ representatives. Different Iwi Fisheries Forums have different protocols and schedules for meeting.[46] To accommodate this, FNZ endeavours to engage with the forums as early as possible and provide material (via email to the Forum Chairs) prior to the start of public consultation. Iwi Fisheries Forums are then also notified when consultation begins and invited to submit through the public consultation process if desired.

79. The stock-specific advice chapters within 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 Iwi Fisheries Forums on those proposals.

5 Public consultation

80. Public consultation on proposed changes for most stocks began on 13 December 2023. Consultation on CRA 7 & 8 began slightly later, on 18 December 2023 and consultation on SBW 6B began on 4 January 2024.[47] Consultation for all proposals ended on 2 February 2024.[48]

81. Upon commencement of consultation, FNZ notified Treaty Partners and stakeholders that consultation documents were available for the stocks under review and directed them to a

[44] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [99].
[45] However, FNZ also engages directly with Iwi (outside of Forums) on matters that affect their fisheries interests in their takiwā and consults with any affected Mandated Iwi Organisations and Iwi Governance Entities where needed.
[46] Note that some Iwi Fisheries Forums are still developing and/or do not meet regularly.
[47] Consultation of these reviews began later because the final science inputs for those stocks were not available until later.
[48] Extensions were provided for submitters upon request and within reason. FNZ also continued to accept and consider submissions on all stocks received after the deadline until 5 pm on 7 February 2024.

relevant consultation page on FNZ's website. The consultation page had links to each of the consultation papers, and an invitation to provide written submissions on any or all the proposed changes.

82. Table 5 below provides a summary of the submissions received during consultation, with a breakdown of how many submissions were received from different interest groups on each proposal.

Table 5: Summary of submissions received on proposals included in the April 2024 sustainability round.

Fish stock(s) reviewed	Total submissions	Submissions by main interest group of submitters[1]				
		Commercial fishing	Recreational fishing	Conservation/ Environmental	Tangata whenua and iwi representatives	Other[2]
Gemfish (SKI 3 & 7)	**9**	3	0	0	3	3
Silver warehou (SWA 4)	**10**	3	0	0	4	3
Southern blue whiting (SBW 6B)	**8**	2	0	0	3	3
Southern bluefin tuna (STN 1)	**9**	1	1	2	2	3
Spiny rock lobster (CRA 3)	**20**	10	0	0	6	4
Spiny rock lobster (CRA 7 & 8)	**26**	16	0	1	1	8
Kaikōura pāua	**24 + 156**	8	6	1	1	8 + 156

[1] 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).
[2] Other includes science-related groups, groups or people not involved in the fishing industry and unspecified interests.
[3] This is the total number of submissions from each interest group. Some submitters commented on multiple proposals.

83. In addition to the 24 written submissions received regarding the review of the Kaikōura pāua recreational fishery, an additional 156 submissions were received through an online form set up by LegaSea (NZ Sport Fishing Council), who represent recreational fishing interests.

84. Submissions and responses were received from stakeholders on behalf of large representative bodies and organisations:

- Te Ohu Kaimoana,[49] Iwi Collective Partnership (**ICP**), the Mahia Māori Committee and some other mandated iwi organisations responded in relation to Māori commercial and customary interests.
- Several quota owner and commercial representative groups submitted, including Seafood New Zealand (Inshore and Deepwater Councils), the New Zealand Rock Lobster Industry Council (**NZ RLIC**), the Pāua Industry Council (**PIC**), Southern Inshore Fisheries, Talley's Ltd, and Sealord Ltd.
- Several large recreational representative groups submitted, including the New Zealand Sport Fishing Council (**NZSFC**) (joint with the New Zealand Angling and Casting Association (**NZACA**) and New Zealand Underwater Association), Fish Mainland and the Gisborne Tatapouri Sports Fishing Club.
- A few large environmental NGOs also responded to consultation, including Forest & Bird NZ and Birdlife International.

6 General themes

6.1 Poor recreational data and management of recreational catch

85. Te Ohu Kaimoana, Seafood New Zealand (Inshore Council), NZ RLIC, PIC, several other commercial representatives, and Fiordland Marine Guardians raised general concerns about the reliability of recreational catch and effort information, and the management of recreational harvest across various fisheries.

86. One of the key issues raised relates to poor estimates of recreational take. Commercial representatives emphasise that the sustainable management of our fisheries depends on our

[49] Te Ohu Kaimoana is a charitable trust established through the Māori Fisheries Act 2004. It represents the collective interests in fishing and fisheries-related activities of the recognised 58 Mandated Iwi Organisations.

ability to control all sources of removal to sustainable levels, which requires good information on recreational take.

87. NZ RLIC note that the National Panel Surveys of Marine Recreational Fishers (**NPS**) that are used to provide recreational harvest estimates happen very infrequently (they are scheduled every 5 years), and for many fish stocks the estimates from the surveys have poor precision (high CVs and standard errors[50]). They suggest that management actions are negatively affected by this poor and infrequent information, particularly because the estimates from the surveys are used as inputs in our stock assessments (which are used to inform overall stock status).

88. They urge FNZ to implement more frequent surveys which can achieve greater precision, and/or to explore alternative methods and initiatives for better understanding recreational catch.

89. Te Ohu Kaimoana and NZ RLIC also suggest that because recreational take is so poorly understood, management often focuses on constraining commercial catch rather than understanding total harvest. They emphasise that recreational catches need to be managed consistently with the recreational allowances set, and that parallel regulatory changes are required for the recreational sector to contribute to TAC decreases and corresponding reductions in the recreational allowance.

90. FNZ agrees that recreational catches need to be managed in a manner that is consistent with the recreational allowances in accordance with your statutory obligations under the Act. As such, FNZ acts when required to manage recreational catch within the recreational allowance. For example, the review of the Gisborne rock lobster fishery (CRA 3) in this round includes an option to reduce the recreational daily limit alongside options to reduce the TAC and allowances.

91. Some submissions raised more specific issues about the management of recreational fishing in relation to Kaikōura pāua, the spiny rock lobster fisheries (CRA 3, 7, & 8), and southern bluefin tuna (STN 1). FNZ has covered these issues within the advice chapters for those stocks.

6.2 Unnecessary deemed value costs

92. Submissions from several commercial industry representatives, including Seafood New Zealand (Deepwater Council), Sealord, and Talley's, raised concerns about unnecessary deemed value payments which can place significant financial stress on the industry. These concerns echo sentiments expressed by industry representatives through FNZ's catch balancing forum.

93. Several of the submissions noted that the industry has paid millions of dollars in deemed values over the years. They suggest that this is largely the result of FNZ adopting an overly precautionary approach to management of certain bycatch stocks (such as silver warehou and gemfish stocks which are under review for changes in this round).

94. One of the key issues raised by industry participants through the catch balancing forum is that management actions to address these issues are often too slow, because when the abundance of bycatch stocks is high this affects fishers instantly through higher catches which are difficult to avoid, but it then takes time for assessments to verify that there is no sustainability issue, and subsequently for the catch limits to be reviewed for changes. This can result in high deemed value payments for certain stocks, even if it is later determined that there was likely to be no sustainability concern with the high catches (as verified by subsequent science and TACC increases). Sealord in their submission suggested that retrospective TACC application would help to address this issue.

95. Sealord submitted that these issues are also impacting on the efficiency of the industry, because when there is limited headroom for bycatch stocks which are seen as unavoidable, operators are worrying more about incurring deemed values, and this makes it more difficult for the operators to efficiently harvest the target species.

96. They suggest that for bycatch fisheries for which changing the TACC will not change fishing effort, FNZ should institute adaptive management harvest strategies.[51] Other industry

[50] Coefficient of variation (**CV**) and standard error are both measures of variability. CVs measure the extent of variability in relation to the mean (it is the ratio of the standard deviation to the mean). Standard errors measure the accuracy with which a sample represents a population.

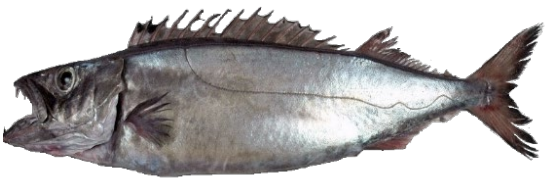
[51] The submitters did not go into depth on this. Adaptive management is generally understood to be about moving away from traditional 'reactive' approaches and moving towards more structured approaches of learning from success and failure.

submitters also expressed support for more agile approaches to TACC setting and suggest that many issues could be avoided through setting higher TACCs for these bycatch stocks, rather than increasing them incrementally.

97. In relation to the general concerns raised, FNZ notes that:

- Most of the issues are occurring with bycatch stocks for which there is limited information about stock biomass in relation to MSY. Proposals to increase catch limits for such stocks tend to be more cautious due to the limited availability of information and need to act consistently with section 10(c) of the Act, which specifies that decision makers should be cautious when information is uncertain, unreliable, or inadequate.
- There is currently no mechanism under the Act through which TACC changes could be retrospectively made to provide relief for deemed value payments.
- Under section 75(7) of the Act, deemed value rate settings currently can only take effect on the first day of each fishing year. Within the Regulatory Systems (Primary Industries) Amendment Bill, which was introduced to the House on 21 June 2023, there is a proposal to alter this provision to also allow deemed value settings to also be changed within a fishing year. This Bill is expected to be enacted later this year and could help to allow greater flexibility and responsiveness for addressing issues related to deemed value settings.

98. FNZ has responded to the specific concerns about the TACCs and deemed value payments for silver warehou and gemfish within the respective advice chapters for those stocks. The more general issues raised are outside of the scope of your decisions on this sustainability round and FNZ will engage further with the industry on these issues outside of this process.



Gemfish / Maka-taharaki, maka-tikati, tīkati
Rexea solandri

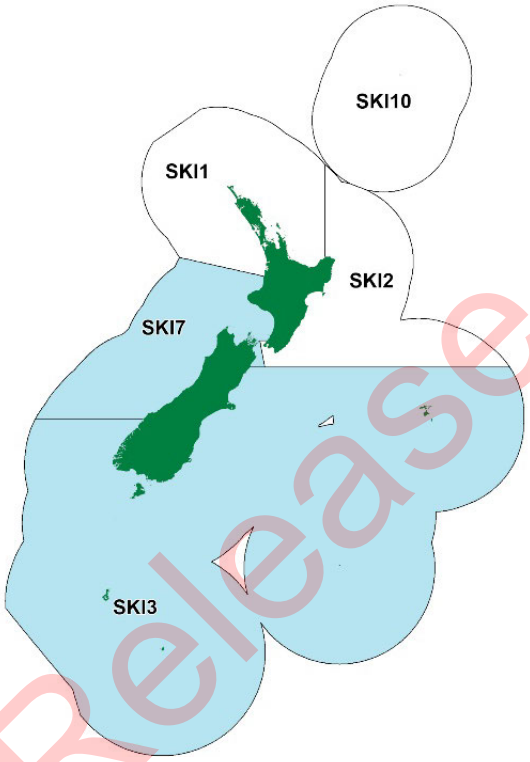


Figure 1: Quota Management Areas (QMAs) for gemfish, with SKI 3 and SKI 7 highlighted.

1 Why are we proposing a review?

99. Gemfish in SKI 3 and SKI 7 are considered to be a single biological stock. Research undertaken between 2020 and 2023 suggests that the biomass of gemfish in both SKI 3 and SKI 7 appears to have increased considerably during recent years. This is based on various catch per unit effort (**CPUE**) indices, surveys, and ageing analysis. The bycatch of gemfish from target fisheries such as hoki and squid 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 or to lead to the targeting of gemfish in SKI 3 and SKI 7.

100. Based on the available information, FNZ considers there is an opportunity to sustainably provide for increased utilisation of these stocks. We are therefore advising you on options to increase the Total Allowable Catch (**TAC**) of each stock pursuant to section 13(2A) of the Fisheries Act 1996 (**the Act**), and within this, to increase the allowance for other sources of mortality caused by fishing, and the Total Allowable Commercial Catch (**TACC**).

101. This would be the fourth TAC increase since 2018/19. FNZ has proposed increased catch limits incrementally because the size of the absolute increase in gemfish biomass is unknown and stock status is unknown. Gemfish have wide biomass fluctuations over time.

102. Adjustment to the TACs of SKI 3 and SKI 7 based on the options outlined below would apply from 1 October 2024 (the beginning of the next fishing year).

2 Summary of proposed options and FNZ's recommendations

103. Three options are proposed for SKI 3, and the same three options are proposed for SKI 7, as outlined in Table 1 below. Any TAC adjustment would be a discrete decision under the Act for each stock.

Table 1: Summary of options proposed for SKI 3 and for SKI 7 from 1 October 2024. Figures are all in tonnes. The preferred options of Fisheries New Zealand are highlighted in blue.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
SKI 3	**Option 1** *(Status quo)*	1,103	1,091	1	0	11
	Option 2	1,323 (↑ 220)	1,309 (↑ 218)	1	0	13 (↑ 2)
	Option 3	1,433 (↑ 330)	1,418 (↑ 327)	1	0	14 (↑ 3)
SKI 7	**Option 1** *(Status quo)*	1,103	1,091	1	0	11
	Option 2	1,323 (↑ 220)	1,309 (↑ 218)	1	0	13 (↑ 2)
	Option 3	1,433 (↑ 330)	1,418 (↑ 327)	1	0	14 (↑ 3)
In total, six submissions were received on the proposed options.						

3 About the stocks

3.1 Biology[52]

104. Gemfish (also known as southern kingfish) are benthopelagic[53] fish. They are distributed over the continental shelf and slope around the coastline, mainly in waters of between 120 metres and 550 metres in depth.

105. 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.

106. 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.

3.2 Fishery characteristics

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

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

- **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, and ling). Around 22% of the catch from the SKI 3 and SKI 7 stocks is taken in this fishery.
- **SKI 3:** East Coast South Island – gemfish are caught year-round 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 stocks.
- **SKI 7:** West Coast South Island – gemfish are mainly caught in the winter hoki target trawl fishery from May to September. Around 60% of the catch from the southern gemfish stocks is taken in this fishery.

109. Historically, several thousand tonnes of gemfish were taken annually from both SKI 3 and SKI 7, both as bycatch and as the target species. Catches declined substantially from the mid-1980s onward, with the TACs of both stocks reduced to 300 tonnes in the mid-1990s (Figures 6

[52] Information in this section references the FNZ Fisheries Assessment Plenary 2023.
[53] Living and feeding near the seafloor as well as in midwater or near the surface.

and 7). Between the mid-1990s and 2015/16, landings of gemfish from both SKI 3 and SKI 7 generally remained below the TACC.

110. Consistent with the increase in stock abundance from strong year classes recruiting into the fishery, catches from both stocks have noticeably increased during recent years (Figures 6 and 7).

111. Gemfish product is primarily exported with a free on board[54] value of NZ $3.2 million for all gemfish stocks in the 2022 calendar year. It is unknown how much is sold on the domestic market.

3.3 Management background

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

113. The current TAC for each stock is 1,103 tonnes, made up of a TACC of 1,091 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 11 tonnes (equivalent to 1% of the TACC).

114. The TACs of SKI 3 and SKI 7 were both last reviewed for the 2022/23 fishing year, at which time the TACs for both stocks were increased from 848 to 1,103 tonnes.

4 Status of the stocks

115. Gemfish are low-medium information stocks and the main monitoring/assessment tool used to manage the stocks are CPUE indices. The status of SKI 3 and SKI 7 in relation to the default reference points is unknown, so the biomass that supports the MSY[55] cannot be reliably estimated using available information. Section 13(2A) of the Act is therefore relevant for setting the TAC.

116. For stocks in which the MSY 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 or above a level that can produce the MSY.

117. The best available information on the status of these stocks is within the Fisheries Assessment Plenary May 2023 (**the Plenary**). The Plenary status of the stocks section for SKI 3 and SKI 7 state that the current status is unlikely (<40% probability) to be below the hard limit.

4.1 Research conducted on SKI 3 and SKI 7 stocks over recent years

118. Langley (2020) reviewed trends in abundance and length composition of gemfish from multiple surveys. The surveys indicated the presence of relatively strong 2014, 2015, and 2016 year-classes. In 2021 the Deepwater Working Group (**DWWG**)[56] concluded that there had been a considerable increase in stock abundance from the recruitment into the fishery of the three strong cohorts.

119. Starr *et al*. (in press) conducted an extensive analysis of all available catch-effort data for SKI 3 and SKI 7 in 2021. All series showed a sharp increase in CPUE beginning in 2016/17 (three examples are shown in Figures 2-4).

[54] 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, it does not include storage, export transport or insurance cost to get the goods to the export market.

[55] Maximum sustainable yield (***MSY***) is the largest long-term average catch or yield that can be taken from a stock under prevailing ecological and environmental conditions.

[56] The DWWG is a Stock Assessment Working Group for deepwater species, convened by FNZ and includes industry and other non-governmental scientists and representatives. Based on scientific information the DWWG assesses the status of deepwater fish stocks or species relative to the *MSY*-compatible reference points and other relevant indicators of stock status, conducts projections of stock size and status under alternative management scenarios, and reviews results from relevant research projects.

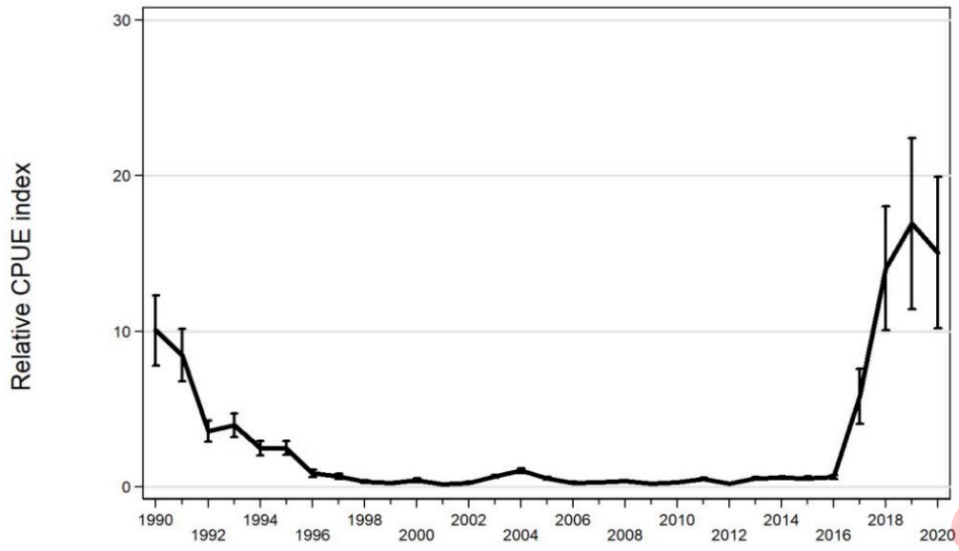


Figure 2: CPUE indices for the SKI 3 Stewart-Snares shelf fishery showing approximate 95% confidence intervals. Years on x axis are fishing year (Starr *et al.*, in press).

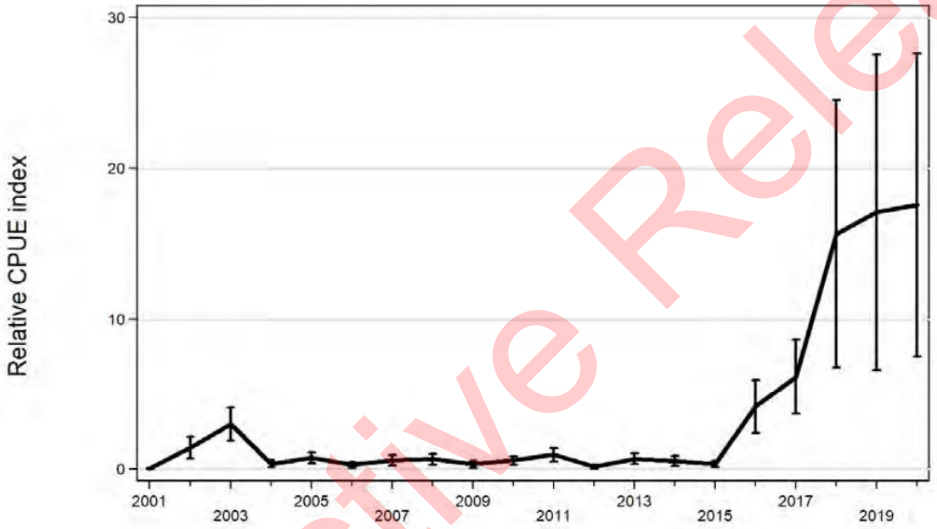


Figure 3: CPUE indices for the SKI 3 East Coast southern gemfish fishery showing approximate 95% confidence intervals. Years on x axis are fishing year (Starr *et al.*, in press).

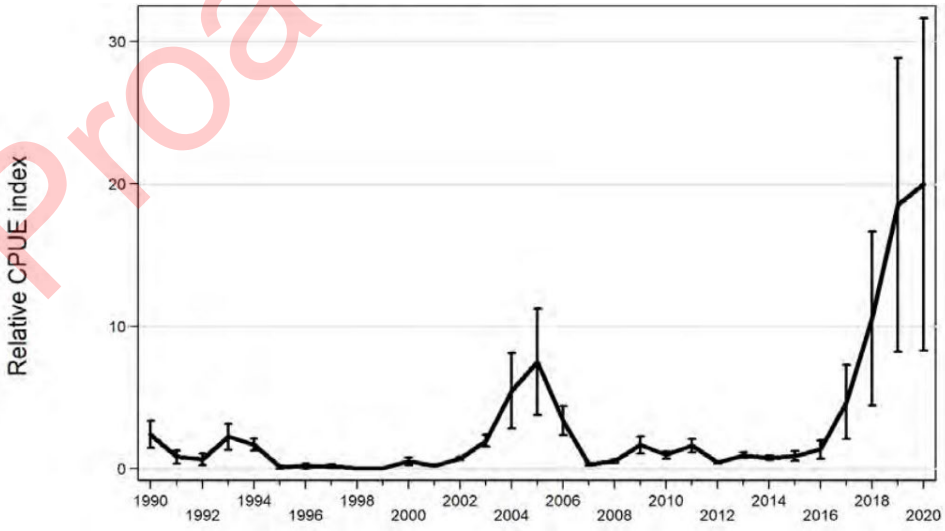


Figure 4: CPUE indices for the SKI 7 HOK target fishery showing approximate 95% confidence intervals. Years on x axis are fishing year (Starr *et al.*, in press).

120. The DWWG accepted the CPUE data indicated a considerable increase in apparent relative biomass compared with the low levels of gemfish observed from 1989 to 2015. A Level 2 partial quantitative stock assessment (ranked '1 High Quality') was accepted by the 2021 Fisheries Assessment Plenary for SKI 3 and SKI 7. The DWWG considered that the model used in this stock assessment was not sufficiently reliable to provide estimates of current biomass and stock status.

121. Despite this the DWWG concluded in 2021 that given recent recruitments, 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 the hard limit. Biomass was estimated to have increased about ten-fold from 2015 following improved recruitment.

122. This was corroborated by the strong increase in the SKI 7 biomass index from the RV Tangaroa trawl survey in 2021. Gemfish were widespread on the survey with a similar biomass to the 2018 RV *Tangaroa* trawl survey (Figure 5).

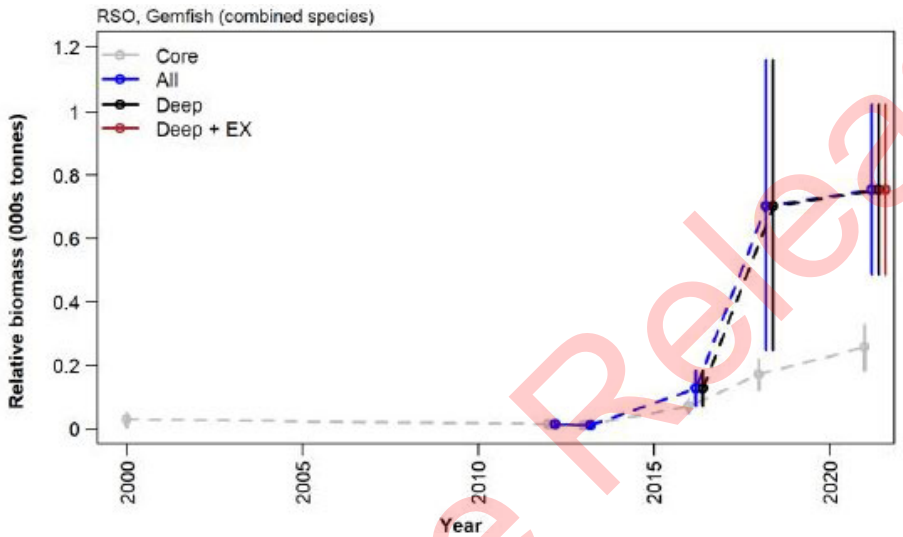


Figure 5: Relative biomass estimates (thousands of tonnes) of gemfish sampled by the west coast South Island Tangaroa trawl survey time series. Grey lines show fish from core (300–650 m) strata, blue lines show fish from all strata (200–800 m), and black solid lines show fish from deep (200–1000 m) strata. Error bars show ± 2 standard errors (Devine *et al*., 2022, in press).

4.2 New research on SKI 3 and SKI 7 stocks since the previous TAC adjustments

123. Devine *et al*. (2023, in press) estimated catch-at-age distributions using commercial catch, length frequency data and otoliths from SKI 3 and SKI 7 for the 2021/22 fishing year.

124. The length frequencies in SKI 3 for the 2021/22 fishing year had a strong mode between 45-52 cm, which corresponded to age 2 fish, with a second strong mode corresponding to ages 4–6. The large number of age 1 fish in 2020/21 were visible at age 2 in 2021/22.

125. The length frequencies for gemfish in SKI 7 had several modes and included some fish under 50 cm, which corresponded to ages 0–1. Most of the gemfish around 50 cm in length in SKI 7 corresponded to age 2.

126. In SKI 3 and SKI 7, gemfish start to recruit at age 2 into spawning and non-spawning fisheries, but age at full recruitment is difficult to determine because of large variation in year class strength. Therefore, this ageing data suggests there are substantial recruitment pulses starting to enter the fishery as recently as the 2021/22 fishing year. Available observer length frequency data for 2022/23 indicates additional strong modes of fish under 50 cm, with this being particularly evident for SKI 7. However, available length frequency data for 2022/23 has yet to be seen and analysed by the DWWG; it is likely that this information will be assessed in 2024/25 through a fully quantifiable stock assessment for SKI 3 and SKI 7.

5 Catch information and current settings within the TAC

5.1 Commercial

127. 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 6 and 7). Catches subsequently declined in the late 1980s. TACCs were reduced to 300 tonnes for both stocks from 1997/98 until 2018/19. Between these years, catches of gemfish mostly stayed below the TACC until 2016/17.

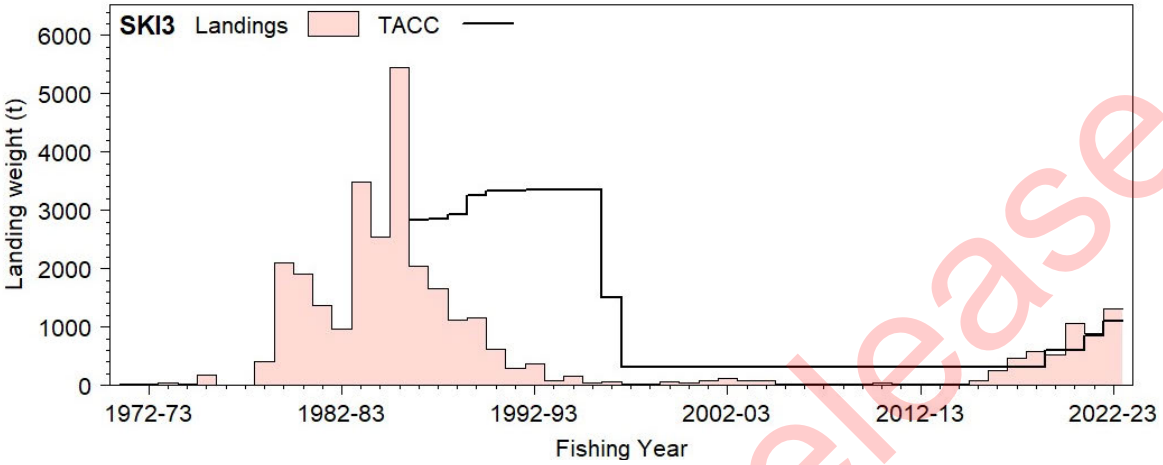


Figure 6: Reported commercial landings (in tonnes) and TACC for SKI 3 between 1970/71 and 2022/23

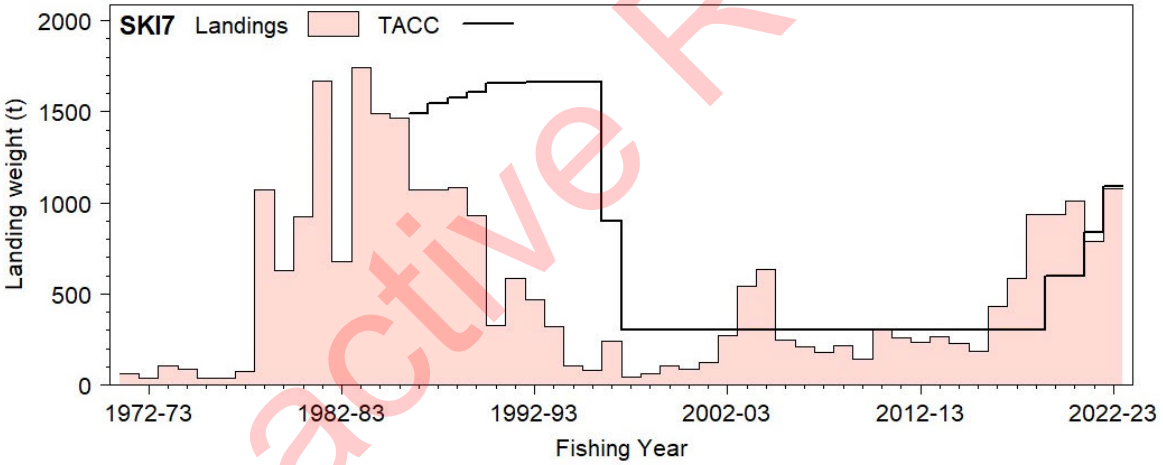


Figure 7: Reported commercial landings (in tonnes) and TACC for SKI 7 between 1970/71 and 2022/23.

128. The total reported landings for SKI 3 and SKI 7 during the 2022/23 fishing year were 1,318 tonnes and 1,078 tonnes respectively. This follows the general increase in landings of gemfish for both stocks since the 2016/17 fishing year.

5.2 Customary Māori

129. There has been no recorded customary harvest of gemfish in SKI 3 or SKI 7. Under the Fisheries (South Island Customary Fishing) Regulations 1999, gemfish (maka-taharaki, maka-tikati, tiikati) has not been reported as taken.

130. However, the current level of customary catch for finfish in QMA 7 is uncertain. In SKI 7, tangata whenua north of Kahurangi Point and in the Marlborough Sounds and Tasman/Golden Bays area are operating under regulation 50 of the Fisheries (Amateur Fishing) Regulations 2013 as this area is not gazetted under the Fisheries (Kaimoana Customary Fishing) Regulations 1998. This means there is no requirement to report customary permits or catches in these areas.

131. 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 a pātaka arrangement (where fish, including gemfish, caught

under a customary permit by commercial vessels is stored at a licenced fish receiver (**LFR**) for customary purposes).

5.3 Recreational

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

133. Information for estimating recreational catch of gemfish includes the results of the National Panel Surveys of Marine Recreational Fishers (**NPS**). The 2017/18 NPS reported 27 individual gemfish caught by recreational fishers in SKI 7 in the 2017/18 fishing year, and nil catch in SKI 3 for the same year. The negligible level of reported recreational catch for these stocks is reflected in their recreational allowances, which are currently both set at zero.

134. FNZ notes that a more recent NPS was undertaken in 2022/23, and the results of this NPS are due to be finalised in 2024. However, preliminary estimates of recreational take from this survey are not available for SKI 3 and SKI 7. As such, the 2017/18 NPS remains the best available information on recreational take for these stocks.

5.4 Other sources of mortality caused by fishing

135. The allowance for all other sources of 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 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. FNZ has no new information to suggest this allowance should be changed.

6 Treaty of Waitangi obligations as set in legislation

6.1 Input and participation of tangata whenua

136. Section 12(1)(b) of the 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 aquatic environment in the area concerned. In considering the views of tangata whenua, you are required to have particular regard to kaitiakitanga.

137. Input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established to support that engagement. 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.[57]

138. Te Waka a Māui me Ōna Toka (South Island) Iwi Fisheries Forum, which includes all nine tangata whenua Iwi of Te Waipounamu (South Island), Te Tai Hauāuru Iwi Fisheries Forum (Taranaki), and the Chatham Islands Fisheries Forum represent iwi with an interest in these two gemfish stocks. The plans of these Iwi Fisheries Forums contain objectives to support and provide for the interests of the relevant iwi (see '*Kaitiakitanga'* below).

139. Prior to the round of hui held in November/December 2023, information on all stocks being considered for review as part of either the April 2024 or October 2024 sustainability rounds was made available to the Iwi Fisheries Forums. The Te Tai Hauāuru Forum and Chatham Islands Community Forum did not meet during this period. To date no specific feedback on this gemfish review has been received from any of the Iwi Fisheries Forums.

6.2 Kaitiakitanga

140. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are among the ways that tangata whenua can exercise kaitiakitanga in respect of fish stocks.

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

141. 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.

142. The Te Waipounamu Iwi Forum Fisheries Plan contains objectives to support and provide for the interests of South Island iwi. The following two objectives are relevant to the management of SKI 3 & SKI 7:

- **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.
- **Management Objective 5:** to restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.

143. The CIFF@44º (Chatham Island Fisheries Forum plan, which includes Rangihaute/Rangiauria-Pitt Island) contains three management objectives that are relevant to the management options proposed for SKI 3:

- **Management Objective 2**: Kaitiakitanga is fundamental to the management of all fisheries resources.
- **Management Objective 5**: Thriving Fisheries. Thriving sustainable fisheries that are enduring for present and future generations.
- **Management Objective 6**: Traditional Fisheries. Fisheries and fisheries areas of cultural significance are protected, maintained, and enhanced.

144. FNZ considers that the proposed management options for SKI 3 & SKI 7 are in keeping with the objectives of these Iwi Fisheries Forum Plans, which generally relate to active engagement with iwi, supporting economic wellbeing of iwi, and the maintenance of healthy and sustainable fisheries. However, we note that FNZ has not engaged with the Te Tai Hauāuru Forum or Chatham Islands Fisheries Forum on the options for SKI 3 and SKI 7, and so cannot confirm whether the iwi and imi of these forums agree. It is also not clear whether iwi of Te Waka a Māui agree (given there were no comments from the forum on the SKI 3 or SKI 7 proposals).

6.3 Mātaitai reserves and other customary management tools

145. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account -

a) any mātaitai reserve in SKI 3 and SKI 7 that is declared by notice in the Gazette under regulations made for the purpose under section 186;

b) any area closure or any fishing method restriction or prohibition in SKI 3 and SKI 7 that is imposed under section 186A or 186B.[58]

146. There are no customary fisheries management tools such as mātaitai, taiāpure, or section 186A or 186B temporary closures relevant to this review, as the majority of gemfish in SKI 3 and SKI 7 are caught offshore at depths between 200 m and 500 m (outside of where customary areas apply).

7 Environmental and sustainability considerations under the Act

7.1 Overview

147. You are being asked to make decisions under section 13 of the Act, to set the TACs for gemfish in SKI 3 and SKI 7. The TAC is a sustainability measure. Before setting or varying a sustainability measure, you must adhere to section 11 of the Act. When making your decision you must also act consistently with the requirements in section 5, and sections 8-10 (Purpose and Principles of the Act).

148. The requirements and details of each of these sections are set out below, in the following order:

[58] Section 21(4) does not refer to section 186B, but this is the provision used for temporary closures or fishing method restrictions or prohibitions in South Island fisheries waters.

a) Section 5 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992);
b) Section 8 (Purpose);
c) Section 9 (Environmental principles);
d) Section 11 (Sustainability measures);
e) Section 10 (Information principles); and
f) Section 13 (Setting a Total Allowable Catch).

7.2 Application of international obligations and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 – section 5 of the Act

149. You must act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. This is discussed in more detail under Heading 2.2.1 of the *Introduction and Legal Overview*. There are no specific matters relating to the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, and FNZ does not consider there are any specific matters that require separate consideration, that might apply to SKI 3 and SKI 7.

150. You must also act in a manner consistent with New Zealand's international obligations relating to fishing. Discussion of these relevant obligations is provided under Heading 2.2.2 in the *Introduction and Legal Overview*. There are no specific matters relating to international obligations that might apply to SKI 3 and SKI 7.

7.3 Purpose of the Act – section 8 of the Act

151. The Act's purpose is to "provide for the utilisation of fisheries resources while ensuring sustainability." Guidance for you on the meaning of section 8 and how it should be applied for decision making (for all the stocks being reviewed as part of this round) is provided under Heading 2.2.3 in the *Introduction and Legal Overview*.

7.4 Environmental principles – section 9 of the Act

152. The environmental principles that you must take 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.
b) Biological diversity of the aquatic environment should be maintained; and
c) Habitats of particular significance for fisheries management should be protected.

153. Gemfish are predominantly caught as bycatch in other fisheries. Over the past complete five fishing years there have only been 26 target tows for gemfish in SKI 3 and SKI 7 accounting for less than 0.3% of the volume of gemfish landed over this time. Of these, there were no reported protected species interactions reported.

154. It is unlikely that TAC increases under the proposed options will result in increased commercial targeting of gemfish in either QMA (given that they are a bycatch species with a low market potential). Likewise, the amount of trawl effort targeting other fish species is not expected to increase as a consequence of the proposed options.

155. 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). Over the last five fishing years the average observer coverage was 26% of events that caught gemfish in SKI 3 and 14% of events that caught gemfish in SKI 7.[59] However, as gemfish is a bycatch species this data incorporates many events by small vessels that caught very low volumes of gemfish, most of the volume of gemfish caught in SKI 3 and SKI 7 is by larger deepwater vessels with these vessels having a higher level of observer coverage.

[59] This coverage is calculated based on fishing events (individual tows, sets or shots) 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.

7.4.1 Associated or dependent species – section 9(a) of the Act

156. Associated or dependent species includes any non-harvested species taken or otherwise affected by the taking of any harvested species. This includes protected species such as marine mammals and seabirds.

157. In this section we have also provided analysis of potential impacts of fishing on other harvested species, including fish and invertebrate species caught as bycatch in the fisheries where gemfish from SKI 3 and SKI 7 are caught.

158. Because gemfish are rarely targeted, TAC increases under the proposed options are not expected to increase interactions with associated or dependent species. This is because effort in the target fisheries where gemfish are most commonly caught as bycatch (e.g., hoki and squid) is not currently being constrained by the ability to source SKI 3 and SKI 7 ACE and the TACs for these target fisheries are not being adjusted. Therefore, effort in these target fisheries is not expected to change as a result of the proposed options.

Protected species interactions

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

160. 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.

161. Regulations requiring the use of seabird scaring devices by the deepwater trawl fleet have been in place since 2006.[60] Trawlers over 28 m in length are required to deploy seabird mitigation devices when fishing (streamer (tori) lines, bird bafflers and offal management).

162. Additionally, a range of non-regulatory measures have been in place for a similar time period. The measures are set out in vessel-specific Protected Species Risk Management Plans (**PSRMPs**) and include measures such as fish waste management practices and the deployment of additional seabird scaring devices at times of heightened risk. FNZ monitors and audits performance against these plans. Information on adherence to PSRMPs by all vessels is reported in Seabird Annual Reports and, for the deepwater fleet, in Annual Review Reports.

163. Seabird species that overlap with the main fisheries where gemfish is caught as bycatch include the Westland petrel, white-chinned petrel, sooty shearwater, white-capped albatross, and southern Buller's albatross. All of these seabird species apart from the sooty shearwater are within the highest category for risk from fishing effort in the most recent Spatially Explicit Fisheries Risk Assessment (Edwards et al., 2023). In 2020/21 (the most recent data) 1,590 trawl tows were observed on the West Coast South Island (18% of the total fishing effort) and 14 seabird captures were observed. On the Stewart-Snares Shelf in 2020/21, 2,976 trawl tows were observed (33% of total effort) and 190 seabird captures were observed.

Fish and invertebrate bycatch

164. Gemfish are rarely targeted in SKI 3 and SKI 7, so these stocks do not have well defined associated bycatch species. The main associated species are those from their main target fisheries (hoki and squid).

165. Invertebrate species most caught as bycatch in the main gemfish bycatch fisheries (hoki and squid) in the SKI 3 and SKI 7 area include sponges, bryozoans, and true corals. For hoki and squid target fisheries (two of New Zealand's largest fisheries by volume), in the SKI 3 and SKI 7 area, over the past five fishing years, commercial fishers reported catching a total of 238 tonnes of sponges, 774 kg of bryozoans and 670 kg of true coral.

7.4.2 Biological diversity of the aquatic environment – section 9(b) of the Act

166. Trawling effort targeting QMS species where gemfish are a bycatch species, can interact with the seabed and the associated benthic environment. The nature and extent of those interactions depends on a range of factors such as seafloor type (e.g., mud/sand/rock), fishing gear type,

[60] The mandatory requirements for these vessels are set out set out in the Seabird Scaring Devices Circular 2010 No. F517, which is issued pursuant to regulation 58A of the Fisheries (Commercial Fishing) Regulations 2001.

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.

167. The impact of trawl 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 (Baird and Mules, 2023).

168. FNZ conducts annual monitoring of 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 which have been implemented to avoid adverse effects of fishing on the benthic environment.

7.4.3 Habitats of particular significance for fisheries management – section 9(c) of the Act

169. Gemfish are broadly distributed in SKI 3 and SKI 7 and there is little information available to guide in identifying habitats of particular significance to fisheries management for the stocks. Some general habitats that may potentially be significant for SKI 3 and SKI 7 are discussed in Table 2 below.

Table 2: 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 around 200-300 metres depth on the West Coast South Island (**WCSI**) in August–September, near or above the winter thermocline.[61] 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	• The water column of in the vicinity of the continental shelf and slope. • The sea surface temperature of the WCSI in winter is variable over time. Records show occasional periods of increased and more stable 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 below-average strength south-westerly winds have been correlated with the presence of strong gemfish year classes.
Risks/Threats	• Long-term current and circulation patterns could be impacted by climate change (sea surface temperature changes 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 for other critical life history stages for the management of SKI 3 or SKI 7.
Existing protection measures	There are no known habitats of particular significance to this species that are protected by existing management measures.
Evidence	This is based on a summary of biology and commercial landings of SKI 3 and SKI 7 by Hurst and Bagley (1998).

170. As noted above, FNZ considers it unlikely that TAC increases under the proposed options will result in increased commercial targeting of gemfish in either area. The amount of trawl effort targeting other species is also not expected to increase as a consequence of the proposed TAC increases. The proposed options are considered unlikely to have an adverse effect on any potential habitats of particular significance for fisheries management.

[61] A thermocline is the transition layer between the warmer mixed water at the surface and the cooler deep water below.

7.5 Considerations for setting sustainability measures under section 11 of the Act

171. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying sustainability measures (such as the TAC change proposed as part of this paper). These include:

    a) any effects of fishing on any stock and the aquatic environment; and
    b) any existing controls under the Act that apply to the stock or area concerned; and
    c) the natural variability of the stock concerned; and
    d) any relevant planning instruments, strategies, or services.[62]

7.5.1 Effects of fishing on any stock and the aquatic environment – section 11(1)(a)

172. You must take into account any effects of fishing on any stock and the aquatic environment when making your decision about the SKI 3 and SKI 7 TAC.

173. "Effect" is defined widely in the Act.[63] The broader effects of removing more gemfish from SKI 3 and SKI 7 on the ecosystem as well as the potential for the more direct effects of fishing need to be considered.

174. Information relevant to the effects of increasing the TAC for SKI 3 and SKI 7 on any stock and the aquatic environment is discussed under heading 7.4 – '*Environmental Principles – section 9 of the Act*' and under heading 8 – '*Considerations for setting Total Allowable Catch - section 13 of the Act*'.

7.5.2 Existing controls that apply to the stock or area – section 11(1)(b)

175. You must take into account any existing controls under the Act, including rules and regulations made under section 2(1A) that apply to the stock when setting or varying the TAC.

176. The primary controls that apply under the Act are the catch limits and allowances. Although gemfish in SKI 3 and SKI 7 is not a recreational species, it would come under the general recreational daily limit requirements for finfish. In the area encompassed by SKI 7 the combined daily limit for finfish is 20. In the area encompassed by SKI 3 the combined daily limit for finfish is 30.

177. There are no customary fisheries management tools such as mātaitai, taiāpure, section 186A 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.

7.5.3 The natural variability of the stock – section 11(1)(c)

178. You must take into account the natural variability of the stock when setting or varying its TAC.

179. Annual catches of gemfish increased significantly in the early 1980s and peaked in 1985/86. Subsequently annual catches declined substantially in the late 1980s and early 1990s.

180. Consistent with the increase in stock abundance from strong year classes recruiting into the fishery, CPUE indices and catches from SKI 3 and SKI 7 have increased since 2015/16.

181. This pattern over time appears to be consistent with discrete periods of higher recruitment rates and increasing abundance followed by lower recruitment and declining abundance. Currently SKI 3 and SKI 7 appear to be in a period of high recruitment rates and increasing abundance. The apparent variability in SKI 3 and SKI 7 must be taken into account when setting the TAC. Based on the ageing analysis, strong year classes are recruiting to the fishery and abundance is likely to continue to increase.

[62] Sections 11 (2) and (2A).
[63] Section 2(1) of the Act defines "effect" to mean the direct or indirect effect of fishing, and includes any positive, adverse, temporary, permanent, past, present, or future effect. It also includes any cumulative effect, regardless of the scale, intensity, duration, or frequency of the effect, and includes potential effects.

7.5.4 Relevant statements, plans, strategies, provisions, and documents - section 11(2)

182. In varying the TACs of SKI 3 and SKI 7, you must have regard to the following statements, plans, strategies, provisions, and planning documents under section 11(2) of the Act, that apply to the coastal marine area and that you consider to be relevant.

183. There are eight Regional Councils that have coastline within SKI 3 and SKI 7 boundaries respectively. Each of these regional councils have multiple plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats.

184. 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 can be found in Table A of the **Addendum**. FNZ considers that the proposed options in this paper are consistent with the objectives of these relevant regional plans.

185. 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.

7.5.5 Relevant services or fisheries plans – section 11(2A)

186. Under section 11(2A), before setting or varying any sustainability measure or making any decision or recommendation under the Act to regulate or control fishing, you must take into account –

    a) any conservation services or fisheries services; and
    b) any relevant fisheries plan approved under Part 3 of the Act; and
    c) any decisions not to require conservation services or fisheries services.

187. Fisheries services of relevance to the options in this paper include the research used to monitor the fishery and the tools used to enforce compliance of management controls in the fishery. These are discussed under *'Status of the stocks*', *'Catch information and current settings within the TAC'*, and under *'Existing controls that apply to the stock or area – section 11(1)(b).'*

188. Observer coverage relevant to the SKI 3 and SKI 7 fishery is also described under heading 7.4 '*Environmental principles – section 9 of the Act*.'

National Fisheries Plan for Deepwater and Middle-depth fisheries 2019

189. 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.

190. 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 fish stocks and key bycatch fish stocks are managed to an agreed harvest strategy or reference points.

191. There are no applicable conservation services that specifically relate to SKI 3 and SKI 7, or any decisions not to require conservation services or fisheries services.

7.5.6 Other plans and strategies

192. The following plans and strategies are not mandatory considerations under section 11 of the Act, but they may be considered relevant to this review.

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

193. FNZ considers that the sustainability measures proposed for SKI 3 and SKI 7 are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy – including Objective 10, which is to ensure that ecosystems are

protected, restored, resilient and connected from mountain tops to ocean depths; and Objective 12, which is to manage natural resources sustainability.

194. For more information on Te Mana o te Taiao see heading 3.3 of the *Introduction and Legal Overview*.

8 Considerations for setting the TAC - section 13 of the Act

195. As outlined under '*Status of the stock'*, the best available information on the status of SKI 3 and SKI 7 includes:

- An extensive analysis of all available catch-effort data for SKI 3 and SKI 7 in 2021 that showed increasing CPUE indices for SKI 3 and SKI 7.
- Corroboration of the apparent strong increase in SKI 7 abundance by the 2021 RV *Tangaroa* trawl survey biomass index.
- Estimated catch-at-age distributions for SKI 3 and SKI 7 for the 2021/22 fishing year suggests there are still substantial recruitment pulses starting to enter the fishery as recently as the 2021/22 fishing year.

196. A Level 2 partial quantitative stock assessment[64] (ranked '1 High Quality[65]') was accepted by the 2021 Fisheries Assessment Plenary for SKI 3 and SKI 7. The DWWG considered that the model used in this stock assessment was not sufficiently reliable to provide estimates of current biomass and stock status. However, the DWWG concluded that given recent recruitments, SKI 3 and SKI 7 stock size is unlikely (<40% probability) to be below the hard limit, likely to increase over the short term (one to three years) and that it is unlikely (<40% probability) that biomass will decline below the hard limits. A fully quantitative stock assessment is planned to take place in 2024/25.

197. Based on the current best available information, the biomass of SKI 3 and SKI 7 that supports *MSY* cannot be reliably estimated, so section 13(2A) is relevant for setting the TAC of each stock.

198. For the purpose of setting TACs under section 13(2A), if the current level of the stock, or the level of the stock that can produce the *MSY* is not able to be estimated reliably using the best available information, you must—

(a) not use the absence of, or any uncertainty in, that information as a reason for postponing or failing to set a total allowable catch for the stock; and

(b) have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock; and

(c) set a total allowable catch—

(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 the maximum sustainable yield.

199. New information since the 2021 Plenary has corroborated the apparent strong increase in SKI 7 abundance through the 2021 RV *Tangaroa* trawl survey biomass index. Ageing data also suggests there have been substantial recruitment pulses starting to enter the SKI 3 and SKI 7 fishery as recently as the 2021/22 fishing year.

200. Therefore, TAC adjustments proposed in this document are based on best available information and are 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* (section 13(2A)(i) and section 13(2A)(ii)).

[64] An evaluation of agreed abundance indices (e.g., standardised catch per unit effort (CPUE)) or other appropriate fisheries indicators is available, but indices of abundance or fishing intensity have not been used in a full quantitative stock assessment to estimate stock or fisheries status in relation to reference points.

[65] 'High quality' is accorded to information that has been subjected to rigorous science quality assurance and peer review processes (as per the Research and Science Standard for New Zealand Fisheries), and substantially meets the key principles for science information quality. Such information can confidently be accorded a high weight in fisheries management decisions.

8.1 Biological characteristics

201. Biological characteristics of gemfish that need to be considered in setting a TAC under section 13(2A) of the Act are discussed under '*Biology*' and '*Status of the stocks*'.

202. The biological characteristics of gemfish (e.g., rapid growth and large recruitment pulses) make them relatively resilient to fishing pressure during periods of increasing abundance, which can give us more confidence that the TAC increases will not put SKI 3 and SKI 7 sustainability at risk. This is different to lower productivity stocks where we would need to be more cautious.

203. There are indications that previously gemfish in SKI 3 and SKI 7 have gone through periods of rapid increases and subsequent decreases in abundance. The gemfish in SKI 3 and SKI 7 appear to be currently going through a period of increasing abundance.

8.2 Interdependence of stocks

204. There is little information available regarding predator/prey interdependencies for gemfish. An analysis by Hurst and Bagley (1998) of records of gemfish feeding in the SKI 3 and SKI 7 stocks indicate the main prey items were fish (59%), consisting predominantly of jack mackerels and hoki, and squid (40%), mostly arrow squid.

205. FNZ considers it is unlikely that TAC increases under the proposed options will result in increased commercial targeting of gemfish in both areas as gemfish are a bycatch species with a low market potential. The amount of trawl effort targeting other species is also not expected to increase as a consequence of the proposed TAC increases. Therefore, any increases in landings of gemfish will likely be from an increase in the abundance in SKI 3 and SKI 7, so increases in the TACs for SKI 3 and SKI 7 is unlikely to have a direct effect on any associated prey species.

206. It should also be noted that SKI 3 and SKI 7 are considered to be a single biological stock. Gemfish on the south-west coast, caught in the southern area (SKI 3) from spring through to autumn, are thought to migrate to the WCSI (SKI 7) to spawn and are caught there mainly in August-September (Hurst, 1988).

8.3 Environmental conditions affecting the stock

207. Environmental conditions affecting the stock are considered under '*Biology'*. FNZ is not aware of any specific environmental conditions adversely affecting SKI 3 and SKI 7 that need to be considered in deciding on an appropriate TAC.

208. Recruitment variability in SKI 3 and SKI 7 (during the 1980s and early 1990s) was correlated with wind and sea surface temperature patterns during the spawning season (Renwick *et al*., 1998). However, patterns of recruitment for 2000–2015 in SKI 3 and SKI 7 do not appear to be consistent with the previous correlation with sea surface temperatures (Langley, 2020).

8.4 Harvest Strategy Standard

209. Section 13 of the Act provides for the setting of a TAC, and guidance is provided by the Harvest Strategy Standard (**HSS**). The High Court has held that the HSS is an implied mandatory relevant consideration that you must have regard to when setting a TAC under section 13 of the Act, and the Court of Appeal has confirmed the decision of the High Court.[66]

210. The HSS is a policy statement of best practice in relation to setting fishery and stock targets and limits for fish stocks in New Zealand's QMS. It is intended to provide guidance on 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.

211. The HSS outlines FNZ's approach to relevant sections of the Act and forms a core input to FNZ's advice to you on the management of fisheries. The HSS defines a hard limit as a biomass limit below which fisheries should be considered for closure and a soft limit as a biomass limit below which the requirement for a formal time-constrained rebuilding plan is triggered.

[66] *Fisheries Inshore New Zealand Ltd v Royal Forest and Bird Protection Society of New Zealand Incorporated* [2023] NZCA 359.

212. FNZ considers that the proposed options in this paper are consistent with the HSS. The DWWG concluded in 2021 that given recent recruitments, SKI 3 and SKI 7 stock size is unlikely (<40% probability) to currently be below the hard limit, likely to increase over the short term (one to three years) and that it is unlikely (<40% probability) that biomass will decline below the hard limits. Analysis using new data after 2021 for SKI 3 and SKI 7 has been consistent with this conclusion.

8.5 Way and rate at which a stock is moved towards a level that can produce the *MSY*

213. FNZ considers that, in accordance with section 13(2A)(c)(ii), the options provided are not inconsistent with the objective of maintaining the stock above *MSY*, despite the status of the stock in relation to the management target of 40% B_0 being unknown. These options are not intended to move the stock towards or above a level that can produce the *MSY*, (they are intended to be consistent with maintaining the stock at or above a level that can produce the *MSY*) so you are not required to have regard to the social, cultural, and economic factors under section 13(3) for this review.

9 Information principles - section 10 of the Act

214. Under section 10 of the Act, decision-makers are required to take into account four information principles:

    a) decisions should be based on the best available information[67].
    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.

215. FNZ considers that the information presented in this paper represents the best available information.

216. In various sections of this paper, FNZ has pointed out where information is uncertain and warrants caution for your decision making, in line with the principles above.

217. While abundance indices have shown big increases in recent years, the uncertainty relating to these values has also increased. This uncertainty has been taken into account when proposing the options outlined in this paper.

10 Submissions

218. A total of six submissions were received that specifically addressed the proposals for SKI 3 and SKI 7. Of these, five supported Option 3 and one supported Option 2. Two submissions explicitly support the submission from the Seafood New Zealand Deepwater Council (**DWC**). Table 3 summarises the submissions received and shows submitters' support for each option.

219. A further three submissions were received that referred to catch limits in general but did not refer specifically to SKI 3 and SKI 7.

220. Submitters' and respondents' comments on the proposed options are addressed under the '*Options and analysis'* below.

[67] Section 2(1) of the Act defines "best available information" to mean "the best information that, in the particular circumstances, is available without unreasonable costs, effort, or time".

Table 3: Written submissions and responses received for the review of SKI 3 and SKI 7.

Submitter	Option supported				
	1	2	3	Other	Notes
Iwi Collective Partnership		✓			
Ngati Mutunga o Wharekauri Asset Holding Co. Ltd			✓		Supports same position adopted by Seafood New Zealand Deepwater Council.
Sealord Group Ltd. (Sealord)			✓		Supports Option 3 but would like the adoption of more agile management practices to avoid incurring deemed values for stocks such as gemfish that are abundant and largely taken as bycatch.
Te Paataka o Tangaroa Ltd.			✓		Supports the same position adopted by Seafood New Zealand Deepwater Council.
Seafood New Zealand Deepwater Council (DWC)			✓	✓	Supports Option 3 but suggests an additional option of a 40% TACC increase would give more assurance that excessive deemed value costs will not be incurred.
Southern Inshore Fisheries Ltd.			✓	✓	Supports Option 3 but requests an additional option of a 40% TACC increase to provide more headroom and potentially reduce the need for further reviews in the short term.
Generic submissions					
P. Harvey				✓	What is being done to fish stocks is unsustainable and it is best to err on the side of caution rather than favouring commercial economic outcomes.
B. Leonard				✓	Catch limits should be reduced to zero.
J. Williams				✓	Opposes increases to catch limits for all stocks consulted on.

11 Options and analysis

221. The current TAC for each stock is 1,103 tonnes, made up of a TACC of 1,091 tonnes, a customary Māori allowance of one tonne, an allowance of zero tonnes for recreational fishing, and an allowance for all other mortality caused by fishing of 11 tonnes (equivalent to 1% of the TACC).

11.1 Option 1 – *status quo*

SKI 3	**TAC**: 1,103	**TACC**: 1,091	**Customary**: 1	**Recreational**: 0	**Other mortality**: 11
SKI 7	**TAC**: 1,103	**TACC**: 1,091	**Customary**: 1	**Recreational**: 0	**Other mortality**: 11

222. Option 1 is to retain the *status quo*. It retains the existing catch limits and allowances for both SKI 3 and SKI 7 for the 2023/24 fishing year.

223. This option would forgo the utilisation opportunity that the best available information indicates is likely to exist for this stock.

224. Catch has exceeded the TACC and available Annual Catch Entitlement (ACE) in the last five out of six years for SKI 3, and five of the last seven years for SKI 7.

225. Landings for the 2022/23 fishing year exceeded the current TACC for SKI 3 by just over 20% (1,318 tonnes were landed). However, for SKI 7 over 98% of the current the current TACC was caught (1,078 tonnes were landed). It should also be noted that an approximate 20% increase to the TACC for both SKI 3 and SKI 7 was applied for the 2022/23 fishing year because of the apparent year on year increases in abundance.

226. Under the *status quo*, it is likely that deemed values will continue to be incurred as fishers are unable to balance catch with ACE, particularly for SKI 3, if gemfish biomass remains high in the short term.

227. No submissions specifically supported Option 1 for SKI 3 and SKI 7.

11.2 Option 2

SKI 3	**TAC**: 1,323 (↑220)	**TACC**: 1,309 (↑218)	**Customary**: 1 –	**Recreational**: 0 –	**Other mortality**: 13 (↑2)
SKI 7	**TAC**: 1,323 (↑220)	**TACC**: 1,309 (↑218)	**Customary**: 1 –	**Recreational**: 0 –	**Other mortality**: 13 (↑2)

228. Under Option 2, FNZ proposes to increase the TAC, TACC, and allowances of each stock to reflect the increase in abundance of gemfish in SKI 3 and SKI 7.

229. Option 2 equates to a 20% increase to the TACC (a 218-tonne increase). The DWWG concluded in 2021 that given recent recruitments, 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. Analysis using new data after 2021 for SKI 3 and SKI 7 has been consistent with this conclusion. Therefore, there is no information to suggest that the proposed increase under Option 2 would pose a sustainability risk to either stock.

230. The proposed option would set the TACC approximately at the catch level in the 2022/23 fishing year (1,318 tonnes) for SKI 3, and above the catch level in the 2022/23 fishing year (1,078 tonnes) for SKI 7.

231. By increasing the TACC to the recent catch level for SKI 3, Option 2 would provide for an increased quantity of gemfish to be taken as unavoidable bycatch (as a result of the greater biomass). FNZ considers it unlikely that the proposed option 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, FNZ considers the environmental impacts of the proposed TACC increases are likely to be negligible.

232. Given the above, FNZ does not anticipate TACC increases under this option to directly result in an increase in the volume of gemfish landed (and a consequent increase in export revenue). However, with additional ACE available, the proposed increase is likely to result in reduced deemed value invoices for the commercial fishing industry.

233. A risk associated with this option is if the apparent trend of increased abundance of gemfish seen over recent years continues to occur, then a greater volume of gemfish will be landed as bycatch. Therefore, by setting the TACC close to the current catch in SKI 3, significant deemed values could be incurred in the next fishing year if gemfish abundance continues to increase in SKI 3 and SKI 7.

234. Option 2 was supported by the Iwi Collective Partnership; however no additional details were supplied with this submission relating to SKI 3 and SKI 7.

11.3 Option 3

SKI 3	**TAC**: 1,433 (↑330)	**TACC**: 1,418t (↑327)	**Customary**: 1 –	**Recreational**: 0 –	**Other mortality**: 14 (↑3)
SKI 7	**TAC**: 1,433 (↑330)	**TACC**: 1,418(↑327)	**Customary**: 1 –	**Recreational**: 0 –	**Other mortality**: 14 (↑3)

235. Under Option 3 FNZ proposes to increase the TAC, TACC and allowances of each stock to reflect the increase in abundance of gemfish in SKI 3 and SKI 7. The proposed option would set the TACCs above recent catch levels of both stocks based on the previous fishing year. This would allow for a potential increase in abundance of gemfish in SKI 3 and SKI 7 if the apparent trend in increased abundance that has been seen in previous years continues as the new strong year classes recruit to the fishery.

236. Option 3 is for a 30% increase to the TACC (a 327-tonne increase). There is no information to suggest that the proposed increase under Option 3 would pose a sustainability risk to either stock. However, this option is the largest of the TACC increases proposed for SKI 3 and SKI 7

and it is in the absence of a fully quantitative stock assessment to reliably estimate the status of the stock, which is planned for 2024/25.

237. By increasing the TACC of each stock, Option 3 would provide for an increased quantity of gemfish to be taken as unavoidable bycatch (as a result of the greater gemfish biomass). FNZ considers it unlikely that the proposed option 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.

238. Given the above, FNZ does not anticipate the proposed option to directly result in an increase in the volume of gemfish landed, nor a consequent increase in export revenue. However, with additional ACE available, TAC increases under this option are likely to result in reduced deemed value invoices for the commercial fishing industry.

239. If greater volumes of gemfish were to be landed as bycatch due to increasing abundance Option 3 provides a greater mitigation to the likelihood of significant deemed values being incurred in the next fishing year than Option 2 would.

240. Five of the six submissions that specifically referenced SKI 3 and SKI 7 supported Option 3. The primary reason provided for supporting this option is that they believe the TACC is set too low, and the unavoidable bycatch of this abundant species has resulted in high levels of deemed values being paid. Furthermore, the best available information indicates that the abundance of gemfish could still be increasing. There is additional information on this topic under heading 6.2 '*Unnecessary deemed value costs'* of the *Introduction and legal overview*.

11.4 Other options proposed by submitters

241. Both Seafood New Zealand Deepwater Council (**DWC**) and Southern Inshore Fisheries Ltd, in addition to supporting Option 3, indicated support for adding an option that equates to a 40% increase to TACC. The submitters' rationale for this option is that it will give more assurance that future deemed value costs will not be incurred and they believe that this TACC increase will not put either the SKI 3 or SKI 7 fisheries at risk.

242. FNZ does not support the inclusion of this additional option that is outside the range of TAC changes that was consulted on. This is because there is not currently an accepted, fully quantitative stock assessment for SKI 3 and SKI 7 and the evidence that the abundance of gemfish is still increasing is limited. However, a fully quantitative stock assessment is planned to take place in 2024/25 that could support further increases in TAC if necessary.

12 Socio-economic context

243. As gemfish is a bycatch species, the primary driver of quantity of gemfish landed is abundance, rather than fishing effort targeting gemfish. At the scale of changes to the TACC proposed, it is unlikely that the different options will significantly affect either fishing effort or the quantity of gemfish landed in SKI 3 or SKI 7.

244. Based on the last three fishing years, in SKI 3 there have been on average 29 quota owners, providing ACE to 45 permit holders, landing gemfish to 16 LFRs. In SKI 7 there have been on average 45 quota owners, providing ACE to 42 permit holders, landing gemfish to 19 LFRs. The number of participants in SKI 3 has increased from the 10-year average for all parts of the value chain except the number of quota owners, which has reduced, while the number of participants in SKI 7 has decreased for all parts of the supply chain.

245. On average over the last three fishing years, there were between 69 and 79 vessels landing gemfish in SKI 3 and SKI 7, of which only two reported targeting gemfish. The percentage of gemfish landed while being targeted in SKI 3 and SKI 7 has decreased over time from a high of 11.3% of all gemfish landed in the October 2015/16 fishing year to less than 1% in the most recent fishing year, which indicates it is increasingly caught as a bycatch species.

246. The projected 2024/25 after- ACE revenue for SKI 3 and SKI 7 will vary depending on the landings for the 2024/25 fishing year and the proposed option selected (Figure 8).

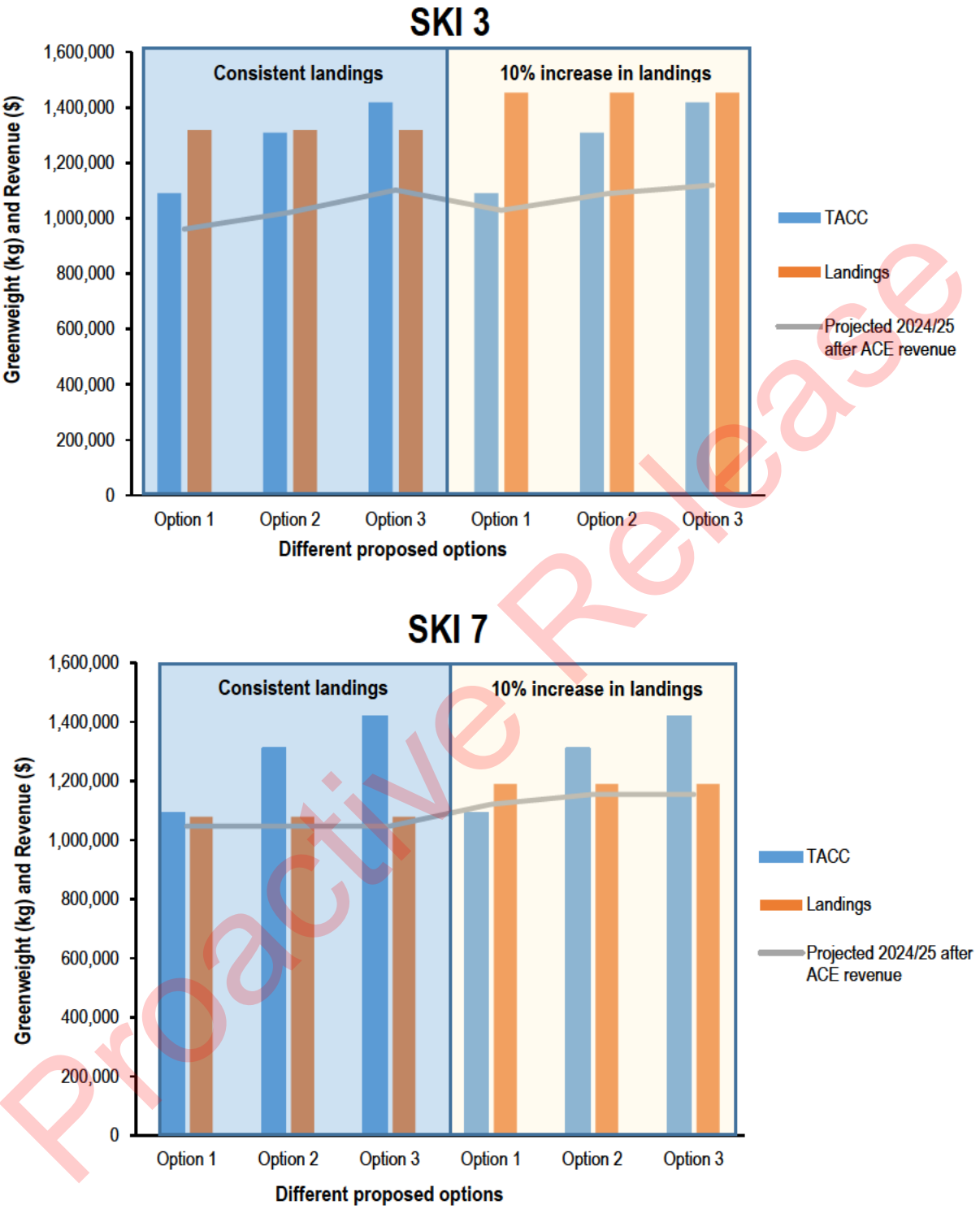


Figure 8: Projected 2024/25 fishing year after ACE revenue for consistent gemfish landings (left) and a potential 10% increase in gemfish landings (right), for each of the three proposed options and for both SKI 3 (top) and SKI 7 (bottom) NB: after ACE revenue is calculated using port price and average ACE transfer price and considers any catch in excess of TACC is paid at 100-120% deemed values. 'Consistent landings' assumes landings continue at 2022/23 levels to 2024/25, 10% increased landings assumes landings increase by 5% per year.

13 Deemed value rates

247. FNZ is satisfied that the current deemed value rates for SKI 3 and SKI 7 are consistent with section 75(2)(a) of the Act, in that they provide sufficient incentive for fishers to balance their catch with ACE. Because of this, FNZ did not propose any deemed value rate changes as part of this review.

248. Landings of gemfish in SKI 3 and SKI 7 exceeded the available ACE by considerable margins for some recent years, and because of this, both stocks incurred significant deemed value invoices since the 2017/18 fishing year. In the 2020/21 fishing year, $403,611 was incurred for SKI 3 and $327,102 for SKI 7. In the 2021/22 fishing year $16,034 was incurred for SKI 3, however 94% of the available ACE was caught for SKI 7 so no deemed value invoices were incurred for this stock. For the 2022/23 fishing year the available ACE for SKI 3 was over caught by approximately 20%, incurring $158,189 of deemed values and for SKI 7 was again 94% caught.

249. FNZ presented the deemed value settings of SKI 3 and SKI 7 for general consultation and invited feedback. However, no submissions commented specifically on the deemed value settings. Comments pertaining to deemed values from submissions focussed on the TAC and TACC settings resulting in deemed value invoices for a bycatch species that appears to be increasing in abundance.

250. While not proposing deemed value changes as a part of this review, FNZ acknowledges that if the TACCs of these stocks are 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.

14 Conclusions and recommendations

251. The best available information indicates that the biomass of gemfish in SKI 3 and SKI 7 has increased since 2016. As there are no sustainability concerns for gemfish in SKI 3 and SKI 7, FNZ recommends Option 3; that you increase the TAC for both SKI 3 and SKI 7 by just over 30% to 1,433 tonnes. This option was supported by the majority of submitters. All submissions in support of this option were from commercial fishing interests.

252. FNZ considers the increase to the TACs under Option 3 will provide a utilisation opportunity for SKI 3 and SKI 7, and in the presence of some uncertainty in the best available information, will retain the ongoing sustainability of the stock. It is also likely that increasing the TACs for SKI 3 and SKI 7 would result in no change to current fishing effort. FNZ will continue to monitor the fishery to determine whether this is the case.

253. FNZ acknowledges the suggestion made by DWC and Southern Inshore Fisheries Ltd for an additional option of 40% increases to the SKI 3 and SKI 7 TACCs. However, FNZ considers that further information regarding the status of both stocks in relation to the management target would be necessary before making a change of that magnitude to the management settings of the two stocks. It is likely that this information will be available in 2024/25 through a fully quantifiable stock assessment for SKI 3 and SKI 7.

15 Decision for SKI 3

Option 1

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

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 11 tonnes;
iv. Retain the SKI 3 TACC at 1,091 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SKI 3 TAC at 1,323 tonnes and, within the TAC, to:

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 11 to 13 tonnes;
iv. Increase the SKI 3 TACC from 1,091 to 1,309 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the SKI 3 TAC at 1,433 tonnes and, within the TAC, to:

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 11 to 14 tonnes;
iv. Increase the SKI 3 TACC from 1,091 to 1,418 tonnes.

Agreed / Agreed as Amended / Not Agreed

16 Decision for SKI 7

Option 1

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

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 11 tonnes;
iv. Retain the SKI 7 TACC at 1,091 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SKI 7 TAC at 1,323 tonnes and, within the TAC, to:

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 11 to 13 tonnes;
iv. Increase the SKI 7 TACC from 1,091 to 1,309 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the SKI 7 TAC at 1,433 tonnes and, within the TAC, to:

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 11 to 14 tonnes;
iv. Increase the SKI 7 TACC from 1,091 to 1,418 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon Shane Jones
Minister for Oceans and Fisheries

March 03 / 2024

Silver warehou / warehou
Seriolella punctata

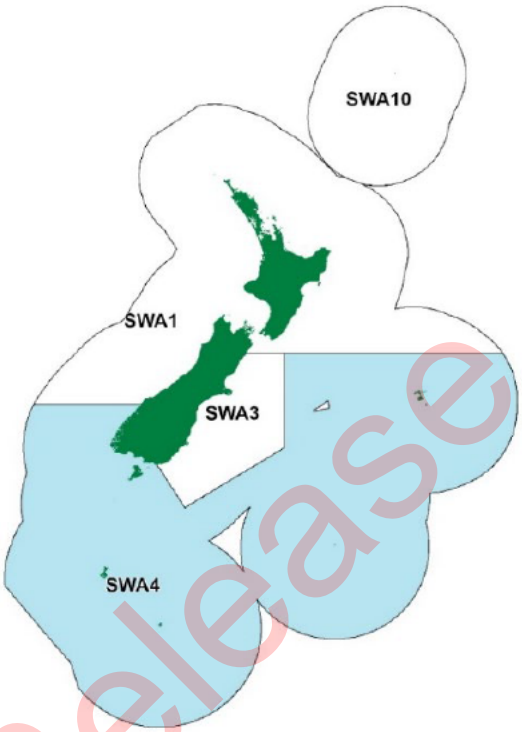


Figure 1: Quota Management Areas (QMAs) for silver warehou, with SWA 4 highlighted.

1 Why are we proposing a review?

254. Silver warehou in the SWA 3 and SWA 4 Quota Management Areas (**QMAs**) are considered likely to be the same biological stock. Research undertaken during 2022 and 2023 that is summarised in the May 2023 Fisheries Assessment Plenary (**the Plenary**) suggests that the biomass has remained relatively high over the last 20 years.

255. This is based on various catch per unit effort (**CPUE**) indices and the Chatham Rise trawl survey index. The trawl survey index is independent from CPUE indices that are derived from fisher-reported data and shows a broadly similar trend over the same time period.

256. Based on the available information, FNZ considers there is an opportunity to sustainably increase utilisation of the stock. We are therefore advising you on options to increase the Total Allowable Catch (**TAC**) of SWA 4 pursuant to section 13(2A) of the Fisheries Act 1996 (**the Act**), and within this, to increase the allowance for other sources of mortality caused by fishing and the Total Allowable Commercial Catch (**TACC**).

257. The recommendation follows a review of the TAC and TACC for SWA 3 that was undertaken as part of the October 2023 sustainability round. A decision to increase the TAC and TACC for SWA 4 would take effect from 1 October 2024 as all silver warehou stocks are subject to the 1 October fishing year.

2 Summary of proposed options and FNZ's recommendation

Table 1: Summary of options proposed for SWA 4 from 1 October 2024. 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)*	4,545	4,500	0	0	45
Option 2	5,050 (↑ 505)	5,000 (↑ 500)	0	0	50 (↑ 5)
Option 3 (new)	5,227 (↑ 682)	5,175 (↑ 675)	0	0	52 (↑ 7)
In total, seven submissions were received on the proposed options.					

3 About the stock

3.1 Biology

258. Silver warehou are common around the South Island and on the Chatham Rise. They are usually caught at depths of 100-500 m (Dunn et al., 2020). Juvenile fish inhabit shallower water (150-200 m) and remain apart from mature fish. Initial growth is rapid, and fish reach sexual maturity at around 45 cm fork length in four years. Maximum age is 23 years for females and 19 years for males.

259. Silver warehou aggregate to feed and spawn. They specialise in feeding on salps.[68] In 2023 the Deepwater Working Group[69] noted that the biomass of other species that feed on salps (white warehou, sea perch, and spiny dogfish) also increased in the Chatham Rise surveys during the late 1990s and early 2000s, suggestive of an increase in food availability.

260. The stock structure for silver warehou remains poorly known. Previous analysis of growth and reproductive data postulated the existence of four stocks based on spawning occurring in four relatively distinct areas (west coast South Island, southern South Island, eastern North Island, and on the Chatham Rise). However, the suggested boundaries were tentative (Horn et al., 2001).

261. The timing of spawning appears to vary considerably. The Plenary notes that the peak time for spawning appears to be winter on the west coast of the South Island, winter-spring on the western Chatham Rise, and spring-summer around the Chatham Islands.

262. This means the current QMAs bear little relation to known spawning areas and silver warehou distribution. The Plenary identified stock structure as a future research consideration.

263. There is little information available regarding predator/prey interdependency for silver warehou. The Plenary report does not contain any information on the importance of silver warehou as a food source to other animals.

3.2 Fishery characteristics

264. Silver warehou in SWA 4 is an important commercial species that is almost entirely (>99%) taken by the deepwater trawl fleet (vessels greater than 28 metres in overall length). While it is taken mostly as non-target catch in squid and hoki target tows (44% and 22% respectively of total estimated catch during the last five completed fishing years), there is also some targeted effort. During the last five completed fishing years (2018/19 to 2022/23), the proportion of SWA 4 recorded as being taken while targeted has varied between 7% (2019/20) and 33% (2022/23) of the total estimated catch.

265. The SWA 4 QMA is a large area comprising three fishery management areas (**FMA**s): FMA 4 (eastern Chatham Rise), FMA 5 (Southland), and FMA 6 (Sub-Antarctic) (refer Figure 2 below).

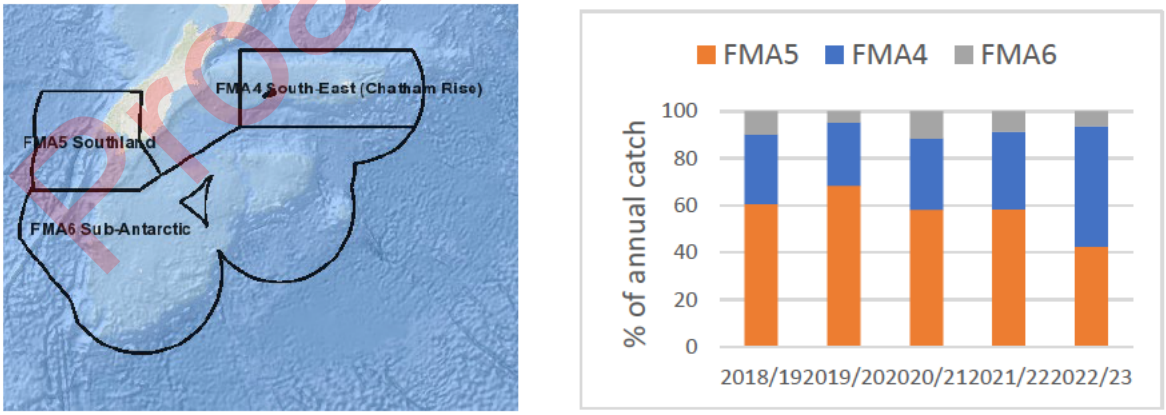


Figure 2: Map showing the three FMAs that make up the SWA 4 QMA (left) and graph showing percentage of annual catch of SWA 4 by FMA for the five fishing years between 2018/19 and 2022/23 (right).

[68] Salps are barrel-shaped, jelly-like marine animals, that both feed and move by pumping water through their bodies.

[69] The Deepwater Working Group is a Stock Assessment Working Group for deepwater species. Based on scientific information the Stock Assessment Working Groups assess the current status of fish stocks or species relative to the maximum sustainable yield (***MSY***)-compatible reference points and other relevant indicators of stock status, conduct projections of stock size and status under alternative management scenarios, and review results from relevant research projects.

266. Most catch of SWA 4 is taken in FMAs 4 and 5. During the four fishing years between 2018/19 to 2021/22, approximately 60% was taken in FMA 5 with 30% taken in FMA 4. In contrast, during the 2022/23 fishing year around 50% of catch was recorded in FMA 4 with 40% taken in FMA 5. The proportion taken in FMA 6 (Sub-Antarctic) is small (less than 10% during the last five fishing years).

267. There is no reported customary Māori or recreational catch of silver warehou.

3.3 Management background

268. Silver warehou stocks entered the Quota Management System (QMS) in 1986. The TACC for SWA 4 was initially set at 3,600 tonnes. Between 1989 and 1994, this was gradually increased to 4,089.9 tonnes as a result of administrative processes related to QMS introduction.

269. The TACC for SWA 4 was reviewed for the first time since QMS introduction prior to the start of the 2020/21 fishing year. The Minister decided to set a TAC for the first time and to increase the TACC by about 10% to 4,500 tonnes. The Minister also set an allowance of zero tonnes for both customary Māori and recreational fishing, and an allowance for all other mortality caused by fishing of 45 tonnes (equivalent to 1% of the TACC).

4 Status of the stock

270. The best available information on the biomass of SWA 4 (and SWA 3) comes from research undertaken during 2022 and 2023 that is summarised in the May 2023 Fisheries Assessment Plenary. The overall objective of the research was "to develop an assessment of biomass in relation to management targets for silver warehou (*Seriolella punctata*) in SWA 3 and SWA 4".

271. The project was unsuccessful in achieving that objective; the 2023 assessment model was not accepted by the Deepwater Working Group. The project did, however, update the descriptive analysis of the commercial catch and effort data for silver warehou on the Chatham Rise and Southland, and standardised catch and effort analyses. Figure 3 below shows two of the representative CPUE indices.

272. Based on this, the Plenary concluded that there was no sustainability issue for the Chatham Rise and Southland. This was because (1) all CPUE and trawl survey indices had increased and/or remained stable, and concurrently (2) length and age frequency data indicated recruitment of several large year classes, which persisted into the spawning stock. Age frequency data also shows no reduction in the occurrence of older fish over the same time period.

273. Earlier research considered several different areas within SWA 3 and SWA 4 for the purposes of stock assessment e.g., east coast South Island, eastern Chatham Rise, and Southland. Dunn and McGregor (2023), however, looked at the Chatham Rise and Southland areas combined i.e., the SWA 3 and SWA 4 QMAs. The available data (catch and effort, length and female maturity data, and age sample data) could not reject the hypothesis that the SWA 3 and SWA 4 QMAs represented a single biological stock.

274. Dunn and McGregor (2023) used data to the end of the 2020/21 fishing year. CPUE indices have been developed since 2018 as part of the previous research projects referred to above. For example, Dutilloy and Dunn (2020) looked at the silver warehou fishery on the east coast South Island and Chatham Rise (SWA 3 and part of SWA 4) and commented that the abundance of silver warehou appeared to have been increasing over much of the last 30 years.

275. The various indices developed since 2018 cover different time periods and different parts of SWA 3 and SWA 4. There is a broadly consistent trend between the different indices however, with a low period during the late 1990s followed by an increase to a peak in the period 2003/04 to 2006/07. The peak was followed by a decline although indices have remained relatively high.

276. Two examples of the indices referred to are shown below.

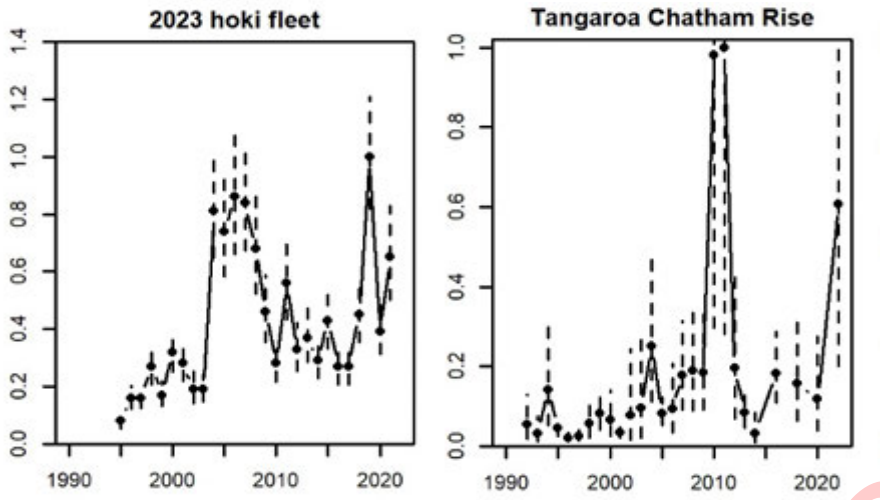


Figure 3: Examples of indices developed in 2023 by Dunn and McGregor (2023). The graph on the left is a catch per unit of effort analysis using fisher-reported data from factory trawlers targeting hoki throughout the SWA 3 and SWA 4 QMAs. The graph on the right shows the core strata biomass index from the Tangaroa Chatham Rise trawl survey (encompassing the SWA 3 QMA and the Chatham Rise portion of the SWA 4 QMA). In both figures fishing year is on the x axis and the index is on the y axis.

277. The Chatham Rise trawl survey index also suggested an overall upward biomass trend in the early 2000s. The age composition data that is available suggests that the increase in catch and catch rates since the early 2000s was consistent with the recruitment of some relatively large year classes.

278. The biomass index from the trawl survey and the CPUE indices are independent from each other. However, the trends from both sets of data are broadly similar. As noted above, this information, together with length and age data, informed the Plenary's conclusion that while the status of the stock in relation to the management target was unknown, there were no sustainability concerns for silver warehou on the Chatham Rise (SWA 3 and part of SWA 4) and Southland (part of SWA 4).

279. As the status of the stock with respect to the management target is unknown, section 13(2A) of the Act is relevant. It requires 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 or above a level that can produce the maximum sustainable yield (***MSY***).[70]

5 Catch information and current settings within the TAC

5.1 Commercial

280. Catch of SWA 4 for the period between 2001/02 and 2022/23 is shown in Figure 4 together with the TACC and available ACE to 2023/24. Catches peaked in the mid-2000s before declining over the latter part of that decade. Since the 2012/13 fishing year, catch has been no lower than 87% of available ACE and exceeded available ACE during the 2017/18 and 2018/19 fishing years.

[70] Maximum sustainable yield (***MSY***) is the largest long-term average catch or yield that can be taken from a stock under prevailing ecological and environmental conditions.

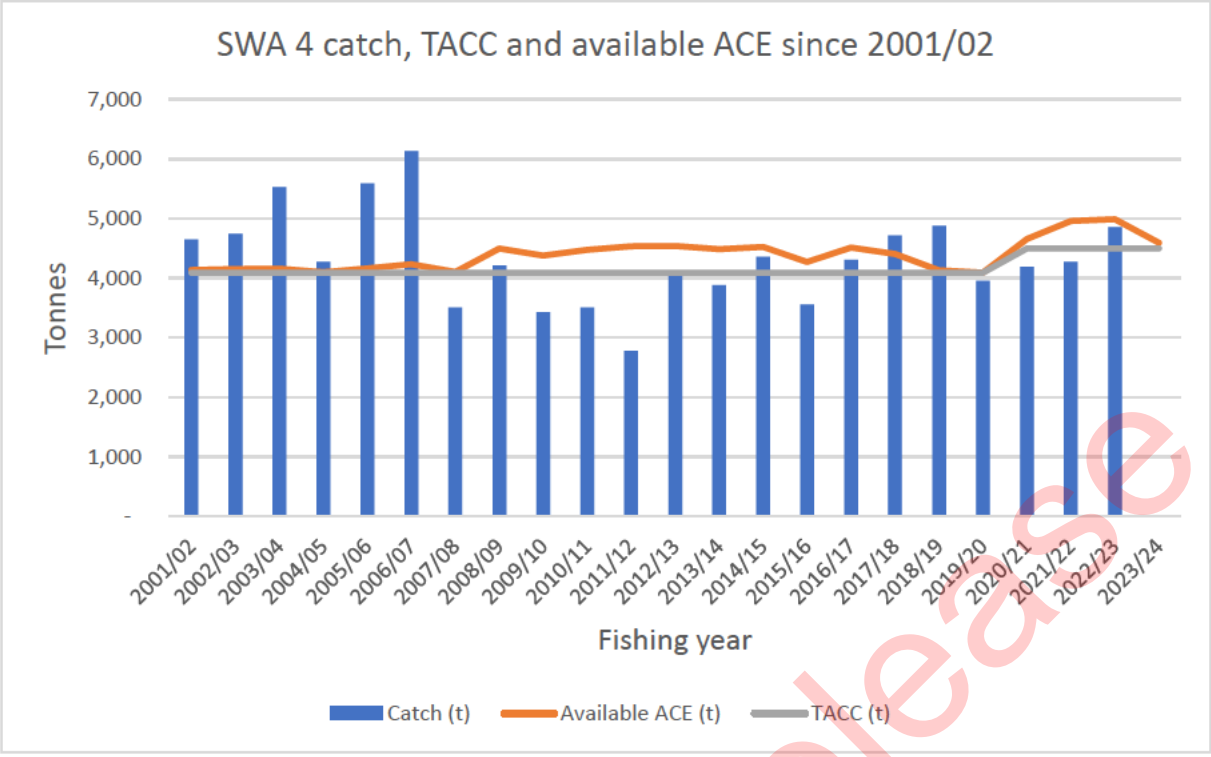


Figure 4: Graph showing of catch of SWA 4, TACC, and available ACE since 2001/02.

281. The decrease in catch following the peak in 2006/07 coincided with an increase in deemed value rates but is also thought to reflect a decrease in abundance (Dunn and McGregor, 2023).

5.2 Customary Māori

282. Silver warehou does not appear in customary take information. This is likely because the depth range and offshore distribution of the species makes it generally inaccessible for customary take. There are also no records of silver warehou being taken for customary purposes through the pātaka system. The current customary Māori allowance is zero tonnes.

5.3 Recreational

283. Due to its depth range and offshore distribution, silver warehou is not thought to be taken by recreational fishers. Information for estimating recreational catch of silver warehou includes the results of the National Panel Survey of Marine Recreational Fishers (**NPS**). The only warehou species mentioned in the 2017/18 NPS is likely to have been blue (or common) warehou (Wynne-Jones et al., 2019). The negligible level of reported recreational catch for this stock is reflected in the recreational allowance, which is currently set at zero.

284. FNZ notes that a more recent NPS was undertaken in 2022/23, and the results of this NPS are due to be finalised in 2024. However, preliminary estimates of recreational take from this survey are not available for SWA 4. As such, the 2017/18 NPS remains the best available information on recreational take for this stock.

5.4 Other sources of mortality caused by fishing

285. The allowance for other sources of mortality caused by fishing is intended to provide for unrecorded mortality of fish associated with fishing activity. This includes fish that escape through trawl net mesh and subsequently die from injuries, accidental loss from lost or ripped trawl net codends, predation, and misreporting.

286. In the absence of specific information, the approach that is often taken for deepwater stocks is to set the allowance such that it equates to a specified percentage of the TACC. For other stocks taken by the deepwater trawl fleet, such as hoki, hake and ling, the allowance is set at the equivalent of one or two percent of the TACC.

287. For species that are primarily taken by the deepwater trawl fleet, this allowance typically equates to a smaller proportion of the TACC than for inshore species. One of the reasons for

this is that there is greater certainty that catch reporting is accurate due to the relatively high levels of observer coverage. During the five fishing years between 2017/18 and 2021/22, the proportion of SWA 4 catch that was taken while an observer has been on board the vessel ranged between 66% and 80%.

288. The morphology of silver warehou is not significantly distinct from species such as hoki, hake, and ling such that FNZ would consider the species to have markedly different mortality resulting from fishing activity. In 2020, the Minister agreed to an allowance that equated to one percent of the TACC for SWA 4.

6 Treaty of Waitangi obligations as set in legislation

6.1 Input and participation of tangata whenua

289. Section 12(1)(b) of the 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 aquatic environment in the area concerned. In considering the views of tangata whenua, you are required to have particular regard to kaitiakitanga.

290. Input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established to support that engagement. 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.[71]

291. SWA 4 falls within the rohe of Te Waka a Māui me Ōna Toka (South Island) Iwi Fisheries Forum, which includes all nine tangata whenua Iwi of Te Waipounamu (South Island), and the Chatham Islands Fisheries Forum. While the latter is not currently meeting, the Chatham Islands Community Fisheries Forum is a vehicle through which input and participation can be undertaken.

292. Prior to the round of hui held in November/December 2023, information on all stocks being considered for review as part of either the April 2024 or October 2024 sustainability rounds was made available to iwi forums. The Chatham Islands Community Fisheries Forum did not meet during this period.

293. At the hui of 4 December 2023, Te Waka a Māui me Ōna Toka Iwi Fisheries Forum suggested that there should be an allowance for customary fishing for stocks including SWA 4. This allowance is currently 0 tonnes. FNZ considers that an increase to the customary allowance is not currently required as there is little likelihood of SWA 4 being taken for customary purposes. However, should circumstances change, for example through the development of a pātaka scheme, a review of this allowance can be reconsidered. FNZ notes that an allowance of 0 tonnes does not preclude take of fish for customary purposes, in accordance with customary fishing regulations.

6.2 Kaitiakitanga

294. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are among the ways that tangata whenua can exercise kaitiakitanga in respect of fish stocks.

295. Te Waipounamu (all of South Island) Iwi consider all fish species taonga as do iwi/imi from Rēkohu/Wharekauri. The Te Waipounamu Iwi Forum Fisheries Plan contains objectives to support and provide for the interests of South Island iwi. FNZ considers the following two objectives are relevant to the management of SWA 4:

- **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.

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

- **Management Objective 5:** to restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.

296. The CIFF@44º (Chatham Island Fisheries Forum plan, which includes Rangihaute/Rangiauria-Pitt Island) contains three management objectives that are relevant to the management options proposed for SWA 4:

- **Management Objective 2**: Kaitiakitanga is fundamental to the management of all fisheries resources.
- **Management Objective 5**: Thriving Fisheries. Thriving sustainable fisheries that are enduring for present and future generations.
- **Management Objective 6**: Traditional Fisheries. Fisheries and fisheries areas of cultural significance are protected, maintained, and enhanced.

297. FNZ considers the proposals in this decision document are consistent with the objectives of these plans. However, we note that FNZ has not engaged with the Chatham Islands Fisheries Forum on the options for SWA 4 (the forum is not currently meeting), and so cannot confirm whether the iwi and imi of the Chatham Islands agree. It is also unknown whether iwi of Te Waka a Māui me Ōna Toka Iwi Fisheries Forum agree.

298. For settlement quota holders, FNZ's recommended option (Option 3) would result in additional ACE being available for sale.

6.3 Mātaitai reserves and other customary management tools

299. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account -

a) any mātaitai reserve in SWA 4 that is declared by notice in the Gazette under regulations made for the purpose under section 186;

b) any area closure or any fishing method restriction or prohibition in SWA 4 that is imposed under section 186A or 186B.[72]

300. There are no customary fisheries management tools such as mātaitai, taiāpure, or section 186B temporary closures that are relevant to this review.

7 Environmental and sustainability considerations under the Act

7.1 Overview

301. You are being asked to make a decision under section 13 of the Act, to set the TAC for silver warehou in SWA 4. This is a sustainability measure. Before setting or varying a sustainability measure, you must adhere to section 11 of the Act. When making your decision you must also act consistently with the requirements in section 5, and sections 8-10 (Purpose and Principles of the Act).

302. The requirements and details of each of these sections are set out below, in the following order:

a) Section 5 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992);
b) Section 8 (Purpose);
c) Section 9 (Environmental principles);
d) Section 11 (Sustainability measures);
e) Section 10 (Information principles); and
f) Section 13 (Setting a Total Allowable Catch).

[72] Section 21(4) does not refer to section 186B, but this is the provision used for temporary closures or fishing method restrictions or prohibitions in South Island fisheries waters.

7.2 Application of international obligations and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 – section 5 of the Act

303. You must act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. This is discussed in more detail under Heading 2.2.1 of the *Introduction and Legal Overview*. There are no specific matters relating to the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, and FNZ does not consider there are any specific matters that require separate consideration, that might apply to SWA 4.

304. You must also act in a manner consistent with New Zealand's international obligations relating to fishing. Discussion of these relevant obligations is provided under Heading 2.2.2 in the *Introduction and Legal Overview*. There are no specific matters relating to international obligations that might apply to SWA 4.

7.3 Purpose of the Act – section 8 of the Act

305. The Act's purpose is to "provide for the utilisation of fisheries resources while ensuring sustainability." Guidance for you on the meaning of section 8 and how it should be applied for decision making (for all the stocks being reviewed as part of this round) is provided under Heading 2.2.3 in the *Introduction and Legal Overview*.

7.4 Environmental principles – section 9 of the Act

306. The environmental principles that you must take into account when considering sustainability measures for SWA 4, are as follows:

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

307. As noted under '*Fishery characteristics*', most SWA 4 is taken by the deepwater trawl fleet, and most catch is taken while an observer is on board the vessel.

7.4.1 Associated or dependent species – section 9(a) of the Act

308. Associated or dependent species includes any non-harvested species taken or otherwise affected by the taking of any harvested species. This includes protected species such as marine mammals and seabirds.

309. In this section we have also provided analysis of potential impacts of fishing on other harvested species, including fish and invertebrate species caught as bycatch in the fisheries where silver warehou from SWA 4 are caught.

310. FNZ considers that the proposed options to increase the TACC for SWA 4 are unlikely to result in significant changes to current fishing effort. As noted under '*Fishery characteristics*,' SWA 4 is most commonly taken as non-target catch in squid and hoki target tows. Overall effort in these fisheries is not expected to change significantly as a result of additional SWA 4 ACE becoming available. Consequently, little change in environmental interactions, including catch of associated or dependent species, would be expected if the TACC for SWA 4 were to increase.

Marine mammals

311. The deepwater trawl fleet operating in FMAs 4-6 occasionally interacts with marine mammals, primarily New Zealand fur seals as well as a small number of New Zealand sea lions. However, during the five fishing years between 2017/18 and 2021/22 no observed captures of marine mammals were reported while SWA was the target species.

312. To minimise the risk of marine mammal captures, Seafood New Zealand Deepwater Council[73] developed Marine Mammal Operational Procedures (MMOP) for all trawlers greater than 28 m in length. The MMOP describes a range of procedures that a crew should follow to reduce the risk of marine mammal captures, such as minimising the length of time fishing gear is on the sea surface, removing all pieces of dead fish ('stickers') from the net before shooting the gear, steaming away from any congregations of marine mammals before shooting the gear again,

[73] Seafood New Zealand Deepwater Council is the industry body that represents the majority of SWA 4 quota holders.

and appointing a crew member to watch for marine mammal interactions every time the gear is shot or hauled.

313. Additionally, fishers are required to use sea lion exclusion devices (SLEDs) when operating in the SQU 6T fishery.

Seabirds

314. The deepwater trawl fleet operating in FMAs 4-6 interacts with seabirds. During the five fishing years between 2017/18 and 2021/22, around 70% of observed captures occurred in the squid trawl fishery. Of the total number of observed seabird captures during this time period, 1% (22 birds) occurred when the target species was SWA. The species recorded were mostly Buller's albatross and white-capped albatross.

315. Southern Buller's albatross was ranked as very high risk in the 2023 seabird risk assessment (Edwards et al., 2023) while white-capped albatross was ranked as high risk.

316. Regulations requiring the use of seabird scaring devices by the deepwater trawl fleet (vessels greater than 28 metres in length) have been in place for over 15 years.[74] Additionally, a range of non-regulatory measures have been in place for a similar time period. They are set out in vessel-specific protected species risk management plans (**PSRMP**s) and include measures such as fish waste management practices and the deployment of additional seabird scaring devices at times of heightened risk.

317. Information on adherence to PSRMPs by all vessels is reported in Seabird Annual Reports and, for the deepwater fleet, in Annual Review Reports.

318. Seabird Annual Reports summarise progress towards implementing the National Plan of Action – Seabirds 2020 (**NPOA-Seabirds**). The NPOA Seabirds was approved in 2020 and sets out the New Zealand government's commitment to reducing fishing-related captures and associated mortality of seabirds.

319. Target tows for silver warehou in SWA 4 can result in incidental captures of some high-risk seabird species. However, FNZ does not expect a material increase in seabird captures to occur if the TACC for SWA 4 were to increase. As noted earlier under this heading, SWA 4 is most commonly taken as non-target catch in other fisheries. It is not expected that this pattern would change significantly if the TACC were to increase.

Protected shark species

320. A small number of protected sharks are taken by the deepwater trawl fleet operating in FMAs 4, 5, and 6. The species most commonly taken are basking shark and white pointer shark. Of the 44 basking or white pointer sharks recorded by observers during the five fishing years between 2017/18 and 2021/22, two basking sharks were taken while silver warehou was targeted.

Fish and invertebrate bycatch

321. As noted earlier, while taken mostly as non-target catch, some silver warehou targeting takes place in SWA 4 (typically in FMA 5). Fisher-reported data for the five years between 2018/19 and 2022/23 indicates that when silver warehou was targeted in SWA 4, around 60% of the total catch was silver warehou. Hoki comprised 12% of the catch and spiny dogfish 11%. A total of 98% of the catch comprised species managed under the QMS.

322. There are currently no known sustainability concerns for the species taken as non-target catch in silver warehou target tows in SWA 4.

7.4.2 Biological diversity of the aquatic environment – section 9(b) of the Act

323. The trawl fisheries that take silver warehou in SWA 4 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 can lead to incidental catch of benthic organisms such as sponges.

[74] The mandatory requirements for these vessels are set out set out in the Seabird Scaring Devices Circular 2010 No. F517, which is issued pursuant to regulation 58A of the Fisheries (Commercial Fishing) Regulations 2001.

324. The impact of tows on the benthic environment (the trawl footprint) is mitigated by the spatial concentration of the fishery: most activity involves fishing along previously trawled tow lines. In particular, the squid trawl fishery takes place in discrete areas over a relatively narrow depth range. Additionally, trawl vessels greater than 46 metres in length are prohibited from operating in the Territorial Sea.

325. As already noted, the proposed increases to the TAC are not expected to result in any significant change in fishing effort within SWA 4. The trawl footprint is mapped and monitored annually.

7.4.3 Habitats of particular significance for fisheries management – section 9(c) of the Act

326. Juvenile and adult silver warehou tend to have separate distributions with juveniles more common at shallower depths (100-300 m) and adults favouring deeper water (300-500 m). Within the entire depth range, silver warehou are widely distributed across SWA 4 with the areas of highest catches varying from year to year.

327. There is little information available to guide identification of habitats of particular significance to the stock. Some general habitats that may potentially be significant for silver warehou in SWA 4 are discussed in Table 2 below. FNZ notes that the water column is likely to be of greater importance to silver warehou than the benthic habitat.

Table 2: Summary of information on potential habitats of particular significance for fisheries management for SWA 4.

Fish stock	SWA 4
Potential habitat of particular significance	**Spawning:** Ripe female silver warehou have been recorded by observers around the Chatham Islands (mainly August to October) and on the Stewart-Snares Shelf (mainly January to April) in depths of 300-500 m. **Juvenile and immature:** Trawl survey data indicates that small silver warehou (<40cm) are widely distributed in shallower depths throughout the SWA 4 (and SWA 3) QMAs.
Attributes of habitat	• Continental shelf and slope • Adult (300-500 m) and juvenile (100-300 m) • Within SWA 4, it is currently unknown what conditions make the spawning and juvenile habitats favourable for silver warehou.
Reasons for particular significance	• Spawning is key to supporting the productivity and recruitment of silver warehou. Spawning is likely to occur in several other areas outside of SWA 4 although stock structure is not well understood. • From observer data there is evidence that some years result in larger cohorts of silver warehou subsequently entering the fishery than other years, indicating successful spawning events. There is no information on why year class strength varies between years. • Survival of juveniles to an age where they can reproduce is essential for the productivity of the species.
Risks/threats	• The importance of environmental conditions to the success of silver warehou spawning is unknown. • It is unknown to what extent fishing activity may impact these habitats.
Existing protection measures	Some of the continental shelf area within SWA 4 that may be favoured by juvenile silver warehou is unable to be fished by trawl vessels greater than 46 metres in length.
Evidence	• Dutilloy, A; Dunn, M R (2020) Fishery and stock structure for silver warehou (*Seriolella punctata*) in SWA 3 and SWA 4. New Zealand Fisheries Assessment Report 2020/19. • Dunn, M R; McGregor, V.L (2023) Stock assessment research in 2023 for silver warehou in SWA 3 and SWA 4. New Zealand Fisheries Assessment Report 2023/53.

328. FNZ considers that fishing for silver warehou in SWA 4 is unlikely to have an adverse effect on these potential habitats of particular significance, because:

- Silver warehou spawning habitat appears to be widespread.

- Habitat favoured by juveniles also appears to be widespread.
- The productivity of the stock does not appear to have decreased as a result of fishing activity.

7.5 Considerations for setting sustainability measures under section 11 of the Act

329. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying sustainability measures such as the TAC change recommended as part of this paper. These include:

    a) any effects of fishing on any stock and the aquatic environment; and
    b) any existing controls under the Act that apply to the stock or area concerned; and
    c) the natural variability of the stock concerned; and
    d) any relevant planning instruments, strategies, or services.[75]

7.5.1 Effects of fishing on any stock and the aquatic environment – section 11(1)(a)

330. You must take into account any effects of fishing on any stock and the aquatic environment when making your decision about the SWA 4 TAC.

331. "Effect" is defined widely in the Act.[76] The broader effects of removing more silver warehou from the ecosystem as well as the potential for the more direct effects of fishing need to be considered. Information regarding the effects of target trawling for silver warehou is discussed above under *'Environmental principles'*, and below under *'Options and analysis'*.

7.5.2 Existing controls that apply to the stock or area – section 11(1)(b)

332. You must take into account any existing controls under the Act, including rules and regulations made under section 2(1A) that apply to the stock when setting or varying the TAC.

333. The primary controls that apply under the Act are the catch limits and allowances. Although silver warehou is not a recreational species, it would come under the general recreational daily limit requirements for finfish. In each of FMAs 4-6, the combined daily limit for finfish is 30.

7.5.3 The natural variability of the stock – section 11(1)(c)

334. You must take into account the natural variability of the stock when setting or varying its TAC.

335. The abundance of silver warehou in SWA 3 and SWA 4 appears to have been driven by several strong year classes entering the fishery over the years. FNZ will continue to monitor the fishery, including via the biennial Chatham Rise trawl survey, and the east coast South Island inshore trawl survey, which primarily monitor adult and juvenile silver warehou respectively. Although silver warehou is also taken in the biennial sub-Antarctic trawl survey, this survey is not currently considered a reliable index for this species (FNZ – Fisheries Assessment Plenary, 2023).

7.5.4 Relevant statements, plans, strategies, provisions, and documents - section 11(2)

336. In setting or varying the TAC of this stock, you must have regard to the following statements, plans, strategies, provisions, and planning documents under section 11(2) of the Act, that apply to the coastal marine area and that you consider to be relevant.

Regional plans – section 11(2)(a)

337. Two Regional Councils (Otago and Southland) as well as the Chatham Islands Council have coastlines within the boundaries of SWA 4. Each region has policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats.

[75] Sections 11 (2) and (2A).
[76] Section 2(1) of the Act defines "effect" to mean the direct or indirect effect of fishing, and includes any positive, adverse, temporary, permanent, past, present, or future effect. It also includes any cumulative effect, regardless of the scale, intensity, duration, or frequency of the effect, and includes potential effects.

338. 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.

339. FNZ has reviewed these documents and the provisions that might be considered relevant can be found in a Table A of the **Addendum**. FNZ considers that the proposed options in this paper are consistent with the objectives of these relevant regional plans.

340. 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.

7.5.5 Relevant services or fisheries plans – section 11(2A)

341. Under section 11(2A), before setting or varying any sustainability measure or making any decision or recommendation under the Act to regulate or control fishing, you must take into account -

    a) any conservation services or fisheries services; and
    b) any relevant fisheries plan approved under Part 3 of the Act; and
    c) any decisions not to require conservation services or fisheries services.

342. Fisheries services of relevance to the options in this paper include the research used to monitor stock abundance and tools used to monitor compliance with management controls in the fishery. These are discussed under *'Status of the stocks*', *'Catch information and current settings within the TAC'*, and under *'Existing controls that apply to the stock or area – section 11(1)(b).'*

343. Observer coverage relevant to the SWA 4 fishery is described under heading 7.4 '*Environmental principles – section 9 of the Act*.' As noted above, there is a high level of observer coverage in this fishery, and observers liaise with Fisheries Compliance to ensure that management controls are being adhered to.

National Fisheries Plan for Deepwater and Middle-depth fisheries 2019

344. All silver warehou stocks are managed as Tier 2 stocks within the National Fisheries Plan for Deepwater and Middle-depth fisheries 2019 - part 1A (FNZ - National Deepwater Plan 2019).

345. The National Deepwater Plan sets out a series of Management Objectives for deepwater fisheries, the most relevant to the SWA 4 stock 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 fish stocks and key bycatch fish stocks are managed to an agreed harvest strategy or reference points.

346. The National Deepwater Plan is a formally-approved section 11A plan, which you must take into account when making sustainability decisions. The options for SWA 4 are consistent with the Management Objectives in the plan, including those outlined above.

7.5.6 Other plans and strategies

347. The following plans and strategies are not mandatory considerations under section 11 of the Act, but they may be considered relevant to this review.

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

348. FNZ considers that the sustainability measures proposed for SWA 4 are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy – including Objective 10, which is to ensure that ecosystems are protected, restored, resilient and connected from mountain tops to ocean depths; and Objective 12, which is to manage natural resources sustainability.

349. For more information on Te Mana o te Taiao see heading 3.3 of the *Introduction and Legal Overview*.

8 Considerations for setting the TAC - section 13 of the Act

350. The status of the SWA 4 stock in relation to the default management target of 40% B_0 (unfished biomass) is unknown and the *MSY* is unknown. As outlined under *'Status of the stock'*, the best available information on the status of SWA 4 indicates that biomass has remained at a relatively high level for the past 15-20 years (based on CPUE indices). The Chatham Rise trawl survey shows a broadly similar trend. The Plenary was confident that there are no sustainability concerns for silver warehou on the Chatham Rise (SWA 3 and part of SWA 4) and Southland (part of SWA 4).

351. Based on the best available information, FNZ considers there is a utilisation opportunity for SWA 4, and that the proposed options to increase the TAC are unlikely to create sustainability concerns (including the recommended increase under Option 3).

352. The status of SWA 4 in relation to *MSY* is unable to be reliably estimated using the best available information (outlined above), and as such, section 13(2A) of the Act is the provision relevant to setting the TAC of the stock. In deciding to set or vary the TAC under this provision, you must—

    (a) not use the absence of, or any uncertainty in, that information as a reason for postponing or failing to set a total allowable catch for the stock; and

    (b) have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock; and

    (c) set a total allowable catch—

        (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 the maximum sustainable yield.

8.1 Biological characteristics

353. The biology of silver warehou is summarised above under *'Biology'*. Silver warehou grow relatively quickly and reach sexual maturity when they are around 45 cm in length and four years old. These characteristics make silver warehou more resilient to fishing pressure than longer-lived species that reach sexual maturity later. Combined with the information indicating that the biomass of silver warehou has remained at a high level for an extended period of time, this means the TAC increase recommended under Option 3 is unlikely to lead to sustainability concerns.

8.2 Interdependence of stocks

354. There is little information available regarding predator/prey interdependency for silver warehou. The Plenary report does not contain any information on the importance of silver warehou as a food source to other animals and FNZ is not aware of any other sources of information on this topic.

355. The increase to the TAC recommended under Option 3 is unlikely to result in significant changes to either the quantity of silver warehou taken in SWA 4 or to the quantity of other species taken in SWA 4 target tows. As noted under *'About the stock'*, most fish taken in SWA 4 target tows are species managed under the QMS.

8.3 Environmental conditions affecting the stock

356. There is little information regarding the environmental conditions that are likely to affect silver warehou. However, as abundance of silver warehou in SWA 4 appears to have remained high for an extended period of time, it is unlikely that environmental factors are adversely impacting the stock at present.

8.4 Harvest Strategy Standard

357. Section 13 of the Act provides for the setting of a TAC for SWA 4, and guidance is provided by the Harvest Strategy Standard for New Zealand Fisheries (**HSS**).

358. The High Court has held that the HSS is an implied mandatory relevant consideration that you must have regard to when setting a TAC under section 13 of the Act, and the Court of Appeal has confirmed the decision of the High Court.[77]

359. The 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 QMS. It is intended to provide guidance on 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.

360. The HSS outlines FNZ's approach to relevant sections of the Act and forms a core input to FNZ's advice to you on the management of fisheries. The HSS defines a hard limit as a biomass limit below which fisheries should be considered for closure and a soft limit as a biomass limit below which the requirement for a formal time-constrained rebuilding plan is triggered.

361. Under the HSS, 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. The default management target applies to SWA 4.

362. In the case of silver warehou in SWA 4, there are no established reference points or available estimates of B_{MSY} (the biomass that enables a fish stock to deliver *MSY*), and as such there is uncertainty as to where the current biomass sits in relation to the default targets (including the soft or hard limit) set out by the HSS. The information presented in '*Status of the stock'* contains the best available information on silver warehou biomass.

8.5 Way and rate at which a stock is moved towards a level that can produce the *MSY*

363. FNZ considers that, in accordance with section 13(2A)(c)(ii), the options provided are not inconsistent with the objective of maintaining the stock above *MSY*, despite the status of the stock in relation to the management target of 40% B_0 being unknown. These options are not intended to move the stock towards or above a level that can produce the *MSY*, (they are intended to be consistent with maintaining the stock at or above a level that can produce the *MSY*) so you are not required to have regard to the social, cultural, and economic factors under section 13(3) for this review.

9 Information principles - section 10 of the Act

364. Under section 10 of the Act, decision-makers are required to take into account four information principles:

a) decisions should be based on the best available information.[78]
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.

365. FNZ considers that the information presented in this paper represents the best available information.

366. In various sections of this paper, FNZ has pointed out where information is uncertain and warrants caution for your decision making, in line with the principles above. In particular, it is noted under '*Status of the stock'* that the status of the stock with respect to the management target is unknown and that there is high uncertainty in relation to the species' trophic interactions with the wider ecosystem (see *'Interdependence of stocks'*).

[77] *Fisheries Inshore New Zealand Ltd v Royal Forest and Bird Protection Society of New Zealand Incorporated* [2023] NZCA 359.
[78] Section 2(1) of the Act defines "best available information" to mean "the best information that, in the particular circumstances, is available without unreasonable costs, effort, or time".

367. Issues identified for future research considerations include stock structure. Monitoring will continue, including future Chatham Rise, sub-Antarctic, and east coast South Island trawl surveys as well as sampling by observers.

10 Submissions

368. A total of seven submissions were received that specifically addressed the proposals for SWA 4. Of these, three endorse the submission from the Seafood New Zealand Deepwater Council (**DWC**). Table 3 summarises the submissions received and shows submitters' support for each option.

369. A further three submissions were received that referred to catch limits in general but did not address SWA 4 specifically.

370. Submitters' and respondents' comments on the proposed options are addressed under '*Options and analysis*' below.

Table 3: Written submissions and responses received for the review of SWA 4.

Submitter	Option supported			
	1	2	Other	Notes
Ngātiwai Holdings Ltd	✓			Supports adopting a conservative approach.
Iwi Collective Partnership		✓		No rationale provided
Ngati Mutunga o Wharekauri Asset Holding Co. Ltd		✓		Supports the same position adopted by Seafood New Zealand Deepwater Council.
Sealord Group Ltd (**Sealord**)		✓		Supports Option 2 but would really like the adoption of adaptive management practices to avoid incurring deemed values for stocks such as silver warehou that are abundant and largely taken as bycatch.
Talley's Ltd.		✓	✓	Supports the same position adopted by Seafood New Zealand Deepwater Council. Would like an increase but more than what FNZ proposed.
Te Paataka o Tangaroa Ltd		✓		Supports the same position adopted by Seafood New Zealand Deepwater Council.
Seafood New Zealand Deepwater Council (DWC)		✓	✓	Supports an increase to the TACC. Suggests an additional option of a 15% increase should also be considered as part of this sustainability round. As part of a future sustainability round, a 30% increase for SWA 4 (TACC of 5,850 tonnes) and a 20% increase for SWA 3 (a TACC of 4,800 tonnes) should be implemented.
Generic submissions				
P. Harvey			✓	What is being done to fish stocks is unsustainable and it is best to err on the side of caution rather than favouring commercial economic outcomes.
B. Leonard			✓	Catch limits should be reduced to zero.
J. Williams			✓	Opposes increases to catch limits for all stocks consulted on.

11 Options and analysis

11.1 Option 1 – *status quo*

TAC: 4,545	**TACC**: 4,500	**Customary**: 0	**Recreational**: 0	**Other mortality**: 45

371. Option 1 is to retain the *status quo*. It is available to you as an option as it provides for the sustainable utilisation of silver warehou in SWA 4 and recognises the uncertainty in the stock status information for this species.

372. This option would forgo the utilisation opportunity that the best available information indicates is likely to exist for this stock.

373. This option is supported by Ngātiwai Holdings Ltd, who support adopting a conservative approach to management of the fishery but did not elaborate further.

11.2 Option 2

TAC: 5,050 (↑ 505)	**TACC:** 5,000 (↑ 500)	**Customary:** 0 –	**Recreational:** 0 –	**Other mortality:** 50 (↑ 5)

11.2.1 TAC

374. Under Option 2, the TAC would be set at 5,050 tonnes pursuant to section 13(2A) of the Act as there is no accepted stock assessment. This represents an 11.1% increase to the SWA 4 TAC. FNZ considers this increase would adequately provide for the utilisation opportunity that exists for this stock without posing a significant risk to sustainability and causing any adverse effects on other species or the wider environment.

11.2.2 Allowances

375. The allowances for customary Māori and recreational fishing would remain at 0 tonnes each, while the allowance for all other mortality caused by fishing would increase to 50 tonnes (equivalent to 1% of the TACC).

11.2.3 TACC

376. The TACC would increase by 500 tonnes to 5,000 tonnes, an 11.1% increase. The increase is broadly equivalent to catch of SWA 4 during the 2018/19 and 2022/23 fishing years, but below what was caught during some years in the mid-2000s.

11.2.4 Discussion

377. This option is supported by Iwi Collective Partnership, Ngati Mutunga o Wharekauri Asset Holding Co. Ltd and Te Paataka o Tangaroa Ltd, with the latter two both supporting the position adopted by DWC for this stock. Sealord Group Ltd also supports this option but makes several suggestions regarding management changes (outlined in '*Other matters raised*').

378. While DWC supports the proposal to increase the TACC for SWA 4 to 5,000 tonnes, their preference is that as part of this sustainability round, the TACC is increased by an additional 5% (refer Option 3) and that it is increased by 30% from the *status quo* as part of a future round (refer to the *'Other options proposed by submitters*').

379. Talley's Ltd supports DWC's submission. While they support increasing the TACC for SWA 4, they feel that FNZ is adopting an overly precautionary approach to the management of the SWA 4 and SWA 3 stocks. Their preference is for a 15% increase to the TACC and are confident there will be no impact on the sustainability of the stock. They also provide suggestions for a future management approach (refer to *'Other matters raised'*).

380. FNZ considers the TAC/TACC increase is consistent with the best available information on the abundance of SWA 4. It would reduce the likelihood of fishers who take SWA 4 as non-target catch being unable to balance catch with ACE.

11.3 Option 3 (added after consultation)

TAC: 5,227 (↑ 682)	**TACC:** 5,175 (↑ 675)	**Customary:** 0 –	**Recreational:** 0 –	**Other mortality:** 52 (↑5)

11.3.1 TAC

381. Under Option 3, the TAC would be set at 5,227 tonnes pursuant to section 13(2A) of the Act as there is no accepted stock assessment. This represents a 15% increase to the current SWA 4 TAC, with the difference in the TACs under Options 2 and 3 being 177 tonnes.

382. While this option was not included in the consultation document, FNZ considers that it is not inconsistent with your obligations under section 13(2A) of the Act to set a TAC that maintains a stock at or moves a stock towards or above a level that can produce the *MSY*.

383. FNZ considers this increase, as with Option 2, would provide for the utilisation opportunity that exists for this stock.

11.3.2 Allowances

384. As with Option 2, the allowances for customary Māori and recreational fishing would remain at 0 tonnes each, while the allowance for all other mortality caused by fishing would increase to 50 tonnes (equivalent to 1% of the TACC).

11.3.3 TACC

385. The TACC would increase by 15% (675 tonnes) to 5,175 tonnes, which is a level of catch not seen since the mid-2,000s. It would further reduce the likelihood of fishers who take SWA 4 as non-target catch being unable to balance catch with ACE.

11.3.4 Discussion

386. DWC and Talley's Ltd both stated a preference for an option to increase the TACC by 15%. Both submitters note that the current abundance of silver warehou means there is confidence that an increase to the TAC/TACC of this nature can be sustained.

387. DWC, Talley's Ltd, and Sealord all comment on the fact that as silver warehou in SWA 4 and SWA 3 is predominantly a non-target species, the incurring of significant quantities of deemed values is an undesirable outcome of its increasing abundance. Sealord also notes that trying to ensure catch of SWA 4 can be balanced with ACE can mean reduced efficiency in the target fisheries where it is taken.

388. While the best available information indicates there is no sustainability issue for Chatham Rise and Southland silver warehou, the information does not extend to what level of increased catch could be sustained. FNZ considers, however, that Option 2 (10% increase) and Option 3 (15% increase) are both relatively modest and, as such, are unlikely to affect the sustainability of the stock.

389. The overall difference in risk between these options is low. The 15% option would better support commercial utilisation, primarily through reducing the likelihood of incurring deemed values (which may increase industry's flexibility to target the stocks where SWA 4 is also taken). On this basis, FNZ has formally added a 15% TAC increase to the available options for your consideration, and recommends you agree to this option.

11.4 Other options proposed by submitters

390. DWC and Talley's Ltd refer to the significant quantity of deemed values that the fishing industry has incurred for both SWA 3 and SWA 4 over the years (around $16M since 2003/04). DWC views the recent modest TACC increases for both stocks as slow, and not enough to make a real difference, and that the management settings have resulted in the loss of increased catch opportunities.

391. As noted above, they recommend the inclusion of an additional option of a 15% increase to the TACC for SWA 4 (5,175 tonnes). This would mitigate future ACE constraints with increasing abundance. This position is also supported by Talley's Ltd, who are concerned about the significant financial stress incurred by fishers taking silver warehou as non-target catch in fisheries such as hoki and squid.

392. As part of a future sustainability round, however, DWC would like the TACC for SWA 4 to be increased by 30% from the *status quo* (to 5,850 tonnes) and the TACC for SWA 3 to be increased by 20% to 4,800 tonnes. Rationale for this position is that it would alleviate ACE availability issues and remove punitive and unnecessary deemed value obligations resulting from unavoidable bycatch in other target fisheries due to silver warehou abundance.

393. FNZ notes the desirability of additional information on the status of the SWA 3 and SWA 4 stocks prior to considering further changes to management settings. Options for additional research are currently being considered (refer to '*Other matters raised*'),

11.5 Other matters raised

394. Sealord raised several matters that were not addressed within the review including:

- That FNZ develop a strategy to better manage abundant stocks that are principally non-target species with no pathway to formal biomass assessment. This includes the timeliness of implementing management measures relating to such stocks.

- That a TACC increase for SWA 4 should be applied retrospectively to the start of the 2023/24 fishing year.

- Rebuilding the capacity of NIWA's fisheries science and stock assessment teams.

395. Sealord's first point relates primarily to non-target stocks for which a TACC change would not materially change overall fishing effort. For such stocks, including SWA 4, they state that adaptive management harvest strategies should be developed and implemented. Sealord is concerned about the quantity of deemed values being incurred for non-target stocks that are going through a period of high abundance.

396. Sealord recommend annual monitoring through CPUE while Talley's consider that using a combination of trawl survey and age data along with commercial catch data in a real-time annual setting sense would provide more appropriate outcomes.

397. FNZ acknowledges the concerns raised by Sealord and Talley's regarding the science available to inform the management of silver warehou stocks. The SWA 3 and SWA 4 stocks have been the subject of several research projects in recent years. The research has not, however, resulted in an accepted stock assessment or the development of a data series that is considered to reliably track abundance.

398. FNZ is currently investigating options for contracting further research to look at new approaches that could inform the management of this species in SWA 3 and SWA 4.

399. FNZ also acknowledges Sealord's concerns regarding the timeliness of management measures for stocks such as SWA 4. Advice was provided to you recently that included a potential work area around the timeliness of decisions in order to realise economic opportunities arising from, for example, increased abundance.

400. Regarding Sealord's second point, the Act precludes TACC increases from being retrospective. In-season TAC increases are only possible for a small number of stocks listed in Schedule 2 of the Act. Silver warehou stocks are not listed in that schedule and TAC changes must take effect at the start of the next fishing year.

401. FNZ considers that concerns regarding the capacity of NIWA research teams is outside the scope of this advice paper.

12 Socio-economic context

402. Most silver warehou is processed and packed at sea before being exported. The recommended increase to the TACC under Option 3 could result in a small increase in export volume. The export revenue generated from an additional 675 tonnes of silver warehou is estimated to be around $1.9M FOB.[79] This estimate is based on:

- 2023 export data (for the year to November) for frozen headed and gutted, and frozen 'other form' silver warehou
- A conversion factor for dressed silver warehou of 1.65.

403. Option 3 could likely result in a small increase in port price revenue from 2022/23 levels ($640,000) assuming the TACC is fully caught.

404. The SWA 4 fishery supports many people including quota owners, commercial fishers, licensed fish receivers (**LFR**s), and seafood processing facilities. To give a sense of scale and distribution, based on data from the last three October fishing years, in SWA 4 there have been on average 66 quota owners, providing ACE to 20 permit holders, landing silver warehou to 13 LFRs, using 44 vessels. The number of participants has remained fairly consistent from the 10-year average for all parts of the supply chain.

[79] 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.

405. Consistently over the last 10 years in SWA 4, 70% of quota was owned by four entities, and 30% of quota was owned by the remaining 62 entities. Settlement quota makes up 10% of all SWA 4 quota. As at the end of the October 2022/23 fishing year, 86% of ACE was held by four entities, and the remaining 14% of ACE was held by 16 entities.

406. On average over the last three fishing years in SWA 4, 87% of greenweight was landed by four entities, and the remaining 13% of greenweight was landed by 16 entities. 88% of greenweight was received by four LFRs, and the remaining 12% of greenweight was received by nine entities. Permit holders have landed to 1-3 different LFRS, and LFRs have received silver warehou from 1-8 permit holders.

13 Deemed value rates

407. FNZ did not propose any deemed value rate changes as part of this review. However, FNZ presented the deemed value settings for general consultation and invited feedback from stakeholders.

408. The submission from Talley's Ltd noted that rates need to be set at a level that incentivises landing. Additionally, some submissions commented on the quantum of deemed values that had been incurred over time.

409. FNZ now considers that there are aspects of the deemed value settings for SWA 4 and SWA 3 that could be reviewed to ensure they remain consistent with the objective of incentivising landing. Amending the deemed value rates for SWA 3 and SWA 4 would require further consultation in order to satisfy the requirement in section 75A of the Act. For this reason, FNZ anticipates undertaking a review of the deemed value rates for both stocks as part of the October 2024 sustainability round.

14 Conclusions and recommendations

410. Based on the best available information, biomass of silver warehou appears to have remained at a high level across the Chatham Rise and sub-Antarctic for an extended period. As there are no sustainability concerns for silver warehou in SWA 4, FNZ recommends Option 3; that you increase the TAC for SWA 4 by 15% to 5,227 tonnes.

411. While this option was not included in the consultation document, increasing the TAC is supported by the majority of submitters together with Te Waka a Māui me Ōna Toka Iwi Forum.

412. FNZ considers the relatively modest increase to the TAC under Option 3 will provide a utilisation opportunity for SWA 4 while retaining the ongoing sustainability of the stock. It is also likely that increasing the TAC by this level would result in little or no change to current fishing effort but could result in more efficient targeting of the stocks that take silver warehou as non-target catch due to the additional ACE available. FNZ will continue to monitor the fishery, including via the biennial Chatham Rise trawl survey.

413. FNZ notes that the recommended option for SWA 4 follows a similar (10%) change to the TAC and TACC for SWA 3 that was made as part of the October 2023 sustainability round.

414. FNZ acknowledges the suggestion made by DWC for 30% and 20% increases to the SWA 4 and SWA 3 TACCs respectively. FNZ notes, however, that further information regarding the status of both stocks in relation to the management target would be necessary before further changes to the management settings of the two stocks could be considered.

415. Regarding deemed value rates, FNZ recommends you note that a review of the deemed value rates for SWA 3 and SWA 4 will be included in the October 2024 sustainability round.

15 Decision for SWA 4

Option 1

Agree to retain the SWA 4 TAC at 4,545 tonnes and, within the TAC, to:

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 45 tonnes;
iv. Retain the SWA 4 TACC at 4,500 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SWA 4 TAC at 5,050 tonnes and, within the TAC, to:

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 45 to 50 tonnes;
iv. Increase the SWA 4 TACC from 4,500 to 5,000 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the SWA 4 TAC at 5,227 tonnes and, within the TAC, to:

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 45 to 52 tonnes;
iv. Increase the SWA 4 TACC from 4,500 to 5,175 tonnes.

Agreed / Agreed as Amended / Not Agreed

AND

Note that FNZ will review the deemed values rates for SWA 3 and SWA 4 as part of the October 2024 sustainability round.

Noted

Hon Shane Jones
Minister for Oceans and Fisheries

/ 03 / 2024

Southern blue whiting
Micromesistius australis

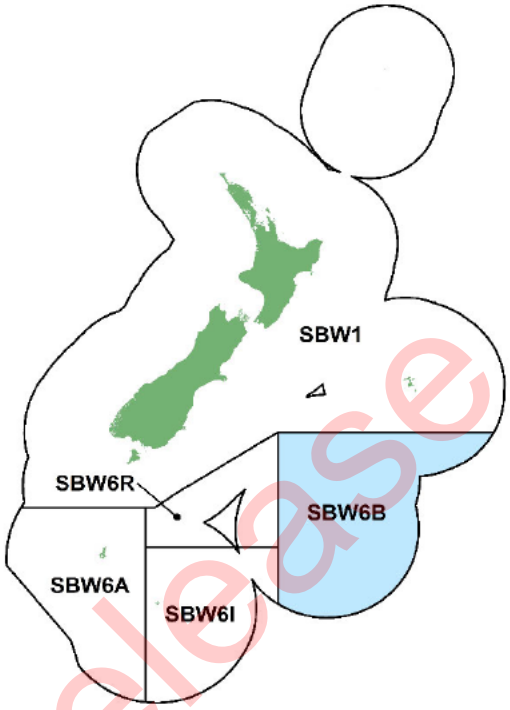


Figure 1: Quota Management Areas (QMAs) for southern blue whiting, with SBW 6B highlighted.

1 Why are we proposing a review?

416. Fisheries New Zealand (**FNZ**) is reviewing the sustainability measures for southern blue whiting (*Micromesistius australis*) in Quota Management Area SBW 6B (Bounty Platform) (Figure 1) for the 1 April 2024 fishing year.

417. Results from an acoustic survey in August 2023 indicate southern blue whiting biomass has increased since 2016. This was the first successful acoustic survey of the spawning stock since 2017. Ageing of fish from the survey in 2023 confirms there has been strong recruitment into the fishery from fish born in 2018.

418. The application of a Harvest Control Rule (**HCR**) to the biomass estimate from the 2023 acoustic survey indicates that the current catch limit can be increased. Based on this, FNZ considers that the current catch limit can be sustainably increased and is advising you on an increase to the Total Allowable Catch (**TAC**) under section 13(2A) of the Fisheries Act 1996 (**the Act**), and within this, to increase the allowance for other sources of mortality caused by fishing and the Total Allowable Commercial Catch (**TACC**) of the stock. A TAC set at the level indicated by the HCR would allow the stock to fluctuate around the management target level.

419. Two options were consulted on for SBW 6B, one of which is the *status quo*. The options are outlined in Table 1 below.

2 Summary of proposed options and FNZ's recommendation

Table 1: Summary of options proposed for southern blue whiting (SBW 6B) from 1 April 2024. 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)*	2,309	2,264	0	0	45
Option 2	4,988 (↑ 2,679)	4,888 (↑ 2,624)	0	0	100 (↑ 55)
In total, six specific submissions were received on the proposed options for SBW 6B.					

3 About the stock

3.1 Biology[80]

420. Southern blue whiting is mainly found in depths between 250 m and 600 m in New Zealand's sub-Antarctic waters. They grow quickly and reach a length of approximately 20 cm fork length within the first year and 30 cm after two years. The size range of spawning fish is between 35 cm and 50 cm and their age ranges between 3 years to a maximum of 25 years old. Females grow to a larger size than males and growth slows after five years and almost ceases after ten years.

421. Southern blue whiting is the dominant middle-depth fish species found on the Bounty Platform. They play an important role in the trophic interactions of the sub-Antarctic ecosystem. They are schooling fish living near the seabed and move up the water column at night to feed on plankton and small fish. Small fish such as Hector's lanternfish and crustaceans are the dominant prey groups for southern blue whiting, which in turn are preyed on by marine mammals, hake, ling, and hoki. Juvenile southern blue whiting are preyed on by seabirds, in particular black-browed and grey-headed albatrosses.

422. Southern blue whiting reach maturity between two and four years of age. At this age, they recruit to the spawning grounds (and the commercial fishery) for the first time. They are highly synchronised batch spawners and form dense spawning aggregations in August and September at four known locations across the sub-Antarctic (Auckland Islands, Campbell Plateau, Pukaki Rise, and Bounty Platform). The available scientific information shows that these four spawning locations represent four distinct biological stocks.

423. Southern blue whiting stocks are characterised by highly variable recruitment. Very strong year classes are observed infrequently and are separated by longer periods of average or below-average recruitment into the fishery. The variables that drive these fluctuations are poorly understood. The strong year classes can produce large spikes in available biomass, which provide utilisation opportunities. Strong year classes also have slower individual growth rates because a larger number of fish are competing for resources. The year classes from strong recruitment events can persist in the fishery for over 20 years.

3.2 Fishery characteristics

424. The midwater trawl fishery at the Bounty Platform targets spawning aggregations of southern blue whiting from mid-August to early September (Figure 2). The target fishery has very low levels of bycatch, with other fish species comprising less than 1% of the total catch. Catch is processed into dressed frozen product or surimi.

425. Effort in SBW 6B has been low in the last six fishing years with an average of 16 tows per year since 2018/29. Landings have been highly variable over this period, ranging from 5% to 89% of the TACC.

426. Variable landings reflect the availability of higher-value alternative fishing opportunities in August, and difficulties experienced by vessel operators in both timing their arrival on the Bounty Platform in mid-August and locating the aggregations of fish. Some vessel operators have found it difficult to justify expending time to locate fishable aggregations, given the modest amount of ACE available, relatively low value of the product, distance of the Bounty Platform from New Zealand ports and the more certain option available to fish southern blue whiting on the Campbell Plateau (SBW 6I) starting in early September.

[80] Information in this section references the FNZ Fisheries Assessment Plenary 2023.

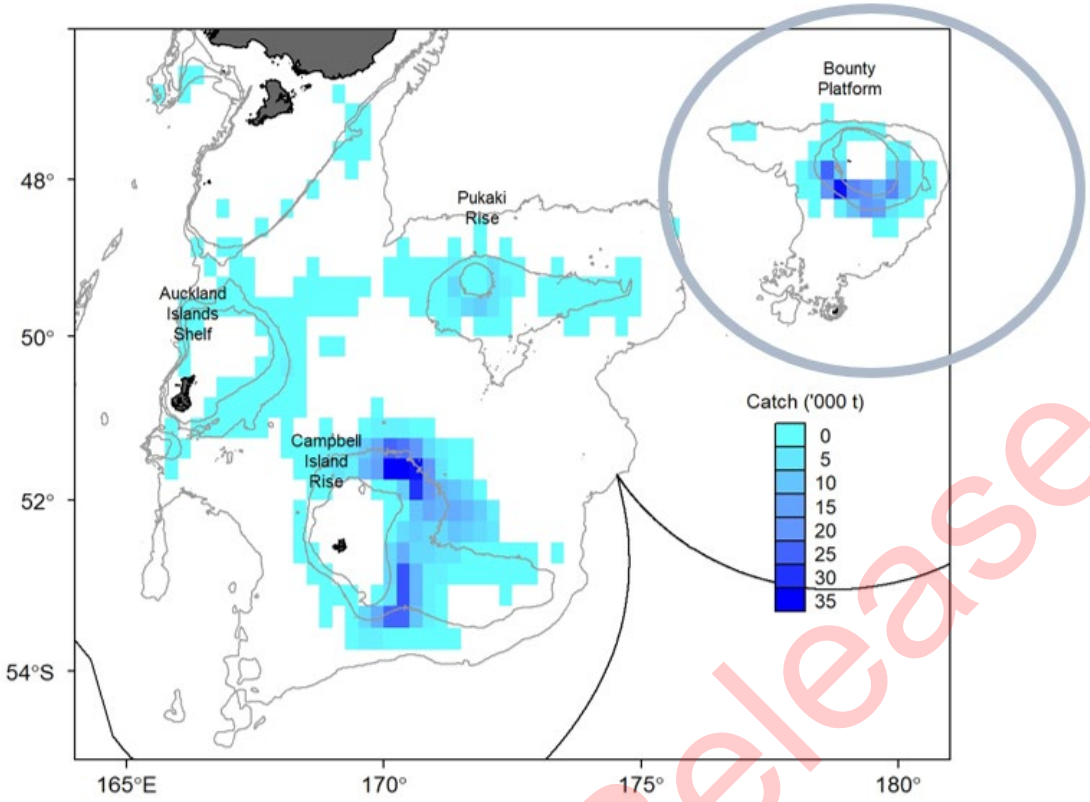


Figure 2: Relative total density of the commercial catch of southern blue whiting by location, 1990–2022 (Doonan, 2023).

3.3 Management background

427. Southern blue whiting entered the Quota Management System (**QMS**) on 1 November 1999 with a fishing year from 1 April to 31 March to reflect the timing of the fishing season (August to September).

428. The southern blue whiting fishery at the Bounty Platform (SBW 6B) is New Zealand's second largest southern blue whiting fishery. The current TAC of 2,309 tonnes, which was set in April 2022, includes an allowance of 45 tonnes for other mortality caused by fishing, allowances for customary and recreational fishing of 0 tonnes each, and a 2,264-tonne TACC.

429. As a high-volume fishery, southern blue whiting is managed within the National Fisheries Plan for Deepwater and Middle-depth Fisheries 2019 as a Tier 1 stock.[81] A Southern Blue Whiting Fisheries Plan was finalised in 2011 which details the management approach and operational objectives for the fishery.

430. The management approach for SBW 6B employs acoustic surveys as a key source of information towards providing an estimate of stock abundance. Annual hull-mounted acoustic biomass surveys use a random stratified survey design. The acoustic equipment on the vessel is calibrated each year by the National Institute of Water and Atmospheric Research (**NIWA**).

431. From 2004 to 2017, and in 2023, a series of local area aggregation surveys have been carried out at the Bounty Platform to enable biomass monitoring.

432. The current reference points for southern blue whiting are the default targets and limits set out within the Harvest Strategy Standard for New Zealand Fisheries (**HSS**) and described in

[81] Tier 1 fisheries are high volume and/or high value fisheries and are typically targeted. They deliver significant export revenue, which is reflected in the high quota value associated with these species.

Table 2. The management target of 40% B_0[82] is considered to be a conservative proxy for maximum sustainable yield (***MSY***)[83] for southern blue whiting.

Table 2: Southern blue whiting default reference points and the associated management response.

Reference point	Management response
Management target of 40% B_0	Stock permitted to fluctuate around this management target. TAC changes will be employed to move stock toward or above target.
Soft limit of 20% B_0	A formal time constrained rebuilding plan will be implemented if this limit is reached.
Hard limit of 10% B_0	The limit below which fisheries will be considered for closure.

433. In 2014 stock assessment models for SBW 6B were unable to fit observations from acoustic surveys and gave uncertain results. The stock assessment was not accepted by the Deepwater Fisheries Working Group (**DWWG**).[84]

434. Instead, a 'Harvest Control Rule' (**HCR**) was developed and tested through a 'Management Strategy Evaluation' (**MSE**) that was accepted by the DWWG in 2016. The HCR estimates the annual sustainable yield based on the biomass estimate from the acoustic spawning aggregation survey.

435. The MSE indicates that with a fishing mortality of 0.24, the HCR would maintain the stock above the soft limit (20% B_0) 90% of the time and allow the stock to return to the biomass which can produce *MSY*.

436. The HCR was developed to inform management consistent with the requirements of the HSS, including stock rebuilding, and be robust to the uncertainties identified in the earlier model-based assessments. The HCR leads to a low risk of the stock falling below the soft limit reference point (20% B_0).[85] The HCR assumes that the most recent successful acoustic index is an absolute measure of abundance. This assumption is considered reasonable and conservative.

437. The southern blue whiting fishery has been certified as sustainable by the Marine Stewardship Council[86] since April 2012.

4 Status of the stock

438. Acoustic snapshots of southern blue whiting spawning aggregations in SBW 6B are undertaken opportunistically between commercial trawl tows. A series of successful surveys have been carried out by a commercial vessel fishing at the Bounty Platform in August/September between 2004 - 2017 and in 2023 (Figure 3).[87] Biomass estimates from the surveys have been variable since 2004.

[82] B_0 is the theoretical carrying capacity of the recruited or vulnerable biomass of a fish stock. In some cases, it refers to the average biomass of the stock in the years before fishing started. More generally, it is the average over recent years of the biomass that theoretically would have occurred if the stock had never been fished.

[83] Maximum sustainable yield (***MSY***) is the largest long-term average catch or yield that can be taken from a stock under prevailing ecological and environmental conditions. It is the maximum use that a renewable resource can sustain without impairing its renewability through natural growth and reproduction.

[84] The Deepwater Fisheries Working Group is a Stock Assessment Working Group for deepwater species. Based on scientific information the Stock Assessment Working Groups assess the current status of fish stocks or species relative to the *MSY*-compatible reference points and other relevant indicators of stock status, conduct projections of stock size and status under alternative management scenarios, and review results from relevant research projects.

[85] The performance measure for the HCR is that the mid-year biomass should not fall below 20% B_0 more than 10% of the time over a 120-year projection period. Acoustic abundance is simulated at the start of the fishing season based on 1,000 model simulation runs.

[86] The Marine Stewardship Council is an international non-profit organisation. They have developed a fishery certification program and ecolabel to recognise sustainable fishing practices. Their program and label are used to inform and influence the choices people make when buying seafood.

[87] Due to logistical issues (bad weather, timing, and inability to locate a stable spawning aggregation), no biomass estimate is available for the five years from 2018 to 2022.

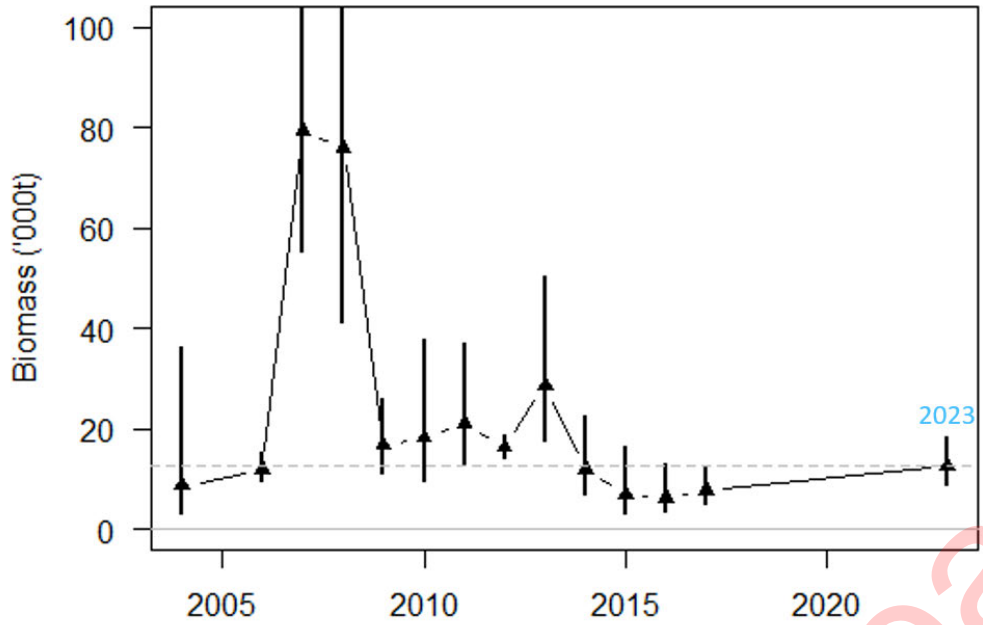


Figure 3: Biomass estimates between 2004 and 2023 (Doonan, 2023). The grey horizontal line is the 2023 biomass (observed) to enable comparison to other biomass estimates (whether above or below).

439. Two successful acoustic snapshots of the spawning aggregation took place in SBW 6B on 18 and 20 August 2023 (with 14 transects each). The mean survey biomass estimate of 12,506 tonnes is the highest since 2014. It is 62% higher than the last biomass estimate in 2017 which was 7,719 tonnes (Figure 3).

440. The catch on the Bounty Platform is dominated by the 2012 and 2018 year classes with a fading contribution from the 2002 and 2007 year classes (Figure 4). Strong recruitment into the fishery from the 2018 year class is further evidence supportive of the increase in yield calculated in the HCR. Based on the biomass estimate from the 2023 acoustic survey and the application of the HCR in 2023, the estimate of sustainable annual yield is 4,988 tonnes.

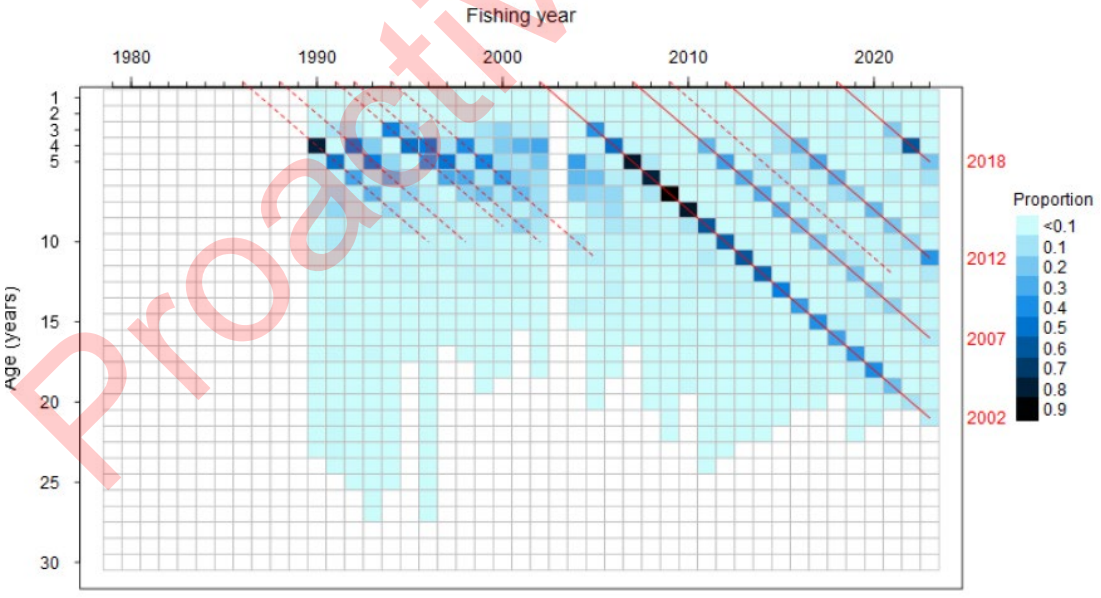


Figure 4: Commercial catch proportions-at-age for the Bounty Platform stock, 1990-2023. Year classes can be tracked on the diagonal, with recent dominant year classes highlighted by solid red lines (Wieczorek et al., 2023).

5 Catch information and current settings within the TAC

5.1 Commercial

441. Catch in SBW 6B peaked at nearly 59,000 tonnes in 1991/92 (Figure 5). From 1992/93, catches fluctuated around 2,000 tonnes to 5,000 tonnes, until a strong year class recruited to the fishery in 2008/09. The total catch subsequently increased to almost 15,500 tonnes in 2009/10. Since that peak, biomass and catches have declined. Subsequently, the TAC was also reduced.

442. The TACC was reduced by 20% on 1 April 2022 to 2,264 tonnes. In the current fishing year (1 April 2023 – 31 March 2024) 2,010 tonnes was landed (89% of the TACC). However, effort has been low in the six fishing years with an average of only 16 tows per year since 2018/19. Landings have been below the TACC over this period and have been highly variable ranging from 5% to 89% of the TACC (Figure 5).

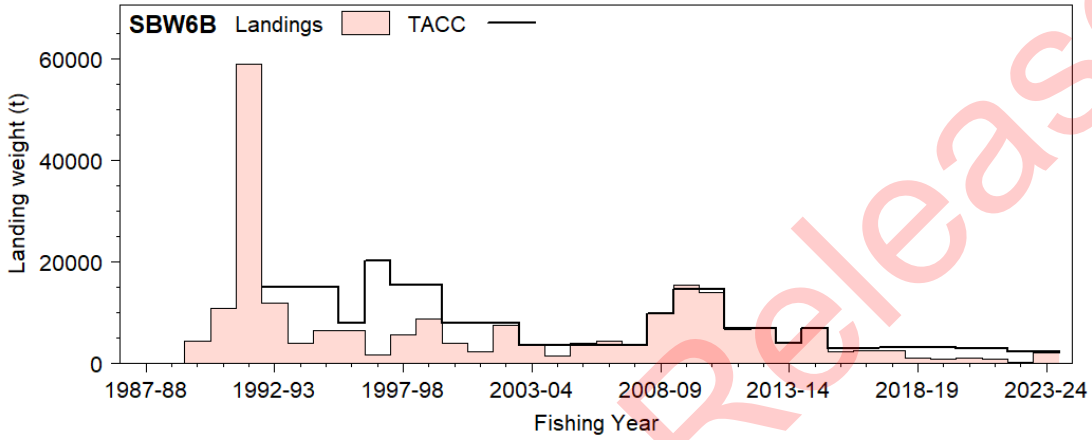


Figure 5: Reported commercial landings and TACC for the Bounty Platform fishery (SBW 6B) since 1988/89.

5.2 Customary Māori

443. There is no known customary non-commercial fishing for southern blue whiting. This is because the depth range and offshore distribution of the species make it inaccessible for customary take. The best available information for Māori customary take is from reporting under the Fisheries (South Island Customary Fishing) Regulations 1999. No permits have been issued under these regulations and no southern blue whiting has been reported as customary catch. No section 186/186B measures (mātaitai, taiāpure, other closures) apply to SBW 6B.

444. There are also no records of southern blue whiting being taken for customary purposes through the pātaka system. The current customary Māori allowance is zero tonnes.

5.3 Recreational

445. There has been no reported recreational take of southern blue whiting in SBW 6B. This is because the fishery is not accessible to recreational fishers, as it operates at depths of 250 m to 600 m in sub-Antarctic waters, 700 km to the south-east of Stewart Island. Accordingly, the recreational fishing allowance is currently zero tonnes.

5.4 Other sources of mortality caused by fishing

446. The allowance for other sources of mortality caused by fishing is intended to provide for unrecorded mortality of fish associated with fishing activity. This includes fish that escape through trawl net mesh and subsequently die from injuries, accidental loss from ripped or lost trawl net codends, predation, and misreporting.

447. In the absence of specific information, the approach that is often taken for deepwater stocks is to set the allowance to an amount that equates to a specified percentage of the TACC. For other stocks taken primarily by the deepwater trawl fleet, such as hoki, hake, and ling, the allowance is set at the equivalent of one or two percent of the TACC. This allowance typically equates to a smaller proportion of the TACC than for inshore species. One of the reasons for

this is that there is greater certainty that catch reporting is accurate due to the high levels of observer coverage.

448. Given the morphology of southern blue whiting compared to species such as hoki and hake, FNZ considers this species is unlikely to have significantly different mortality resulting from fishing activity. FNZ proposes maintaining the allowance for other sources of mortality caused by fishing at an amount equivalent to 2% of the TACC. This equates to an allowance of 45 tonnes for other sources of mortality caused by fishing under Option 1, and an allowance of 100 tonnes under Option 2.

6 Treaty of Waitangi obligations as set in legislation

6.1 Input and participation of tangata whenua

449. Section 12(1)(b) of the 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 aquatic environment in the area concerned. In considering the views of tangata whenua, you are required to have particular regard to kaitiakitanga.

450. Input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established to support that engagement. 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.[88]

451. The potential review of the SBW 6B TAC (subject to the results of the acoustic survey) was presented to Te Waka a Māui me Ōna Toka Iwi Fisheries Forum on 4 December 2023. Te Waka a Māui me Ōna Toka Iwi Forum represents all nine iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries. It was noted that options for the SBW 6B stock awaited the HCR, which would be presented on 15 December 2023 at the DWWG meeting. To date no specific feedback on southern blue whiting has been received.

452. It is not proposed to increase the customary allowance from zero. However, this does not preclude take of fish for customary purposes, in accordance with customary fishing regulations.

6.2 Kaitiakitanga

453. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are ways that tangata whenua can exercise kaitiakitanga in respect of fish stocks.

454. Te Waipounamu (all of South Island and Stewart Island/Rakiura) iwi consider all fish species taonga. The Te Waipounamu Iwi Forum Fisheries Plan contains objectives to support and provide for the interests of South Island iwi. FNZ considers the following two objectives are relevant to the management of SBW 6B:

- **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
- **Management Objective 5:** to restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island

455. FNZ considers the proposals consulted on are consistent with those objectives. This is because the SBW 6B fishery is carefully managed to be environmentally responsible, productive, and sustainable. The current opportunity for increased utilisation creates commercial benefits for South Island iwi as SBW 6B quota holders.

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

6.3 Mātaitai reserves and other customary management tools

456. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account -

   a) any mātaitai reserve in SBW 6B that is declared by notice in the Gazette under regulations made for the purpose under section 186;

   b) any area closure or any fishing method restriction or prohibition in SBW 6B that is imposed under section 186B.[89]

457. There are no customary fisheries management tools such as mātaitai, taiāpure or Section 186B temporary closures in SBW 6B.

7 Environmental and sustainability considerations under the Act

7.1 Overview

458. You are being asked to make a decision under section 13 of the Act, to set the TAC for southern blue whiting in SBW 6B. This is a sustainability measure. Before setting or varying a sustainability measure, you must adhere to section 11 of the Act. When making your decision you must also act consistently with the requirements in section 5, and sections 8-10 (Purpose and Principles of the Act).

459. The requirements and details of each of these sections are set out below, in the following order:

   a) Section 5 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992);
   b) Section 8 (Purpose);
   c) Section 9 (Environmental principles);
   d) Section 11 (Sustainability measures);
   e) Section 10 (Information principles); and
   f) Section 13 (Setting a Total Allowable Catch).

7.2 Application of international obligations and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 – section 5 of the Act

460. You must act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. This is discussed in more detail under Heading 2.2.1 of the *Introduction and Legal Overview*. There are no specific matters relating to the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, and FNZ does not consider there are any specific matters that require separate consideration, that might apply to SBW 6B.

461. You must also act in a manner consistent with New Zealand's international obligations relating to fishing. Discussion of these relevant obligations is provided under Heading 2.2.2 in the *Introduction and Legal Overview*. There are no specific matters relating to international obligations that might apply to SBW 6B.

7.3 Purpose of the Act – section 8 of the Act

462. The Act's purpose is to "provide for the utilisation of fisheries resources while ensuring sustainability." Guidance for you on the meaning of section 8 and how it should be applied for decision making (for all the stocks being reviewed as part of this round) is provided under Heading 2.2.3 in the *Introduction and Legal Overview*.

7.4 Environmental principles – section 9 of the Act

463. The environmental principles that you must take into account when considering sustainability measures for SBW 6B are as follows:

[89] Section 21(4) does not refer to section 186B, but this is the provision used for temporary closures or fishing method restrictions or prohibitions in South Island fisheries waters.

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; and

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

464. FNZ monitors the rate of associated or dependent species captures and notes that the rollout of onboard cameras that began in the latter part of 2023 does not extend to the deepwater vessels operating in SBW 6B. However, this fishery has a high rate of observer coverage (almost 100% since 2012/13) which provides more certainty in the estimates of environmental interactions.

7.4.1 Associated or dependent species – section 9(a)

465. Associated or dependent species includes any non-harvested species taken or otherwise affected by the taking of any harvested species. This includes protected species such as marine mammals and seabirds.

466. In this section we have also provided analysis of potential impacts of fishing on other harvested species, including fish and invertebrate species caught as bycatch in the SBW 6B fishery.

467. As noted under heading 3.2 *'Fishery characteristics*', effort and catch in SBW 6B has been low in the last six fishing years. This trend may continue despite an increase in TACC and will influence any effects on associated or dependent species.

468. As discussed under heading 3.1 *'Biology'*, southern blue whiting are preyed on by marine mammals, adult hake, ling, and hoki. Juvenile southern blue whiting are preyed on by seabirds, particularly black-browed and grey-headed albatrosses. It is unlikely that any of these species are dependent on southern blue whiting as a food source - although southern blue whiting were found to be the main prey item of black-browed albatross at Campbell Island, almost 900 km from the Bounty Islands, during the chick rearing period in January 1997. If there is an increase in fishing effort and/or catch of southern blue whiting following a TAC increase, there may likewise be an increase in any adverse effects on interdependent predating species. The impact of the level of southern blue whiting abundance on these prey species is unknown.

Marine mammals

469. The SBW 6B fishery overlaps with the foraging range of New Zealand fur seals that breed on the Bounty Islands. In 1994 a survey estimated that the total fur seal population on the Bounty Islands was around 21,500 individuals.

470. The Department of Conservation classifies 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[90] and has been increasing in both abundance and distribution since then.

471. Since 2012/13, observer coverage has been close to 100% in SBW 6B. There have been 228 fur seal captures recorded by observers, with most caught in the three years between 2012/13 and 2015/16.

472. To minimise the risk of marine mammal captures, Seafood New Zealand Deepwater Council[91] developed Marine Mammal Operational Procedures (**MMOP**) for all trawlers greater than 28 m in length. The MMOP describes a range of procedures that a crew should follow to reduce the risk of marine mammal captures, such as minimising the length of time fishing gear is on the sea surface, removing all pieces of dead fish ('stickers') from the net before shooting the gear, steaming away from any congregations of marine mammals before shooting the gear again, and appointing a crew member to watch for marine mammal interactions every time the gear is shot or hauled. Improvements to vessel practices and a reduction in fishing effort have reduced New Zealand fur seal captures in SBW 6B to less than five per year on average.

473. If the TAC is increased and landings increase, fur seal captures are expected to also increase in proportion to the number of tows. FNZ works closely with the fishing industry to increase awareness amongst the fishing fleet of how to minimise interactions with fur seals and emphasises the importance of adherence to the MMOP. FNZ monitors and audits vessel

[90] This information is publicly accessible on the Department of Conservation website.

[91] Seafood New Zealand Deepwater Council is the industry body that represents 87% of SBW 6B quota holders.

performance against the MMOP via the FNZ Observer Programme and notes that performance in SBW 6B has been very good in the last five years. Audits of performance will continue in the 2024/25 fishing year.

Seabirds

474. The National Plan of Action Seabirds 2020 (**NPOA-Seabirds**) sets out the government's commitment to reducing fishing-related captures and associated mortality of seabirds. It employs a systematic risk assessment framework which identifies seabird species and fisheries associated with the highest risk and monitors changes in risk status over time.

475. The deepwater trawl fleet targeting southern blue whiting at the Bounty Platform rarely catches seabirds. There have been 20 captures observed in SBW 6B since 2012/13. The majority of these were warp captures involving Salvin's albatross, which was estimated by FNZ to be the second most at risk seabird to commercial fishing.

476. Improvements to mitigation use has made seabird interactions in SBW 6B with fishing gear uncommon since 2015/16. Only two deck strikes have been recorded since 2015/16, both of which were released alive.

477. Regulations requiring the use of seabird scaring devices by the deepwater trawl fleet (vessels greater than 28 metres in length) have been in place for over 15 years.[92] Additionally, a range of non-regulatory measures have been in place for a similar time period. They are set out in vessel-specific protected species risk management plans (**PSRMP**s).

478. Information on adherence to PSRMPs by all vessels is reported in the FNZ Seabird Annual Report which summarises progress towards implementing the NPOA–Seabirds.

479. It is not expected that seabird captures would increase significantly under a TACC increase. To reduce the risk of catching seabirds, all vessels in SBW 6B deploy bird bafflers and/or tori lines. FNZ has processes in place to audit performance against these seabird mitigation measures. Annual performance is reported in the Deepwater Fisheries Annual Review Report.

Protected shark species

480. Captures of protected shark species are very low in SBW 6B. One basking shark capture has been recorded in the last 15 years. FNZ does not expect interactions with protected sharks to increase significantly under a TACC increase and notes this will depend on the level of effort in the fishery.

Fish and invertebrate bycatch

481. As noted under heading 3.2 *'Fishery characteristics'*, there are very low levels of bycatch in SBW 6B. Landings are very 'clean' (99% of the total estimated catch is southern blue whiting) with other fish species comprising less than 1% of the total catch. This pattern has not changed over time with higher or lower TACs. Consequently, little change in catch of associated species is expected. Three species in the Quota Management System (hoki, hake, and ling) account for nearly 60% of the total observed bycatch, with smaller amounts of porbeagle shark, jack mackerel, rattails, Ray's bream, and silverside. Non-target catch in the fishery will continue to be monitored carefully.

7.4.2 Biological diversity of the aquatic environment – section 9(b)

482. Trawling for southern blue whiting in SBW 6B can interact with the seabed and the associated benthic environment. Contact of the trawl gear with the seabed can lead to bycatch of benthic organisms including corals, sponges, and sea anemones. The nature and extent of those impacts depends on a range of factors such as seabed type, gear type, types of organisms encountered, and oceanographic characteristics.

483. The general substrate of the Bounty Platform is bryozoan shell (calcareous) sand, and mud with areas of coral and sponge habitats along with various species of molluscs, echinoderms, crustaceans, and other invertebrate species. Southern blue whiting is generally targeted over a relatively restricted area using mainly mid-water trawl gear near or on the seabed, as this is where the fish aggregate. The gear is generally not fished hard down on the seabed and does

[92] The mandatory requirements for these vessels are set out set out in the Seabird Scaring Devices Circular 2010 No. F517, which is issued pursuant to regulation 58A of the Fisheries (Commercial Fishing) Regulations 2001.

not generally use heavy rollers or bobbins on the nets, which reduces the severity of any benthic impact.

484. The incidental bycatch of benthic organisms by the southern blue whiting fleet is closely monitored by high observer coverage and reported annually. Benthic invertebrates that are fixed in place (or 'sessile') are rarely caught.

485. The trawl footprint includes all bottom trawl and midwater trawl effort within one metre of the seafloor. It is mapped annually in waters shallower than 1,600 m. Between 1990 and 2021, southern blue whiting bottom-contacting tows accounted for the smallest percentage of bottom-contacting tows of all Tier 1 species (1.6% for the time series), and in most years it was under 2% of the fishable area in the New Zealand Exclusive Economic Zone (**EEZ**). The impact of southern blue whiting 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 (Figure 6).

486. An increase to the TACC may have a higher risk for habitats if effort increases. However, as noted above, the impact of tows on the benthic environment (the trawl footprint) is mitigated by the spatial concentration of the fishery. FNZ annually monitors and maps the trawl footprint and the cumulative fishable area contacted by trawl fishing.

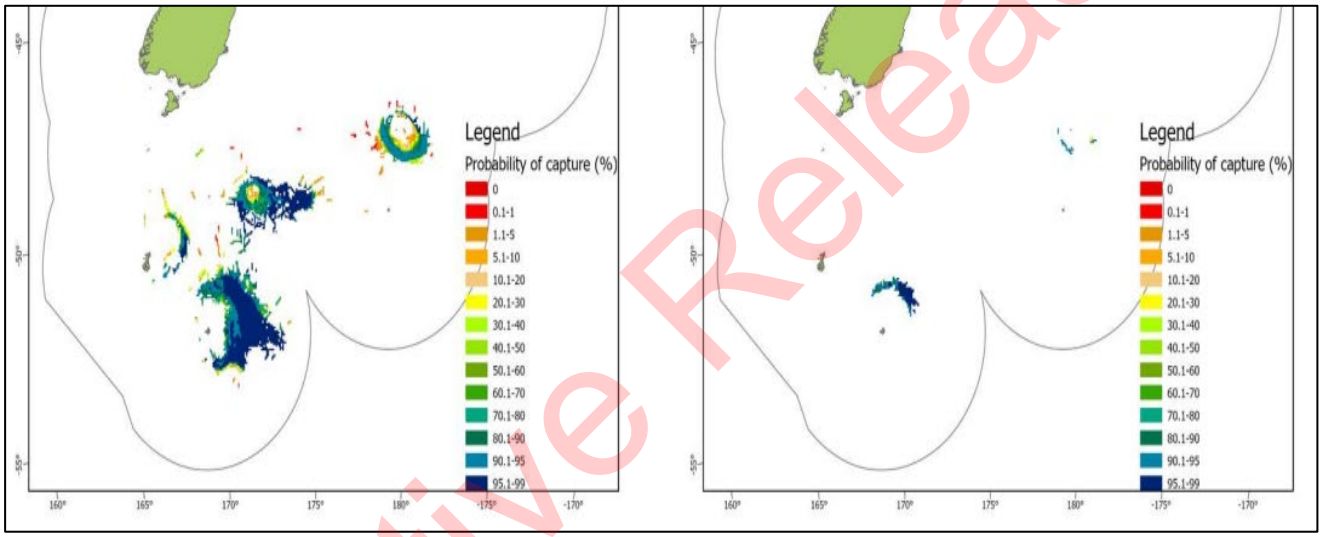


Figure 6: Distribution of the 1990–2021 (left) and the 2021 trawl footprint (right) for southern blue whiting, displayed by 25-km^2 contacted cells relative to the probability of southern blue whiting capture.

487. Management measures to address the effects of trawl activity in New Zealand include closing areas to trawling. The implementation of Benthic Protection Areas (**BPA**s) in 2007 effectively closed approximately 30% of the NZ EEZ to bottom trawling. There are two BPAs in SBW 6B; the Bounty Heritage, which closes the 12 nautical mile territorial sea around the Bounty Islands to trawling, and the Antipodes Transect, which closes 57,166 km^2 to trawling south of the SBW 6B fishery (Figure 7). Within the area covered by the Bounty Heritage BPA, the Moutere Hauriri/Bounty Islands Marine Reserve was created in 2014, which covers 58% of the territorial sea around the Bounty Islands. The use of these closed areas as feeding habitat by southern blue whiting outside of the spawning season is unknown.

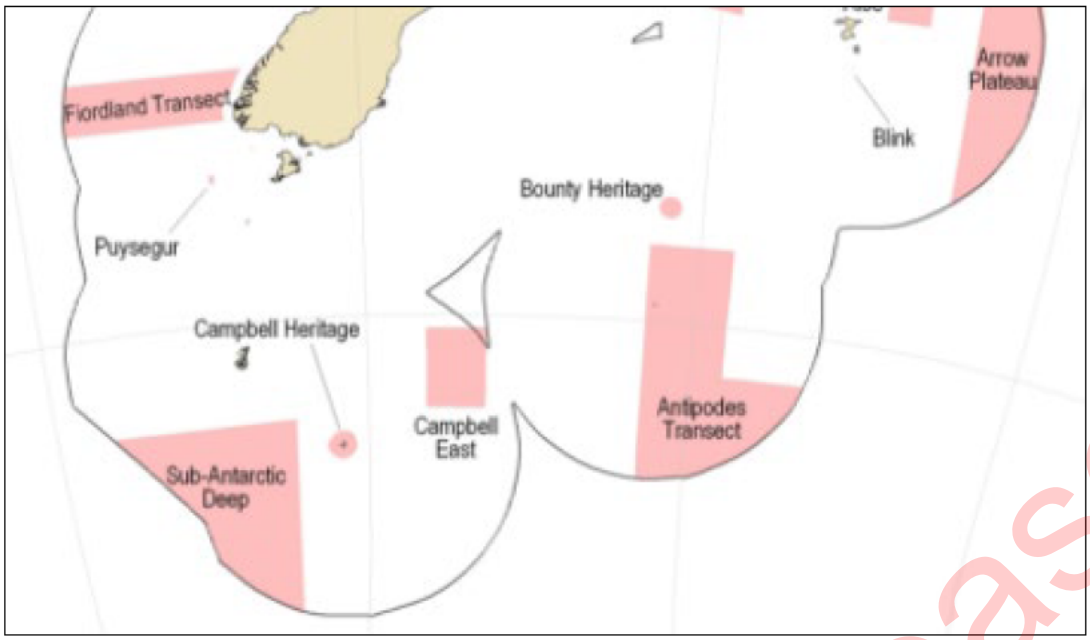


Figure 7: Location of Bounty Heritage and Antipodes Transect Benthic Protection Areas.

7.4.3 Habitats of particular significance for fisheries management – section 9(c)

488. Southern blue whiting is mainly found in depths between 250 m to 600 m in SBW 6B. There is little information available to guide identification of habitats of particular significance to the stock. Some general habitats that may potentially be significant for southern blue whiting are discussed in Table 3.

Table 3: Summary of information on potential habitats of particular significance for fisheries management for SBW 6B.

Fish stock	SBW 6B
Potential habitat of particular significance	Bounty Platform substrate and water column.
Attributes of habitat	• Spawning ground for southern blue whiting SBW 6B fish stock at Bounty Platform, lasting from mid-August to early September. • Spawning takes place at this location potentially due to favourable current/circulation patterns.
Reasons for particular significance	• Spawning is of critical importance in supporting the productivity and recruitment of southern blue whiting. The year classes from strong recruitment events can persist in the catch for over 20 years.
Risks/threats	• No offshore development activities are known or planned. • Oceanographic features could be impacted by extractive processes (e.g., mining) but this is unlikely in this area. • Oceanographic features could be impacted by cable laying but laying of new cables is unlikely in Fisheries Management Area (FMA) 6. • Long term current and circulation patterns could be impacted by climate change (ocean warming, changes to wind patterns). • It is currently unknown what conditions make habitat favourable for southern blue whiting spawning, so it is also unknown to what extent fishing activity impacts these habitats.
Existing protection measures	• Moutere Hauriri/Bounty Islands Marine Reserve created 2014. • Bounty Heritage and Antipodes Transect BPAs created in 2007. These areas may be important feeding habitat for southern blue whiting outside of the spawning period.
Evidence	Fisheries New Zealand (2022). Aquatic Environment and Biodiversity Annual Review 2021. Compiled by the Aquatic Environment Team, Fisheries Science and Information, Fisheries New Zealand, Wellington New Zealand. 779 p.

7.5 Considerations for setting sustainability measures under section 11 of the Act

489. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying sustainability measures (such as the TAC change proposed as part of this paper). These include:

a) any effects of fishing on any stock and the aquatic environment; and

b) any existing controls under the Act that apply to the stock or area concerned; and

c) the natural variability of the stock concerned; and

d) any relevant planning instruments, strategies, or services.[93]

7.5.1 Effects of fishing on any stock and the aquatic environment – section 11(1)(a)

490. You must take into account any effects of fishing on any stock and the aquatic environment when making your decision about the SBW 6B TAC.

491. "Effect" is defined widely in the Act.[94] The broader effects of removing southern blue whiting from SBW 6B on the ecosystem as well as the more direct effects of trawling for southern blue whiting need to be considered. Information regarding the effects of target trawling for southern blue whiting is discussed under heading 7.4 *'Environmental principles'*, and under heading 10 *'Options and analysis'*.

7.5.2 Existing controls that apply to the stock or area – section 11(1)(b)

492. You must take into account any existing controls under the Act, including rules and regulations made under section 2(1A) that apply to the stock when setting or varying the TAC.

493. The primary controls that apply under the Act are the catch limits and allowances. Although southern blue whiting is not a recreational species, it would come under the daily recreational limit requirements for finfish. In FMA 6, the combined daily limit for finfish is 30.

7.5.3 The natural variability of the stock – section 11(1)(c)

494. You must take into account the natural variability of the stock when setting or varying its TAC.

495. For southern blue whiting the age and length of maturity, and recruitment to the fishery, varies between areas. Ageing studies have shown that southern blue whiting has very high recruitment variability. Abundance of southern blue whiting is driven by several strong year classes entering the fishery over the years.

7.5.4 Relevant statements, plans, strategies, provisions, and documents - section 11(2)

496. In setting or varying the TAC of this stock, you must have regard to relevant statements, plans, strategies, provisions, and planning documents under section 11(2) of the Act, that apply to the coastal marine area and that you consider to be relevant. There are no specific plans or strategies under this section that apply to SBW 6B. Note that there are no Regional Councils that have a coastline within the SBW 6B boundary.

7.5.5 Relevant services or fisheries plans – section 11(2A)

497. Under section 11(2A), before setting or varying any sustainability measure or making any decision or recommendation under the Act to regulate or control fishing, you must take into account -

a) any conservation services or fisheries services; and

b) any relevant fisheries plan approved under Part 3 of the Act; and

c) any decisions not to require conservation services or fisheries services.

498. Fisheries services of relevance to the options in this paper include the research used to monitor stock abundance and tools used to monitor compliance with management controls in the

[93] Sections 11 (2) and (2A).

[94] Section 2(1) of the Act defines "effect" to mean the direct or indirect effect of fishing, and includes any positive, adverse, temporary, permanent, past, present, or future effect. It also includes any cumulative effect, regardless of the scale, intensity, duration, or frequency of the effect, and includes potential effects.

fishery. These are discussed under *'Status of the stocks*', *'Catch information and current settings within the TAC'*, and under *'Existing controls that apply to the stock or area – section 11(1)(b).'*

499. Observer coverage relevant to the SBW 6B fishery is described under heading 7.4 '*Environmental principles – section 9 of the Act*.' As noted, there is a high level of observer coverage in this fishery, and observers liaise with Fisheries Compliance to ensure that management controls are being adhered to.

National Fisheries Plan for Deepwater and Middle-depth fisheries 2019

500. Southern blue whiting is managed as a Tier 1 species within the National Fisheries Plan for Deepwater and Middle-depth fisheries 2019 (**National Deepwater Plan 2019**) because they are considered high volume and/or high value fisheries. A species-specific chapter of the National Deepwater Plan for southern blue whiting was completed in 2011.

501. The National Deepwater Plan (2019) is a formally approved section 11A plan that you must take into account when making sustainability decisions. It sets out a series of Management Objectives for deepwater fisheries, the most relevant to SBW 6B being:

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

502. FNZ considers that the options proposed in this paper fulfil these two objectives because the management opportunity to increase utilisation of the SBW 6B fishery will benefit future generations and SBW 6B is managed to an agreed Harvest Control Rule.

7.5.6 Other plans and strategies

503. The following plans and strategies are not mandatory considerations under section 11 of the Act, but they may be considered relevant to this review.

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

504. FNZ considers that the sustainability measures proposed for SBW 6B are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy – including Objective 10, which is to ensure that ecosystems are protected, restored, resilient and connected from mountain tops to ocean depths; and Objective 12, which is to manage natural resources sustainability.

505. For more information on Te Mana o te Taiao see heading 3.3 of the *Introduction and Legal Overview*.

8 Considerations for setting Total Allowable Catch – section 13 of the Act

506. As outlined under '*Status of the stock'*, the best available information on the status of SBW 6B includes:

- A successful acoustic survey in August 2023 indicates that mean survey biomass estimate of 12,506 tonnes (18% CV[95]) is the highest estimate since 2014 and was 62% higher than the last estimate of biomass of 7,719 tonnes in 2017.
- Ageing of fish from the survey confirms there has been strong recruitment into the fishery from the 2018 year-class.
- The DWWG on 15 December 2023 accepted that application of the SBW 6B HCR provides a yield of 4,988 tonnes.

[95]The co-efficient of variation (**CV**) is a statistical measure commonly used to represent variability or uncertainty. For example, if a biomass estimate has a CV of 0.2 (or 20%), this means that the error in this estimate (the difference between the estimate and the true biomass) will typically be about 20% of the estimate.

507. A fully quantitative stock assessment is not available for SBW 6B. Based on the current best available information, the biomass of SBW 6B that supports the *MSY* cannot be reliably estimated, so section 13(2A) of the Act is relevant for setting the TAC for SBW 6B.

508. For the purpose of setting TACs under section 13(2A), if the current level of the stock, or the level of the stock that can produce maximum sustainable yield is not able to be estimated reliably using the best available information, you must—

(a) not use the absence of, or any uncertainty in, that information as a reason for postponing or failing to set a total allowable catch for the stock; and

(b) have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock; and

(c) set a total allowable catch—

(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 the maximum sustainable yield.

8.1 Biological characteristics

509. The biological characteristics of southern blue whiting that need to be considered in setting a TAC under section 13(2A) of the Act are discussed under '*Biology*' and '*Status of the stocks*'.

510. Southern blue whiting grow relatively quickly and reach sexual maturity when they are around 35 cm in length and three years old. These characteristics make southern blue whiting more resilient to fishing pressure than longer-lived species that reach sexual maturity later. In addition, occasional large recruitment pulses make them relatively resilient to fishing pressure during periods of increasing abundance. This gives us confidence that the TAC increase will not put SBW 6B sustainability at risk. This is different to lower productivity stocks where we would need to be more cautious.

8.2 Interdependence of stocks

511. There is little information available regarding predator/prey interdependencies for southern blue whiting. Small fish such as Hector's lanternfish and crustaceans are the dominant prey groups for southern blue whiting, which in turn are preyed on by marine mammals, adult hake, ling, and hoki. Juvenile southern blue whiting are preyed on by seabirds, in particular by black-browed and grey-headed albatrosses.

512. FNZ considers that an increase in the TAC for SBW 6B will have an effect on associated prey species if effort increases, but that the likely effect will be small because the target fishery is predominantly southern blue whiting (around 99% of catch) – refer to heading 3.2 '*Fishery characteristics*'.

8.3 Environmental conditions affecting the stock

513. There is little information regarding the environmental conditions that are likely to affect southern blue whiting. Southern blue whiting stocks are characterised by highly variable recruitment (see the *'Biology'* heading). Based on recent strong recruitment in 2018 the population can be expected to have higher resilience to any environmental conditions affecting the stock.

8.4 Harvest Strategy Standard (HSS)

514. Section 13 of the Act provides for the setting of a TAC for SBW 6B, and guidance is provided by the HSS. The High Court has held that the HSS is an implied mandatory relevant consideration that you must have regard to when setting a TAC under section 13 of the Act, and the Court of Appeal has confirmed the decision of the High Court.[96]

515. The 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 QMS. It is intended to provide guidance on

[96] *Fisheries Inshore New Zealand Ltd v Royal Forest and Bird Protection Society of New Zealand Incorporated* [2023] NZCA 359.

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.

516. The HSS outlines FNZ's approach to relevant sections of the Act and forms a core input to FNZ's advice to you on the management of fisheries. The HSS defines a hard limit as a biomass limit below which fisheries should be considered for closure and a soft limit as a biomass limit below which the requirement for a formal time-constrained rebuilding plan is triggered.

517. Under the HSS, 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. The default management target applies to SBW 6B. The information presented in '*Status of the stock'* contains the best available information on southern blue whiting biomass.

8.5 Way and rate at which a stock is moved towards a level that can produce the *MSY*

518. FNZ considers that, in accordance with section 13(2A)(c)(ii), the options provided are not inconsistent with the objective of maintaining the stock above *MSY*, despite the status of the stock in relation to the management target of 40% B_0 being unknown. These options are not intended to move the stock towards or above a level that can produce the *MSY,* (they are intended to be consistent with maintaining the stock at or above a level that can produce the *MSY*) so you are not required to have regard to the social, cultural, and economic factors under section 13(3) for this review.

9 Information principles - section 10 of the Act

519. Under section 10 of the Act, decision-makers are required to take into account four information principles:

    a) decisions should be based on the best available information.[97]

    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.

520. FNZ considers that the information presented in this paper represents the best available information.

521. In various sections of this paper, FNZ has pointed out where information is uncertain and warrants caution.

10 Submissions

522. A total of five submissions were received, with one supporting Option 1, and four supporting Option 2.

523. A further three generic submissions were received that did not refer specifically to SBW 6B. These submissions from individuals did not support any proposed option and generally opposed increases to catch limits for all stocks that were consulted on. No submissions from environmental NGOs were received. Table 4 summarises the submissions received.

524. Submitters' and respondents' comments on the proposed options are addressed under the '*Options and analysis'* below.

[97] Section 2(1) of the Act defines "best available information" to mean "the best information that, in the particular circumstances, is available without unreasonable costs, effort, or time."

Table 4: Written submissions and responses received for the review of SBW 6B.

Submitter	Option supported			
	1	2	Other	Notes
Ngātiwai Holdings Ltd	✓			Support a conservative approach to the SBW 6B fishery to fulfil their commitment to the sustainable management of its fisheries and ensuring their protection and continued productivity for future Ngātiwai generations to come.
Ngāti Mutunga of Wharekauri Asset Holding Company Ltd		✓		Supports the position of Seafood NZ Deepwater Council
Seafood New Zealand Ltd – Deepwater Council		✓		The proposed increase is consistent with the best available information indicating an increase in biomass and strong recruitment from the 2018 year class. Option 2 would result in a revenue increase. Keeping the TACC low would increase the risk of insufficient ACE to fund further surveys of the stock.
Sealord Group Ltd		✓		Sealord agrees with the rational laid out by FNZ: a fishery independent biomass assessment showing increased biomass since the previous assessment in 2016, and evidence of recent strong recruitment from the 2018 year class.
Te Paataka o Tangaroa Ltd		✓		Supports the position of Seafood NZ Deepwater Council
The Iwi Collective Partnership (**ICP**)		✓		Note that based on the best available information, it is evident that the biomass of SBW 6B is abundant and recruitment is strong and thus the ICP support Option 2.
Generic submissions				
B. Leonard			✓	Submits that all catch limits should be reduced to zero for all stocks consulted on. Supports the elimination of the removal of animals from their home environment, catch limits should be reduced to zero as a moral, ethical, and ecological issue.
J. Williams			✓	Opposes increases to catch limits for all stocks consulted on.
P. Harvey			✓	What is being done to fish stocks is unsustainable and it is best to err on the side of caution rather than favouring commercial economic outcomes.

11 Options and analysis

11.1 Option 1 – *status quo*

TAC: 2,309	**TACC:** 2,264	**Customary:** 0	**Recreational:** 0	**Other mortality:** 45

525. Option 1 is to retain the current TAC and other settings (*status quo*) under section 13(2A) of the Act. This option retains the existing catch limits and allowances for SBW 6B set out above.

526. Based on the biomass estimate from the 2023 acoustic survey and the application of the HCR in 2023, the estimate of sustainable annual yield is 4,988 tonnes. FNZ considers that because the TAC under Option 1 is 2,679 tonnes lower than this estimate, it is not inconsistent with the objective of maintaining the stock at or above a level that can produce the *MSY*.

527. Option 1 represents the most cautious approach with respect to sustainability and carries the lowest risk to the stock, associated or dependent species, and the wider ecosystem. However, retaining the *status quo* would forgo opportunity to provide for increased utilisation that the best available information (the 2023 acoustic survey and ageing work) indicates is available for SBW 6B.

528. This option was supported by Ngātiwai Holdings Ltd. They support this option as a conservative approach to fulfil their commitment to the sustainable management of fisheries and ensuring their protection and continued productivity for future Ngātiwai generations to come.

529. Seafood New Zealand Ltd – Deepwater Council (**DWC**) do not support Option 1. They note that commercial vessels are unlikely to steam to the SBW 6B fishing grounds if there is insufficient ACE available to balance against the catch volumes required to make fishing in this area financially viable. As the acoustic survey of SBW 6B is reliant on commercial vessels undertaking fishing effort in this area, this would increase the risk that the acoustic survey will not go ahead in future years and usable acoustic biomass estimates will not be obtained.

11.2 Option 2 – FNZ preferred option

TAC: 4,988 (↑ 2,679)	**TACC:** 4,888 (↑ 2,624)	**Customary:** 0 –	**Recreational:** 0 –	**Other mortality:** 100 (↑ 55)

530. Under Option 2, the TAC would be set at 4,988 tonnes under section 13(2A) of the Act, which allows the TAC for a stock to be altered in a way that that is not inconsistent with the objective of maintaining the stock at or above a level that can produce the *MSY.*

531. The relevance of this option to your considerations under section 13 of the Act is outlined in '*Considerations for setting Total Allowable Catch – section 13 of the Act*' above.

532. Option 2 is a 2,679-tonne (116%) increase to the TAC which responds to the best available information (the acoustic biomass estimate and ageing work from 2023) that a utilisation opportunity exists for the Bounty Platform southern blue whiting stock.

533. This is a large increase but FNZ and the DWWG agree that application of the SBW 6B HCR to the acoustic biomass estimate enables a sustainable yield of 4,988 tonnes. Based on the HCR the increase is of low risk to the Bounty Platform southern blue whiting stock.

534. As discussed under '*Biology*' and '*Status of the stock*', southern blue whiting are relatively quick to grow and reach sexual maturity and experience occasional large recruitment pulses. These characteristics make the species more resilient to fishing pressure during periods of increasing abundance than longer-lived species that reach sexual maturity later.

535. FNZ notes that the mean survey biomass estimate in 2023 of 12,506 tonnes is the highest estimate since 2014. In addition, ageing of fish from the survey in August 2023 confirms there has been strong recruitment into the fishery from the 2018 year class, which joins the 2012 strong year class. These biological characteristics in combination with the information indicating that the current SBW 6B biomass can support a TAC increase, give FNZ confidence that the 2,679-tonne TAC increase under this option will not present a sustainability risk to the stock.

536. Under Option 2, no changes are proposed to the current customary Māori and recreational allowances as they reflect the best available information indicating no reported take in either sector. However, the allowance for all other mortality caused by fishing is proposed to be increased to 100 tonnes (a 55-tonne increase), which aligns with the current practice of setting this allowance at a level equivalent to 2% of the TACC for deepwater stocks with a high percentage of observer coverage.

537. This option was supported by five submitters (the majority of submissions). DWC note that the best available information from the 2023 acoustic survey indicates that there is an opportunity for increased utilisation because the biomass has increased since 2016. They note that the mean survey biomass estimate of 12,506 tonnes is 62% higher than the last biomass estimate of 7,719 tonnes in 2017. Finally, they note that if the entire TACC was caught under Option 2, an increase in revenue of approximately $2.83 M could be realised.

538. Ngāti Mutunga o Wharekauri Asset Holding Company Ltd. are fully committed to the sustainable management of its fisheries and ensuring their protection and continued productivity for future generations to come. They note that this is paramount to sustainability and economic viability. They support the same position adopted by the DWC in their submission (Option 2).

539. Sealord Group Ltd supports Option 2 and agrees with the rationale laid out by FNZ:

    a. A fishery independent biomass assessment shows increased biomass since the previous assessment in 2016, and
    b. Evidence of recent strong recruitment from the 2018 year class.

540. Te Paataka o Tangaroa support the same position adopted by DWC in their submission (Option 2). No further rationale was provided.

541. The Iwi Collective Partnership (**ICP**) note that based on the best available information, it is evident that the biomass of SBW 6B is abundant and recent recruitment is strong and thus they support Option 2.

12 Socio-economic context

542. The SBW 6B fishery supports many people, including quota holders, commercial fishers, licensed fish receivers, and seafood processing facilities. There is year to year fluctuation in the number of participants harvesting southern blue whiting, while quota ownership has remained stable. There have been on average 65 quota owners, supplying ACE to three entities, based on data from the last five April fishing years. The entities are vertically integrated companies, who act as permit holders and LFRs, and use a single vessel per entity. The level of participation has remained consistent with the 10-year average.

543. To give a sense of scale and distribution, over the last three fishing years, 69 percent of quota for SBW 6B was owned by four entities, and the remaining 31 percent of quota was owned by 61 entities. Twenty percent of all SBW 6B quota is settlement quota.

544. Southern blue whiting is primarily exported in processed frozen form. In the 2022 calendar year, 11,416 tonnes of southern blue whiting product were exported with a free on board[98] value of NZ $22.33 million.

545. Over the last five fishing years, the average port price revenue has been $440,000 in SBW 6B, while over the same period, the average derived free on-board export revenue was $1.15 million in SBW 6B. Port prices have remained stable at $0.56 since 2011/12 and the ACE transfer price decreased steadily between 2010/11 to 2018/19. The most recent ACE transfer price is $0.10/kg and there has been no average ACE transfer price available since 2018/19.

546. Under Option 1, assuming the TACC is fully caught, there would be an increase in port price revenue of $1.15 million on the 2022/23 fishing year, which is $780,000 higher than the five-year average. This represents $2.32 million in export revenue.

547. Under Option 2, the TACC would increase from 2,264 tonnes to 4,888 tonnes. On the basis of the export value of dressed southern blue whiting during the 2022 calendar year of NZ $1,780/tonne, this TACC increase would result in a potential increase in revenue of approximately $2.83 M per year[99] above Option 1 if the entire current TACC was caught (Table 5).

548. FNZ notes that the TACC of SBW 6B has not been fully caught for a number of years. This means an increase in revenue is available under the current TACC if it were fully caught. An increase to the TACC under Option 2 provides further opportunity for a revenue increase, if the TACC under this option is fully caught.

Table 5: Predicted changes to commercial revenue for proposed Option 2, based on estimated average export price in 2022 of $1,780/tonne for SBW 6B.

Option	Change from current TACC (tonnes)	Predicted export revenue ($p.a.)
Option 1	0	$1,150,000
Option 2	2,624	$2,830,739

13 Deemed value rates

549. FNZ is satisfied that the current deemed value rates for SBW 6B are consistent with section 75(2)(a) of the Act, in that they provide sufficient incentive for fishers to balance their catch with ACE. Because of this, FNZ did not propose any deemed value rate changes as part of this review.

550. FNZ presented the deemed value settings of SBW 6B for general consultation and invited feedback. However, no submissions commented on the deemed value settings.

[98] 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.

[99] This is based on an average unit value for dressed SBW of $1.78 kg during the 2022 calendar year and a conversion factor for dressed (DRE) of 1.65.

551. While not proposing deemed value changes as a part of this review, 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.

14 Conclusions and recommendations

552. FNZ notes that the best available information from a successful acoustic survey in August 2023 indicates that there is an opportunity for increased utilisation of the SBW 6B fish stock. The SBW 6B biomass has increased since 2016. In addition, ageing of fish from the survey in 2023 confirms there has been strong recruitment into the fishery from the 2018 year-class.

553. FNZ recommends Option 2; that you increase the TAC for SBW 6B to 4,988 tonnes. This option is supported by the majority of submitters (noting that most submissions were from commercial fishing interests). FNZ considers the increase to the TAC under Option 2 is of low risk and will provide a utilisation opportunity for SBW 6B while retaining the ongoing sustainability of the stock.

15 Decision for SBW 6B

Option 1

Agree to retain the SBW 6B TAC at 2,309 tonnes and, within the TAC, to:

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 45 tonnes;
iv. Retain the SBW 6B TACC at 2,264 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(Fisheries New Zealand preferred option)*

Agree to set the SBW 6B TAC at 4,988 tonnes and, within the TAC, to:

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 45 to 100 tonnes;
iv. Increase the SBW 6B TACC from 2,264 to 4,888 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon Shane Jones
Minister for Oceans and Fisheries

06 / 03 / 2024

Southern bluefin tuna / Ika tira iti
Thunnus maccoyii

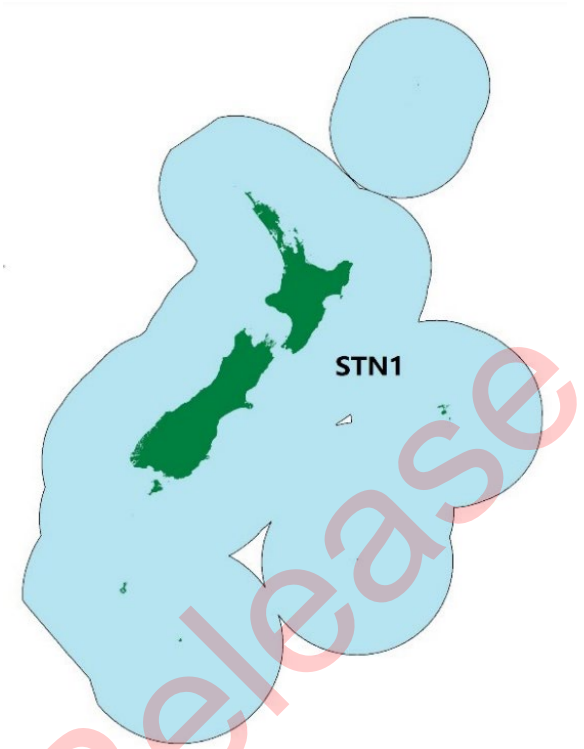


Figure 1: Quota Management Areas (QMAs) for southern bluefin tuna.

1 Why are we proposing a review?

554. Southern bluefin tuna is internationally managed by the Commission for the Conservation of Southern Bluefin Tuna (**CCSBT**), of which New Zealand is a founding member. The CCSBT sets the Global Total Allowable Catch (**GTAC**) for southern bluefin tuna using a science-based management procedure in three-year blocks, which is in turned allocated to individual member countries. Fisheries New Zealand (**FNZ**) is satisfied that the advice from the CCSBT's Scientific Committee represents the best available information to inform management decisions.[100]

555. At its latest meeting in October 2023, the CCSBT agreed to increase the GTAC for the three-year block from 2024 to 2026, by 3,000 tonnes to 20,647 tonnes, in accordance with recommendations from its scientific committee. As a result of this, New Zealand's national allocation has increased by 186 tonnes. There is now a utilisation opportunity to reflect this international decision within New Zealand's domestic catch settings for southern bluefin tuna.

556. Southern bluefin tuna has a fishing year starting on 1 October in New Zealand. To give effect to the CCSBT decision, FNZ is proposing to implement an in-season increase in the Total Allowable Catch (**TAC**) of STN 1, pursuant to section 14(6) of the Fisheries Act 1996 (**the Act**). This would provide for increased utilisation within New Zealand's national allocation within the current October fishing year, which runs from 1 October 2023 to 30 September 2024. As part of this proposal, FNZ is advising on appropriate settings for the allowances within the TAC.

557. In addition to this in-season increase, FNZ proposes that the TAC settings made in the in-season increase will also apply to the full fishing year from 1 October 2024, pursuant to section 14(1) of the Act.

[100] The Report of the Twenty Eighth Meeting of the CCSBT's Scientific Committee is publicly accessible on the CCSBT website.

2 Summary of proposed options and FNZ's recommendation

2.1 Proposed in-season increase

558. FNZ proposes that the TAC for 2023/24 fishing year be set to the level of New Zealand's country allocation set by the CCSBT (Table 1). No change is made to the Total Allowable Commercial Catch (**TACC**) when implementing an in-season increase. Instead, additional Annual Catch Entitlement (**ACE**) is generated for southern bluefin tuna that equals the amount in tonnes by which you would have increased the TACC. This in-season increase, if agreed to, will take effect from 1 April 2024.

559. An increase of 35 tonnes to the recreational allowance is proposed to align with the latest estimate of recreational catch. FNZ will continue to monitor the growing recreational catch and can consider the need for additional controls in late 2024, in advance of the 2025 season.

560. No changes to the allowances for customary fishing or all other sources of mortality caused by fishing are proposed.

Table 1: Proposed management option (in tonnes) for STN 1 from 1 April 2024 to 30 September 2024. The preferred option of Fisheries New Zealand is highlighted in blue.

Option	TAC	TACC	Additional ACE[101]	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
Current settings	1,102	1,046	-	2	34	20
Option 1	1,288 (↑ 186)	1,046	151↑	2	69 (↑ 35)	20

2.2 Proposed TAC change for the 1 October 2024 fishing year

561. FNZ is proposing that the TAC settings made in the in-season increase will also apply to the full fishing year from 1 October 2024. These settings are included in Table 2.

562. No changes to the allowances for customary fishing or all other sources of mortality caused by fishing are proposed.

Table 2: Proposed management option (in tonnes) for STN 1 from 1 October 2024. 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	1,102	1,046	2	34	20
Option 1	1,288 (↑ 186)	1,197 (↑ 151)	2	69 (↑ 35)	20

3 About the stock

3.1 Biology[102]

563. Southern bluefin tuna is a highly migratory species that is seasonally present in New Zealand waters. The species traverses between the high seas and states' exclusive economic zones (**EEZs**) throughout the southern hemisphere, primarily in waters between 30 and 45 degrees south. Southern bluefin tuna are apex predators and have been recorded to live up to 40 years old, weighing over 200 kilograms and reaching over two metres in length.

[101] During an in-season increase, under section 68 of the Act, 'the Minister shall create an additional amount of Annual Catch Entitlement for the stock that equals the amount by which he or she would have increased the [TACC]', while the TACC remains unchanged.

[102] Information in this section references Attachment 8 of the Report of the Twenty-Eighth Meeting of the Scientific Committee.

564. Adults are broadly distributed in the South Atlantic, Indian, and western South Pacific Oceans, and are predominantly found in temperate latitudes. Juveniles are broadly distributed along the continental shelf of Western and South Australia and in high seas areas of the Indian Ocean. Southern bluefin tuna caught in the New Zealand EEZ appear to represent the easternmost extent of the stock.

565. There is some uncertainty about the average size and age at which southern bluefin tuna reach maturity. Available information suggests that maturity may be at around 1.5 metres in length and no younger than eight years of age. The Indian Ocean south-east of Java, Indonesia is the only known area where spawning takes place. Spawning occurs between September and April.

3.2 Fishery characteristics

566. Southern bluefin tuna is valued by customary, commercial, and recreational fishers in New Zealand.

567. Domestically, southern bluefin tuna is primarily caught in a target commercial fishery using the surface longline fishing method (**SLL**)**,** which accounted for 98% of commercial catch in the last three complete October fishing years.

568. Surface longline fishing targeting southern bluefin tuna primarily occurs off the west coast of the South Island and along the east coast of the North Island. The fishing season for southern bluefin tuna generally begins in April/May and finishes in July/August. However, catch has been expanding off the east coast of the South Island in recent years.

569. Southern bluefin tuna is also caught as bycatch in domestic SLL fisheries targeting bigeye tuna/swordfish and yellowfin tuna. Very small amounts are also caught by trolling fisheries targeting albacore and by deepwater trawl vessels.

570. Game fishing is a popular pastime for many New Zealanders, and southern bluefin tuna is particularly prized by recreational fishers as a newly developed winter game fishery. The primary recreational method used for catching southern bluefin tuna is trolling lures.

3.3 Management background

3.3.1 International management context

571. Southern bluefin tuna is internationally managed by the CCSBT, of which New Zealand is a founding member. The CCSBT sets the GTAC using a science-based Management Procedure that is designed to ensure that the southern bluefin tuna spawning stock biomass reaches the CCSBT's rebuilding current target of 30% of initial Total Reproductive Output (**TRO_0**)[103] by 2035, which is the CCSBT estimate of B_{MSY}.[104] Under the adopted Management Procedure, the GTAC is set in three-year quota periods which is then allocated to individual member countries.[105]

572. Under the CCSBT, all members have a binding obligation to manage their catch of southern bluefin tuna within their allocation. Members must account for all sources of mortality of southern bluefin tuna, including those related to discards, as well as customary, commercial, and recreational fishing.

3.3.2 Domestic management context

573. Domestically, southern bluefin tuna is managed under the National Fisheries Plan for Highly Migratory Species, which was approved in 2019 by the then Minister of Fisheries under section 11A of the Act.

574. Southern bluefin tuna was introduced into the Quota Management System (**QMS**) on 1 October 2004 under a single quota management area, STN 1, with allowances for customary and recreational fisheries and other sources of mortality, and a commercial TACC.

[103] TRO_0 is the total reproductive output summed over all age classes weighted by their relative individual contribution to reproduction for an unfished fishery.

[104] B_{MSY} is the biomass (total weight of fish) that can support harvest of the maximum sustainable yield. See footnote 7 for definition of *MSY*.

[105] National allocations are apportioned according to the Resolution on the Allocation of the Global Total Allowable Catch, in which New Zealand's allocation percentage in set out as 6.2779%.

575. The domestic TAC for southern bluefin tuna was last increased for the October 2021/22 fishing year. For the three-year period from 2021 to 2023, the CCSBT retained the previous GTAC of 17,647 tonnes. However, due to a change in how non-member catch is incorporated into the Management Procedure, there were an additional 306 tonnes to be allocated between members. As a result of this, New Zealand's allocation was increased by 14 tonnes, from 1,088 tonnes to 1,102 tonnes per annum. This process saw an increase in the TAC, with a 14-tonne increase to the recreational allowance.

4 Status of the stock[106]

576. As southern bluefin tuna is a highly migratory species, migrating over considerable distances and spending only part of its time in New Zealand waters, it is not possible to calculate the Maximum Sustainable Yield (***MSY***)[107] for the portion of the stock found within the New Zealand EEZ.

577. The best available information on the global stock status of southern bluefin tuna is in the 2023 stock assessment undertaken by the CCSBT Scientific Committee. The CCSBT stock assessment is updated every three years (not coinciding with years when a new GTAC is calculated from the MP), to provide information on whether the stock is rebuilding, the projected timeframe to meet the objective for the rebuilding plan (i.e., 30% of TRO_0) and estimate current biomass and fishing mortality relative to refreshed models. This timing is to ensure that the advice about the stock status is distinct from the operation of the management procedure which is used to recommend the GTAC. The stock assessment is not used to run the management procedure or recommend the GTAC.

578. The 2023 stock assessment indicated that the southern bluefin tuna TRO used to monitor the stock size is estimated to be 23% of initial TRO. The stock remains below the level that could produce *MSY* and is still about as likely as not (40-60% probability) to be below the soft limit. However, the stock status has improved and indicates further rebuilding of the stock since the last assessment in 2020, which indicated that the TRO was at 20% of TRO_0.

579. As estimated by the 2023 stock assessment, abundance has trended upwards since its low point of 10% TRO_0 in 2009. The rebuilding plan for southern bluefin tuna appears to be on track to achieving the objective of reaching 30% of TRO_0 by 2035 (with 51% certainty).

5 Catch information and current settings within the TAC

5.1 Commercial

580. Southern bluefin tuna is a highly valuable commercial species, primarily sold for use as sashimi in the Japanese market. The New Zealand commercial southern bluefin tuna fishery provided export earnings of around $12 million NZD in 2023.

581. Annual commercial landings and the TACC for STN 1 since 1986 are shown in Figure 2. Total STN catch steadily increased from the early 1990s, peaking in 2018 at 1,008 tonnes and dropping to 876 tonnes in 2021/22. The COVID-19 outbreak, particularly the effective closure of the Japanese export market for a period coupled with low prices for exports, contributed to a slight under-catch of the TACC in 2019/20. It should also be noted that the commercial sector may not catch all of the allocated entitlement, as happened in previous years (Figure 2).

[106] Details of the CCSBT 2023 stock assessment for southern bluefin tuna are available on the CCSBT website or in the November 2023 Fisheries Assessment Plenary.

[107] Maximum sustainable yield (***MSY***) is the largest long-term average catch or yield that can be taken from a stock under prevailing ecological and environmental conditions.

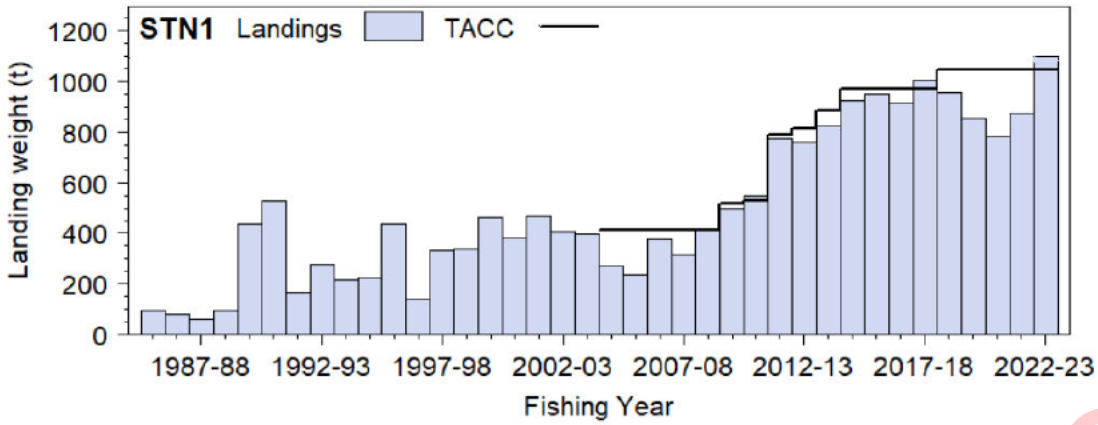


Figure 2: Annual commercial landings of southern bluefin tuna (STN 1) against the TACC.

582. For the 2022/23 fishing year (Figure 2), the southern bluefin tuna TACC was 1,046 tonnes, and commercial catch was 1,097.6 tonnes, (exceeding the available TACC). However, commercial fishers are allowed to carry forward some of their uncaught ACE from the previous year. Thus, the entire New Zealand catch has still been within New Zealand's annual Total Available Catch (Figure 3).[108]

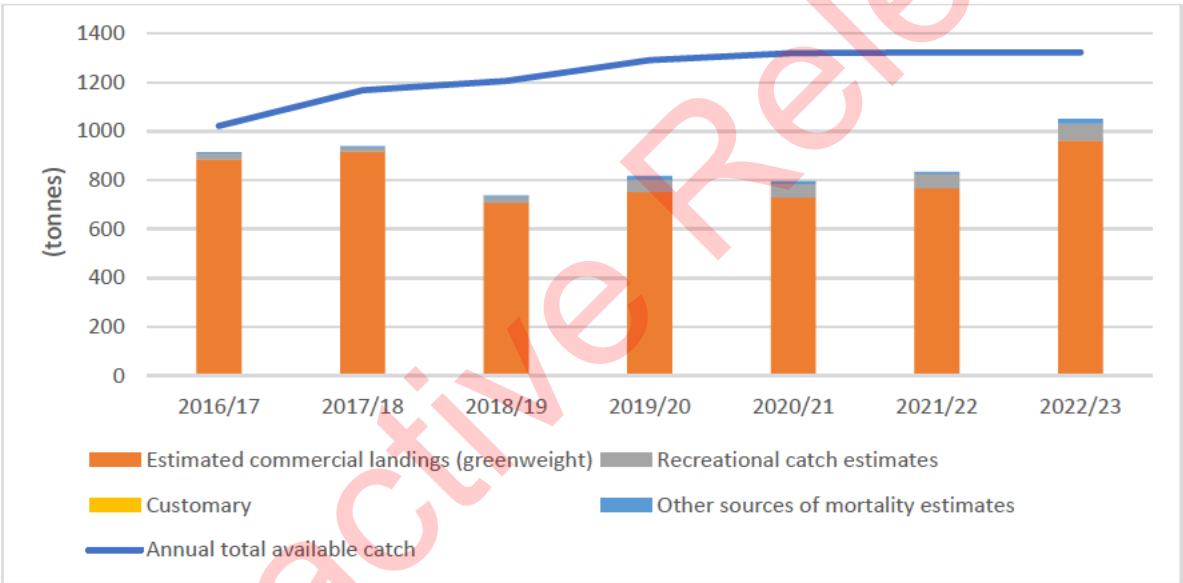


Figure 3: Annual Total Available Catch of southern bluefin tuna and catch by sector, in tonnes. Note the Annual Total Available Catch means New Zealand's TAC allocation plus any amount of unfished allocation carried forward to that quota year.

583. New Zealand-owned and operated longliners began fishing for southern bluefin tuna in 1991. The number of domestic vessels targeting southern bluefin tuna grew throughout the 1990s and early 2000s prior to the introduction of southern bluefin tuna into the QMS.

584. Since the introduction of southern bluefin tuna into the QMS in 2004, the number of vessels operating in the fishery declined from 99 vessels in 2004 to 25 vessels in 2021/22. The fleet primarily comprises smaller vessels, which are typically at sea for a few days at a time.

585. Since January 2024, onboard cameras have been rolled out to the commercial surface longline fleet. The surface longline fishing fleet was prioritised for camera rollout in recognition of the protected species risks in this fishery. FNZ expects that cameras will help ensure adherence to mitigation measures used to manage interactions with protected species, catch and discards.

586. Currently, commercial fishers may return to the sea southern bluefin tuna that are alive or likely to survive, under an exception provision set under the Act. These returns do not have to be

[108] Annual Total Available Catch means New Zealand's TAC allocation plus any amount of unfished allocation carried forward to that quota year. The total quota carried forward from one year to the next shall not exceed 20% of that Member's Effective Catch Limit (TAC) for the year from which the quota is being carried forward.

balanced with a commercial fisher's ACE. The ability to provide exceptions was clarified and tightened on 1 November 2022 when the Fisheries Amendment Act 2022 came into effect. The amendments changed the rules for how a QMS species or stock can (or must) be returned to the sea, based on a set of new provisions.

587. The current exception for southern bluefin tuna enables, but does not require, fishers to return these tuna, and requires them to be alive at return. FNZ is currently reviewing if an exception for southern bluefin tuna will continue and be provided for in the Fisheries (Landing and Discard Exceptions) Notice.

5.2 Customary Māori

588. Customary non-commercial fishing for southern bluefin tuna is provided for under the Fisheries (South Island Customary Fishing) Regulations 1999, the Fisheries (Kaimoana Customary Fishing) Regulations 1998, and regulations 50-52 of the Fisheries (Amateur Fishing) Regulations 2013. There are currently no records held by FNZ of southern bluefin tuna being taken under customary authorisation.

589. However, during the Mai i nga Kuri a Wharei ki Tihirau Iwi Fisheries Forum in 2018, tangata whenua indicated an intention to take southern bluefin tuna using some of the regulatory mechanisms listed above. Feedback received during those forum meetings also indicated that southern bluefin tuna was being used for customary purposes but taken under the general provisions for recreational fishing.

590. FNZ is not recommending any changes to the current customary fishing allowance, given that there are currently no records held by FNZ of southern bluefin tuna being taken under customary authorisation. However, we acknowledge that changes may be needed in future if tangata whenua begin to authorise customary take under the regulations.

5.3 Recreational

591. Prior to 2017, recreational catches of southern bluefin tuna are likely to have been rare because of the locations and seasons during which southern bluefin tuna are found in New Zealand waters. This is generally during winter months and in areas where little recreational fishing occurs.

592. In 2017, recreational catch was estimated at much higher levels than those previously seen in the fishery around the East Cape of the North Island. This resulted from an increase in recreational fishing effort targeting southern bluefin tuna, which was likely due, in part, to favourable weather conditions, fishery exposure on social media, and the relative proximity of the fish to shore that year. This helped inform the then Minister's decision to increase the recreational allowance from 8 to 20 tonnes in 2018.

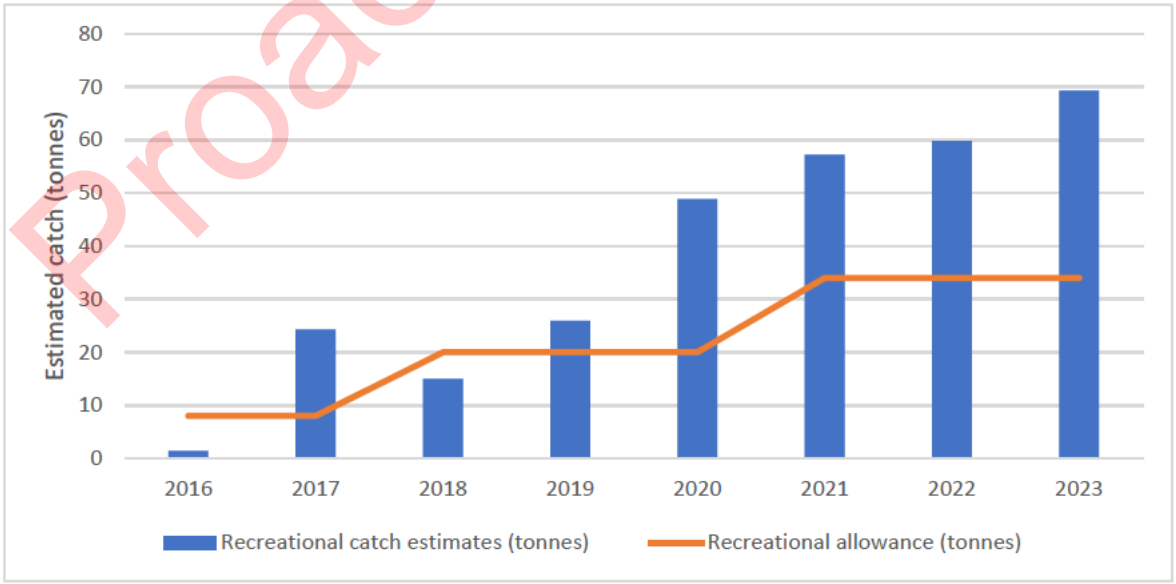


Figure 4: Recreational catch estimate vs recreational allowance, 2016–2023.

593. Recreational interest in this fishery has continued to grow. The increase in catch in recent years can largely be attributed to a higher number of fishers and increased availability of fish within range of vessels. This is likely due to oceanic conditions and abundance of forage species (Holdsworth, 2022). This informed the then Minister's decision to increase the recreational allowance from 20 to 34 tonnes from October 2021. In recent years, recreational catch estimates have been increasing and have exceeded the recreational allowance (see Figure 4). The increase in recreational catch of STN corresponds to an increase in recreational effort. However, the total New Zealand catch has still been within New Zealand's annual Total Available Catch (Figure 3).

594. FNZ funds a research project to estimate recreational southern bluefin tuna catch. This project includes a boat ramp survey at Waihau Bay and a targeted survey of South Island fishers, with other information collected from a variety of sources including sport fishing club records, authorised recreational take from commercial vessels, amateur charter vessel reporting, and anecdotal information. The estimates include an additional 22.5% over the recorded catch to allow for unaccounted recreational catch (Holdsworth, 2023b).

595. The primary management measure for recreational fishing for southern bluefin tuna is a bag limit of one southern bluefin tuna per person per day introduced in 2019. In 2023, 55% of surveyed private boat trips did not catch a southern bluefin tuna. Boat trips on which more than one southern bluefin tuna was caught recorded significantly higher catch rates than in previous surveys (Holdsworth, 2023b) (Figure 5).

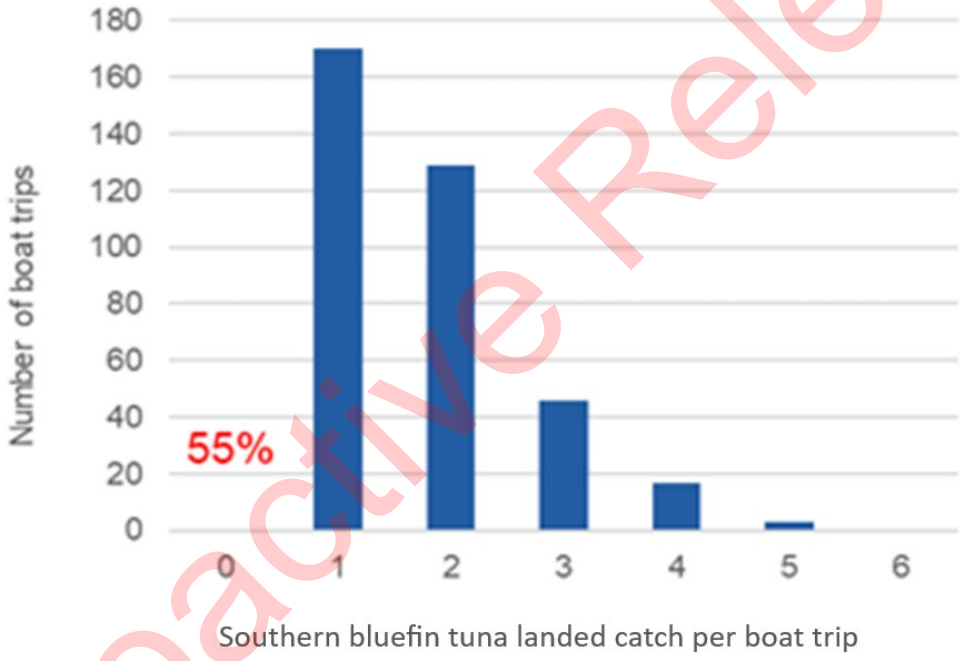


Figure 5: The number of southern bluefin tuna landed per private boat trip (per day) in 2023 from on-site survey data and the proportion of trips with zero catch (red).

596. The recreational catch estimate for 2022/23 is 69.3 tonnes. This is 35.3 tonnes higher than the current allowance of 34 tonnes and equates to 5% of the annual Total Available Catch for that fishing year.

597. FNZ will continue to monitor recreational catches of southern bluefin tuna, with further consideration of revised recreational management measures for this emerging fishery in late 2024, once the latest estimates are available. Any additional measures could be in place in time for the 2025 season.

5.4 Other sources of mortality caused by fishing

598. The allowance for other sources of mortality caused by fishing is intended to provide for unrecorded mortality of fish associated with fishing activity. This includes fish that escape through trawl net mesh and subsequently die from injuries, accidental loss (such as from fish dropping off hooks), predation, and misreporting.

599. The current allowance for all other sources of mortality to STN 1 caused by fishing is set at 20 tonnes. In 2019, the then Minister increased this allowance from 4 tonnes to 20 tonnes. The lower figure of 4 tonnes was based on observer data for what was at the time a low level of predation and discards within the southern bluefin tuna fishery. In 2019, the higher abundance and increased effort in the fishery increased the risk of additional mortality from returns made under the provisions of Schedule 6 of the Act[109] and from unlawful discards.

600. The 20-tonne allowance reflects estimated mortality from live releases along with any potential underreporting. FNZ does not have any new information that would suggest a review of this allowance is necessary. FNZ considers the overall mortality to the stock is likely to remain at similar levels under the proposed management option.

6 Treaty of Waitangi obligations as set in legislation

6.1 Input and participation of tangata whenua

601. Section 12(1)(b) of the 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 aquatic environment in the area concerned. In considering the views of tangata whenua, you are required to have particular regard to kaitiakitanga.

602. Input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established to support that engagement. 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.[110]

603. Prior to the round of hui held in November/December 2023, information on all stocks being considered for review as part of either the April 2024 or October 2024 sustainability rounds was made available to iwi forums. The Chatham Islands Community Fisheries Forum did not meet during this period.

604. At the hui of 4 December 2023, Te Waka a Māui me Ōna Toka Iwi Fisheries Forum raised concern about the information gap regarding recreational catch estimates. They consider that the recreational allowance is being increased based on very uncertain information regarding recreational catch estimates.

605. At the hui in January 2024, Te Tau Ihu Fisheries Forum raised questions on how STN 1 is allocated to each member, how increases are made under the international conventions, and how Treaty rights interest are protected within the international conventions.

606. A member within the Mid North Iwi Fisheries Forum provided their own written submission during the STN 1 consultation. They emphasised the need for sustainable management practices to ensure the continued health and abundance of southern bluefin tuna stocks.

607. FNZ acknowledges these concerns in the context of uncertain recreational catch estimates and a rebuilding stock. FNZ's position is further discussed under headings 11.1.2 '*Option 1*' and 11.3 *'Other options proposed by submitters.'*

6.2 Kaitiakitanga

608. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are among the ways that tangata whenua can exercise kaitiakitanga in respect of fish stocks.

609. The Te Waka a Māui me Ōna Toka Forum, Mai Nga Kuri a Wharei ki Tihirau Fisheries Forum, Te Hiku o Te Ika Fisheries Forum and Chatham Islands Fisheries Forum all identify southern bluefin tuna as taonga species of significance in their Fisheries Plans. Tangata whenua have shown greater interest in southern bluefin tuna and its management over recent years.

[109] Repealed on 1 November 2022, by section 21 of the Fisheries Amendment Act 2022.
[110] However, FNZ also engages directly with Iwi (outside of Forums) on matters that affect their fisheries interests in their takiwā and consults with any affected Mandated Iwi Organisations and Iwi Governance Entities where needed.

610. These management objectives are summarised in Table 3 below.

Table 3: STN 1 relevant Iwi Fisheries Forums with Iwi Fisheries Plan management objectives.

Iwi Fisheries Forum	Relevant Management Objectives contained in Iwi Fisheries Forum Plan
Te Waka a Māui me Ōna Toka Fisheries Forum	• To create thriving customary non-commercial fisheries that support the cultural well-being of South Island iwi and our whanau. • South Island Iwi are able to exercise kaitiakitanga. • Develop environmentally responsible, productive, sustainable, and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for South Island Iwi.
Mai Nga Kuri a Wharei ki Tihirau Fisheries Forum	• Iwi are actively engaged with others to increase their fisheries potential within environmental limits. • The fisheries environment is health and supports a sustainable fishery.
Te Hiku o Te Ika Fisheries Forum	• Fish stocks are healthy and support the social, cultural, and economic prosperity of Te Hiku iwi and Hapu. • The fisheries environment supports a health fishery.
Chatham Islands Fisheries Forum	• Kaitiakitanga is fundamental to the management of all fisheries resources. • Fisheries Management and Aquaculture decisions provide for our effective input and participation. • Effective, successful, and collaborative working relationships exist with the crown and other with fisheries responsibilities and interests within our rohe moana. • Thriving sustainable fisheries are enduring for present and future generations. • Fisheries and fisheries areas of cultural significance are protected and maintained and enhanced.

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

6.3 Mātaitai reserves and other customary management tools

612. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account -

a) any mātaitai reserve in STN 1 that is declared by notice in the Gazette under regulations made for the purpose under section 186;

b) any area closure or any fishing method restriction or prohibition in STN 1 that is imposed under section 186A or 186B.[111]

613. There are no customary fisheries management tools such as mātaitai, taiāpure or section 186A or 186B temporary closures relevant to these proposals as southern bluefin tuna fishing largely takes place offshore. However, southern bluefin tuna migrate, and are caught recreationally and commercially, through a number of rohe moana such as East Cape, Mid North Northland, Ngā Hapū o Taimai ki Te Marangi, Ngāti Kuta/Patukeha (Te Rawhiti Marae) and Ngāti Takapari, many of which extend out to 200 nautical miles from shore.

7 Environmental and sustainability considerations under the Act

7.1 Overview

614. You are being asked to make a decision under section 14 of the Act, to set the TAC for southern bluefin tuna in STN 1. This is a sustainability measure. Before setting or varying a sustainability measure, you must adhere to section 11 of the Act. When making your decision you must also act consistently with the requirements in section 5, and sections 8-10 (Purpose and Principles of the Act).

615. The requirements and details of each of these sections are set out below, in the following order:

[111] Section 21(4) does not refer to section 186B, but this is the provision used for temporary closures or fishing method restrictions or prohibitions in South Island fisheries waters.

a) Section 5 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992);
b) Section 8 (Purpose);
c) Section 9 (Environmental principles);
d) Section 11 (Sustainability measures);
e) Section 14 (Setting an alternative total allowable catch); and
f) Section 10 (Information principles).

7.2 Application of international obligations and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 – section 5 of the Act

616. Section 5 says that the Act must be interpreted, and all persons exercising or performing functions, duties, or powers under it are required to act, in a manner consistent with:

(a) New Zealand's international obligations relating to fishing; and

(b) the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

Section 5(a)- International obligations

617. You must act in a manner consistent with New Zealand's international obligations relating to fishing. Discussion of these relevant obligations is provided under Heading 2.2.2 in the *Introduction and Legal Overview*.

618. The three key pieces of international law relating to fishing, and to which New Zealand is a party, are the United Nations Convention on the Law of the Sea, 1982 (**UNCLOS**) and the United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (**UNSFA**), and the United Nations Convention on Biological Diversity 1992 (the **CBD**).

619. New Zealand is an active advocate internationally for protected species, including leading work at various regional fisheries management organizations such as the Western and Central Pacific Fisheries Commission (**WCPFC**) and the Commission for the CCSBT. Additionally, FNZ considers that all international obligations are being met and, in many cases, exceeded by the existing high standards of fisheries management. For example, the domestic NPOA-Seabirds which exceeds the standards of the International Plan of Action for Seabirds adopted under the United Nations Food and Agriculture Organisation (**FAO**).

Section 5(b) - Treaty of Waitangi (Fisheries Claims) Settlement Act

620. You must also act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. This is discussed in more detail under Heading 2.2.1 of the *Introduction and Legal Overview*. There are no specific matters relating to the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, and FNZ does not consider there are any specific matters that require separate consideration, that might apply to STN 1.

7.3 Purpose of the Act – section 8 of the Act

621. The Act's purpose is to "provide for the utilisation of fisheries resources while ensuring sustainability." Guidance for you on the meaning of section 8 and how it should be applied for decision making (for all the stocks being reviewed as part of this round) is provided under Heading 2.2.3 in the *Introduction and Legal Overview*.

7.4 Environmental principles – section 9 of the Act

622. The environmental principles that you must take into account when considering sustainability measures for STN 1, are as follows:

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; and

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

7.4.1 Associated or dependent species – section 9(a) of the Act

623. Associated or dependent species includes any non-harvested species taken or otherwise affected by the taking of any harvested species. This includes protected species such as marine mammals, seabirds, and sea turtles. In this section we have also provided analysis of potential impacts of fishing on other harvested species, including fish and invertebrate species caught as bycatch in the fisheries where southern bluefin tuna in STN 1 are caught.

624. Commercial fishers must file daily reports about what they have caught. FNZ is now releasing these reports quarterly on its webpage.

625. It is important to note that in some cases FNZ has made assumptions about environmental interactions (such as protected species interactions) based on fisher reported data that may not have been independently verified (for example, by an on-board FNZ observer).

626. Between 2019/20 and 2021/22 fishing years, observer coverage has been relatively low (~9% & ~5%) in the STN 1 fishery. This was due primarily to observer deployments not proceeding because of health and safety concerns relating to watchkeeping practices. Onboard cameras have successfully been rolled out to the surface longline fleet and will improve FNZ's ability to monitor any environmental interactions occurring in those fisheries.

Sea turtles

627. The STN 1 fishery occasionally interacts with sea turtles (turtles). FNZ considers the number of incidental turtle captures is unlikely to increase under the options proposed in this chapter as they do not primarily overlap with the STN 1 fishery. Most interactions of turtles occurred in surface longline fisheries targeting bigeye tuna and swordfish, between January to April, off northeast North Island and southeast North Island (Fisheries Management Areas 1 and 2, respectively).

628. Between 2002 and 2019, observers recorded five turtles released alive and one turtle released dead following capture in the STN 1 fishery. Turtle captures in this fishery have only been observed off the east coast of the North Island.

629. Fisher-reported data suggests that in the last five fishing years, an average of four turtles were caught annually in STN 1. The International Union for the Conservation of Nature has ranked species according to threat of extinction. Two species incidentally caught in STN 1 are ranked as critically endangered: the Western Pacific population of leatherback turtles, and the hawksbill turtle.[112]

630. To mitigate accidental sea turtle bycatch in surface longline fisheries, FNZ implemented changes to the Fisheries (Commercial Fishing) Regulations 2001. As of 3 August 2023, it is mandatory for commercial fishers who are surface longlining in New Zealand waters to use circle hooks.[113] Mandating the use of circle hooks is part of a wider cross-agency (FNZ and Department of Conservation (**DOC**)) programme of work to manage turtle interactions in commercial SLL fisheries, including supporting the continued implementation of best practice handling and release methods, a number of research projects, and ongoing support from the Department of Conservation's Protected Species Liaison Programme.

Marine mammals

631. The southern bluefin tuna longline fishery is known to interact with fur seals. Incidental captures on longlines typically occur when fur seals attempt to feed on used bait and caught fish during hauling. Most New Zealand fur seals are released alive, typically with a short snood[114] or trace still attached. New Zealand fur seal captures in surface longline fisheries have been reported mostly in waters off the west coast of the South Island but have also been reported in the Bay of Plenty/East Cape area.

632. The Department of Conservation classifies 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[115] and has been increasing in both abundance and distribution since then.

[112] The IUCN Marine Turtle Red List Assessments are publicly accessible on the Marine Turtle Specialist Group website.
[113] This change was implemented through the Fisheries (Commercial Fishing) Amendment Regulations 2023.
[114] A snood is a short branch line attached to the main line using a clip or swivel, with the hook at the other end.
[115] This information is publicly accessible on the Department of Conservation website.

633. The risk assessment for New Zealand marine mammals estimates New Zealand fur seals as the second most impacted species from commercial fishing (MacKenzie et al., 2022). Between 2002/03 to 2020/21 fishing years there were an average estimated 122 fur seal captures per year,[116] with estimated captures as high as 447 in the 2018/19 fishing year. Based on observer information, most fur seals encountered in surface longline gear are able to be released alive.

634. FNZ recognises that the proposed higher catch limits may result in increased effort in the fishery and therefore a potential increase in fur seal interactions, especially since there are no mitigation options for fur seals. However, information to inform the magnitude of any potential change in effort is inconclusive. This is confounded by the stock increasing at around 5% per year globally since 2009 (see Figure 7).

Seabirds

635. The STN 1 commercial fishery is known to interact with seabirds but information on interactions with the recreational fishery is limited. Historical reports from the annual Waihau Bay creel survey indicate that recreational fishers do not interact with seabirds while targeting southern bluefin tuna. However, there is uncertainty in this, given that the Waihau Bay survey does not cover the whole area of recreational fishing effort for southern bluefin tuna and more recent iterations of the report have not inquired about seabird interactions. From this year, the survey will include questions on seabird interactions.

636. In the commercial fishery, captures on longlines typically occur when the seabirds attempt to feed on the baited hooks during setting and hauling. Most seabird captures during setting result in mortality, with captures during hauling usually resulting in the seabird being released alive. Neither FNZ nor the Department of Conservation have undertaken research to assess post-release survival.

637. The National Plan of Action Seabirds-2020 (**NPOA-Seabirds**) guides management of seabird interactions with New Zealand fisheries. The vision of the NPOA-Seabirds is *'New Zealanders are working towards zero fishing-related seabird mortalities.'* It sets out the framework for managing impacts of fishing on seabirds, including the use of Mitigation Standards which are a mix of regulatory and voluntary measures which guide fishers' operations and help avoid interactions with seabirds.

638. The DOC New Zealand Threat Classification System has ranked species according to the threat of extinction. A number of species with the highest ranking 'Threatened – Nationally Critical' are captured in the surface longline fishery (black petrel, Salvin's albatross, Westland petrel, flesh-footed shearwater, southern Buller's albatross, Antipodean, and Gibson's albatross).

639. FNZ monitors seabird bycatch as part of its at-sea observer programme. Observations are used to calculate total estimated captures. This information is further used to model risk from fishing to seabird species. According to the most recent FNZ risk assessment (Edwards et al., 2023) the six species with the highest risk ranking all have recorded captures in the southern bluefin surface longline fishery. Estimates of seabird captures in the southern bluefin tuna SLL fleet operating in New Zealand's waters have remained steady for many years (Figure 6). While observer data is limited for the STN 1 fleet, best available information suggests that the STN 1 fishery continues to present a risk to seabirds.

[116] Estimated fur seal captures in the STN fishery are publicly accessible on the protected species bycatch website.

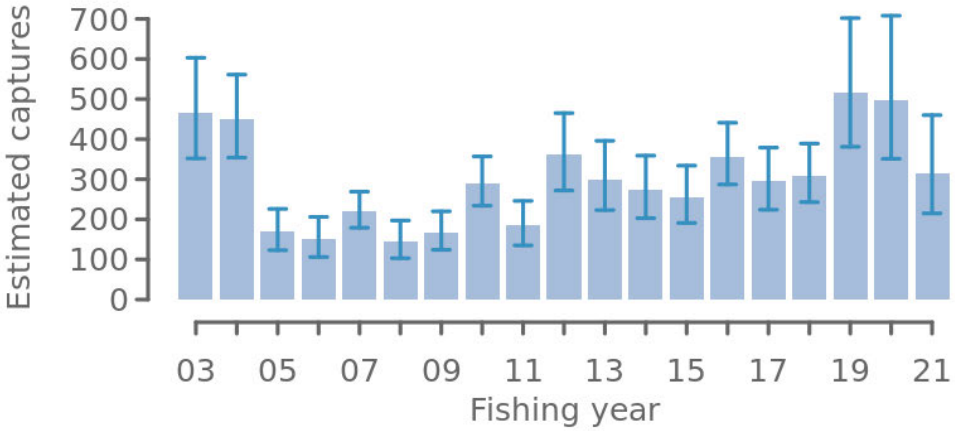


Figure 6. Estimated captures of all seabirds in the STN 1 surface longline fishery from 2003 – 2021 (including 95% confidence intervals) based on observed captures (note: decline in captures post 2004 likely due to overall reduction in fishing effort).[117]

640. FNZ is satisfied that the risk assessment used to assess fishing risk to seabirds, as well as other science that FNZ uses to manage commercial fisheries is based on best available information.

641. FNZ acknowledges that while there are some risks to seabirds from the STN 1 fishery, the greatest risk to some key species comes from high seas fisheries (Edwards et al., 2023). New Zealand is leading work at the WCPFC to strengthen the relevant Conservation and Management Measure to mitigate the impacts of fishing for highly migratory fish stocks on seabirds (**CMM 2018-03**). A decision is expected to be made by the WCPFC on a revised CMM in December 2024. Changes to the CMM are unlikely to surpass the measures New Zealand already has in place for seabird mitigation for SLL fisheries, but any changes that are made will need to be applied domestically, given New Zealand is a member of WCPFC. The CCSBT has also agreed to align its seabird measures with WCPFC's seabird CMM.

642. New Zealand is also a party to the Agreement on the Conservation of Albatrosses and Petrels (**ACAP**), which is a multilateral agreement that works to conserve albatrosses and petrels by coordinating international activities to mitigate threats to their populations. ACAP identifies best-practice seabird mitigation in SLL fisheries to be simultaneous use of 'three out of three' mitigation measures (tori line, night setting, and weighted lines), or using hook-shielding devices or underwater bait setting devices.

643. The current regulations for seabird mitigation measures in surface longline fisheries[118] define a 'hook-shielding device' (such as a hookpod) as a stand-alone best practice mitigation measure for pelagic fisheries. Hook-shielding devices are effective and simpler to use compared to the alternative option (combination of tori lines, line weighting, night setting). They have been shown to reduce seabird captures by up to 30% (Goad & Sullivan, 2017). An increase in the uptake of hook-shielding devices was seen during the 2022/23 fishing year, with 14 of the 20 active SLL vessels acquiring a full set from DOC free of charge. Additionally, the entire SLL fleet operating in the east coast South Island have now adopted hook-shielding devices which demonstrates the growing appetite amongst fishers.

644. In 2023, with the support of industry, the operators in the STN 1 fishery developed a Code of Practice (**COP**) of voluntary agreed management and mitigation procedures to minimise the risk of seabird captures. This COP exclusively applies to the STN 1 East Coast South Island (ECSI) fishery and requires operators to either use 'three out of three' or hook shielding devices at all times.

645. FNZ is currently considering strengthening the regulated seabird mitigation measures for the surface longline fleet. Consultation on proposed changes to the requirements was undertaken between March and May 2023, which included an option to mandate either 'three out of three' (i.e., simultaneous use of tori line, night setting, and line weighting) or hook-shielding devices at all times. A decision has not yet been made on these proposed changes but is expected in the

[117] This information is publicly accessible on the protected species bycatch website.
[118] Fisheries (Seabird Mitigation Measures—Surface Longlines) Circular 2019 (Notice No. MPI 1104)

coming weeks. Additionally, cameras were rolled out in the entire domestic SLL fleet in January 2024 which will vastly improve the available data on seabird interactions on the water.

646. FNZ recognises that if the proposed higher catch limits result in increased effort in the fishery there will likely be an increase in seabird interactions. Additionally, recent adoption of ACAP best practice mitigation options for a majority of the SLL fleet could potentially offset the increase in risk from any increase in effort. Information to inform the magnitude of any potential change in effort is inconclusive, this is also confounded by the stock increasing at around 5% per year globally since 2009 (see Figure 7).

Figure 7. Estimated greenweight (kg) of STN 1 and effort (measured in number of hooks deployed in the fishery) for the previous ten fishing years.

Fish and invertebrate bycatch

647. Bigeye tuna, Pacific bluefin tuna, swordfish, ray's bream, and blue sharks are often caught as bycatch in the New Zealand southern bluefin tuna surface longline fishery. These species were introduced into the QMS on 1 October 2004, and their TACCs are generally under-caught. Albacore tuna, a non-QMS species, is also often caught as bycatch in the STN 1 longline fishery. FNZ recognises that the proposed higher catch limits may result in increased effort in the fishery (depending on trends in catch per unit of effort) and therefore a higher risk of fish bycatch but considers that any increases can be accommodated within existing TACs for key species.

648. The shark species caught as bycatch in the STN 1 fishery are currently well below the TACC for these species. Any increased effort associated with the increased southern bluefin tuna limit proposed is considered unlikely to put significant pressure on the TACCs for these species. During the 2021/22 fishing year, there were no observed captures of protected shark species (chondrichthyans)[119] in the STN-target surface longline fishery.

649. Management of shark species in New Zealand is driven by the National Plan of Action for Sharks (the draft **NPOA-Sharks 2024**). Where practical, FNZ encourages fishers to release pelagic sharks alive in accordance with the draft NPOA Sharks-2024 management objectives. Releasing unwanted sharks alive, where practical, supports the precautionary approach to the management of these stocks. Where sharks are unwanted bycatch, they should be released alive using techniques that result in minimal harm, taking into account the safety of the crew.

[119] There are seven species of chondrichthyans protected under Schedule 7A of the Wildlife Act in New Zealand: Oceanic whitetip shark, basking shark, deepwater nurse shark, white pointer shark/white shark, whale shark, manta ray, and spinetail devil ray.

7.4.2 Biological diversity of the aquatic environment – section 9(b) of the Act

650. There are no known benthic impacts associated with the southern bluefin tuna fishery (FNZ – Fisheries Assessment Plenary, 2023). Overall, FNZ considers that the SLL fishing method used to target STN 1 is unlikely to affect the aquatic environment directly.

7.4.3 Habitats of particular significance for fisheries management – section 9(c) of the Act

651. Southern bluefin tuna is a highly migratory species, moving between New Zealand's EEZ, the EEZs of other states, and the high seas. The only known spawning ground for southern bluefin tuna is in the Indian Ocean, south-east of Java, Indonesia, where spawning occurs during September and April.

652. Juvenile southern bluefin tuna migrate south from Indonesia down the west coast of Australia during the summer months (December to April). Southern bluefin tuna found in New Zealand's waters represent the easternmost extent of the stock. There are no known habitats of particular significance for southern bluefin tuna identified in New Zealand's EEZ that could be impacted by the changes proposed in this paper.

7.5 Considerations for setting sustainability measures under section 11 of the Act

653. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying sustainability measures (such as the TAC change proposed as part of this paper). These include:

a) any effects of fishing on any stock and the aquatic environment; and
b) any existing controls under the Act that apply to the stock or area concerned; and
c) the natural variability of the stock concerned; and
d) any relevant planning instruments, strategies, or services.[120]

7.5.1 Effects of fishing on any stock and the aquatic environment – section 11(1)(a)

654. You must take into account any effects of fishing on any stock and the aquatic environment when making your decision about the STN 1 TAC. "Effect" is defined widely in the Act.[121] The broader effects of removing more southern bluefin tuna from STN 1 on the ecosystem as well as the potential for the more direct effects of fishing need to be considered.

655. Information regarding the effects of southern bluefin tuna target and bycatch fisheries on any stock and aquatic environment is described under heading 7.4.1. '*Associated or dependent species- section 9(a)'*.

656. There is no information to suggest that there are sustainability concerns arising from the proposed in-season increase and 2024/25 full year settings. FNZ believes that the Management Procedure agreed at CCSBT (and the robust scientific analysis behind it) allows New Zealand to utilise the increase in its allocation without jeopardising that rebuild.

7.5.2 Existing controls that apply to the stock or area – section 11(1)(b)

657. You must take into account any existing controls under the Act, including rules and regulations made under section 2(1A) that apply to the stock when setting or varying the TAC.

658. Current management controls in place for fishing for southern bluefin tuna are described under headings 5.3 '*Recreational'* and 6.3 '*Mātaitai reserves and other customary management tools*'.

7.5.3 The natural variability of the stock – section 11(1)(c)

659. You must take into account the natural variability of the stock when setting or varying its TAC.

660. With regard to STN 1, the 2023 stock assessment indicates that the southern bluefin tuna TRO used to monitor the stock size is estimated to be 23% of initial TRO, and abundance has

[120] Sections 11(2) and (2A).

[121] Section 2(1) of the Act defines "effect" to mean the direct or indirect effect of fishing, and includes any positive, adverse, temporary, permanent, past, present, or future effect. It also includes any cumulative effect, regardless of the scale, intensity, duration, or frequency of the effect, and includes potential effects.

trended upwards since its low point of 10% TRO_0 in 2009. The rebuilding plan for southern bluefin tuna appears to be on track to achieving the objective of reaching 30% of TRO_0 by 2035 (with 51% certainty). FNZ will continue to monitor the fishery, including through the southern bluefin tuna recreational survey and review of CPUE indices.

7.5.4 Relevant statements, plans, strategies, provisions, and documents - section 11(2)

661. In setting or varying the TAC of this stock, you must have regard to relevant statements, plans, strategies, provisions, and planning documents under section 11(2) of the Act, that apply to the coastal marine area and that you consider to be relevant. There are no specific plans or strategies under this section that apply to STN 1.

7.5.5 Relevant services or fisheries plans – section 11(2A)

662. Under section 11(2A), before setting or varying any sustainability measure or making any decision or recommendation under the Act to regulate or control fishing, you must take into account -

    a) any conservation services or fisheries services; and
    b) any relevant fisheries plan approved under Part 3 of the Act; and
    c) any decisions not to require conservation services or fisheries services.

663. Fisheries services of relevance to the options in this paper include the research used to monitor the fishery and the tools used to enforce compliance of management controls in the fishery. These are discussed under '*Status of the stocks*', '*Catch information and current settings within the TAC*', and under '*Existing controls that apply to the stock or area – section 11(1)(b).*'

664. *Observer* coverage relevant to the STN 1 fishery is also described under heading 7.4 'Environmental principles – section 9 of the Act.'

National Fisheries Plan for Highly Migratory Species

665. *Domestically*, southern bluefin tuna are managed under the National Fisheries Plan for Highly Migratory Species (**HMS**) 2019. The National HMS Plan sets out management objectives and strategies for HMS fisheries, the most relevant to STN 1 being:

- **Management Objective 1**: Support viable and profitable commercial HMS fisheries in New Zealand;
- **Management Objective 2**: Maintain and enhance world class game fisheries in New Zealand fisheries waters;
- **Management Objective 3**: Māori interests (including customary, commercial, recreational, and environmental) are enhanced;
- **Management Objective 4:** Maintain sustainable HMS fisheries within environmental standards;
- **Management Objective 5:** Implement an ecosystem approach to fisheries management, taking into account associated and dependent species;
- **Management Objective 7**: Maintain an effective fisheries management regime; and
- **Management Objective 8:** Recognise and provide for Deed of Settlement obligations.

666. *The* National Fisheries Plan for Highly Migratory Species is a formally approved section 11A Fisheries Plan, which you must take into account when making sustainability decisions.

7.5.6 Other plans and strategies

667. The following plans and strategies are not mandatory considerations under section 11 of the Act, but they may be considered relevant to this review.

Te Mana o te Taiao

668. FNZ considers that the sustainability measures proposed for STN 1 are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy – including Objective 10, which is to ensure that ecosystems are protected, restored, resilient and connected from mountain tops to ocean depths; and Objective 12, which is to manage natural resources sustainability.

669. For more information on Te Mana o te Taiao see heading 3.3 of the *Introduction and Legal Overview*.

Regional rebuilding plan

670. Southern bluefin tuna is a highly valued species currently subject to an international rebuilding plan under the CCSBT. In line with the rebuilding plan, the CCSBT sets the GTAC for southern bluefin tuna for three-year periods, with the GTAC allocated to individual member countries (see Table 4 below, and footnote 105). A recent increase in New Zealand's allocation presents an opportunity to increase utilisation within the confines of the rebuilding strategy.

671. In 2011, the CCSBT agreed that a science-based management procedure would be used to guide the setting of the global total allowable catch for southern bluefin tuna. The management procedure is designed to recommend an appropriate global catch limit that will allow the spawning stock biomass to achieve the rebuilding target of 30% of unfished spawning stock biomass by 2035 (with 51% certainty).

672. Based on the results of the management procedure operation for 2024-26 quota block undertaken in 2022 and agreed in 2023, the CCSBT agreed to increase the GTAC for 2024-2026 by 3,000 tonnes to 20,647 tonnes.

Table 4: Global Total Allowable Catch and New Zealand's allocation (in tonnes)

	2011	2012	2013	2014	2015-17	2018-20	2021-23	2024-26
Global total allowable catch	9,449	10,449	10,949	12,449	14,647	17,647	17,647	20,647
New Zealand allocation	570	800	830	910	1,000	1,088	1,102	1,288

8 Considerations for setting the TAC - section 14 of the Act

8.1 Section 14 – Alternative TAC for stocks specified in Schedule 3

673. The TAC for southern bluefin tuna is set under section 14 of the Act. This section provides for an alternative TAC to be set for stocks specified in Schedule 3 (including southern bluefin tuna) if you are satisfied that the purpose of the Act is better met in this way. In general, TACs are set in accordance with the provisions of section 13(2) of the Act (i.e., in a manner that would maintain, or move the stock towards, a biomass at or above the level that can support *MSY*). This is not possible for southern bluefin tuna in New Zealand alone since, being a highly migratory species, it is not possible to calculate *MSY* for the portion of the stock found within the New Zealand EEZ (section 14(8)(b)(iv)). Setting a TAC under section 14 also recognises that a national allocation for New Zealand has been determined as part of an international agreement (section 14(8)(b)(ii)).

2023/24 in-season increase

674. In New Zealand, southern bluefin tuna is managed within the QMS, with a fishing year from 1 October to 30 September. The TAC effective on 1 October 2023 does not currently reflect the national allocation increase that was confirmed at the Commission meeting this year. Section 14(6) of the Act allows for changes in the TAC to occur in-season for southern bluefin tuna. The use of this mechanism would enable New Zealand to apply its increased national allocation in time to be utilised in the first fishing year (2024) of the current three-year block, and realise greater economic and social benefits. Under the Act, the TAC shall revert to its previous level at the end of that fishing year (section 14(7)). In this instance, however, FNZ is also proposing changes to the 2024/25 TAC as part of this process.

2024/25 TAC change

675. FNZ is proposing changes to the TAC for 2024/25 as provided for under section 14 of the Act. Setting a TAC under section 14(1) of the Act requires consideration of how to best meet the purpose of the Act as outlined in section 8 – that is, to provide for utilisation whilst ensuring sustainability.

8.2 Harvest Strategy Standard

676. 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 QMS. It is intended to provide guidance on 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.

677. The HSS outlines the Ministry's approach to relevant sections of the Act. It is therefore a core basis for the Ministry's advice to you in the management of fisheries, particularly the setting of TACs under section 14 of the Act.

678. The HSS outlines classifications of stocks based on their status in relation to target and limit reference points. For highly migratory species (including southern bluefin tuna), policy guidance outlines where an international organisation or agreement has adopted harvest strategies and rebuilding plans that meet or exceed the minimum standards contained in the Standard, the approach of FNZ to the international organisation or agreement will generally be to support those strategies. This approach has been reflected in the position taken by New Zealand officials at CCSBT when advocating for a precautionary approach in rebuilding the stock.

679. FNZ is satisfied that the advice from the CCSBT Scientific Committee represents the best available information to inform management decisions. In 2022, the management procedure was run and provided a recommendation that the GTAC for the 2024-2026 TAC block should increase by the maximum amount of 3,000 tones (from 17,647 tonnes to 20,647 tonnes). The 2023 scientific committee concluded that there is no evidence of exceptional circumstances and therefore confirms the TAC recommended for 2024-2026 of 20,647 tonnes per year.

9 Information principles - section 10 of the Act

680. Under section 10 of the Act, decision-makers are required to take into account four information principles:

    a) decisions should be based on the best available information.[122]
    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.

681. FNZ considers that the information presented in this paper represents the best available information.

682. In various sections of this paper (see headings 3.1 '*Biology*', 5.3 *'Recreational'* and 7.4.1 '*Associated or dependent species – section 9(a)*') FNZ has pointed out where information is uncertain and warrants caution, in line with the principles above.

683. Uncertainty exists in the recreational catch estimates for southern bluefin tuna given that the recreational survey does not cover the whole area of recreational fishing effort for southern bluefin tuna. Although there has been a targeted recreational survey taking place since 2018, the survey results acknowledge and provide for a level for uncertainty in the total recreational catch estimates.

684. Since 2018, members of the CCSBT have been required to account for all sources of southern bluefin tuna mortality (from commercial fishing operations, releases and/or discards, recreational fishing, customary and traditional fishing, and artisanal fishing[123]). New Zealand led and advocated for this change at CCSBT. Therefore, there are reputational risks at the CCSBT in terms of not accounting for all sources of mortality within New Zealand's domestic catch settings.

[122] Section 2(1) of the Act defines "best available information" to mean "the best information that, in the particular circumstances, is available without unreasonable costs, effort, or time".
[123] Fishing for subsistence by coastal or island ethnic groups using traditional methods.

10 Submissions

685. A total of seven submissions were received that specifically addressed the proposals for STN 1.

686. Three submitters supported Option 1 for the in-season increase and Option 1 for the TAC settings for the 2024/25 year. Of these, the support of two submitters is contingent on implementation of urgent recreational management measures for the STN 1 recreational fishery.

687. Four submitters opposed any TAC increase, highlighting concerns around potential increased risks to dependent or associated species, wider ecosystem considerations, and recreational access to a rebuilding stock.

688. A further three submissions were received that referred to catch limits in general but did not address STN 1 specifically.

689. Table 5 summarises the submissions received. Submitters' and respondents' comments on the proposed options are addressed under '*Options and analysis*' below.

Table 5: Written submissions and responses received for the review of STN 1.

Submitter	Options supported				Notes
	In-season		Full year		
	Option 1	Other	Option 1	Other	
Iwi Collective Partnership (**ICP**)	✓	✓	✓	✓	Supports Seafood New Zealand Inshore Council's submission.
New Zealand Sport Fishing Council/LegaSea	✓		✓		Supports TAC increase.
Seafood New Zealand - Inshore Council	✓	✓	✓	✓	Supports Option 1, contingent on urgent implementation of recreational management measures to adequately manage and monitor southern bluefin tuna recreational catch
Birdlife International		✓		✓	Opposes TAC increase. Recommends maintaining the *status quo* until the seabird SLL Circular is updated to include ACAP 3/3, and all vessels that may fish for Southern bluefin tuna are equipped with cameras and a minimum of 30% of footage is reviewed.
E. Morris		✓		✓	Opposes TAC increase. Concerned increase will put recreational access at risk.
Forest and Bird		✓		✓	Opposes TAC increase. Recommends maintaining the *status quo* until the seabird SLL Circular is updated to include ACAP 3/3, implement turtle bycatch reduction plan and approval of the draft NPOA Sharks.
T. Allen		✓		✓	Opposes TAC increase. Concerned about the potential long-term effects on the sustainability of the stock.
Generic submissions					
B. Leonard		✓		✓	Disputes the removal of animals from their home environment. Recommends all catch limits should be reduced to zero.
J. Williams		✓		✓	Opposes increases to catch limits.
P. Harvey		✓		✓	Contends that what is being done to fish stocks is unsustainable and it is best to err on the side of caution rather than favouring commercial economic outcomes.

11 Options and analysis

11.1 Proposed in-season increase

11.1.1 Current settings

TAC: 1,102	**TACC:** 1,046	**Customary:** 2	**Recreational:** 34	**Other mortality:** 20

690. The *status quo* is not proposed as an option in this review for STN 1. Retaining the current catch settings would not reflect the recent decision by the CCSBT to increase New Zealand's national allocation and the resulting utilisation opportunity. Also, retaining the current TAC for STN 1 would not reflect the most recent information received from the recreational and commercial sectors that indicated notably increased catches in both fisheries.

691. Failing to utilise the increased national allocation would result in forgone economic and social benefits from the potential additional catch (outlined under '*Option 1'* below). Maintaining the current TAC is unlikely to provide any benefit in terms of stock rebuild based on the parameters of the existing management procedure.

692. The following option is proposed for consideration.

11.1.2 Option 1

TAC: 1,288 (↑ 186)	**TACC:** 1,046	**ACE:** ↑ 151	**Customary:** 2	**Recreational:** 69 (↑ 35)	**Other mortality:** 20

693. FNZ considers this option satisfies section 14 of the Act for setting and varying an alternative TAC for stocks specified in Schedule 3.

694. This option would increase the STN 1 TAC by 186 tonnes and split the increase between commercial and recreational fishers.

TACC and additional ACE

695. As noted under heading 2.1 '*Proposed in-season increase'*, no change is made to the TACC when implementing an in-season increase. Instead, additional ACE is generated for southern bluefin tuna that equals the amount in tonnes by which you would have increased the TACC.

696. FNZ recommends increasing the available Annual Catch Entitlement for commercial fishers by 151 tonnes. This option would allow the commercial sector to benefit from increases permitted under the stock rebuilding strategy adopted by the CCSBT, whilst better reflecting the most recent information on commercial landings that indicated notably increased catch for the 2022/23 fishing year. It should also be noted, however that the commercial sector may not catch all of the allocated entitlement, as happened in previous years (Figure 2*).*

697. As southern bluefin tuna is primarily exported, the commercial sector would benefit from a catch limit increase, in the form of export revenue. Based on the average value derived from 2022/23 export statistics, an additional 151 tonnes allocation to the commercial sector is expected to create $1.1- $1.2 million in additional annual export revenue.

698. FNZ considers this option provides for additional utilisation by the commercial sector while meeting sustainability objectives. This is because the CCSBT management procedure ensures that the southern bluefin tuna global catch limit (which includes New Zealand's 186-tonne increase), achieves rebuilding targets. Furthermore, New Zealand's 186 tonnes increase represents only 0.9% of the global catch limit. Therefore, FNZ considers the risk of negatively affecting the rebuild of the stock to be negligible under this option.

Allowances

699. The current allowance for recreational fishing does not align with the best available information for estimates of recreational fishing (which indicate recreational catch of 69.3 tonnes in the 2022/23 fishing year). Currently, the allowance is 34 tonnes, which is 35.3 tonnes lower than the 2022/23 estimates of recreational catch.

700. FNZ recommends increasing this allowance to 69 tonnes so that it would better reflect the new information available on catch estimates in this developing fishery, while noting catch rates have been increasing in recent years. There are potential reputational risks to New Zealand in not

recognising the increased recreational activity in the STN 1 recreational fishery within its domestic allocation mechanisms. Failing to recognise this increased recreational catch domestically (i.e., allocating the entire increase to commercial) may put New Zealand at risk of exceeding its annual Total Available Catch under the CCSBT.

701. The customary allowance and the allowance for other mortality caused by fishing would be maintained at current levels.

Submitters' views

702. Submissions in support of Option 1 were received from the Iwi Collective Partnership (**ICP**), New Zealand Sport Fishing Council/LegaSea, and Seafood New Zealand Inshore Council.

703. New Zealand Sport Fishing Council/LegaSea expressed support for this option as, it increases the recreational allowance to the most recent estimate of recreational catch (of 69.3 tonnes). New Zealand Sport Fishing Council/LegaSea, also highlighted that the increased allowance from 34 to 69 tonnes represents just 0.0033% of the 2024 GTAC, and considers the recreational allowance, assuming is fully caught, would unlikely affect the spawning stock biomass which is currently rebuilding.

704. Seafood New Zealand Inshore Council supports Option 1, noting that additional catch entitlement coupled with the recovery of international markets provides an opportunity for commercial stakeholders to generate additional revenue. However, Seafood New Zealand Inshore Council's support for Option 1 is conditional upon urgent implementation of measures to adequately manage and monitor southern bluefin tuna recreational catch.

705. The ICP supports Option 1, and the proposal made by Seafood New Zealand Inshore Council.

706. In response to the ICP and Seafood New Zealand Inshore Council's view that current recreational management measures are limited in constraining recreational catch within the recreational allowance, FNZ acknowledges these concerns and accepts that additional measures to adequately manage and monitor southern bluefin tuna recreational catch should be considered. For further details see heading *11.4 'Other matters raised'*.

11.2 Proposed TAC change for the 2024/25 year

707. FNZ recommends that the TAC settings made in the in-season increase also apply to the full fishing year from 1 October 2024, pursuant to section 14 of the Act.

708. FNZ considers this option satisfies section 14 of the Act for setting and varying an alternative TAC for stocks specified in Schedule 3.

11.2.1 Current settings

TAC: 1,102	**TACC:** 1,046	**Customary:** 2	**Recreational:** 34	**Other mortality:** 20

709. The *status quo* is not proposed as an option in this review for STN 1. The rationale discussed under heading 11.1.1 *'Current settings'* applies to this option.

11.2.2 Option 1

TAC: 1,288 (↑ 186)	**TACC:** 1,197 (↑ 151)	**Customary:** 2	**Recreational:** 69 (↑ 35)	**Other mortality:** 20

710. Option 1 would increase the TAC by 186 tonnes and split the increase between commercial and recreational fishers for the full fishing year from 1 October 2024.

TACC

711. FNZ recommends that the TACC be increased to 1,197 tonnes. The rationale and submissions discussed under heading 11.1 '*Proposed in-season increase',* apply to this option.

Allowances

712. FNZ recommends that the recreational allowance be increased to 69 tonnes. Rationale and submissions discussed under heading 11.1 '*Proposed in-season increase',* apply to this option.

713. The customary allowance and the allowance for other mortality caused by fishing would be maintained at current levels for the full fishing year from 1 October 2024.

11.3 Other options proposed by submitters

714. Seven submissions (from Birdlife International (**BLI**), Forest and Bird (**F&B**), and some individual submitters) did not support Option 1 for either the in-season increase or the TAC settings for the 2024/25 year. Specifically, these submitters stated a preference to not increase the TAC due to concerns over potential long-term effects on sustainability, potential increased risks to dependent or associated species and wider ecosystems, and recreational access to a rebuilding stock.

715. BLI and F&B do not support an increase to the STN 1 TAC, allowances or TACC, unless concerns with protected species are first addressed. Both F&B and BLI heavily emphasize the need to improve seabird mitigation measures, and New Zealand's international obligations in reducing seabird captures. Both F&B and BLI recommend the adoption of seabird mitigation 'best practice' in New Zealand commercial fisheries, prior to any increases in the TACC being considered. BLI also emphasises the need for all vessels that may fish for STN 1 to be equipped with cameras and a minimum of 30% of footage reviewed.

716. FNZ notes that the current review levels for the surface longline fishery would see approximately 35% of effort reviewed for the purpose of meeting international obligations and verifying compliance with seabird mitigation and protected species reporting requirements. With regard to concerns around increased risks to protected species interactions, refer to heading 7.4.1 'associated or dependent species-section 9(a) of the Act' which presents FNZ position in this regard.

717. Both the BLI and the F&B submissions highlight the risk to the Antipodean albatross, a species that is considered critically threatened under the New Zealand Threat Classification System. According to the most recent seabird risk assessment, Antipodean albatross are ranked tenth in terms of level of risk from domestic fisheries. FNZ acknowledges that while there are some risks to this species from the domestic fishery, the greatest risk to the species comes from high seas fisheries.

718. The Te Waka a Māui me Ōna Toka Fisheries Forum raised concern about the information gap regarding recreational catch estimates. The Forum noted that the recreational allowance is being increased based on very uncertain information regarding recreational catch estimates.

719. FNZ acknowledges the concerns in the context of potential risks to the long-term viability of the stock and uncertainty in recreational catch estimates (refer to headings 7.5.1 '*Effects of fishing on any stock and the aquatic environment – section 11(1)(a)*' and 9 '*Information principles: Uncertainties and unknowns - section 10 of Act*', which present FNZ's position in this regard).

11.4 Other matters raised

720. The ICP and Seafood New Zealand Inshore Council support of Option 1, to increase the recreational allowance is contingent on the implementation of a daily boat limit of one southern bluefin tuna in the October 2024/25 fishing year and implementation of the following recreational measures: mandatory recreational catch reporting, mandatory daily catch reporting by charter vessel operators, closing the fishery when the actual or estimated recreational catch has reached the recreational allowance, and, requiring recreational fishers to return STN 1 to the sea after the target fishery has closed.

721. FNZ acknowledges these concerns and accepts that additional recreational management measures may need to be considered. FNZ will continue to monitor recreational catches of southern bluefin tuna, with further consideration on revised recreational management measures for this emerging fishery in late 2024, once the latest estimates are available. Any additional measures could be in place in time for the 2025 season.

12 Socio-economic context

722. Failing to utilise the increased country allocation would result in forgone economic and social benefits from the additional potential catch. Maintaining the current TAC is unlikely to provide any significant additional benefits in terms of stock rebuild based on the parameters of the existing management procedure.

723. The STN 1 commercial fishery supports many people including quota owners, commercial fishers, licensed fish receivers (**LFR**s), and seafood processing facilities. To give a sense of scale and distribution, based on data from the last three October fishing years, in STN 1 there have been on average 111 quota owners, providing ACE to 42 permit holders, landing southern bluefin tuna to 19 LFRs, using 57 vessels. The number of participants has increased from the 10-year average for all parts of the supply chain except quota owners. The October 2021/22 fishing year saw an increase in participation, with an 80% increase of vessels from the year prior.

724. Port prices have declined steadily since October 2013-14 and there have been no average ACE transaction prices available since October 2006-07. Export free on board[124] revenue also peaked in the December year ending 2012, and export prices have not returned to their 2012 peak.

13 Deemed value rates

725. FNZ is satisfied that the current deemed value rates for STN 1 are consistent with section 75(2)(a) of the Act in that they provide sufficient incentive for fishers to balance their catch with ACE. Because of this, FNZ did not propose any deemed value rate changes as part of this review.

726. FNZ presented the deemed value settings of STN 1 for general consultation and invited feedback. However, no submissions commented on the deemed value settings.

727. While not proposing deemed value changes as a part of this review, 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.

14 Conclusions and recommendations

728. Recent decisions by the CCSBT have created a utilisation opportunity for New Zealand by increasing our national allocation of southern bluefin tuna by 186 tonnes. There is now a utilisation opportunity to reflect this international decision within New Zealand's domestic catch settings for southern bluefin tuna.

729. A *status quo* option was not proposed as it would not reflect the recent decision by the CCSBT to increase New Zealand's increased national allocation and the resulting utilisation opportunity. Also, retaining the current TAC for STN 1 would not reflect the most recent information received from the recreational and commercial sectors that indicated notably increased catches in both fisheries.

730. FNZ recommends Option 1 for the in season increase. This includes setting the TAC at 1,288 tonnes, additional ACE at 151 tonnes, and recreational allowance set at 69 tonnes, respectively.

731. FNZ recommends Option 1 for the 2024/25 year. This includes setting the TAC at 1,288 tonnes, TACC at 1,197 tonnes, and recreational allowance set at 69 tonnes, respectively.

732. FNZ considers any sustainability issues associated with the in-season increase and 2024/25 fishing year can be monitored and mitigated; and increasing the domestic catch limit to the level of the national allocation for New Zealand best meets our international and domestic obligations.

[124] Exports (including re-exports) $A = \pi r^2$ valued as free on board (**FOB**), which is the value of goods at New Zealand ports before export and are shown in New Zealand dollars.

15 Decision for STN 1

2023/24 in-season increase

Option 1 *(Fisheries New Zealand preferred option)*

Agree to set the STN 1 TAC at 1,288 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 2 tonnes;
ii. Increase the allowance for recreational fishing interests from 34 to 69 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 20 tonnes;
iv. Retain the STN 1 TACC at 1,046 tonnes.
v. Set the STN 1 commercial annual catch entitlement to 151 tonnes;

Agreed / Agreed as Amended / Not Agreed

AND

TAC change for the 2024/25 fishing year

Option 1 *(Fisheries New Zealand preferred option)*

Agree to set the STN 1 TAC at 1,288 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 2 tonnes;
ii. Increase the allowance for recreational fishing interests from 34 to 69 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 20 tonnes;
iv. Increase the STN 1 TACC from 1,046 to 1,197 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon Shane Jones
Minister for Oceans and Fisheries

/ / 2024

Area being reviewed

Wider Kaikōura pāua recreational fishery (PAU 3A and part of PAU 7)

Blackfoot pāua and yellowfoot pāua
Haliotis iris, Haliotis australis

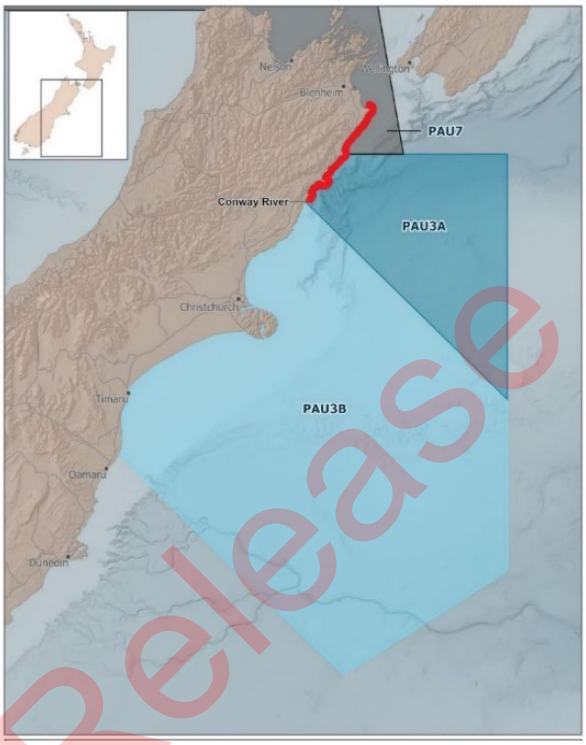


Figure 1: Map of the wider Kaikōura pāua fishery (Marfells Beach to Conway River highlighted in red. PAU 3A, PAU 3B, and PAU 7 Quota Management Area (QMA) boundaries are also shown.

1 Why are we proposing a review?

733. The wider Kaikōura pāua fishery has been subject to closure since the 2016 Kaikōura earthquakes[125] to enable the recovery of the remaining pāua biomass. In response to this closure, the fishery has rebuilt to a level that supported recreational fishing seasons during the summer of 2021/22 and autumn/winter of 2023.

734. The commercial pāua fishery was also reopened during the 2021/22 season and permanently reopened from January 2023. The best available information that is summarised in the May 2023 Fisheries Assessment Plenary (**the Plenary**) indicates that the fishery continues to rebuild, providing for future harvest opportunities by all sectors.

735. Fisheries New Zealand (**FNZ**) proposes a further limited reopening of the recreational fishery for the 2023/24 fishing year.[126] Feedback was sought on two options for harvesting pāua – either a two-month or a three-month season, starting from 22 April 2024. FNZ considers a relatively brief season over the autumn/winter months, in conjunction with an in-season survey of recreational catch, is key to managing the recreational catch level to ensure it is sustainable and is consistent with the recreational allowances set for the relevant PAU 3A and PAU 7 stocks (5 and 15 tonnes respectively).

736. A decision to reopen the Kaikōura recreational pāua fishery can be implemented using a new section 11 closure notice (sustainability measure) under the Fisheries Act 1996 (**the Act**).

737. This proposal does not include changes to Kaikōura commercial or customary pāua fisheries. Commercial fishers have requested an increase in the Total Allowable Commercial Catch (**TACC**) for PAU 3A be considered and a new scientific assessment of the fishery is underway that may provide a basis to review the PAU 3A Total Allowable Catch (**TAC**), TACC, and allowances as part of this year's October sustainability round.

[125] On 14 November 2016, the Kaikōura region experienced a magnitude 7.8 earthquake that caused large coastal uplift of up to 6 metres along 110 kilometres of coastline.

[126] Pāua has a 1 October fishing year, which extends from 1 October to 30 September.

2 Summary of proposed options and FNZ's recommendation

Table 1: Summary of options proposed for the Kaikōura recreational pāua fishery (including both blackfoot and yellowfoot pāua) for the 2023/24 fishing year. The preferred option of Fisheries New Zealand is highlighted in blue.

Option	Description
Option 1	Wider Kaikōura recreational pāua fishery open from 22 April to 21 June 2024 (two months)
Option 2	Wider Kaikōura recreational pāua fishery open from 22 April to 22 July 2024 (three months)
In total, 180 submissions were received on the proposed options (24 written submissions and 156 form submissions through LegaSea).	

738. Under each option, all other existing management measures will continue to apply to the Kaikōura recreational pāua fishery (refer Table 2). A survey to estimate recreational catch in PAU 3A on a weekly basis will be carried out to allow actions during the season to further manage recreational catch if it exceeds expectations.

3 Background

739. The wider Kaikōura pāua fishery extends from Marfells Beach in the north to Conway River in the south and includes the Kaikōura Marine Area/Te Whata Kai o Rakihouia i Te Tai o Marokura (Figure 1). It includes all of the PAU 3A Quota Management Area (**QMA**)[127] and the southern portion of the PAU 7 QMA.

740. In November 2016, the Kaikōura region experienced significant earthquakes that caused major uplift along the coastline. This led to extensive coastal disturbance and modification, causing large-scale mortality of a wide range of species in the intertidal and shallow subtidal zones. Pāua were particularly affected with both a significant loss of critical habitat and initial very high levels of mortality across all life stages.

741. To protect the remaining pāua biomass, the pāua fishery was closed to all commercial and recreational fishing between November 2016 and November 2021 under the Act. Ongoing research has shown that pāua biomass has recovered significantly in many parts of the Kaikōura coastline since the earthquakes.

742. In response to this recovery, the Minister approved a permanent reopening of the commercial fishery from 5 January 2023 (under a reduced TACC of 23 tonnes) and the recreational fishery was reopened as follows:[128]

- **2021/22 summer season:**[129] 1 December 2021 to 28 February 2022 (three months) with a daily limit of five pāua per person and an accumulation limit of two daily limits.
- **2023 autumn/winter season**: 15 April to 15 June 2023 (two months) with a daily limit of three pāua per person. The accumulation limit of two daily bag limits continued to apply.

743. Until the 2021/22 season there were no accurate estimates of recreational catch available for the Kaikōura pāua fishery. The recreational allowance for PAU 7 is 15 tonnes, and the allowance for PAU 3A was set at five tonnes when the fishery was reopened in 2021. However, it was noted at the time that the PAU 3A allowance was based on highly uncertain estimates of past recreational harvest, that catch may be initially higher than the allowance (given the abundance of large pāua), and that FNZ would be commissioning new surveys to better estimate catch.

744. Independent recreational fishing surveys conducted during the two recreational seasons estimated that total recreational catch in the PAU 3A part of the fishery in the 2021/22 season

[127] On 1 October 2021, the PAU 3 QMA was sub-divided into two smaller QMAs – PAU 3A (Kaikōura) and PAU 3B (Canterbury) to better reflect the nature of each fishery following the 2016 earthquake.

[128] These seasons were implemented as sustainability measures under section 11 of the Act and were published in the *New Zealand Gazette* in 2022 and 2023.

[129] The commercial fishery was also reopened during this three-month period.

was much higher than expected (approximately 40 tonnes) and significantly exceeded the allowance of five tonnes (Holdsworth, Curtis, & Neubauer, 2023). This very high catch was attributed to:

a) intense fishing activity during the peak summer period when the region's visitor numbers were highest,

b) better than average sea conditions throughout the three-month period, and

c) a very high abundance of easily accessible and very large pāua in shallow areas close to shore and with easy car parking access. This was a direct result of the previous five-year closure where pāua biomass was largely protected from the effects of fishing.

745. In response to this higher-than-expected catch, the subsequent 2023 season was delayed until autumn/winter (April to June) and a lower daily recreational limit of three pāua per person was introduced. Within the southern Oaro-Haumuri Taiāpure, more restrictive measures applied for blackfoot pāua (refer to Table 2). To monitor recreational catch and allow for potential management intervention during the season if required, cumulative 'in-season' survey results were also reported and shared with Kaikōura stakeholders on a weekly basis.

746. These management changes were successful in reducing recreational catch by about 70% in the PAU 3A part of the fishery (the total catch for the 2023 season was estimated to be approximately 12 tonnes), closer (but still above) the recreational allowance set for PAU 3A.

747. Recreational catch in the PAU 7 part of the fishery (see Figure 1) during the 2021/22 season was estimated to be approximately three tonnes. This part of the fishery was not re-surveyed in 2023. However, fishery officers and other observations suggest 2023 catch was less than the three tonnes estimated in 2021/22 given the delayed and shorter fishing period. Total recreational catch for the whole of PAU 7 is uncertain, but is likely to be around six tonnes, much less than the current allowance of 15 tonnes.

4 Fishery information

748. The Kaikōura pāua fishery is a shared fishery highly valued by Māori, recreational fishers, and the commercial fishing industry alike. Blackfoot pāua make up most of the catch, while the smaller yellowfoot pāua are caught in very limited numbers.

749. All fishers are restricted to harvest pāua by the method of hand-gathering only (the use of underwater breathing apparatus (**UBA**) is prohibited), and fishing typically occurs from shore where there is suitable beach access and carparking availability. The primary fishing controls that apply to the wider Kaikōura recreational pāua fishery are shown in Table 2.

Table 2: Fishing controls that apply to the wider Kaikōura recreational pāua fishery, including minimum legal size limits (MLS).

	Daily bag limit	Accumulation limit	MLS (blackfoot pāua)	MLS (yellowfoot pāua)
Marfells Beach to Conway River, including the Kaikōura Marine Area	3 pāua per person	2 daily limits	125 mm	85 mm
Oaro-Haumuri Taiāpure	2 pāua per person	2 daily limits	135 mm	85 mm

750. Customary and recreational fishers harvest from the same general areas where large pāua are abundant and most easily accessible. There are five customary management areas along the Kaikōura coastline – Mangamaunu, Oaro, and Te Waha o te Marangai Mātaitai, Te Taumanu o Te Waka a Māui and Oaro-Haumuri Taiāpure[130] (**see Appendix 1**). Most of these have continued to remain closed to all recreational and commercial pāua fishing.

751. Recreational fishing has been permitted within the southern Oaro-Haumuri Taiāpure (**see Appendix 1**) as this area was largely unaffected by the 2016 earthquake. However, during the 2023 season, a reduced daily limit of two pāua per person and a larger minimum legal-size limit (**MLS**) of 135 mm for blackfoot pāua (the national 125 mm MLS applies to the wider

[130] The Waiopuka (Wakatu Quay) Reef continues to be closed to fishing. This area had been previously closed under a section 186(B) temporary closure.

fishery) was introduced within this taiāpure to reflect the significance of the wade-able customary fishery in this area.

752. The commercial fishery is generally conducted further offshore and primarily managed under the TACC (a 23-tonne TACC is set for PAU 3A, which equates to approximately half the estimated commercial catch from the area prior to the earthquake) and in accordance with fine-scale management measures prescribed in the approved PAU 3 and PAU 7 Fisheries Plans. These Plans are discussed further under heading 6.5.5 '*Relevant services or fisheries plans – section 11(2A)*.'

753. Stock assessment information includes model simulations of predicted future biomass under various recreational catch scenarios and this provides guidance on setting future management options. This information indicates that the PAU 3A stock should continue to rebuild for the next 2-3 years under all modelled catch assumptions, but there is uncertainty beyond this timeframe. A new assessment is being carried out this year which will form the basis for a review of the TAC, TACC, allowances and other settings for 1 October 2024.

754. The Kaikōura fishery includes the southern part of PAU 7, with two discrete fishing areas at Marfells Beach and at Ward. There is no stock assessment information for this southern part of the PAU 7 fishery, but observations suggest an appreciable increase in biomass in response to the wider fishery closure. As noted under heading 3 '*Background*', the recent independent recreational fishing surveys estimated catch from these areas to be about three tonnes or less. The latest National Panel Survey estimated 2022/23 recreational catch across the wider PAU 7 QMA at about three tonnes.[131] However, there is a considerable level of uncertainty associated with this estimate (the estimate had a CV[132] of ± 35%).

755. The five-tonne recreational allowance for the PAU 3A part of the fishery is based on an historical pre-earthquake Recreational National Panel Survey estimate (2011/12) for the Kaikōura Marine Area of 10.3 tonnes (CV ± 3.2 tonnes).[133] There were inherent limitations with this survey for a predominantly shore-based fishery with multiple access points. The survey method also faced challenges when applied in small population centres like Kaikōura where no resident fishers were surveyed. As such, there is a strong likelihood that this estimate did not accurately reflect actual recreational catch at that time.

756. Recreational allowances are set to reflect what fishers are anticipated to catch and are typically in place for a number of years until new information becomes available to inform a new assessment of the TAC, TACC, and allowances. When the allowance was set for PAU 3A, it was noted that the recreational catch estimates on which it was based are highly uncertain and that catch was expected to be initially high given the high abundance of large pāua in shallow areas following its extended closure. With only two limited recreational seasons since it was set, long-term stable catch levels in PAU 3A cannot yet be determined, but a trend of decreasing recreational interest and catch is expected (depending on management settings).

757. In comparison, recreational catch in PAU 7 is estimated to currently be considerably lower than the allowance. However, FNZ expects that in the longer-term catch will again approach the allowance as the PAU 7 fishery is under a rebuild strategy with the TAC, TACC, allowances, and daily limits all significantly reduced since 2016.

758. It has been and will continue to be difficult to accurately predict recreational catch of pāua, particularly in the PAU 3A part of the fishery. Recreational fishing effort and success for pāua is highly dependent on sea and weather conditions. The Kaikōura coastline is exposed and lacks sheltered areas, which makes fishing difficult during bad weather. In both the 2021/22 and 2023 seasons, there were long periods of exceptionally favourable sea and weather conditions, allowing fishing for most days during the season. Extended periods of unfavourable weather during a season will result in significantly decreased catch overall. For example, two or three weeks of unfavourable conditions early in the season could easily reduce total catch by half. As

[131] This is a preliminary estimate as the 2022/23 National Panel Survey is yet to be finalised and published. It should also be noted that this estimate was not presented during consultation as it became available after consultation closed.

[132] 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).

[133] The five-tonne allowance is derived from the 2011/12 National Panel Survey of Marine Recreational Fishers (**NPS**), which estimated a recreational take of 16.98 tonnes for the wider PAU 3 QMA (this extended from Clarence Point in the north to the Waitaki River in the south). This survey also estimated recreational catch along the Kaikōura coastline (Clarence Point to Conway River) to be 10.3 tonnes (CV ± 3.2 tonnes). For the initial TAC setting process to support establishment of the PAU 3A QMA in 2021/22, the recreational allowance was set at 50% of the 2011/12 estimate of recreational take.

the season progresses into the winter months, characterised by cooler temperatures and larger sea swells, weekly catches will be low along this exposed coastline.

759. It has been our experience over the past two seasons that factors such as media interest and the cost of fuel also influence recreational interest in this fishery, given most fishers travel some distance to the Kaikōura area from Christchurch or further afield.

760. As illustrated in Figure 2, even using a targeted survey it is difficult to accurately estimate recreational catch in the fishery on a week-by-week basis. This is particularly relevant for the first few weeks of a season when there is considerable uncertainty around the estimate.

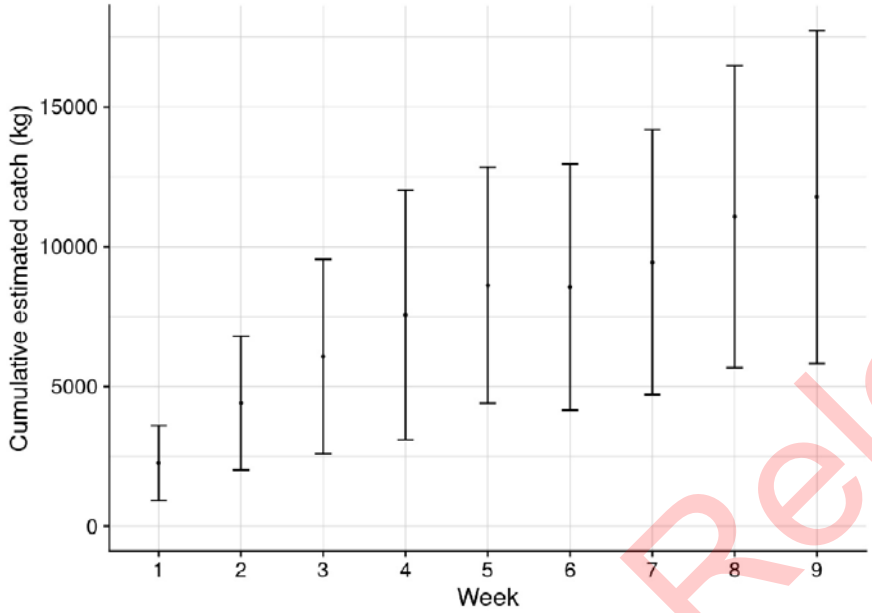


Figure 2: Cumulative estimated recreational catch for the PAU 3A part of the fishery over the 2023 eight-week season (mean and CV shown. Report provided by Dragonfly Data Services).

5 Treaty of Waitangi obligations as set in legislation

5.1 Input and participation of tangata whenua

761. Section 12(1)(b) of the 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 aquatic environment in the area concerned. In considering the views of tangata whenua, you are required to have particular regard to kaitiakitanga.

762. Input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established to support that engagement. 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.[134]

763. Iwi with interests within the wider Kaikōura pāua fishery are Rangitāne o Wairau, Ngati Toa Rangatira, and Ngāi Tahu, including Ngāti Kuri hapū.

764. To facilitate input and participation, FNZ engages with tangata whenua through Te Waka a Māui me Ōna Toka Fisheries Forum (which comprises all Te Tau Ihu iwi and Ngāi Tahu and encompasses all of the South Island). This Forum has been regularly updated and their input has been sought on the ongoing management of the wider Kaikōura pāua fishery. The Forum was supportive of the options proposed in this document at hui with FNZ in July and December 2023. The Forum stated that input from Te Runanga o Kaikōura should also be sought and noted the need to develop improved management tools for pāua generally across the South

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

Island as part of a Te Waka a Māui Pāua Strategy being developed jointly by FNZ and the Forum.

765. FNZ met with the Chair and members of Te Runanga o Kaikōura in November 2023. Te Runanga was supportive of continuing the same approach as in 2023 (i.e., opening the fishery for a short season in autumn). However, they also confirmed the importance of in-season monitoring through the recreational survey and the need to consider longer-term measures later in 2024 to better provide for non-commercial access to the pāua fishery.

5.2 Kaitiakitanga

766. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are ways that tangata whenua can express how they exercise kaitiakitanga in respect of fish stocks.

767. Te Waipounamu (all of South Island) iwi consider pāua a taonga species and as such there is an important customary use of pāua by Māori for food, and the shells have been used extensively for decorations and fishing devices (FNZ – Fisheries Assessment Plenary, 2023).

768. Te Waipounamu Iwi Forum Fisheries Plan contains objectives to support and provide for the interests of South Island iwi, and contains the following objectives that are relevant to the management options proposed for the wider Kaikōura recreational pāua fishery:

- **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.
- **Management Objective 5**: To restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.

769. FNZ considers the proposed options presented in this document are consistent with these objectives, as they will act to constrain recreational catch levels and continue to prohibit non-customary fishing within most customary management areas. In terms of Management Objective 1, Te Runanga o Kaikōura have noted that a short recreational season limits access to non-commercial fishers and the need for better management measures in the long-term to meet this objective.

770. There are five customary fisheries management areas[135] within the wider Kaikōura pāua fishery. Iwi directly exercise kaitiakitanga over these important fishing grounds through their management decisions. This includes ongoing prohibitions to commercial and recreational fishing in most of these areas, except where limited fishing is permitted within the Oaro-Haumuri Taiāpure where more restrictive fishing measures apply. These prohibitions are implemented by a Ministerial decision published in *the Gazette* under section 11 of the Act.

5.3 Mātaitai reserves and other customary management tools

771. Customary fisheries areas within the wider Kaikōura pāua fishery are shown in Table 3 and **Pāua Annex 1.**

Table 3: Customary fisheries management areas within the wider Kaikōura pāua fishery.

Area	Management type
Te Taumanu o Te Waka a Māui Oaro-Haumuri	**Taiāpure** *The management committee can recommend regulations to manage commercial, recreational, and customary fishing to conserve and manage fisheries resources related to the taiāpure.*
Oaro Te Waha o te Marangai Mangamaunu	**Mātaitai reserve** *Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise. Amateur and customary fishing may be managed through bylaws recommended to the Minister by the Tangata Tiaki for that reserve.*

[135] These customary management areas are implemented through the Kaikōura (Te Tai ō Marokura) Marine Management Act 2014.

772. No changes are proposed within the five customary management areas. Pāua fishing within these areas would continue to be managed by tangata whenua and the appropriate mātaitai and taiāpure management committees. These areas, except for the southern Oaro-Haumuri Taiāpure, would remain closed to recreational fishing under both options. The southern Oaro-Haumuri Taiāpure would be open to very limited recreational pāua fishing. FNZ will continue to engage with Te Rūnanga o Kaikōura and the relevant management committees regarding ongoing management of these areas.

6 Environmental and sustainability considerations under the Act

6.1 Overview

773. You are being asked to make a decision on a new sustainability measure under section 11 of the Act to reopen the Kaikōura coastline to recreational pāua fishing for a limited period only. Before setting or varying a sustainability measure, you must adhere to section 11 of the Act. When making your decision you must also act consistently with the requirements in section 5 and sections 8-10 (Purpose and Principles of the Act).

774. The requirements and details of each of these sections are set out below, in the following order:

a) Section 5 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992);
b) Section 8 (Purpose);
c) Section 9 (Environmental principles);
d) Section 11 (Sustainability measures); and
e) Section 10 (Information principles).

6.2 Application of international obligations and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 – section 5 of the Act

775. You must act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. This is discussed in more detail under Heading 2.2.1 of the *Introduction and Legal Overview*.

776. Consistent with requests from tangata whenua it is proposed that most customary management areas will continue to closed to recreational pāua fishing (with the exception of the southern Oaro-Haumuri Taiāpure).

777. You must also act in a manner consistent with New Zealand's international obligations relating to fishing. Discussion of these relevant obligations is provided under Heading 2.2.2 in the *Introduction and Legal Overview*. There are no specific matters relating to international obligations that might apply to the Kaikōura recreational pāua fishery.

6.3 Purpose of the Act – section 8 of the Act

778. The Act's purpose is to "provide for the utilisation of fisheries resources while ensuring sustainability." Guidance for you on the meaning of section 8 and how it should be applied for decision making (for all the stocks being reviewed as part of this round) is provided under Heading 2.2.3 in the *Introduction and Legal Overview*.

779. The proposal to reopen the Kaikōura recreational pāua fishery is consistent with this purpose. Scientific monitoring of the fishery indicates that pāua biomass has rebuilt to a level that enables harvest opportunities by all sectors. A further reopening of the fishery under either of the two proposed options would provide recreational fishers with an opportunity to harvest pāua in the 2023/24 fishing year.

6.4 Environmental principles – section 9 of the Act

780. The environmental principles that you must take into account when considering sustainability measures for the Kaikōura recreational pāua fishery are as follows:

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; and

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

6.4.1 Associated or dependent species – section 9(a) of the Act

781. Associated or dependent species includes any non-harvested species taken or otherwise affected by the taking of any harvested species. This includes protected species such as marine mammals and seabirds.

782. Pāua fishing by all sectors is restricted to hand-gathering only within the intertidal and shallow subtidal areas. This activity poses little to no risk to seabirds, mammals, and other protected species. There are no known captures of marine mammals, seabirds, or protected fish species in New Zealand pāua fisheries (FNZ – AEBAR, 2021). Therefore, FNZ considers that recreational pāua fishing under each option is unlikely to affect the long-term viability of any associated or dependent species.

6.4.2 Biological diversity of the aquatic environment – section 9(b) of the Act

783. The environmental impact of pāua harvesting is minimal because pāua are selectively hand-gathered by free divers. Habitat contact by divers at the time of harvest is minimal and limited to the area of pāua foot attachment (pāua are usually removed with a blunt tool to minimise damage to the flesh). The diver's body is also seldom in contact with the seabed. While vessels anchoring have the potential to damage the reef, most recreational fishing along the Kaikōura coastline is directly from the beach. FNZ considers it unlikely that recreational pāua fishing methods would have a demonstrable adverse effect on biodiversity along the Kaikōura coastline. However, if significant (unsustainable) reductions in pāua biomass were to occur this could impact ecosystem function.

6.4.3 Habitats of particular significance for fisheries management – section 9(c) of the Act

784. There are no specific habitats of particular significance for fisheries management identified for pāua at this time. What is known about potential habitats of particular significance for fisheries management for pāua is outlined in Table 4. Pāua inhabit reefs within the intertidal and shallow subtidal coastal areas. All fishing is targeted and restricted to hand-gathering only. FNZ considers that the proposed options only concern the timing and duration of recreational fishing and are unlikely to pose a threat to any areas of potential habitats of significance.

Table 4: Summary of information on potential habitats of particular significance for fisheries management for the Kaikōura recreational pāua fishery.

Area	Wider Kaikōura pāua fishery
Potential habitat of particular significance	Adult pāua move into deeper waters with the onset of maturity where they become largely sedentary and live in aggregations in rocky crevice and boulder habitats.
Attributes of habitat	• Pāua are found in shallow rocky reefs in coastal waters generally less than 10 m depth. • Intertidal and subtidal rocky reefs typically consist of rocks and boulders, interspersed with cobble substrate and rock pools. Alongside these substrates, reefs typically include a wide range of seaweeds. • Crustose coralline algae attach to hard surfaces on intertidal and subtidal rocky reefs. This habitat is favoured by newly settled juveniles, is a cue for settlement, and provides a food source for adults and juveniles. • Rocky crevices and boulders provide a cryptic habitat in the form of shade and cover for pāua. Cryptic habitats are important for pāua, particularly for juveniles.
Reasons for particular significance	• Growth and recruitment success can be influenced by food availability, with rocky reef communities offering a food source in the form of coralline algae and seaweeds. • Rocky reefs also provide shelter and shade, a source of refuge for pāua. • Rocky crevices and boulders provide substrate for adults to aggregate and support localised recruitment. As pāua are broadcast spawners, fertilisation success depends on proximity and density of mature adults.
Risks/Threats	• Land based impacts, particularly sediment deposition on habitats with benthic structure, are a threat to intertidal and subtidal rocky reefs. Sedimentation smothers coralline algae and seaweeds that provide adult and juvenile habitat. • The Kaikōura earthquake caused significant uplift along the coastline and was estimated to have caused about 20% loss of pre-earthquake fished areas. The effects of subsequent land-based sedimentation and gravel deposition onto reefs caused further loss of habitats and

Area	Wider Kaikōura pāua fishery
	will continue to be affected for many years to come. This means that pāua recovery will be variable across the fishery. • The earthquake caused significant loss of intertidal and subtidal seaweed communities that continue to impact surviving pāua populations through loss of shade, cover, and food source. • Ocean warming due to climate change contributes to higher sea surface temperatures and may influence the extent of productive pāua beds over time. • Ocean acidification may influence the survival of crustose coralline algae, with New Zealand crustose coralline algae species found to exhibit a reduction in growth rates under lower pH. Reduced availability of crustose coralline algae could threaten habitat used for settlement and a source of food for juveniles.
Existing protection	• Recreational pāua fishing has negligible effect on habitats. • Steps have been taken to reduce the effects of land-based gravel deposition along the coastline with the placement of concrete barriers and walls where hillsides are close to the coastline.
Evidence	• Cornwall, C E; Boyd, P W; McGraw, C M; Hepburn, C D; Pilditch, C A; Morris, J N; Smith, A B; Hurd, C L (2014). Diffusion boundary layers ameliorate the negative effects of ocean acidification on the temperate coralline macroalga *Arthrocardia corymbosa*. PloS one, 9(5), e97235. • Naylor, J R; Andrew, N L; Kim, S W (2006). Demographic variation in the New Zealand abalone *Haliotis iris*. Marine and Freshwater Research 57: 215–224.

6.5 Considerations for setting sustainability measures under section 11 of the Act

785. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying sustainability measures. These include:

a) any effects of fishing on any stock and the aquatic environment; and
b) any existing controls under the Act that apply to the stock or area concerned; and
c) the natural variability of the stock concerned; and
d) any relevant planning instruments, strategies, or services.[136]

6.5.1 Effects of fishing on any stock and the aquatic environment – section 11(1)(a)

786. You must take into account any effects of fishing on any stock and the aquatic environment when making your decision about the Kaikōura recreational pāua fishery. "Effect" is defined widely in the Act.[137] The broader effects of removing pāua from the wider Kaikōura pāua fishery on the ecosystem as well as the more direct effects of harvesting pāua need to be considered.

787. Recreational pāua fishing is highly localised in nature and restricted to the method of hand-gathering only. The proposal to constrain fishing to a limited two- or three-month season, alongside supporting management measures (i.e., MLS, recreational daily limits, and accumulation limits) will act to constrain catch and mitigate any significant effect on the stock and aquatic environment.

788. More information relevant to the effects of pāua gathering on any stock and the aquatic environment is discussed under heading 6.4 '*Environmental principles*' above.

6.5.2 Existing controls that apply to the stock or area – section 11(1)(b)

789. You must take into account any existing controls under the Act, including rules and regulations made under section 2(1A) that apply to the stock when setting or varying a sustainability measure. A range of existing management controls apply to pāua in the Kaikōura recreational pāua fishery, including:

a) **Daily limits:** recreational fishing of pāua is managed through daily limits. From Marfells Beach to Conway River no person may take or possess more than three

[136] Sections 11(2) and (2A).
[137] Section 2(1) of the Act defines "effect" to mean the direct or indirect effect of fishing, and includes any positive, adverse, temporary, permanent, past, present, or future effect. It also includes any cumulative effect, regardless of the scale, intensity, duration, or frequency of the effect, and includes potential effects.

pāua per day. Within the Oaro-Haumuri Taiāpure no person may take or possess more than two pāua per day.

b) **Accumulation limit:** recreational fishing of pāua is managed through an accumulation limit, which refers to the number of pāua that can be accumulated over a period of more than one day. From Marfells Beach to Conway River no person may possess more than six pāua, and within the Oaro-Haumuri Taiāpure no person may possess more than four pāua.

c) **Size restrictions:** blackfoot and yellowfoot pāua from Marfells Beach to Conway River have an MLS of 125 mm and 85 mm, respectively. Within the Oaro-Haumuri Taiāpure blackfoot pāua has an MLS of 135 mm.

d) **Prohibited states:** nationally, it is illegal to possess seaward of the mean high-water mark any recreationally taken shellfish with a minimum size restriction in such a state that it cannot be measured. This means pāua cannot be possessed seaward of the mean highwater mark in a shucked state.

e) **Prohibited method:** pāua are targeted by hand-gathering across the fishery and the use of UBA is strictly prohibited.

6.5.3 The natural variability of the stock – section 11(1)(c)

790. You must take into account the natural variability of the stock when setting or varying a sustainability measure.

791. A variety of environmental factors influence settlement, growth, and recruitment of pāua, including wave exposure, food availability, water temperature and population density (FNZ – Fisheries Assessment Plenary, 2023).

792. Pāua generally grow faster in areas with lower mean monthly sea surface temperatures (Naylor et al., 2006). Growth rates and maximum size of pāua vary across the Kaikōura pāua fishery. Diver perceptions indicate that the northern region (Clarence River to Hapuku River) has more areas of faster pāua growth than the southern region (Hapuku River to Conway River).

793. Biomass of pāua along the wider Kaikōura coastline was significantly decreased following the 2016 earthquake (Neubauer, 2017). As a direct result of the five-year fishery closure, this biomass has substantially rebuilt to a level that can support fishing opportunities for all sectors (FNZ – Fisheries Assessment Plenary, 2023). It is likely that the fishery is still in a rebuilding phase, which will continue to be influenced by ongoing fishing and non-fishing related factors, such as sedimentation and coastal erosion. As such, the proposed options represent a cautious approach to enable some, limited, recreational pāua harvest.

6.5.4 Relevant statements, plans, strategies, provisions, and documents - section 11(2)

794. Under section 11(2) of the Act, before setting or varying any sustainability measure, you must have regard to the following statements, plans, strategies, provisions, and planning documents that apply to the coastal marine area and that you consider to be relevant. The following plans and strategies apply to the wider Kaikōura pāua fishery.

Regional plans – section 11(2)(a)

795. There are two regional councils that share unitary authority along the wider Kaikōura coastline – Marlborough District Council and Environment Canterbury Regional Council. These Councils have coastal-related environmental plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats.

796. 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 can be found in Table A of the **Addendum**. FNZ considers that the proposed options in this paper are consistent with the objectives of these relevant regional plans.

797. FNZ considers that the proposed options presented here concern recreational pāua fishing and are 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.

798. In addition, the FNZ Coastal Planning Team engages with the Resource Management Act 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.

6.5.5 Relevant services or fisheries plans – section 11(2A)

799. Under section 11(2A), before setting or varying any sustainability measure or making any decision or recommendation under the Act to regulate or control fishing, you must take into account -

a) any conservation services or fisheries services; and
b) any relevant fisheries plan approved under Part 3 of the Act; and
c) any decisions not to require conservation services or fisheries services.

800. There are no specific conservation services or fisheries services that relate to the wider Kaikōura recreational pāua fishery, or of specific relevance to this review of measures for the fishery.

801. Fisheries Plans have been approved under section 11A for both the Nelson/Marlborough Pāua Fishery (PAU 7) and the Kaikōura/Canterbury Pāua Fishery (PAU 3). These plans were developed by the pāua industry (PāuaMAC7 and PāuaMAC3) and are a mandatory relevant consideration when making your decisions under section 11 of the Act. They set out an adaptive rebuild approach for these pāua fisheries, with a conservative level of utilisation and management based on the collection of comprehensive fine-scale information and reporting. A range of voluntary commercial fishing strategies are set out in the plans including:

- fine scale catch reporting and spreading arrangements to ensure reporting and management at an optimal scale appropriate to the pāua fishery; and
- minimum harvest sizes for commercial fishers that are larger than the legal minimum size to increase productivity and recovery of the fishery.

802. The plans also describe industry's expectations about how recreational fishing will be managed (while acknowledging that the Minister is not bound by the provisions) including that there will be:

- commensurate measures for recreational fishing including genuine constraint on recreational fishing effort;
- collection of comprehensive recreational harvest information; and
- shared fishery responsibility with effective management of recreational harvest within the recreational allowance (noting these matters are 'beyond the industry's direct control).

803. FNZ considers that the voluntary measures adopted by industry in these plans contribute to the overall sustainability of both pāua stocks and have a positive impact on other fishery stakeholders. In terms of industry's expectations regarding management of recreational fishing we consider that:

(a) the options proposed in this paper (closure of the fishery to recreational fishers for 9-10 months of the year) in combination with reduced daily limits and other measures do represent "a genuine constraint on recreational fishing effort";

(b) comprehensive recreational harvest information is provided through the fishery-specific recreational surveys we have commissioned over the past two seasons (and propose to carry out again this coming season); and

(c) within the context that recreational catch, particularly in the PAU 3A part of the fishery, is highly variable and difficult to predict year to year, the options proposed in this paper (particularly Option 1) would manage recreational catch in a manner consistent with the recreational allowances and the requirements of the Act (as assessed in more detail in later sections of this paper).

6.5.6 Other plans and strategies

804. The following plans and strategies are not mandatory considerations under section 11 of the Act, but they may be considered relevant to this review.

Kaikōura Marine Strategy

805. The Kaikōura Marine Strategy was 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. A key outcome is fishing for abundance to promote abundant fish for present and future generations (Objective 5.1). This supports a commitment for the Kaikōura Marine Area to remain a food basket for the local community, support prosperity for local commercial fishers, and enable good fishing for customary and recreational fishers. FNZ considers that the proposed options are in keeping with this Strategy and its aspirations.

806. The Kaikōura Marine Guardians were also established under this act to provide advice on matters relating to the Kaikōura Marine Area. The Guardians' terms of reference and membership are currently being reviewed. Nevertheless, FNZ met quarterly with the Guardians throughout 2023 seeking their views on the proposed options in the paper. They have stated they are comfortable with the proposed options, although the chair has subsequently raised concerns about recreational catch exceeding the recreational allowance. This is addressed under heading 9 '*Options and analysis*'.

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

807. FNZ considers that the sustainability measures proposed for the wider Kaikōura recreational pāua fishery are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy – including Objective 10, which is to ensure that ecosystems are protected, restored, resilient and connected from mountain tops to ocean depths; and Objective 12, which is to manage natural resources sustainability.

808. For more information on Te Mana o te Taiao see heading 3.3 of the *Introduction and Legal Overview*.

7 Information principles - section 10 of the Act

809. Under section 10 of the Act, you are required to take into account four information principles:

a) decisions should be based on the best available information.[138]
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.

810. FNZ considers that the information presented in this paper represents the best available information. In various sections of this paper, FNZ has noted where information is uncertain and warrants caution for your decision making, in line with the principles above.

811. Under the heading '*Options and analysis*', FNZ notes the uncertainty of information that concerns the setting of the recreational allowance as a reflection of past and current fishing effort, the difficulty in predicting recreational catch given its dependence on weather, sea conditions, and other factors, and the uncertainties associated with estimating recreational catch during the recreational season.

8 Submissions

812. A total of 180 responses were received, comprising 24 written submissions from individuals, and several local and national commercial and recreational fishing organisations. Of the total responses, 156 were form submissions through LegaSea, most of which were in support of a three-month season (Option 2).

[138] Section 2(1) of the Act defines "best available information" to mean "the best information that, in the particular circumstances, is available without unreasonable costs, effort, or time".

813. Three submissions were received that referred to catch limits in general but did not specifically address Kaikōura recreational pāua fishery.

814. Among the written submissions, opinions regarding Option 1 or Option 2 varied.

815. Submissions from the commercial pāua industry generally did not support either option, on the basis that neither option would be certain to prevent catches from exceeding the recreational allowance for PAU 3A. When consultation commenced, the commercial pāua industry asked that FNZ's consultation paper be withdrawn and rewritten to address what they considered to be errors or omissions regarding the relevance of the recreational allowance and the Fisheries Plans for PAU 3 and PAU 7. In response, FNZ added the following commentary to the relevant webpage and in follow-up emails to consulted parties:

- The recreational allowance for PAU 3A is 5 tonnes, and the recreational allowance for PAU 7 is 15 tonnes. Recreational fishing is to be managed in a way that meets these allowances.
- In addition to feedback on the options described in the consultation document, we welcome feedback on alternative options to achieve this.
- There will be a recreational survey to estimate recreational catch in PAU 3A on a weekly basis. This would allow actions during the season to further constrain recreational catch if appropriate (as described in paragraph 77 of the consultation document).
- The PAU 3 and PAU 7 Fisheries Plans approved under section 11A of the Fisheries Act 1996 contain strategies that are relevant to the wider management of the Kaikōura pāua fishery and these will be taken into account.

816. Table 5 provides a summary of the written submissions received.

Table 5: Written submissions and responses received for the review of Kaikōura recreational pāua fishery.

Submitter	Option supported			
	1	2	Other	Notes
C. Buschl	✓			No rationale provided.
D. Ternent	✓			Supports the same approach used last year (Option 1).
Forest & Bird	✓			Prefer a precautionary approach to fisheries management and is concerned that the recreational allowance has been exceeded. Supports a review of the PAU 3A TAC. Supports Option 1 if this review proceeds.
Geoff Creighton	✓			Supports Option 1 but would like to see greater restrictions due to the vulnerability of this fishery and the need for protection. This could include recreational permitting, set fishing days and times, and better policing and information gathering.
R. Boyd	✓			Supports a two-month season (Option 1). Proposes a vehicle/vessel limit to prevent large groups fishing.
J. Terry		✓		Supports Option 2, as a three-month season offers safer weather conditions for pāua diving.
K. Ngapora		✓		No rationale provided.
NZ Sport Fishing Council (representing LegaSea, NZ Sports Fishing, NZ Underwater Association, and NZ Angling & Casting Association)		✓		Supports Option 2. Requests that FNZ work towards a reopening of the fishery for nine months of the year (excluding summer). Rejects the idea of proportional allocation within the TAC. Highlights that pāua is highly valued by recreational fishers and that families should have reasonable access to pāua. Contends that the recreational allowance is not an 'allocation' (unlike the TACC) and is the Minister's best estimate of what recreational fishers are expected to catch over the longer-term, given yearly fluctuations in effort, weather, and availability of pāua. Argues that constraining recreational catch is not an acceptable means of avoiding reductions to the TACC. Instead, the allowance should be reviewed if it is considered insufficient to cover catch.
R. Ford		✓		No rationale provided.
D. Schiel			✓	Does not express support for either option. Concerned that the recreational allowance has been greatly exceeded in past seasons, and that neither option will constrain catch. Believes FNZ has failed to develop an appropriate management approach and this has the potential to affect longer-term sustainability. Supports a mechanism to close the fishery immediately once the allowance has been reached, which requires real-time reporting.
Fish Mainland			✓	Does not express support for either option. Supports the Pāua Industry Council's views that recreational catch must be constrained within the recreational allowance to limit overall catch within the PAU 3A TAC. Both options will fail to achieve this. Urgent real-time information on recreational catch is critical to improve the management of this fishery and not put it at risk. Strongly supports mandatory reporting. Also raises concerns about the need to close fisheries.
Pāua 2 Industry Association Inc.			✓	Does not express support for either option. Raises concerns about the potential catch exceeding the recreational allowance within the context of the Act's requirements. Believes that both options will fail to constrain catch to this allowance. Also proposes various alternative options for this fishery including lower daily bag limit, larger MLS, and fisher registration.

Submitter	Option supported			
	1	2	Other	Notes
Pāua Industry Council (**PIC**)			✓	Does not express support for either option. Recommends that FNZ should reconsult on new options to constrain catch to the recreational allowance, immediately close the fishery once the allowance is reached, final advice should discuss the relevance of the PAU 3 Fisheries Plan, current s11 closure notice should not include the commercial fishery, and that a TAC review is given highest priority. Raises concerns about the failure to constrain catch within the allowance and its potential impact on intertidal and commercially fished pāua beds, and the need for a more comprehensive review of management settings for this fishery.
PāuaMAC 2			✓	Does not express support for either option. While it supports a recreational season, notes that FNZ has a legal obligation to constrain catch to the recreational allowance. Believes the consultation document is misleading regarding how recreational catch should be constrained. Request for a more comprehensive evaluation of the management measures for this fishery.
PāuaMAC 3			✓	Does not express support for either option. Supports submissions from PIC and Pāua MACs 2, 4, 5 and 7.
PāuaMAC 4			✓	Does not express support for either option. Raises similar concerns as per submissions from PIC and Pāua MACs.
PāuaMAC 7			✓	Does not express support for either option. Supports the submission from PāuaMAC 3. Notes that the consultation document does not assess the proposal within the context of the PAU 7 recreational allowance. Recommends that FNZ estimate an appropriate upper limit of recreational catch from the north Marfells Beach-Clarence River to ensure the 15-tonne allowance is not exceeded, review the MLS, reconsult on new options to constrain catch to this upper limit and immediately close the fishery once the allowance is reached, as well as note that the PAU 7 Fisheries Plan is a mandatory consideration and remove the commercial fishery from the current s11 closure notice.
P. Russ			✓	Does not express support for either option. Expressed concerns over the customary fishing framework.
S. Gerrity			✓	The fishery is resilient, but sensitive to shore-based recreational fishing. Need to constrain catch to the recreational allowance, which is likely to be exceeded under either option. Supports catch reporting for the recreational sector with a mechanism to close the fishery once the allowance is reached using a licence or tagging system. Public consultation should begin on a better catch reporting framework for the next season.
Te Ohu Kaimoana			✓	Supports PIC's submission.
Generic submissions				
B. Leonard			✓	Submits that all catch limits should be reduced to zero for all stocks consulted on. Supports the elimination of the removal of animals from their home environment, catch limits should be reduced to zero as a moral, ethical, and ecological issue.
J. Williams			✓	Opposes increases to catch limits for all stocks consulted on.
N. Lani			✓	Submission relates to management measures for kina. No proposals for kina are being consulted on.
P. Harvey			✓	What is being done to fish stocks is unsustainable and it is best to err on the side of caution rather than favouring commercial economic outcomes.

817. Many points were raised by the form submissions. The following table shows the common points raised and how many submissions supported each. Some of these statements are beyond the scope of this review but will help inform a wider review of the fishery scheduled for later this year.

Table 6. Statements in LegaSea's submission form, and the number of submissions in support of each.

LegaSea template statements	Number of submissions that agreed with the statement
SEASON I support a 3-month open season for recreational pāua gathering running from 22 April to 22 July 2024.	118
SEASON After 2024, I want the Kaikōura pāua fishery to be reopened to recreational harvest for 9 months of the year (excluding the Xmas holiday season), with a daily bag limit of 3 pāua per person.	93
DAILY LIMIT I support a recreational daily bag limit of 3 pāua per person, per day.	118
DAILY LIMIT I support the 3 daily bag limit to be a combination of blackfoot and yellowfoot pāua.	65
MAXIMUM VEHICLE AND VESSEL DAILY LIMIT I support a maximum of up to 2 daily bag limits, which means a limit of 6 pāua per vehicle or vessel irrespective of passenger numbers.	115
MAXIMUM VEHICLE AND VESSEL DAILY LIMIT I don't support a vehicle or vessel limit of 6 pāua, irrespective of passenger numbers.	33
ALLOCATION VERSUS AN ALLOWANCE I object to any in-season adjustment to controls on recreational fishing, on the basis that the allowance must be reasonable.	65

9 Options and analysis

818. Monitoring of the Kaikōura fishery shows pāua biomass enables harvest opportunities by all sectors. As some areas of the fishery are more affected than others by ongoing habitat change as a result of the 2016 earthquake, an adaptive, closely monitored approach remains necessary to ensure the fishery rebuilds as a whole.

819. Recreational catch in the initial 2021/22 season was much higher than expected (and much higher than the allowance) in the PAU 3A part of the fishery. However, the measures introduced for the 2023 season (particularly the two-month autumn/winter season) reduced recreational catch to the point where, at the lower range of CV estimates it was close to the level of the recreational allowance (see Figure 2). In the PAU 7 part of the fishery, catch was relatively low in both seasons and, for the whole of PAU 7, likely to be well below the 15-tonne recreational allowance.

820. The proposed options largely repeat the approach used during the 2023 season and significantly constrain recreational fishing effort (i.e., they close the fishery for all but two-three months in autumn/winter). Under both options the season would open after the Easter public holiday, during which visitor numbers are typically higher and there is a corresponding increase in recreational fishing effort in the region.

821. Kaikōura Marine Guardians, Te Rūnanga o Kaikōura, and Te Waka a Māui Iwi Forum were supportive of the measures applied during the 2023 season and of a further, relatively short, recreational season in autumn/winter 2024. Further in-season monitoring, and longer-term management changes are also considered to be important by these groups.

822. Submissions from the commercial pāua industry note the importance of the recreational allowances and ensuring that recreational catch is managed in a way that is consistent with these allowances. They do not support either option on the basis that neither provides certainty that recreational catch in the PAU 3A part of the fishery will be constrained within the allowance of five tonnes. They consider high recreational catches have the potential to affect the longer-term sustainability of the fishery over time, as well as impacting on other fishery users.

823. Our assessment is that recreational catch in PAU 3A will continue to decrease under the options proposed. Of the two options presented, Option 1 (a two-month season as opposed to a three-month season) provides more certainty that this trend of decreasing catch will continue. This is because the number of large pāua in shallow easily accessible areas near the highway has declined over the past two seasons and the ability to wade for pāua without snorkelling gear has diminished. In addition, the past two seasons occurred during periods of particularly settled weather with the majority of days being fishable (based on data collected during the recreational surveys). New Zealand has now moved from a La Niña to an El Niño climate cycle, with the potential for stronger winds and much less favourable fishing conditions which will directly influence recreational catch.

824. Industry also submits that the now permanently open commercial fishery should be 'normalised' by removing reference to it within the section 11 *Gazette* Notice. We note that reference to the commercial fishery in the Notice relates to prohibiting commercial fishing within some of the customary fishery areas and consider this remains necessary to continue this prohibition.

825. We agree with the industry submissions that the fisheries plans approved for PAU 3 and PAU 7 are relevant considerations to your decisions. We consider our approach is consistent with the objectives of these plans, including industry's expectations regarding management of recreational fishing (see 6.5.5 '*Relevant services or fisheries plans – section 11(2A)*).

826. The recreational sector generally supports a longer season (i.e., Option 2) to acknowledge the importance of the fishery to recreational fishers and the lower number of available fishable days during the autumn/winter period. However, we note this option provides less confidence that recreational catch will be at a level that is consistent with the allowance set for PAU 3A.

9.1 Option 1: Two-month season (22 April to 21 June 2024) – FNZ preferred option

827. Option 1 provides for a two-month period for recreational fishers to harvest pāua from the wider Kaikōura coastline.

828. Five submissions support Option 1 including Forest and Bird and several individual submitters. Views expressed generally highlight that the weather over these months will greatly limit the number of available fishing days as many will be marginal or non-diving days. These submitters agreed last season's approach worked well and will continue to be effective to manage catch.

9.2 Option 2: Three-month season (22 April to 22 July 2024)

829. Option 2 provides for an additional month for recreational fishers to harvest pāua. Total recreational catch under this option will be higher than under Option 1. However, fishing effort is likely be very low during the third month (July) as it extends into winter when sea temperatures are colder and sea conditions less favourable for fishing.

830. Six written submissions (including the joint submission from the NZ Sport Fishing Council) and 118 of the LegaSea form submissions support Option 2 on the basis that the recreational sector should be provided with fair and reasonable access to this important shared fishery. They note that while the number of favourable fishing days during the three-month period will be limited due to unsuitable sea and weather conditions, a recreational season over winter would help avoid the risk of high catches during the summer period as experienced in the 2021/22 season.

831. The NZ Sport Fishing Council supports the proposed review of the TAC for the 2024/25 fishing year and contends that FNZ should proceed to permanently reopen the recreational fishery for a nine-month period (excluding the summer months).

9.3 Analysis

832. FNZ acknowledges the range of views provided in submissions expressing the need to provide reasonable access to this highly valued fishery, while acknowledging the concern raised by commercial submitters regarding the need to constrain catches to the allowances set.

833. The significant catch levels observed during the first season were largely due to the high abundance of easily accessible pāua as a result of the five-year closure, a high level of public interest in the reopened fishery, high visitor numbers during summer and exceptionally settled weather conditions. New management settings introduced last season significantly reduced

recreational catch, and we expect this trend to continue as the fishery moves from an unfished to a fished state with fewer large pāua in wade-able depths.

834. While submissions from industry propose several alternative approaches to achieve a better alignment with the recreational allowance (including the introduction of a larger MLS, vehicle/vessel limit, specified harvest tool, and recreational catch reporting and registration), we note that:

- fishers are already generally harvesting pāua at least 130 mm in size;
- most fishers are already using the specific pāua harvest tool provided free of charge by fishery officers; and
- that a further recreational fishing survey is being commissioned to estimate the recreational pāua catch taken during a two-month season in 2024.

835. Furthermore, FNZ is proposing to review the PAU 3A TAC, TACC and allowances for the 2024/25 fishing year. Industry has requested an increase to the TACC, on the basis that the commercially harvested beds can support a higher catch limit.

836. Overall, taking into account the information and views put forward in submissions, FNZ recommends Option 1 to reopen the recreational fishery for a further two-month season. Compared to Option 2, Option 1 provides more certainty of continuing the trend of decreasing recreational catch in the PAU 3A part of the fishery, consistent with the recreational allowance.

837. Weekly catch estimates will be provided to a reference group comprising Te Runanga o Kaikoura, Kaikoura Marine Guardians, PāuaMAC3 and Kaikoura Boating Club representatives. Should catch exceed expectations, then an early closure of the fishery can be considered. As catch estimates will be uncertain for the first few weeks of the season and a lead-in time of around two weeks is needed to implement a closure, an intervention of this nature is only likely after the first month of the season.

10 Socio-economic context

838. The past re-openings of the Kaikōura recreational pāua fishery created significant economic benefits to both the township and wider region. This included increased revenue through the provision of accommodation, fuel, food, and other services, which had previously experienced significant economic downturns following the 2016 earthquake.

839. A further reopening of the fishery has the potential to inject additional economic activity into the region. This potential is greater under Option 2, as it allows for a longer period for fishers to harvest pāua along the coastline.

11 Conclusions and recommendations

840. The Kaikōura pāua fishery is a highly valued and shared fishery. Rebuilding of biomass following the 2016 earthquake enables harvest opportunities by all sectors.

841. FNZ has sought feedback on two options to enable a further recreational fishing season in the 2023/24 fishing year - either a two-month or three-month season, starting from 22 April 2024. Implementing a relatively brief season over the autumn/winter months is key to managing the recreational catch level.

842. While there is general support for the proposed commencement date of the season, there are a range of views regarding the proposed duration of the fishery. Stakeholder feedback highlighted the need to provide reasonable recreational access to the fishery, while also raising the need to align catch with the recreational allowance. FNZ acknowledges the need to achieve this balance and notes the uncertainty in both the setting of the allowance and monitoring catch on a weekly basis.

843. FNZ considers Option 1 will manage recreational catch in a manner consistent with the recreational allowances and the requirements of the Act. We note the significant uncertainty associated with recreational catch estimation, that weather conditions during last year's two-month season were exceptionally good and that, in the PAU 3A part of the fishery, the number of large pāua in the shallow accessible areas near the highway has declined over the past two seasons. Compared to Option 2, Option 1 provides more certainty of continuing the trend of decreasing recreational catch in the PAU 3A part of the fishery.

844. During the season a further independent recreational fishing survey will be carried out to provide weekly estimates of catch. These estimates will be provided to Te Rūnanga o Kaikōura and a stakeholder reference group including industry and recreational representatives throughout the season, and will inform consideration of an early closure of the fishery if deemed necessary.

845. We note a new scientific assessment is underway that will inform a review of the TAC, allowances, and TACC for PAU 3A later this year. In the interim, FNZ considers that the sustainability measure recommended as part of this review will appropriately manage recreational catch.

12 Decision for the Kaikōura recreational pāua fishery for 2024

Option 1 *(Fisheries New Zealand preferred option)*

Agree to reopen the wider Kaikōura recreational pāua fishery open from 22 April to 21 June 2024 (two months).

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to reopen the wider Kaikōura recreational pāua fishery open from 22 April to 22 July 2024 (three months).

Agreed / Agreed as Amended / Not Agreed

AND

a) **Note** Fisheries New Zealand has consulted on reopening the Kaikōura recreational pāua fishery.

Noted

b) **Note** that Fisheries New Zealand will commission a further independent recreational fishing survey to provide weekly estimates of catch, and this will be provided to a reference group.

Noted

c) **Note** that Fisheries New Zealand will review the TAC and allowances as part of the 2024/25 October sustainability round later this year.

Noted

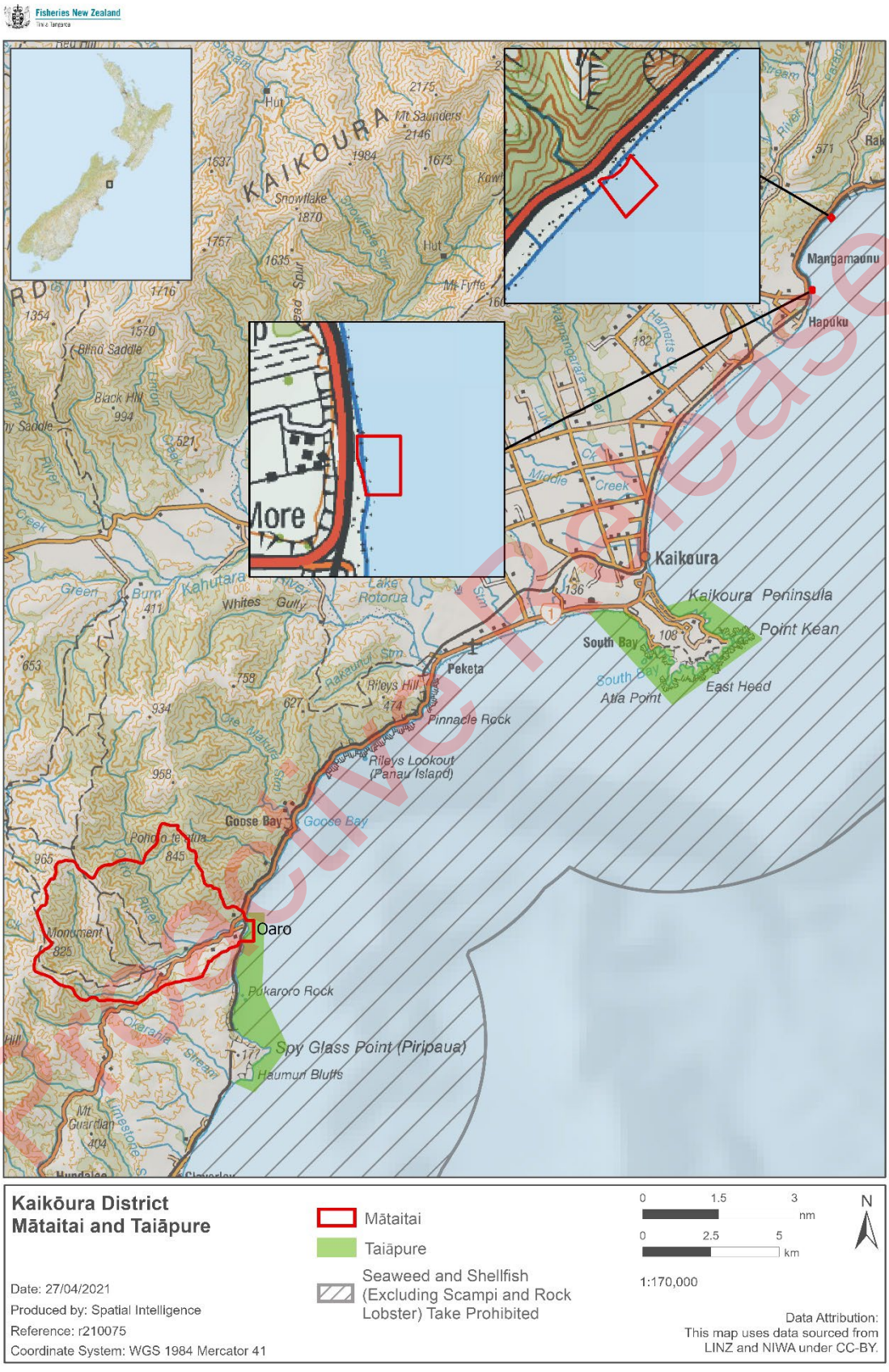
d) **Note** that Fisheries New Zealand will provide you with a new section 11 *Gazette* Notice for your approval to implement your decision under Option 1 or 2.

Noted

Hon Shane Jones
Minister for Oceans and Fisheries

/ / 2024

Pāua Annex 1: Map of customary management areas along the Kaikōura coastline



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Noted

Hon Shane Jones
Minister for Oceans and Fisheries
March / 03 / 2024

Red or Spiny rock lobster / Kōura papatea
Jasus edwardsii

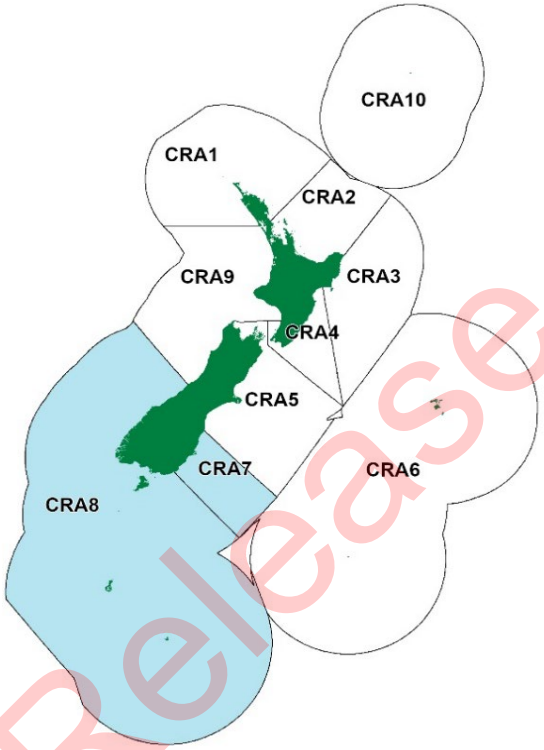

Figure 1: Quota Management Areas (QMAs) for spiny rock lobster, with CRA 7 and CRA 8 highlighted.

1 Why are we proposing a review?

846. The Otago (CRA 7) and Southern (CRA 8) spiny rock lobster stocks are assessed together by a fully quantitative stock assessment, with rapid assessment updates conducted annually between the full assessments. There is no agreed management target for either of these stocks, but the default 40% SSB_0 (unfished spawning stock biomass[139]) target of New Zealand's Harvest Strategy Standard (**HSS**)[140] is being applied for the combined stocks and for CRA 8 as an interim management target (see heading 4 *'Status of the stocks'* for further detail).

847. The most recent fully quantitative assessment for both stocks was completed in 2021. It determined that the combined stocks were above the previously agreed B_{MSY} reference level (the biomass, or weight of fish, which produces the maximum sustainable yield (***MSY***)). The assessment projected that biomass would increase further between 2021 and 2025 and stay well above the reference level. Based on that assessment, in 2022 the total and commercial catch limits (TACs and TACCs) of both stocks were increased, with a ~7% TAC increase for CRA 7 and a ~13% TAC increase for CRA 8.[141]

848. Rapid assessment updates have subsequently been conducted for CRA 7 and CRA 8 combined, with the most recent update being completed in 2023. This 2023 rapid assessment update of the 2021 full assessment reflects the best available information on the abundance of spiny rock lobster in CRA 7 and CRA 8.

849. The 2023 rapid assessment update indicates that spiny rock lobster biomass in CRA 7 and CRA 8 has increased in recent years and their combined biomass is now estimated to be at 54% SSB_0, which is above the interim management target of 40% SSB_0. The biomass of CRA 8

[139] *SSB*, the spawning stock biomass, is the biomass of sexually mature females only. This includes females that are sexually mature but smaller than the minimum legal size (i.e., not able to be caught).

[140] For more information on the HSS and its relevance in guiding fish stock management, refer to heading 3.2 of the *introduction and legal overview*.

[141] Minister for Oceans and Fisheries, 2022 April sustainability round decision letter.

is estimated to be above the interim management target at a level of 62% SSB_0.[142] The independent status of CRA 7 in relation to its interim management target of 40% SSB_0 cannot be reliably estimated (see heading 4 *'Status of the stocks'*). However, the best available information suggests that CRA 7 is likely to be at or above 40% SSB_0 and is likely to increase in abundance in the near future.

850. Alongside the rapid assessment update, the Fisheries Assessment Plenary approved updated catch-per-unit-effort (**CPUE)** series for CRA 7 and CRA 8 in 2023, which have allowed for the possibility for management procedures to be reinstated in both fisheries (FNZ – Fisheries Assessment Plenary, November 2023). A management procedure (part of which is a harvest control rule) is a set of 'decision rules' that can be used to guide the setting of commercial catch limits (**TACCs**) based on changes in abundance measured by changes in commercial catch rates (**CPUE**) (see heading 5 '*Proposed management procedures* for more information about management procedures, why they are used, and how they have operated previously in CRA 7 and CRA 8).

851. For CRA 7, FNZ is advising you on options to either accept or reject the updated management procedure but is not advising on any changes to the TAC from 1 April 2024. This is because based on the results of the 2023 rapid assessment update, the current settings appear to remain appropriate. The management procedure proposed for CRA 7 also does not recommend a TACC change.

852. For CRA 8, the 2023 rapid update assessment results suggest there is an opportunity for increased utilisation of the stock, and the new management procedure recommends an increase to the TACC. Fisheries New Zealand (**FNZ**) is therefore advising you on options to:

- accept or reject the use of the new CRA 8 management procedure from 1 April 2024;
- apply a small increase to the TAC of CRA 8 to align with current recreational harvest or apply a moderate increase to the TAC, including an increase to the TACC, to allow for greater commercial utilisation in line with the management procedure (Table 2).

853. The *status quo* is not proposed as an option for CRA 8 because the best available estimates of current recreational harvest are higher than the recreational allowance and biomass trends in CRA 8 suggest that the allowance can be sustainably increased to align with current harvest.

854. Your decision to vary the TAC of CRA 8 would be made under section 13(2)(a) of the Act.

2 Summary of proposed options and FNZ's recommendations

2.1 CRA 7

Table 1: Proposed management procedure options for CRA 7. FNZ's preferred option is highlighted in blue.

CRA 7 management procedure options	
Option 1	*Reject the use of the proposed management procedure.*
Option 2	*Confirm the use of the proposed management procedure.*
In total, 14 submissions were received on the proposed options.	

855. Option 1 proposes to reject the use of the previous management procedure for CRA 7, while Option 2 (FNZ's preferred option) would confirm its reinstatement in the management of CRA 7 until 2027/28, or until reviewed earlier. The specifics of this management procedure are provided below under heading 5.4 '*CRA 7 management procedure proposed for 2024'* and in **CRA 7 Annex 1**.

[142] The status of CRA 8 is estimated by assessing Region 2 (Fiordland) of the stock assessment model because the majority (>80%) of commercial harvest for CRA 8 occurs in Region 2.

2.2 CRA 8

Table 2: Proposed management procedure and TAC options for CRA 8 from 1 April 2024 (figures are all in tonnes). FNZ's preferred option is highlighted in blue.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	Other mortality caused by fishing
Current settings	1,453	1,251	30	33	139
Option 1 *(Reject the use of the new management procedure. Set the TAC, allowances, and TACC as follows)*	1,459 (↑ 6)	1,251	30	39 (↑ 6)	139
Option 2 *(Confirm the use of the new management procedure. Set the TAC, allowances, and TACC as follows)*	1,601 (↑ 148)	1,392 (↑ 141)	30	39 (↑ 6)	140 (↑ 1)
In total, 27 submissions were received on the proposed options.					

856. Option 1 would reject the implementation of the proposed management procedure for CRA 8 and would apply an increase of six tonnes to the TAC and recreational allowance to align the settings with estimates of recreational harvest. Option 2 (FNZ's preferred option) would accept the use of the new management procedure (until 2027/28, or until reviewed earlier) and in line with the procedure, would apply an increase to the TAC of 148 tonnes in response to recent increases in CPUE. This would include an increase of six tonnes to the recreational allowance to align with estimates of recreational harvest, an increase of one tonne to the allowance for other mortality caused by fishing, and an increase of 141 tonnes to the TACC to support increased commercial utilisation.

857. The specifics of the management procedure proposed for CRA 8 are provided below under heading 5.5 *'CRA 8 management procedure proposed for 2024'* and in **CRA 8 Annex 2**.

3 About the stocks

3.1 Biology[143]

3.1.1 Distribution and movement

858. Spiny rock lobsters, *Jasus edwardsii*, are distributed around New Zealand and Southern Australia. They are mainly found on reef habitat, though sometimes form aggregations on sand (Kelly et al., 1999). They are known to inhabit depths of up to 200 m, but their overall depth distribution around New Zealand is not well understood.

859. Adult spiny rock lobsters are generally considered to have a small home range once settled (i.e., less than 5 km). However, they also exhibit patterns of movement at various life stages. This includes movement into shallow water seasonally for moulting and mating, and females moving to the edges of reefs to spawn their eggs. Some migrations consist of large numbers of spiny rock lobsters moving together.

860. Long-distance migrations (>100 km) of spiny rock lobsters have been observed within CRA 7 and CRA 8, between Otago and Stewart Island and Fiordland (Kendrick & Bentley, 2003). During spring and early summer, variable proportions of usually small males and immature females move against the current from the east and south coasts of the South Island towards Fiordland and south Westland (i.e., out of CRA 7 into western regions of CRA 8; (Annala, 1983)). Tagging data suggests that females in CRA 7 migrate to CRA 8 Fiordland statistical areas prior to reaching maturity (McKoy, 1983). This is supported by the observation that mature females are largely absent from catches in CRA 7 and the Southland/Stewart Island statistical areas of CRA 8 (McKoy, 1983).

[143] Information in this section references the FNZ Fisheries Assessment Plenary 2023, except where cited otherwise.

3.1.2 Growth, maturity, and reproduction

861. While a technique for ageing spiny rock lobsters has not been developed, they are thought to be relatively long-lived. Individuals in Australia are considered to live at least 20 years (Linnane et al., 2021). Size at maturity varies between locations and ranges from 34 mm to 77 mm tail width (**TW**) for females across New Zealand (Annala et al., 1980). Female spiny rock lobsters in CRA 8 mature at a relatively large size (approximately 60 mm TW) compared to those in other Quota Management Areas (i.e., 40 mm TW in CRA 3 and CRA 4).

862. Female spiny rock lobsters produce eggs once a year and can produce between 40,000 to 600,000 eggs in a single reproductive event, with larger females producing more eggs than smaller individuals (Green et al., 2009). Eggs incubate for 3 to 4 months on the underside of the female's tail, held in place by small hairs (Kelly et al., 1999).

863. Mating occurs after moulting in autumn, with the eggs hatching in spring. Larval development can last 12 to 24 months and occurs far offshore (Bradford et al., 2014, Chiswell & Booth, 2008). Because of the long larval life of spiny rock lobsters, the origins of larvae are difficult to determine. Larvae hatched in one area may be retained in that area by local eddy systems, carried to other areas by currents, or lost to New Zealand entirely. For most areas, larvae may originate a considerable distance from the settlement site.

3.1.3 Predator-prey interactions

864. Spiny rock lobsters are ecologically important predators in New Zealand's rocky reef ecosystems, where they can exert top-down regulation of prey populations (see heading 9.1 '*Interdependence of stocks'* below; Pinkerton et al., 2008, Pinkerton et al., 2015). They consume a broad range of prey, including molluscs, crustaceans, annelid worms, macroalgae, echinoderms, sponges, bryozoans, fish, foraminifera, and brachiopods (MacDiarmid et al., 2013). They prefer soft-sediment bivalves over rocky reef prey and make nocturnal foraging movements away from the reef (Flood, 2021). Their feeding rates vary seasonally in relation to moulting and reproductive cycles (Kelly et al., 1999).

865. Spiny rock lobsters can also consume kina (sea urchins, *Evechinus chloroticus*). While rock lobsters have a preference for kina with a high gonad index, kina are a low preference prey item for lobsters (Flood, 2021). However, there is evidence that rock lobsters are important predators for larger urchins (Andrew & MacDiarmid, 1991, Shears & Babcock, 2003). Based on research from northeastern New Zealand, spiny rock lobsters and other predators can have a significant role in mitigating the occurrence of sea urchin (kina) barrens[144] (Doheny et al., 2023).

866. The ecological role spiny rock lobsters play in sea urchin abundance, and hence the occurrence of sea urchin (kina) barrens, is discussed further under heading 8.4.2 '*Biological diversity of the aquatic environment*' and heading 9.1 *'Interdependence of stocks'*.

867. Predation on spiny rock lobsters is known from a variety of fish species. Published scientific observations support predation upon small to medium spiny rock lobsters by octopus, rig, blue cod, grouper, southern dogfish, seals, and by other rock lobsters (MacDiarmid et al., 2013).

3.2 Fishery characteristics

868. Spiny rock lobster supports important shared fisheries in CRA 7 and CRA 8. They are a taonga for tāngata whenua, a popular species for recreational fishers to catch, and support valuable export markets, regionally important industries, and employment. Spiny rock lobster product is primarily exported with a free on board (**FOB**)[145] value of NZ $376 million for all spiny rock lobster stocks across New Zealand in the 2022 calendar year. It is unknown how much is sold on the domestic market.

869. CRA 7 extends from the Waitaki River south along the Otago coastline to Long Point (Figure 1). CRA 8 is the largest New Zealand spiny rock lobster fishery, extending from Long Point south to Stewart Island and the Snares Islands, the islands and coastline of Foveaux Strait, and then northwards along the Fiordland coastline to Bruce Bay (Figure 1).

[144] Sea urchin barrens are sea urchin dominated areas of rocky reef that would normally support healthy kelp forest but have little or no kelp due to overgrazing by sea urchins.

[145] Free on board is 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.

870. Spiny rock lobsters in CRA 7 and CRA 8 are predominantly caught by commercial fishers in a targeted potting fishery (>97% of spiny rock lobster caught commercially in CRA 7 and CRA 8 in the last five years were caught in rock lobster pots). The number of operating vessels in CRA 7 has varied between 9 and 12 vessels since 2011/12, with 9, 10, and 10 operating in 2020/21, 2021/22, and 2022/23, respectively. In CRA 8, the number of operating vessels in CRA 8 has varied between 61 and 69 since 2002/03, with 61, 64, and 67 operating in 2020/21, 2021/22, and 2022/23, respectively.

871. Recreational fishers predominantly catch spiny rock lobsters using targeted methods including hand-gathering by diving and potting. Most of the recreational catch in CRA 7 and CRA 8 is taken during the summer months, consistent with all other spiny rock lobster stocks. The region also sustains a dive charter industry catering to recreational fishing during summer.

872. Commercial harvesting is prohibited in some areas of CRA 8, including the inner fiords in Fiordland (see heading 8.5.6 *'Other plans and strategies'* and Figure A3 in **CRA 8 Annex 2** for further details).

3.3 Management background

873. Within New Zealand, spiny rock lobsters are managed within the Quota Management System (**QMS**) using a range of both output (catch limits, minimum legal sizes) and input controls (regulations including area and gear restrictions, and recreational daily limits). The fishing year for spiny rock lobster runs from 1 April to 31 March.

874. The overall management approach for spiny rock lobster fisheries is to monitor and manage them to provide for use while ensuring sustainability, as per the Act. The use of regular scientific assessments to support reviews of spiny rock lobster catch limits is consistent with this approach. Being able to adapt and respond quickly to changes observed in spiny rock lobster abundance is important, because populations of spiny rock lobster can fluctuate rapidly in response to changes in the environment that can affect recruitment, abundance, and availability (Nursey-Bray et al., 2012, McLeay et al., 2019).

875. Since 1992, the National Rock Lobster Management Group (**NRLMG**) has assisted with advice on catch limits, regulatory, and management actions that apply specifically to spiny rock lobster fisheries. The NRLMG is a national-level, multi-stakeholder group comprising representatives of tāngata whenua, recreational, and commercial fishing sectors, environmental organisations, and FNZ.

876. The NRLMG's management goal is for all spiny rock lobster fisheries "to be managed and maintained at or above the assessed and agreed reference levels, using a comprehensive approach that recognises a range of customary Māori, recreational, commercial, and environmental concerns and values."

877. Stock abundance for CRA 7 and CRA 8 combined was estimated to be below the soft limit from the early 1990s until 2000 but thereafter substantially increased and is now considered to be above the interim management target and increasing (see heading 4 '*Status of the stocks'* below).

878. The TACs for CRA 7 and CRA 8 were last reviewed and modified in 2022.[146] At that time, the TAC in CRA 7 was increased from 126.2 tonnes to 134.5 tonnes (7% increase). Within this, the allowance for other sources of mortality caused by fishing was increased from 5 tonnes to 8 tonnes (60% increase), and the TACC was increased from 106.2 tonnes to 111.5 tonnes (5% increase). The TAC in CRA 8 was also increased from 1,282.7 tonnes to 1,453 tonnes (13% increase). Within this, the allowance for other sources of mortality caused by fishing was increased from 28 to 139 tonnes (396% increase), and the TACC was increased from 1,191.7 tonnes to 1,251 tonnes (5% increase).

3.3.1 Stock assessment and monitoring information

879. Full scientific stock assessments of spiny rock lobster stocks are usually carried out every four to five years, except for the data limited CRA 9 stock (Westland/Taranaki).[147] These

[146] Review of Rock Lobster Sustainability Measures for 2022/23 Final Advice Paper (mpi.govt.nz).

[147] The small number of fishers in CRA 9 and low fishing pressure means that there is no currently accepted stock assessment for CRA 9. The stock is monitored using commercial catch and biological information from the fishery. The CRA 9 TAC and TACC are the smallest of the nine fished spiny rock lobster stocks.

assessments estimate the status of the stock relative to requirements of the Act and indicate how the stock has responded to previous management controls.

880. The most recent full stock assessment for CRA 7 and CRA 8 was conducted in 2021, and the next full stock assessment is scheduled for 2027.

881. Rapid update assessments are conducted during the intervening years between full stock assessments, to provide updated estimates of stock status that are used to guide management settings on an annual basis. In 2023, rapid assessment updates were conducted for CRA 7 and CRA 8. These rapid assessment updates use new information (such as updated commercial catch information, recreational harvest estimates, length frequency, and growth information) to update the most recent full stock assessment model.

882. Prior to rapid update assessments, management procedures were used to guide management settings in rock lobster fisheries on an annual basis. Management procedures recommend TACC settings based on changes in abundance measured by changes in commercial catch rates ('catch-per-unit-effort' or '**CPUE'**). More information on the history of management procedure operation in rock lobster fisheries, how they work, and the procedures proposed in this paper is given below under heading 5 *'Proposed management procedures'*.

883. Two alternative measures of biomass for the CRA 7 and CRA 8 stocks were provided by the 2021 assessment model and subsequent rapid assessment updates. These are:

- Spawning Stock Biomass (***SSB***) – sexually mature females only. This includes females that are sexually mature but smaller than the minimum legal size that are not vulnerable to the fishery (i.e., cannot be landed legally).
- Vulnerable Biomass – vulnerable biomass refers to that portion of a stock's biomass that is available to fisheries, i.e., legally harvestable adult spiny rock lobsters, (that are also often referred to as the exploitable biomass). For spiny rock lobsters this is defined as male and female fish above the Minimum Legal Size (**MLS**) at the beginning of the autumn-winter season, excluding berried females.

884. Two alternative measures of stock biomass are required because:

- The Harvest Strategy Standard for New Zealand Fisheries **(HSS)** specifies that the 10% hard limit and 20% soft limit should be determined relative to the *SSB* of the unfished level; and
- An *MSY*-related target is most appropriately calculated from the vulnerable biomass component of the stock, that provides yield from the fishery.

885. Estimates of B_{MSY} compatible reference levels are produced by the most recent stock assessment for each spiny rock lobster stock, which inherently reflect the biological and fishery characteristics that are unique to each stock. These B_{MSY} compatible reference levels are calculated in a way that is consistent with the requirements of the Act, to maintain stocks at or above a level that can produce the *MSY*, while meeting the risk constraints in the HSS.

886. A B_{MSY} reference level (4,963 tonnes vulnerable biomass) for the combined CRA 7 and CRA 8 stocks was estimated from the 2021 full stock assessment model. This and more recent estimates of B_{MSY} for the combined CRA 7 and CRA 8 stocks are no longer considered to be reliable, following unsuccessful attempts to estimate B_{MSY} for each of these stocks independently of each other (see explanation in paragraphs 901-902). As a result, the 2023 November Fisheries Assessment Plenary rejected the 2021 B_{MSY} reference level as a management target for CRA 7 and CRA 8 (FNZ – Fisheries Assessment Plenary, November 2023).

887. For this review of CRA 8, the 2023 November Plenary recommended that an interim B_{MSY} management target of 40% SSB_0 (unfished spawning stock biomass) could be used to provide some guidance, as defined in the HSS.[148] Neither a 40% SSB_0 management target, nor a vulnerable biomass B_{MSY} reference level could be reliably estimated for the CRA 7 stock.

888. It is important to note that single species' stock B_{MSY} management targets do not take into account wider ecosystem considerations, or the interdependence of stocks which are things you must consider in making a TAC decision. Because management procedures are designed to maintain a stock around a management target, these procedures do not explicitly account for ecosystem considerations either. Further work, including research, and significant stakeholder

[148] Harvest Strategy Standard for NZ Fisheries (mpi.govt.nz).

engagement will be required before management targets can be developed to take into account multi-species interactions and wider ecosystem effects.

889. Management targets could be set at or above the B_{MSY} reference level, depending on social, cultural, ecological, and economic factors, as well as tāngata whenua and stakeholder aspirations for each spiny rock lobster fishery and the wider ecosystem in areas where fishing occurs. In setting targets, the role of spiny rock lobster in maintaining biodiversity in a healthy marine environment will need to be considered. Management targets should also take into account fishery implications including predicted changes in yield and catch rates (i.e., CPUE).

890. In 2022, the NRLMG formed a sub-group to explore management targets and identified areas where further work is needed, including:

a) Sourcing science that might inform the levels of biomass that might better achieve the Act's environmental obligations;
b) Improving the mechanisms that would allow estimation of recreational take with sufficient precision to inform management and obtaining information to calibrate recreational controls;
c) Determining the way and rate of change to achieve the new selected target;
d) How allocation decisions would be made in the process of building and maintaining stocks at new management targets.

891. In 2023, FNZ contracted modelling to understand the consequences of managing to higher levels relative to B_{MSY} for a number of CRA stocks. These results have been used to inform further discussions with the NRLMG to explore support for specific management targets for select CRA stocks. Work was also undertaken to investigate additional ways to estimate recreational harvest. Progressing this work continues to be a priority for FNZ and the NRLMG. However, to progress this work for CRA 7 and CRA 8 a vulnerable biomass reference level must be developed for each stock independently of the other and this is not currently possible.[149]

4 Status of the stocks

892. The best available information for the status of CRA 7 and CRA 8 consists of the last full stock assessment conducted in 2021, the 2023 rapid assessment update, and the 2022/23 CPUE.

893. The combined CRA 7 and CRA 8 stock is estimated to be above the interim management target of 40% SSB_0, as is CRA 8 alone. The status of CRA 7 in relation to the management target cannot be estimated (for reasons discussed below under heading 4.2 *'Summary of the 2023 rapid assessment update'*). However, based on the status of the combined CRA 7 and CRA 8 stock and that the biomass trajectory for each stock is similar, CRA 7 is likely to be at or above a level consistent with the management target.

4.1 Summary of 2021 stock assessment results

894. A full stock assessment was conducted for CRA 7 and CRA 8 in 2021. The stock assessment modelled CRA 7 and CRA 8 as one biological stock across two regions (Figure 2), because very few mature female lobsters are caught in CRA 7, with both sexes migrating from CRA 7 into CRA 8 as they become sexually mature. The two regions are defined in the assessment model as:

a) **Region 1 (Otago/Southland):** CRA 7 and statistical areas 922, 923, 924, and 925 of CRA 8; and
b) **Region 2 (Fiordland):** Statistical areas 926, 927, and 928 of CRA 8 (see Figure 2).

[149] This advice is specific to CRA 7 and CRA 8. However, the development of stakeholder agreed management targets is being progressed for other CRA stocks where vulnerable biomass reference levels can be estimated.

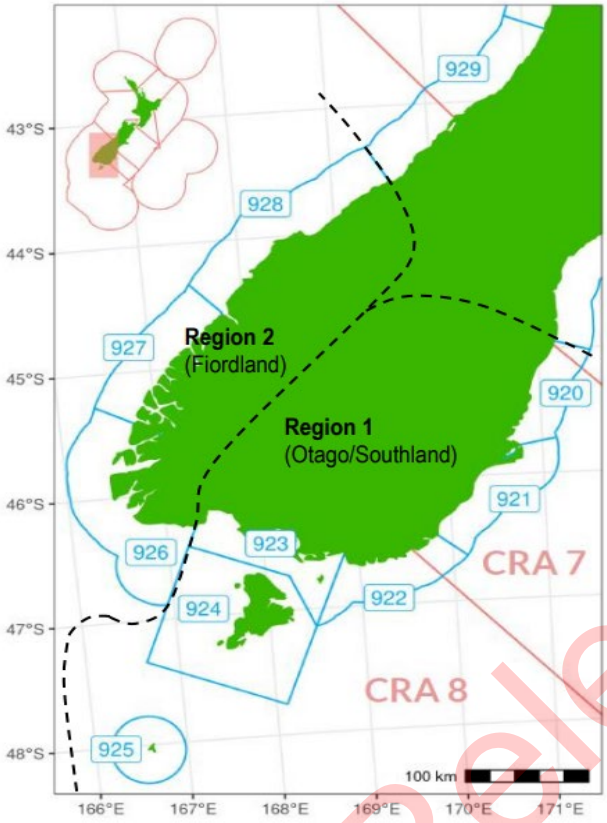

Figure 2: The CRA 7 (Otago) and CRA 8 (Southern) Quota Management Areas and statistical areas, showing approximate boundary of the two regions used in the 2021 CRA 7 & 8 stock assessment model (black dashed lines).

895. The 2021 stock assessment suggested that, for the combined CRA 7 and CRA 8 fishery, the vulnerable biomass in both regions had increased substantially from the low levels experienced near the end of the 1990s. In 2021, the combined vulnerable biomass of CRA 7 and CRA 8 was estimated to be 146% (7,114 tonnes) of the B_{MSY} reference level (4,863 tonnes vulnerable biomass) and was projected to increase to 169% (8,203 tonnes) of the B_{MSY} reference level by 2025.

896. Combined *SSB* in 2021 was estimated to be 48% of the unfished level, well above the soft limit of 20% where it is FNZ policy to implement a formal, time-constrained rebuilding plan.

897. Projections of the 2021 stock assessment model out until 2025 based on 2021 catch levels and recent levels of recruitment, suggested that vulnerable biomass would increase in Region 1 and remain steady in Region 2, with an overall increase in vulnerable biomass across the two regions combined. The *SSB* was projected to increase in both regions.

898. As noted above, the TACs and TACCs for CRA 7 and CRA 8 were increased in 2022 following the 2021 assessment results (~7% TAC increase for CRA 7 and ~13% TAC increase for CRA 8).[150]

4.2 Summary of the 2023 rapid assessment update

899. A 2023 rapid assessment update for CRA 7 and CRA 8 incorporated a further two years data into the 2021 stock assessment model.

900. The stock status estimates for 2023 provided by the most recent rapid assessment update model are consistent with the projected estimates provided by the 2021 full assessment model, indicating a slightly higher biomass which is largely attributable to higher-than-average recruitment in recent years. The consistency of these results therefore supports the trend in increasing biomass for the combined CRA 7 and CRA 8 stocks that was evident in the projections of the 2021 stock assessment model out to 2025.

[150] Minister for Oceans and Fisheries, 2022 April sustainability round, decision letter and final advice paper.

901. The best available information for the status of CRA 7 and CRA 8 has changed since the 2021 stock assessment. The 2023 November Plenary rejected the B_{MSY} target reference level (based on vulnerable biomass) estimate provided by the combined stock 2021 assessment, because the estimated target levels for Region 1 and Region 2 were not considered acceptable, which undermined confidence in the combined stock estimate. The B_{MSY} estimate for Region 1 was also considered to be implausibly low relative to levels estimated for other regions, and implausibly high for Region 2.

902. The 2023 November Plenary therefore recommended that the 40% SSB_0 default target (recommended by the HSS) should be used instead to provide some guidance on the status of the combined biological stock of CRA 7 and CRA 8, as well as CRA 8 individually. Therefore, the best available information for CRA 8 is the combined biomass and the *SSB* of Region 2 (Fiordland) (see Table 4). However, *SSB* cannot be reliably estimated for CRA 7, because an unknown amount of adult lobster from this area migrate to CRA 8 soon after maturation. In the absence of reliable *SSB* estimates for CRA 7, the best available information on the relative stock status for this stock is CPUE data (see Figure 5).

4.2.1 Combined status of CRA 7 (Otago) and CRA 8 (Stewart Island, Southland, Fiordland)

903. The results of the 2023 rapid update show that CRA 7 and CRA 8 combined vulnerable biomass is 25% (8,367 tonnes) of the unfished level (33,942 tonnes). See Figure 3 and Table 3 below.

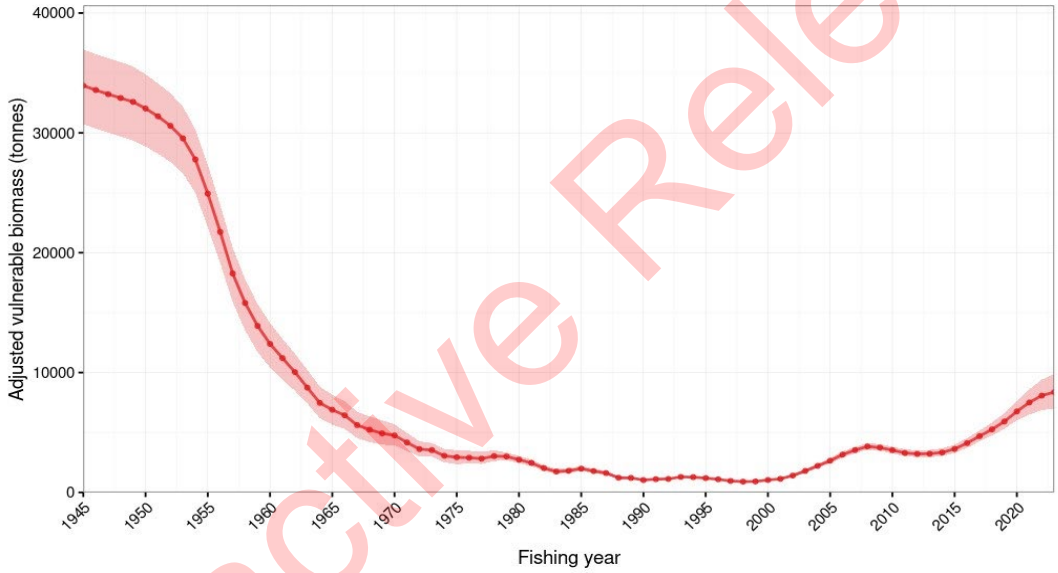

Figure 3: The 2023 rapid update estimates of the CRA 7&8 vulnerable biomass (tonnes) trend since 1945 (autumn winter adjusted). The solid line and points show the median estimates and the shaded region indicates 90% credible intervals. The two regions have been combined into a single CRA 7&8 series for this plot.

904. Combined *SSB* for CRA 7 and CRA 8 is estimated to be 54% (10,232 tonnes) of unfished levels (19,026 tonnes) and very likely (>90% probability) to be above the 40% SSB_0 target (Figure 4). It is very unlikely (<10% probability) that 2023 *SSB* is below the soft limit of 20% SSB_0 and the hard limit of 10% SSB_0 (Table 3).

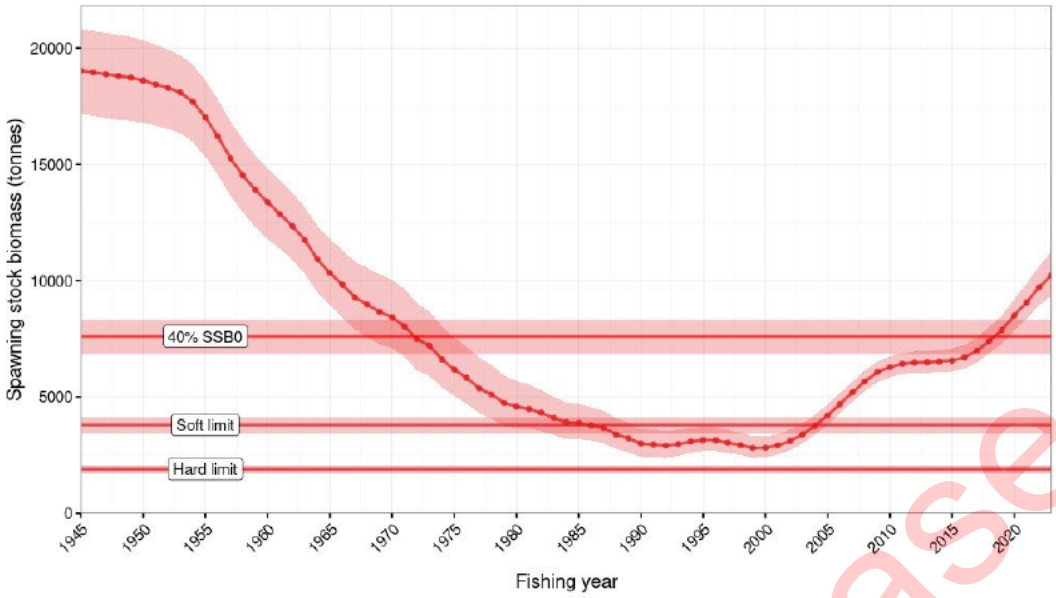

Figure 4: The 2023 rapid update estimates of trends in the spawning stock biomass in CRA 7&8 (tonnes) since 1945. The solid line and points show the median and the shaded region indicates 90% credible intervals. The distributions of the interim target (40% SSB_0) and soft (20% SSB_0) and hard (10% SSB_0) limits are also shown. The two regions have been combined into a single CRA 7&8 series for this plot.

905. Table 3 provides further results for the combined biomass of CRA 7 and CRA 8 from the 2023 rapid assessment update in terms of vulnerable and *SSB*, with associated uncertainty range estimates (quantiles).

Table 3: Estimates from the 2023 CRA 7 and CRA 8 rapid assessment update with 5th, 50th (median), and 95th quantiles (measures of uncertainty).[151] These values are reported for CRA 7 and CRA 8 combined.

Performance indicators	5% quantile	Median	95% quantile	Interpretation of the median results
Vulnerable biomass (*B*)				
B_{2023} / B_0	0.202	0.248	0.297	Vulnerable biomass in 2023 was 24.8% of unfished levels
Spawning stock biomass (*SSB*)				
SSB_{2023} / SSB_0	0.490	0.540	0.595	Spawning biomass in 2023 was 54% of unfished levels
Probabilities				
P(SSB_{2023}>40% SSB_0)		1		Very unlikely (<10% probability) that 2023 spawning stock biomass is below the interim target of 40% of unfished levels
P(SSB_{2023}>10% SSB_0)		1		Very unlikely (<10% probability) that 2023 spawning biomass is less than 10% of unfished levels (hard limit)
P(SSB_{2023}>20% SSB_0)		1		Very unlikely (<10% probability) that 2023 spawning biomass is less than 20% of unfished levels (soft limit)

4.2.2 Status of CRA 7 (Otago)

906. Because biomass for CRA 7 cannot be reliably estimated separately, the best available information for stock status of CRA 7 is standardised CPUE based on past Catch Effort Landing Return (**CELR**) and Electronic Reporting System (**ERS**) data. Standardised CPUE CELR data was also used as the abundance indicator for the previously accepted CRA 7 management procedure (see heading 5 *'Proposed management procedures'* and **CRA 7 Annex 1** for further information on the management procedure).

[151] The median is the midpoint of a distribution of possible values, such that there is an equal probability of falling above or below it. The 5% and 95% quantiles represent the lower 5% and upper 5% of a distribution of values.

907. The history of CRA 7 commercial CPUE is shown in Figure 5. This series uses offset year CPUE which is defined as the last six months of a fishing year combined with the first six months of the following year (1 October to 30 September). CPUE has been increasing since a low point in the late 1990s. Between 2008 and 2012 CPUE decreased but then increased over the following decade, reaching over 3.0 kg/potlift in 2022. In 2022/23 CPUE decreased to 2.5 kg/potlift. Overall, the trend in CPUE suggests that the abundance of spiny rock lobster in CRA 7 has increased in the last decade and remains high compared to historical levels.

Figure 5. CRA 7 (Otago) offset year CPUE in kg per potlift from the 1990/91 to the 2022/23 fishing year, based on data from the Catch, Effort, and Landings Returns (CELR) until 2019 and from the Electronic Reporting System (ERS) from 2020.

4.2.3 Status of CRA 8 (Stewart Island, Southland, Fiordland)

908. The best available information for CRA 8 is the combined biomass of CRA 7 and CRA 8 and the biomass of CRA 8 alone (estimated using Region 2 of the model).[152] In CRA 8, the vulnerable biomass is estimated to be 29% (5,266 tonnes) of unfished levels (18,461 tonnes). *SSB* is estimated to be 62% (6,377 tonnes) of unfished levels (10,391 tonnes). CRA 8 is very likely (>90% probability) to be above the interim B_{MSY} target of 40% SSB_0, and very unlikely (<10% probability) to be below the soft and hard limits (Table 4).

[152] The status of CRA 8 is estimated using the results of the 2023 rapid assessment update for Region 2 of the assessment model. The status of the spiny rock lobster population in Region 2 is considered to be representative of CRA 8 because >80% of commercial harvest in CRA 8 is landed from Region 2, and the CPUE abundance index trend for CRA 8 is very similar to that calculated from Region 2 catch and effort data.

Table 4. Estimates for CRA 8 from the 2023 rapid assessment update with 5th, 50th (median), and 95th quantiles (measures of uncertainty).[153]

Performance indicators	5% quantile	Median	95% quantile	Interpretation of the median results
Vulnerable biomass (*B*)				
B_{2023} / B_0	0.228	0.285	0.354	Vulnerable biomass in 2023 was 28.5% of unfished levels
Spawning stock biomass (*SSB*)				
SSB_{2023} / SSB_0	0.544	0.617	0.695	Spawning biomass in 2023 was 61.7% of unfished levels
Probabilities				
P(SSB_{2023} > 40% SSB_0)		1		Very unlikely (<10% probability) that 2023 spawning stock biomass is below the interim target of 40% of unfished levels
P(SSB_{2023} > 10% SSB_0)		1		Very unlikely (<10%) that 2023 spawning biomass is less than 10% of unfished levels (hard limit)
P(SSB_{2023} > 20% SSB_0)		1		Very unlikely (<10%) that 2023 spawning biomass is less than 20% of unfished levels (soft limit)

909. A statistically standardised CPUE index based on logbook data provided voluntarily by commercial fishers is considered to be a reliable indicator of relative changes in the abundance of spiny rock lobster in CRA 8 and has been used to inform the development of management procedures for the CRA 8 stock, which are being proposed here (see heading 5 *'Proposed management procedures'* and **CRA 8 Annex 1** for further information on the CRA 8 management procedure).

910. The history of CRA 8 commercial offset-year CPUE is shown in Figure 6. Since 2011/12, CPUE in CRA 8 has steadily increased, reaching over 5.0kg/potlift in 2017/18 and 2018/19. In 2022/23, CPUE is estimated to be 8.455 kg/potlift, suggesting further increases in abundance. These are the highest observed CPUEs in any of the spiny rock lobster stocks.

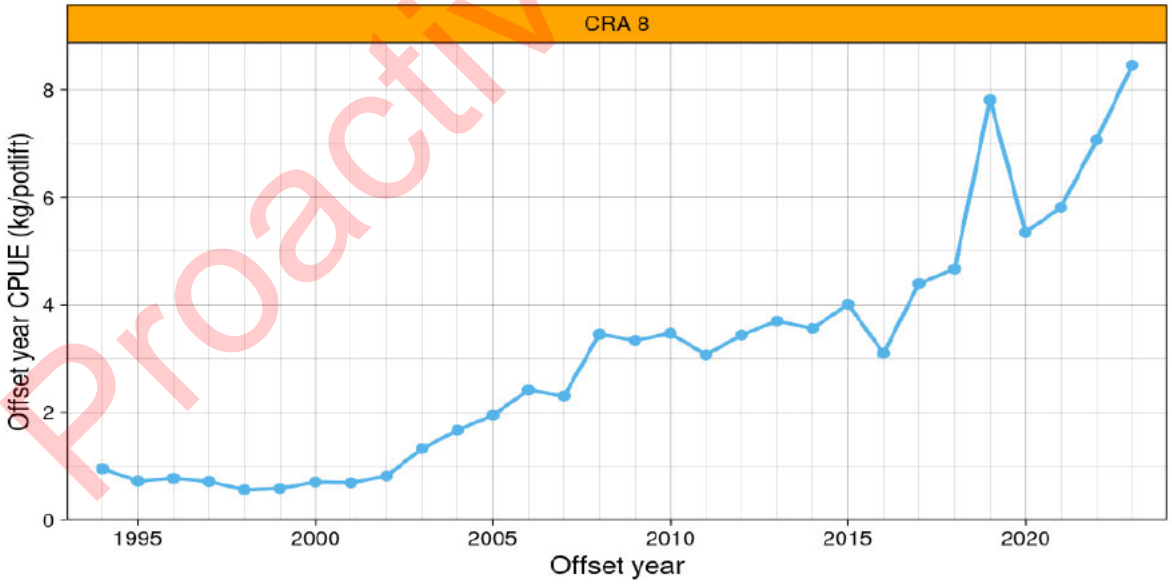

Figure 6: CRA 8 offset year CPUE in kg per potlift. The trend in CPUE since 1994/95 has been calculated from voluntary logbook data reported by CRA 8 commercial fishers. An offset year is defined as the last six months of a fishing year combined with the first six months of the following fishing year (1 October to 30 September). CPUE is calculated in terms of offset years, so the estimate for the most recent year is based on data that are as up to date as possible given the timing of sustainability reviews for rock lobster stocks.

[153] The median is the midpoint of a distribution of possible values, such that there is an equal probability of falling above or below it. The 5% and 95% quantiles represent the lower 5% and upper 5% of a distribution of values.

4.2.4 Uncertainty in the stock assessment

911. The full stock assessment conducted in 2021 was independently reviewed and accepted by a Plenary panel, that included reviewers who had not been previously involved in the development of the assessment. While there are remaining uncertainties associated with the most recent stock assessment model (and annual rapid assessment updates of that model), it is still considered to be the best source of information available on the status of the CRA 7 and CRA 8 stocks.

912. A list of uncertainties that were noted at the time of the 2021 stock assessment are summarised in the 2023 November Plenary report (pages 450 - 477) (FNZ – Fisheries Assessment Plenary, November 2023), and are outlined as the following:

a) Magnitude of early catch history and the distribution of early catch within two regions.
b) The estimates of illegal catches and recreational catches for years without surveys are considered to be unreliable.
c) The tag-based growth estimates provided by the model may not represent growth of the underlying population.
d) A possible cryptic population of large males and mature females in Region 1.[154]
e) The extent of movement between regions in the model is unknown.
f) Selectivity in Region 1 is poorly known.

5 Proposed management procedures

913. As noted in the introduction of this paper, a management procedure (also known as a harvest control rule) is a set of 'decision rules' that can be used to guide the setting of commercial catch limits (TACCs) based on changes in abundance (measured by changes in commercial CPUE).

914. Management procedures do not automatically predetermine or decide the catch limit settings for stocks. They help to guide in when and how catch limit reviews are considered. If a TAC or TACC change is required, this is still subject to the usual process of consultation, and you are required to make a decision via a sustainability round process.

915. When reviews of catch limits are initiated FNZ still considers all of the best available information in determining appropriate options for public consultation (which can include options to set the catch limits at a different level than is recommended by the management procedure if there is concern about the operation of the procedure). Following consultation, you maintain discretion in deciding on catch limit settings that you consider meet the statutory requirements of the Act.

5.1 Why are management procedures used?

916. One of the primary benefits of management procedures is that they can allow FNZ to respond quickly to changes in stock abundance on an annual basis, because there is an established approach for changing catch limits in response to changes in abundance. This is particularly useful for spiny rock lobster because their abundance can fluctuate rapidly in response to changes in the environment which can affect recruitment, abundance, and availability.

917. There are several other advantages in using management procedures to inform catch limit settings. These include:

a) allowing more explicitly defined management goals (e.g., maximising yield, maximising stability, managing at higher abundance, minimising risk) to be incorporated in the TAC review process, and providing greater certainty of achieving these goals;
b) providing for involvement of tāngata whenua and fishery stakeholders when choosing an appropriate set of management procedure rules; and
c) providing the ability to address uncertainty in all facets of the assessment and management process.

[154] However, there is currently no evidence to support the hypothesis that there is a substantive unexploited subpopulation of the stock elsewhere in CRA 7/Region 1.

5.2 Previous management procedures in CRA 7 and CRA 8

918. Management procedures for rock lobster stocks were first developed and applied to manage the CRA 7 and CRA 8 stocks in 1996, to set TACs to rebuild the stocks so they could be maintained at or above target biomass levels.

919. Up until April 2020, management procedures were used to guide the setting of catch limits for most spiny rock lobster stocks (including CRA 7 and CRA 8).

920. Typically, management procedures are developed and approved by you following a full stock assessment and then reviewed every five years unless an earlier review is required. The use of management procedures alongside full assessments was done to ensure that TAC settings remained compliant with the statutory requirements set out in the Act.

921. An initial peer-review of stock assessment models and management procedures is undertaken by the Rock Lobster Working Group (a Science Working Group convened by FNZ) and then ultimately and independently by the Plenary. Simulated data are used to assess and test any management procedures that are proposed, which includes testing to assess the robustness of proposed procedures to any known uncertainties, model assumptions (e.g., variable levels of recruitment and non-commercial catches), and alternative base case model configurations (FNZ – Fisheries Assessment Plenary, November 2023).

922. During 2020, management procedures were halted for all spiny rock lobster stocks following the implementation of electronic reporting of catch and effort information (hereafter referred to as the Electronic Reporting System or **ERS**) in 2019. In 2020, the Rock Lobster Working Group reviewed the data from the first year of electronic reporting (1 April 2019 to 31 March 2020) and compared the ERS data with that generated from the previous paper reporting system. The Rock Lobster Working Group concluded that CPUE estimated under the new electronic reporting system was likely to differ from CPUE estimated under the paper form system and is not comparable. The reasons for this include data being collected on a different spatial and temporal scale, against a large number of new reporting codes, using different reporting platforms and some issues with operators incorrectly interpreting the new reporting requirements.

923. The disruption to the time series of CPUE data meant that previously used management procedures could not be operated, as they rely on a consistent time series of CPUE.

5.3 2023 updated management procedures for CRA 7 and CRA 8

924. In 2023, the November Plenary approved alternative CPUE series for the CRA 7 and CRA 8 fisheries, allowing the adoption of management procedures to be considered again in both fisheries. The Plenary agreed that the ERS CPUE series in CRA 7 was reliable due to the high quality and consistent reporting by fishers in this area, allowing a further extension of the previously used CELR (Catch Effort Landing Return) CPUE time series index. For CRA 8, a new CPUE series was developed using data from the voluntary logbook programme.[155]

925. Subheadings 5.4 and 5.5 below outline details of the management procedures being proposed for CRA 7 and CRA 8, respectively. Further details on the specifications of each management procedure are provided in **CRA 7 Annex 1** and **CRA 8 Annex 1**. FNZ is advising on separate management procedures for CRA 7 and for CRA 8. For CRA 7, the proposed management procedure is the same as the management procedure which applied to CRA 7 from 2013/14 to 2020/21. The proposed management procedure for CRA 8 is new and is based on previously unused voluntary logbook CPUE data.

926. If approved by you, these management procedures would be used to guide management of the stocks through to the 2027/28 fishing year (which is when the next full stock assessment is scheduled), or until reviewed earlier.

[155] The voluntary logbook programme is a voluntary data collection programme. Fishers collect data from up to four prespecified logbook pots on every fishing trip. Fishers record and classify (sex, size, and maturity status) all of the lobster caught in each pot, but only counts of lobster larger than the minimum legal size are used when calculating CPUE.

5.4 CRA 7 management procedure proposed for 2024

927. It is proposed that the previously accepted management procedure should be used to guide TAC setting in the CRA 7 fishery from 2024/25 through to the 2027/28 fishing year, based on CPUE that has been calculated following new and improved standardisation methods.

928. The previously accepted management procedure was successfully used between 2013/14 and 2020/21, resulting in biomass increases over an eight-year period.

929. As discussed above, management procedures were halted in all CRA fisheries in 2020 following the switch to electronic reporting, but the Rock Lobster Working Group has recently concluded that reporting under this regime is comparable with that reported previously, in this QMA.

930. Generally, management procedures are evaluated against the most recent full stock assessment to help ensure operation of the management procedure would not pose a sustainability concern. However, the previously accepted management procedure was not re-evaluated against the more recent 2021 full assessment model because the spatial definition of that model differed from that used by the previous 2015 evaluation model.

931. It is likely that the population dynamics of CRA 7 will have changed since their last evaluation against the 2015 full assessment model, as indicated by increasing CPUE, recruitment, and biomass in the CRA 7 stock. This creates some uncertainty as to how the stock will respond to operation of the proposed management procedure. However, annual rapid update assessments provide an independent measure that can be used to monitor management performance.

932. In addition, the 2023 November Plenary noted that this would be a short-term management procedure that may be replaced when CRA 7 and CRA 8 are next assessed (currently scheduled for 2027) by a combined stock model that makes a greater differentiation between the CRA 7 and CRA 8 fisheries. The Plenary also noted that CPUE in CRA 7 is increasing and is now well above the levels experienced since 1979/80.

933. The results of the 2015 evaluation of the CRA 7 management procedure suggested that CPUE would be above the plateau target catch rate (the horizontal part of the procedure where TACC remains stable; see Figure 7) for 50% of the time and below the plateau less than 5% of the time. The probability of the biomass falling below all reference levels were estimated to be low, and CPUE was projected to average 2 kg/potlift.[156] The TACC was changed in 44% of years because of the high proportion of years with CPUE on the upper slope (the right side of the procedure). For further information on the specifications of the new CRA 7 management procedure see **CRA 7 Annex 1**.

934. Management procedures are applied to annual offset-year CPUE estimates, which are calculated from fishery data reported between 1 October to 30 September each year. This data is offset ahead by six months from the statutory 1 April to 31 March fishing year, allowing the most recent six months of data of the active fishing year to be incorporated into the management procedure.

935. A graphic representation of the proposed CRA 7 management procedure is provided in Figure 7. The graph shows the proposed TACC for the next fishing year as a function of CPUE in the current year. Under this management procedure, a CPUE of 2.5 kg/potlift in 2022/23 would indicate that the TACC for 2024/25 should be reset to 104.1 tonnes, which would be a 7.5 tonne (6.7%) decrease to the current 111.5 tonne TACC. However, the previously accepted minimum change threshold for the CRA 7 management procedure is 10%, and the indicated level of change to the current TACC is less than that required to trigger a TACC change in 2024/25.

[156] The 2015 stock assessment of rock lobsters (*Jasus edwardsii*) in CRA 7 and CRA 8, and management procedure review. (fish.govt.nz).

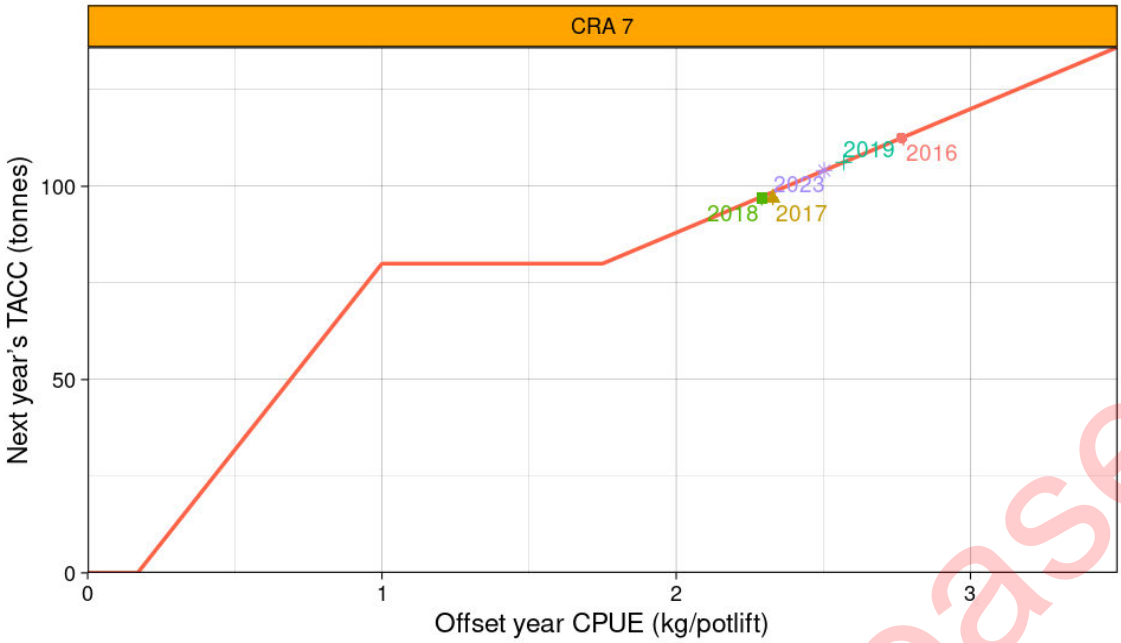

Figure 7: The proposed CRA 7 management procedure, showing the Total Allowable Commercial Catches (TACCs) resulting from evaluations performed from 2016 to 2019 and 2023 (shown as coloured shapes) for the 2017/18 to 2020/21 and 2024/25 fishing years.

936. An analysis of the benefits and risks of applying this management procedure in CRA 7 is provided below under the options and analysis sub-heading 13.1 *'CRA 7 management procedure'*.

5.5 CRA 8 management procedure proposed for 2024

937. It is proposed that a new management procedure be used to guide TAC setting in the CRA 8 fishery from the 2024/25 through to the 2027/28 fishing year.

938. As noted above, this new management procedure proposed for CRA 8 is based on a CPUE index calculated from previously unused voluntary logbook data. It is driven by offset year CPUE calculated from the voluntary logbook programme data that date back to the 1993/94 offset year, when the logbook programme was first initiated. This analysis was based on data reported by fishers for four monitoring pots, from which up to 25 lobsters were measured and sexed, with the rest counted.

939. In late 2023, the NRLMG considered 24 different possible 'rules' as candidates for this new CRA 8 management procedure. Following discussion, the sector representatives of the NRLMG agreed on a single rule for the CRA 8 management procedure, which is presented in more detail below.

940. The new management procedure was evaluated in 2023 and results suggest that its use would not pose a risk to stock sustainability. Use of the CRA 8 management procedure through to the 2027/28 fishing year is expected to outperform the requirements of the HSS and is very likely (>90% probability) to maintain the stock above the interim management target (40% unfished spawning stock biomass) and is very unlikely (<10% probability) to result in biomass dropping below the soft and hard limits. For further information on the specifications of the proposed candidate CRA 8 management procedure refer to **CRA 8 Annex 1**.

941. Simulation testing of the new CRA 8 management procedure also suggests it will continue to provide for utilisation benefits for all sectors in CRA 8.[157] Stock biomass is expected to be maintained well above the target level (Table 5).

[157] The CRA 8 management procedure was evaluated using data from Region 2 (Fiordland) of the model. While this does not encompass the entire CRA 8 area, the majority (<80%) of commercial harvest which informs CPUE data is taken within Region 2. Therefore, it was assumed that the data in Region 2 was a reasonable representation of the CRA 8 component of the combined CRA 7 and 8 stock assessment. The management procedure, however, operates using CPUE data from the entire CRA 8 area.

Table 5: Summary of indicator results from base case model evaluations for the new CRA 8 management procedure.

Stock indicators	Results
Probability of stock biomass being above the interim management target in 2027/28	>90%
Catch indicators	
Average commercial catch over four years (tonnes)	1,087
Median commercial catch in 2027/28 (tonnes)	1,087
CPUE indicators	
Average CPUE over four years (kg/potlift)	6.28
Commercial CPUE in 2027/28 (kg/potlift)	6.19

942. The rule proposed in this new management procedure is more conservative than the previous rules that operated between 2016/17 and 2020/21 and is the most conservative of the 24 rules considered. This current rule proposed is designed to manage CRA 8 at a higher CPUE (i.e., higher biomass).

943. A graphic representation of the CRA 8 management procedure is provided in Figure 8. The graph shows the proposed TACC for the next fishing year as a function of CPUE in the current year. Under this set of management procedure rules, a 2022/23 CPUE of 8.455 kg/potlift corresponds to a TACC of 1,392.3 tonnes (1,392 tonnes rounded to the nearest tonne) for the 2024/25 fishing year, which would be a 141 tonne (11%) increase to the current 1,251 tonne TACC.

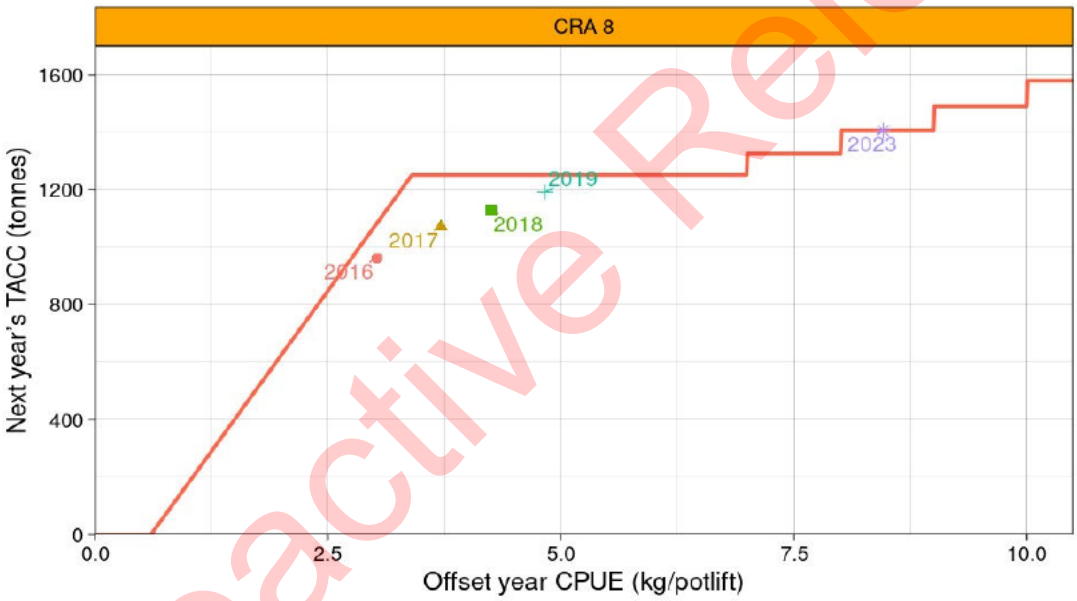

Figure 8: The proposed CRA 8 management procedure, showing the Total Allowable Commercial Catches (TACCs) resulting from evaluations performed from 2016 to 2019 and 2023 (shown as coloured shapes) for the 2017/18 to 2020/21 and 2024/25 fishing years.

944. Under this rule, a reduction to the TACC would be proposed if CPUE fell below 3.4 kg/potlift. It should be noted that CPUE in CRA 8 is currently above 8.0 kg/potlift and unlikely to decline to this threshold before the next full assessment in 2027, given the current stock status and trajectory.

945. An analysis of the benefits and risks of applying this management procedure in CRA 8 is provided below under the options and analysis sub-heading 13.3 '*CRA 8 management procedure and TAC options*'.

6 Catch information and current settings within the TAC

946. The considerations under this heading are summarised only for CRA 8 because they are relevant when you are making decisions for a TAC review. CRA 7 is not summarised under this heading because FNZ is not advising you on a TAC change for CRA 7 within this paper, only the use of management procedures.

6.1 Commercial

947. CRA 8 is the largest commercial spiny rock lobster fishery in New Zealand. Annual landings and the TACC for CRA 8 since 1990 are shown in Figure 9.

948. CRA 8 commercial landings have remained at or near the TACC from the late 1990s to 2017/18 (Figure 9). The COVID-19 outbreak led to under-catch of the TACC in 2019/20. Carry-forward provided for landings greater than the TACC in 2020/21.[158]

949. From 1996 to 2020, the CRA 8 TACC has been set by the operation of management procedures, ending with setting the TACC for 2020/21. The TACC was raised through the operation of the management procedure in 2018/19 to 1,071 tonnes, in 2019/20 to 1,130 tonnes, and again in 2020/21 to 1,192 tonnes (Figure 9).

950. In April 2022, following the results of the 2021 stock assessment, the TACC was last increased from 1,192 tonnes to 1,251 tonnes (5% increase).

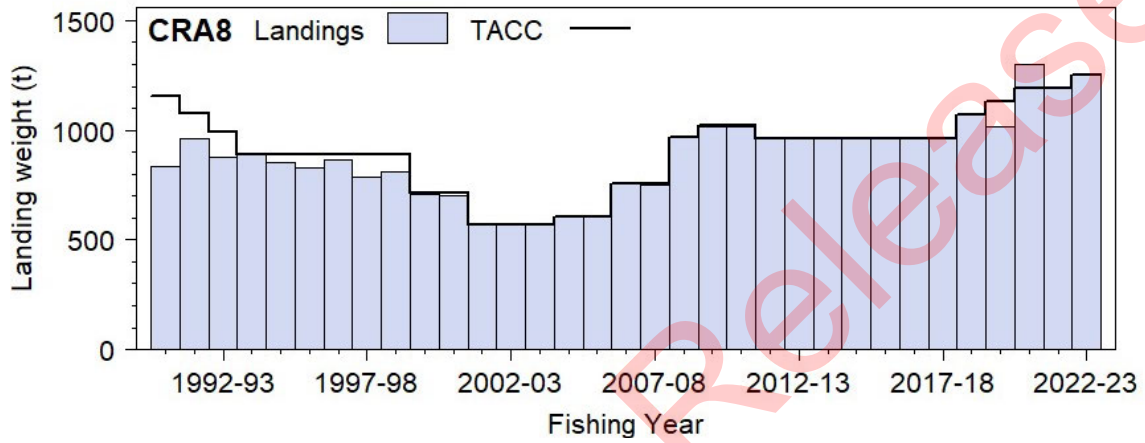

Figure 9. CRA 8 commercial landings and the Total Allowable Commercial Catch (TACCs) from 1990/91 to 2022/23.

6.2 Customary Māori

951. Spiny rock lobster (kōura) is a taonga species for tāngata whenua.

952. Customary catch in CRA 8 is authorised under the Fisheries (South Island Customary Fishing) Regulations 1999, as Tangata Tiaki/Kaitiaki have been appointed, with records of authorisations and catch maintained and made available to FNZ.

953. The current allowance for customary non-commercial harvesting of spiny rock lobsters in CRA 8 is 30 tonnes. This allowance has not changed since 1999.

954. Based on information received from customary reports from the last five years, customary catch in CRA 8 has fluctuated annually, with an average annual authorised amount of approximately 12,100 lobsters or 8.0 tonnes.[159] The maximum annual customary authorised amount reported in the last five years was approximately 25,900 lobsters or 16.9 tonnes in 2020.

955. The 2021 stock assessment assumed a customary harvest trajectory for CRA 8 starting with 6 tonnes per year from 1963 to 2012, increasing proportionally annually up to 15 tonnes in 2014, and then a constant annual harvest of 15 tonnes each year from 2014 until 2020.

956. Tangata Tiaki in CRA 8 have indicated that they have been conservative in their issuing of authorisations and have not approved approximately 15 to 20 tonnes of the customary allowance requests every year. This has been done in order to increase lobster numbers in

[158] For most fisheries (apart from fish stocks listed in Schedule 5A of the Fisheries Act 1996), either all unused ACE or 10% of ACE owned by an individual—whichever is the lesser amount can be carried forward into the next fishing year, provided the stock is not subject to a Total Allowable Commercial Catch (TACC) decrease in the following fishing year. Carry forward applies to ACE holders who have unused ACE at the end of the fishing year. Spiny rock lobster and packhorse lobsters' stocks are listed in Schedule 5A—meaning that carry forward does not currently apply in any of these stocks. However, the under-catch in 2019/20 due to the COVID-19 outbreak led to additional approved ACE carry-forward in 2020/21.

[159] Customary harvest in CRA 8 is primarily reported as the number of spiny rock lobster collected. The approximate volume (tonnes) of customary harvest was calculated using the mean weight of recreationally harvested spiny rock lobster in CRA 8 reported in the 2017/18 National Panel Survey (650 g per lobster).

water depths fished by customary fishers and provide future opportunities for customary catch success.

957. Therefore, the reported customary authorisations may not reflect the long term needs of tāngata whenua both for consumption and to provide for customary management objectives that express their exercise of kaitiakitanga, a consideration you must give particular regard to when setting sustainability measures (discussed further under heading 7 *'Treaty of Waitangi obligations as set in legislation'*).

6.3 Recreational

958. Recreational fishing in CRA 8 is subject to a range of controls including gear restrictions (limits on the number of pots and escape apertures), a minimum legal size, prohibited states (it is illegal to collect females with eggs known as 'in berry' or soft-shell spiny rock lobsters), daily limits, and area closures. These restrictions are further explained under heading 8.5.2 *'Existing controls that apply to the stock'*.

959. The CRA 8 fishery has a number of areas closed to commercial fishing, which provide non-commercial fishers with exclusive access to spiny rock lobsters. In Fiordland, the inner fiords are closed to commercial spiny rock lobster fishing. These closures were established in 2005 by the Fiordland Marine Guardians.

960. In some parts of Fiordland, recreational fishing is prohibited or restricted. A series of marine reserves in the inner fiords prohibit recreational fishing (see 8.5.4 '*Relevant statements, plans, strategies, provisions, and documents'*) and in Milford Sound a reduced daily limit of three spiny rock lobsters applies to recreational fishers (see Figure A3 in **CRA 8 Annex 2**).

961. The current recreational allowance is 33 tonnes for CRA 8. The recreational allowance was last increased from 29 tonnes in 2009.

962. Relevant sources of information for estimating rock lobster recreational catch include the results of the National Panel Surveys of Marine Recreational Fishers (**NPS**), reported section 111 landings from commercial fishers, and reported catch from amateur charter vessels.

963. The 2017/18 NPS[160] estimated 14.7 tonnes of recreational harvest in CRA 8.[161] However, the confidence intervals for these estimates are large (± 10.4 tonnes), which reflects a high degree of uncertainty. The same survey methods were also used to estimate the recreational catch taken from CRA 8 in 2011/12, but the result of 6.9 tonnes was considered highly uncertain (± 8.1 tonnes).[162]

964. The provisional 2022/23 NPS results indicated 10.4 tonnes (± 7.0 tonnes) of recreational harvest in CRA 8 (not including amateur charter vessel catch). In 2022/23, 15.1 tonnes of spiny rock lobster were taken in CRA 8 by commercial fishers for non-commercial purposes (as part of their daily recreational bag limit) under section 111 of the Act (see '*Section 111 commercial landings'* below).

965. Amateur charter vessels operating in CRA 8 reported 10.1 tonnes of spiny rock lobster harvest in 2022/23.[163] The maximum annual amount of amateur charter vessel harvest in the last five years was 12.3 tonnes reported in 2018/19.

966. Taking the provisional 2022/23 NPS results, section 111 landings, and amateur charter vessel reports, the current estimate for recreational harvest in CRA 8 is 35.6 tonnes (36 tonnes when rounded up to the nearest tonne). The 2022/23 estimate for recreational harvest exceeds the current allowance by three tonnes, however this estimate is uncertain.

967. It is important to note that this total estimate for recreational harvest is three tonne lower than the amount that was consulted on in late 2023 (the total estimate consulted on was 39 tonnes).

[160] National Panel Survey of Marine Recreational Fishers 2017–2018. (mpi.govt.nz)

[161] The total 2017/18 NPS estimate for CRA 8 (16.2 tonnes) includes harvest from amateur charter vessels. To avoid duplicating estimates in this review, the amount of spiny rock lobster reported from amateur charter vessels in the NPS was removed from the 2017/18 estimate.

[162] National Panel Survey of marine recreational fishers 2011-12: Harvest Estimates (mpi.govt.nz)

[163] This value is one tonne higher than the estimate consulted on in late 2023. This is because amateur charter vessel is primarily reported as the number of rock lobster caught. The approximate volume (tonnes) of amateur charter vessel harvest was calculated using the mean weight of recreationally harvested spiny rock lobster in CRA 8 reported in the National Panel Surveys (NPS). The figure consulted on was calculated using the 2017/18 NPS mean weight (650 g per lobster) and this updated estimate is based on the 2022/23 NPS mean weight (723 g per lobster).

This is because the provisional 2022/23 NPS results were not available prior to consultation, and therefore the 2017/18 NPS results were used to estimate recreational catch.[164]

Section 111 commercial landings

968. Spiny rock lobsters taken for personal use by commercial fishers under section 111 of the Act must be declared when landed, against the destination code 'F'. Section 111 landings must be accounted for within the recreational allowance.

969. Figure 10 below shows the reported section 111 landings between 2001 and 2022. The maximum in recent fishing years for section 111 landings is 16.62 tonnes for CRA 8 reported in 2020.

970. The accuracy of these statistics from 2019 onwards is uncertain because of concerns about the reliability of estimated catch reporting following the introduction of the ERS.

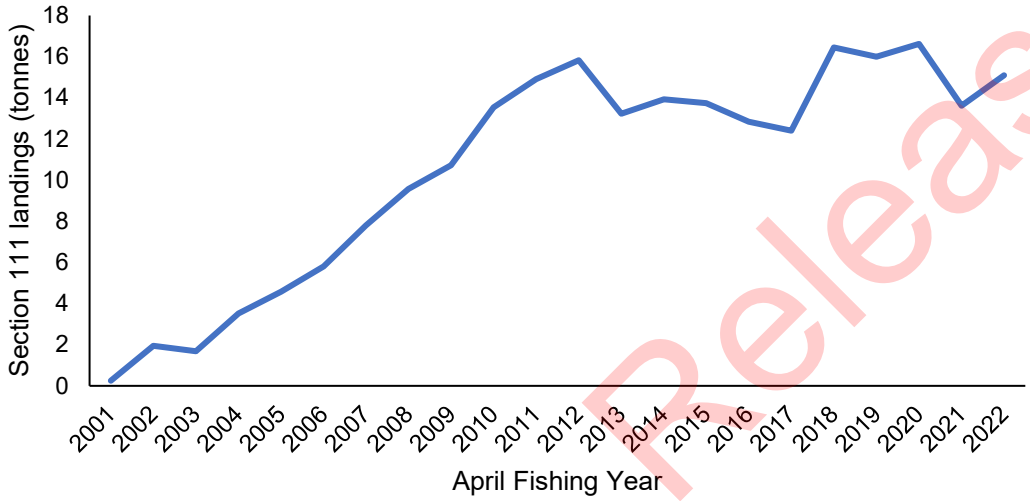

Figure 10. CRA 8 Section 111 commercial landings of spiny rock lobster (in tonnes, summed from landing destination code 'F') by fishing year. Note: the accuracy of these statistics from 2019 onwards is uncertain because of concerns about the reliability of estimated catch reporting following the introduction on electronic reporting.

6.4 Other sources of mortality caused by fishing

971. Other sources of mortality caused by fishing in CRA 8 include illegal catch, handling mortality caused by the return of under-sized lobsters, berried female lobsters, and high-grading,[165] as well as predation on lobsters by octopus and other predators within pots.

972. Estimates from the 2023 rapid assessment update are the best available information for informing current levels of handling mortality and illegal catch. Data on the presence of octopus in pots are available from the voluntary logbook programme. The level of mortality caused by predation of spiny rock lobster within pots is considered negligible. However, there is uncertainty in this data because historically the CRA 8 fishery has not had observer or on-board camera coverage, but there has been some observer coverage which started from the 2023/24 fishing year.

973. Stock assessments beginning in 2017 have assumed that handling mortality was 10% of returned lobsters until 1990 and then 5%, based on a literature review and the reasoning that greater care would be taken for the product with the development of the live export market. The Rock Lobster Working Group recently reviewed information relating to mortality of released lobsters and concluded that 5% mortality is an appropriate assumption.

974. In the 2021 full stock assessment, the Rock Lobster Working Group assumed illegal catch was 10% of the total commercial catch before 1990, the year that CRA 8 entered the QMS, and 2%

[164] The total recreational estimate consulted on was 38.9 tonnes (39 tonnes when rounded to the nearest tonne) based on the 2017/18 NPS result of 14.7 (+/- 10.4 tonnes), 2022/23 section 111 landings of 15.1 tonnes, and the 2022/23 amateur charter vessel reports of 9.1 tonnes.

[165] High-grading is the practice of selectively harvesting fish so that only the best quality fish are landed to achieve the highest economic return. This means that some spiny rock lobster which would be legal to land are returned to the water to maximise the quality of spiny rock lobster that are landed.

of the summed commercial catch beginning in 1990 in recognition of the impact of the introduction to the QMS, including greater control over the sale and receipt of lobsters once they became a tradeable asset. Annual illegal catch was scaled proportionately to CPUE where possible. This acknowledges that illegal take is likely to be influenced by available abundance.

975. The 2023 rapid update estimated handling mortality and illegal catch for Region 1 (CRA 7 and the Southland region of CRA 8) and Region 2 (the Fiordland region of CRA 8) for the model.

976. The current allowance for other sources of mortality caused by fishing in CRA 8 is 139 tonnes. This allowance was last increased from 28 tonnes in 2022.

977. To estimate the other mortality for CRA 8, the mortality estimates not attributed to CRA 7 for Region 1 were added to the Region 2 (Fiordland) estimates from the 2023 rapid assessment update. In the 2022/23 fishing year, CRA 8 accounted for 56% of commercial catch in Region 1. Taking 56% of the Region 1 estimates suggests an allowance of 4.9 tonnes for illegal catch and 8.9 tonnes for handling mortality. For Region 2 (which includes the Fiordland region of CRA 8) estimates of illegal catch (25.8 tonnes) and handling mortality (86.1 tonnes) were generated for the 2022/23 fishing year. The total estimate of other mortality for CRA 8 (taken by adding the handling and illegal catch mortalities from each region together) is 125.7 tonnes for the 2022/23 fishing year (126 tonnes when rounded to the nearest tonne).

7 Treaty of Waitangi obligations as set in legislation

7.1 Input and participation of tāngata whenua

978. Section 12(1)(b) of the 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 aquatic environment in the area concerned. In considering the views of tangata whenua, you are required to have particular regard to kaitiakitanga.

979. The requirement to have “particular regard” to kaitiakitanga means you need to consider the kaitiakitanga objectives (discussed below) of Te Rūnanga o Ngāi Tahu and decide which ones are most relevant to the proposed TAC adjustment. The matters should have some influence on your decision but only to the extent that this can be done in harmony with other relevant considerations.

980. Input and participation of tāngata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established to support that engagement. 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. Engagement with individual iwi is also undertaken when appropriate.[166]

981. Although the CRA 7 and CRA 8 management areas are relevant to the area of the Te Waka a Māui me Ōna Toka Iwi Fisheries Forum, input and participation on the review of these stocks was not sought from this forum as the CRA 7 and CRA 8 management areas are entirely within the rohe moana of Te Rūnanga o Ngāi Tahu. The views of Te Rūnanga o Ngāi Tahu in relation to this review of CRA 7 and CRA 8 are outlined below.

982. The input in this paper was provided by an appointed representative speaking on behalf of Te Rūnanga o Ngāi Tahu.

983. Te Rūnanga o Ngāi Tahu support an increase to the CRA 8 TACC on the basis of benefits for customary commercial fishers.

984. During the 2022 review of CRA 7 and CRA 8, Te Rūnanga o Ngāi Tahu expressed ongoing concern with the lack of information on recreational fishing levels and concern that recreational fishing is putting pressure on spiny rock lobster stocks and inhibiting the customary needs of

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

tāngata whenua, particularly in nearshore waters. Te Rūnanga o Ngāi Tahu also expressed concern with recreational charter fishing in the Fiordland Marine Area in particular.[167]

985. For this review, Te Rūnanga o Ngāi Tahu expressed the same apprehensions, with an emphasis on a perceived lack of information on recreational fishing, particularly from the NPS and reporting from amateur charter vessels. Te Rūnanga o Ngāi Tahu supports measures to manage charter fishing proposed by the Fiordland Marine Guardians (this is discussed under subheading 13.5 *'Other matters raised'*), and measures to constrain recreational harvest within the current allowance.

986. As discussed above, Tangata Tiaki in CRA 8 have been conservative in issuing authorisations and have not approved approximately 15 to 20 tonnes of the customary allowance requests every year. This has been done in order to increase rock lobster numbers in customary depths, maintain breeding biomass in the water, and provide future opportunities for customary catch success. Specifically, Tangata Tiaki are attempting to recognise and provide for the customary practice of 'bobbing' for rock lobster in rock pools.[168] Ngāi Tahu consider this practice would be particularly important for customary fishers who have limited ability to access the fishery through boats or scuba gear. Currently, the majority of customary harvest is taken by Ngāi Tahu commercial fishers because whānau do not have appropriate vessels to access deeper water.

987. Te Rūnanga o Ngāi Tahu consider that Tangata Tiaki management has contributed to a rebuild of abundance in CRA 8 and that the three to six tonnes of recreational harvest exceeding the current recreational allowance is being taken from the uncaught customary allowance (i.e., the rock lobster that Tangata Tiaki are not issuing customary authorisations for to support future use), and that an increase to the recreational allowance would be reallocation of catch from the customary allowance.

988. Further, Te Rūnanga o Ngāi Tahu consider that an increase to the recreational allowance would be inconsistent with section 5 of the Act and section 10(b) of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (**the Settlement Act**). Under section 10 of the Settlement Act, you, acting in accordance with the principles of the Treaty of Waitangi, shall –

    (a) Consult with tangata whenua about; and

    (b) Develop policies to help recognise use and management practices of Māori in the exercise of non-commercial fishing rights.

989. FNZ considers that achieving a high abundance of rock lobster in shallow habitat across the CRA 8 QMA would likely require substantial increases in overall rock lobster abundance. It is unlikely that this could be met simply by constraining recreational harvest, given the small proportion of total harvest that recreational fishing constitutes (approximately 2.5% of the TAC). Rather, it may be more appropriate to support re-establishment of rock pool fisheries in select regions of CRA 8 through localised management measures (such as customary area management tools including mātaitai and taiāpure or other area specific regulations under the Act).

990. Further, FNZ considers it would not be appropriate to constrain recreational harvest in CRA 8 at this time given the high abundance of rock lobster, the proposal to increase commercial utilisation, and because 40% of recreational harvest is taken by commercial fishers under section 111 (which is not likely to be occurring in nearshore water).

991. When setting the TAC for a fishery, it is within your discretion to decide on appropriate allocations for the recreational and customary allowances.[169]

992. In addition, the recreational allowance provides for recreational harvest in the total extraction (TAC) of a fishery but does not constrain actual recreational catch. A separate review of recreational regulations (such as the recreational daily limit or introduction of an accumulation limit) would be required to constrain or reduce recreational catch. However, your decision

[167] For further information on the 2022 review for CRA 7 and CRA 8, please see: Review of sustainability measures for rock lobster (CRA 1,7 and 8) for 2022 (mpi.govt.nz)

[168] Bobbing is currently prohibited because of the damage it causes to captured rock lobster. Bobbing a customary fishing practice conducted in shallow water. A bob is made by tying tangled and baited flax or cabbage tree fibres to a weighted line and dropping the bob onto the reef. Rock lobsters become tangled in the bob and are drawn to the surface. Legs and antennae are often lost in the process.

[169] The Act does not confer priority for any interest over the other and does not limit the relative weight which you may give to the interests of competing sectors. It leaves that judgement to you. Refer to heading 2.4 of the *'Introduction and legal overview*' for further guidance, and an outline of judicial findings relevant to your allocation decisions under the Act.

regarding the allowance is still important as it signals your intentions regarding management of recreational harvest.

7.2 Kaitiakitanga

993. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are among the ways that tāngata whenua can exercise kaitiakitanga in respect of fish stocks.

994. Te Rūnanga o Ngāi Tahu does not have a fisheries plan; however, they have inputted into the fisheries plan of the Te Waka a Māui me Ōna Toka Iwi Forum. In this plan, spiny rock lobster is listed as a taonga species. A few species that are bycaught in the CRA 7 and CRA 8 fisheries are also listed as a taonga species in the Forum's Fisheries Plan, these include octopus (wheke), conger eel (kōiro), and blue cod (rawaru).

995. The Te Waka a Māui me Ōna Toka Iwi Forum Fisheries Plan also sets out objectives for management of fish stocks. Objectives relevant to this review include:

    a) To create thriving customary non-commercial fisheries that support the cultural well-being of South Island Iwi and our whānau. This objective will be considered met when South Island iwi are able to collect fisheries resources, according to their tikanga, throughout their takiwā/rohe.

    b) South Island iwi are able to exercise kaitiakitanga. This objective will be considered met when the customary non-commercial fisheries legislative framework is implemented throughout the South Island in order to recognise and provide for the use and management practices of South Island iwi, South Island iwi are able to utilise their tikanga in the wider management of fisheries, and South Island iwi Fisheries Settlement rights are actively protected by the Minister of Fisheries and FNZ.

    c) 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. This objective will be considered met when core commercial stocks are enhanced and sustained for future generations, development stocks are further advanced in order to provide broader commercial and economic development opportunities, and South Island iwi support long-term development of iwi fishers and implement succession planning initiatives for new iwi fishers.

996. FNZ considers that the options proposed in this review contribute to progress towards the achievement of management objective (b) and are consistent with management objective (c) above.

997. As discussed above, Te Rūnanga o Ngāi Tahu consider an increase to the CRA 8 recreational allowance would constrain their ability to exercise kaitiakitanga (in the form of increasing rock lobster abundance in shallow waters to provide for a shallow water customary fishery). Based on this input, Te Rūnanga o Ngāi Tahu likely consider the changes to the recreational allowance proposed under both options for CRA 8 are inconsistent with objectives (a) and (b) above.

998. FNZ considers that while the allowance for recreational fishers recognises the likely actual catch of that sector and may be utilised in areas where customary fishing is conducted, the intent of the increase in allowance is to ensure all removals from the fishery are accounted for and overfishing does not occur. The continued increase in stock size which this action will likely assist in achieving will contribute to enabling Ngāi Tahu to exercise their role as kaitiaki firstly in mātaitai reserves where they exercise direct management control and progressively across CRA 8.

7.3 Mātaitai reserves and other customary management tools

999. Section 5 of the Act states this Act shall be interpreted, and all persons exercising or performing functions, duties, or powers conferred or imposed by or under it shall act, in a manner consistent with –

    (a) New Zealand's international obligations relating to fishing; and

    (b) the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

1000. As discussed above, Te Rūnanga o Ngāi Tahu have suggested that FNZ is in breach of section 10(b) of the Settlement Act on the basis that FNZ has not developed policies to help recognise use and management practices of Māori in the exercise of non-commercial fishing rights. However, FNZ has created policy which was to provide regulations to enable tāngata whenua to autonomously manage important customary fishing grounds through mātaitai reserves which prohibit commercial fishing and manage non-commercial fishing. Te Rūnanga o Ngāi Tahu have used this regulation extensively and manage reserves in CRA 8, some of which include areas appropriate for the fine scale management of rock lobsters.

1001. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account -

a) any mātaitai reserve in CRA 8 that is declared by notice in the Gazette under regulations made for the purpose under section 186;

b) any area closure or any fishing method restriction or prohibition in CRA 8 that is imposed under section 186B.[170]

1002. There are 20 mātaitai reserves that fall within CRA 8. (Table 6 and see Figure A3 in **CRA 8 Annex 2** for a map). There are no section 186B closures for spiny rock lobster that fall within CRA 8.

Table 6: Customary fisheries management areas in CRA 8.

Customary area		Management type
Waikawa Harbour/Tumu Toka Mātaitai	Mahitahi/Bruce Bay Mātaitai	
Motupōhue Mātaitai	Manakaiaua/Hunts Beach Mātaitai	
Oreti Mātaitai	Okarito Lagoon Mātaitai	
Pikomamaku Mātaitai	Tautuku Mātaitai	**Mātaitai reserve**
Te Whaka a Te Wera Mātaitai	Ōtara Mātaitai	Commercial fishing is not permitted within mātaitai reserves unless provided for in conditions.
Kaihuka Mātaitai	Ōmāui Mātaitai	
Horomamae Mātaitai	Tauneke Mātaitai	
Waitutu Mātaitai	Ōkahu Mātaitai	
Okuru/Mussel Point Mātaitai	Popotai Taumaka Mātaitai	
Tauparikaka Mātaitai	Paringa Mātaitai	

1003. Several of the mātaitai reserves within CRA 8 have bylaws relevant to spiny rock lobster fishing. These include:

a) The Pikomamaku Mātaitai prohibits fishing at all times for all people.

b) In the Te Whaka a Te Wera Mātaitai, bylaws restrict the number of spiny rock lobster pots that may be used, set, or possessed within the reserve. If an individual is fishing alone, they are restricted to two pots, and if two or more individuals are on a fishing vessel, they are restricted to four pots. In addition, the pot dimensions must not be larger than 1000 mm long by 1000 mm wide by 500 mm deep.

c) In the Kaihuka Mātaitai and the Horomamae Mātaitai fishing is prohibited for all people between 1 June in any year and 31 March in the following year.

d) In four of the mātaitai (Paringa, Popotai Taumaka, Ōkahu, and Tauneke Mātaitai) commercial fishing and the use of commercial spiny rock lobster holding pots is exempted from the general prohibition on commercial fishing. 9(2)(f)(iv) [redacted]

1004. As discussed above, Te Rūnanga o Ngāi Tahu is concerned that the proposed recreational allowance increases under Option 1 and Option 2 in CRA 8 will affect spiny rock lobster abundance available to customary fishers with less capacity (including in mātaitai and taiāpure areas). There are bylaws in some of the mātaitai reserves that restrict or prohibit recreational fishing, as listed above. However, in the remaining reserves recreational harvest is not prohibited. FNZ can work with Te Rūnanga o Ngāi Tahu to implement measures to directly address concerns in specific customary areas, however this work would need to be initiated by Tangata Tiaki and is outside of the scope of this current review.

[170] Section 21(4) does not refer to section 186B, but this is the provision used for temporary closures or fishing method restrictions or prohibitions in South Island fisheries waters.

1005. The proposed TACC increase for Option 2 in CRA 8 is expected to increase commercial fishing effort. The effect of this on spiny rock lobster abundance and availability in these customary areas is not known. However, FNZ expects that if there is any effect it is likely to be small given that the abundance of lobsters in CRA 8 is estimated to be increasing and the proposed TACC increase is modest relative to the estimated abundance of the stock.

8 Environmental and sustainability considerations under the Act

8.1 Overview

1006. You are being asked to make a decision under section 13 of the Act, to set the TAC for spiny rock lobster in CRA 8. This is a sustainability measure. Before setting or varying a sustainability measure, you must adhere to section 11 of the Act. When making your decision you must also act consistently with the requirements in section 5, and sections 8-10 (Purpose and Principles of the Act).

1007. The requirements and details of each of these sections are set out below, in the following order:

a) Section 5 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992);
b) Section 8 (Purpose);
c) Section 9 (Environmental principles);
d) Section 11 (Sustainability measures);
e) Section 10 (Information principles); and
f) Section 13 (Setting a Total Allowable Catch).

8.2 Application of international obligations and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 – section 5 of the Act

1008. You must act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. This is discussed in more detail under Heading 2.2.1 of the *Introduction and Legal Overview*.

1009. As discussed under sections 7.1 and 7.3 above, Te Rūnanga o Ngāi Tahu consider that an increase to the CRA 8 recreational allowance would breach section 10(b) of the Settlement Act. FNZ does not agree with their conclusion (see sections *'Input and participation of tāngata whenua'* and *'Mātaitai reserves and other customary management tools'* for further discussion).

1010. You must also act in a manner consistent with New Zealand's international obligations relating to fishing. Discussion of these relevant obligations is provided under Heading 2.2.2 in the *Introduction and Legal Overview*. There are no specific matters relating to international obligations that might apply to CRA 8.

8.3 Purpose of the Act – section 8 of the Act

1011. The Act's purpose is to "provide for the utilisation of fisheries resources while ensuring sustainability." Guidance for you on the meaning of section 8 and how it should be applied for decision making (for all the stocks being reviewed as part of this round) is provided under Heading 2.2.3 in the *Introduction and Legal Overview*.

8.4 Environmental principles – section 9 of the Act

1012. The environmental principles that you must take into account when considering sustainability measures for CRA 8, are as follows:

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

1013. It is important to note that in some cases FNZ has made assumptions about environmental interactions (such as protected species interactions) based on fisher reported data that may not have been independently verified (for example, by an on-board FNZ observer).

1014. There has been no observer coverage in CRA 8 over the period of time that the data below was collected. Given this, there is increased uncertainty associated with estimates of environmental interactions in the fishery. There has been some observer coverage which started from the 2023/24 fishing year which should help inform future reviews.

8.4.1 Associated or dependent species – section 9(a) of the Act

1015. Associated or dependent species includes any non-harvested species taken or otherwise affected by the taking of any harvested species. This includes protected species such as marine mammals and seabirds.

1016. In this section we have also provided analysis of potential impacts of fishing on other harvested species, including fish and invertebrate species caught as bycatch in the spiny rock lobster fishery.

1017. The removal of predators (particularly large predators) through fishing can contribute to kina barren formation with negative impacts on biodiversity and ecosystem health (Taylor & Schiel, 2010, MacDiarmid et al., 2013, Udy et al., 2019). The full extent of impact on biodiversity and ecosystem health is unknown (including impacts on associated and dependent species), but it is expected that a shift from productive kelp forests to kina barrens will result in reduced primary production and biodiversity.

1018. Much of the evidence on the effects of fishing on kina barrens comes from observations from marine protected areas in northeastern New Zealand. The extent of sea urchin barrens and contributing factors in other parts of New Zealand are not well understood (Doheny et al., 2023). In CRA 8, studies on kina barrens are limited and the extent of barrens is relatively unknown, however the magnitude of fishing induced effects may not be apparent, or recognised, due to the high primary productivity of the region (see heading 9.1 *'Interdependence of stocks'*).

Protected species interactions

1019. In New Zealand waters, marine mammal entanglements with pot fishing gear have been documented since 1980. A recent New Zealand study on cetacean interactions with pot fisheries (Pierre et al., 2022) found that from 1980 to the present, 1–2 entanglement events of cetaceans per year were reported on average. However more recently, from 2010 to 2020, an average of 4–5 entanglement events per year have been recorded.

1020. Nationally, the most recorded entanglements over time have involved humpback whales, followed by orca. There are no reported entanglements in CRA 8.

1021. Methods to reduce impacts on cetaceans from interactions and entanglements with pot and trap fishing gear include modified fishing practices, spatial/temporal management, and active disentanglement of entrapped cetaceans. Actively disentangling is the main documented response to addressing entanglements in New Zealand to date.

1022. Guidance for commercial pot fishers has been distributed by the New Zealand Rock Lobster Industry Council (**NZ RLIC**). This guidance includes proactive approaches to reduce the risk of cetacean entanglements with fishing gear, providing information on whale identification, best practice approaches to mitigation, and reporting requirements.

1023. 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.[171] In October 2022, the previous Minister agreed on further measures to manage the effects of fishing-related mortality on South Island Hector's dolphins and support the delivery of the Threat Management Plan, those measures include new fishing-related mortality limits[172] and a Bycatch Reduction Plan.[173] To date, with regard to the spiny rock lobster fishery, there have been no reported interactions with Hector's and Māui dolphins in CRA 8. Due to the lack of reported interactions to date, FNZ considers the residual risk to the Hector's and Māui dolphin from potting in CRA 8 to be low.

[171] The MPI website contains more information on management actions taken to reduce Hector and Māui interactions in New Zealand Fisheries.

[172] Fisheries (Fishing-related Mortality Limits of Marine Mammals and Other Wildlife) Regulations 2022 (SL 2022/313) Contents – New Zealand Legislation.

[173] South Island Hector's Dolphin Bycatch Reduction Plan (mpi.govt.nz).

Seabirds

1024. Management of seabird interactions with New Zealand's commercial fisheries is guided by the National Plan of Action – Seabirds 2020 (NPOA-Seabirds). 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.

1025. 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 2023 and ranks the southern Buller's albatross as the most at-risk seabird, followed by the Salvin's albatross, New Zealand white-capped albatross, black petrel, and Westland petrel (Edwards et al., 2023).

1026. There have been no reported interactions with seabirds in CRA 8 in the last 10 years. As such, FNZ expects that the proposed settings to the TAC, TACC, and allowances for CRA 8 will have little, if any, effect on seabirds.

Fish and invertebrate bycatch

1027. When spiny rock lobsters were targeted in CRA 8 from the 2019/20 to 2022/23 fishing years, the most frequently reported incidental species caught in the CRA 8 target fishery were: conger eel, octopus, wrasses, carpet shark, blue cod, scarlet wrasse, banded wrasse, and circular saw shell.

1028. Blue cod (BCO 3, BCO 5, and BCO 7) are managed under the QMS, and bycatch of these stocks is managed through their respective catch limits. BCO 5 and BCO 7 are currently under a rebuild. The status of BCO 3 in relation to management targets is unknown but the stock is unlikely to be below the soft limit. However, the amount of blue cod bycaught in the CRA 8 fishery is relatively small with an average annual bycatch of 2.21 tonnes across BCO 3, BCO 5, and BCO 7 reported for CRA 8 between the 2019/20 and 2022/23 fishing years.

Black corals

1029. All black corals (*Antipatharia spp.*) are protected under the New Zealand Department of Conservation Wildlife Act 2010. About 58 black coral species are known in New Zealand waters and some species may live for hundreds of years. Most species appear to live at a depth of 200-1000 m. Divers are most likely to encounter black corals below 40 m depth on offshore reefs in northern New Zealand. In Fiordland and parts of Port Pegasus, Stewart Island, *Antipathes fiordensis* may occur as shallow as 10 m depth.

1030. Shallow water corals possibly interact with commercial fishing methods such as potting for spiny rock lobster, and they are vulnerable to damage by anchors from vessels. There have been no reported interactions with black corals in the CRA 8 commercial fishery.

1031. A number of mitigating measures are in place that help prevent interaction with fragile corals, some of these are designed specifically to mitigate coral interaction and some are designed for other purposes but provide protection, nonetheless. These include marine reserves that prohibit all forms of fishing, areas that prohibit commercial fishing including the inner fiords, and areas that prohibit recreational lobster potting within the Fiordland Marine Area (see heading 8.5.4 *'Relevant statements, plans, strategies, provisions, and documents'* and Figure A3 in **CRA 8 Annex 2**). In addition, there are sites that prohibit anchoring within the Fiordland Marine Area to protect corals from anchor damage.

1032. The Department of Conservation is currently conducting a three-year project to ascertain whether there are fishing related effects on black coral colonies in Fiordland. The results from this study will help inform future reviews of CRA 8.

8.4.2 Biological diversity of the aquatic environment – section 9(b) of the Act

1033. Any benthic impacts from fishing are an important consideration in relation to this principle, along with the impact fishing has on kelp distribution, given its critical role in coastal and marine environments.

Benthic impacts

1034. Potting is the main method of targeting spiny rock lobster commercially and is assumed to have very little direct effect on non-target species. FNZ is not aware of any information that exists regarding the benthic effects of potting in New Zealand.

1035. A study on the effects of lobster pots on the benthic environment was completed in a report on the South Australian rock lobster fisheries (Casement & Svane, 1999). This fishery is likely to be the most comparable with New Zealand because the lobster species is the same (*Jasus edwardsii*) and many of the same species are present, although pots and how they are fished may differ. This report concluded that the amount of algae removed by pots (due to entanglement) probably has no ecological significance.

1036. Fishing for predators such as spiny rock lobsters has the potential to indirectly impact biological diversity of the aquatic environment because of the relationship between predator abundance and kina (which graze on kelp).

1037. As outlined in the Aquatic Environment and Biodiversity Annual Review 2021 (**AEBAR**),[174] kelp provides a wide and diverse range of ecosystem services, including:

a) providing important settlement, nursery, shelter, and refuge habitats for a wide range of coastal and inshore shellfish and finfish species, including for spiny rock lobster;
b) providing food for invertebrates, shellfish, finfish, and seabird species, which in turn supports a variety of important commercial and non-commercial fisheries resources;
c) modifying wave and tidal action and influencing coastal physical processes such as erosion, sedimentation, and turbidity;
d) driving primary production and energy and nutrient recycling that contribute to other near-shore systems including sandy beaches and deepwater ecosystems.

1038. It is important to note that kelp is indirectly affected by fishing for predators. The removal of predators, including spiny rock lobster, can reduce predatory control of the abundance of kina, which graze on kelp. The magnitude of this relationship depends on many factors that vary regionally. Biotic factors include (but are not limited to) fishing pressure, population dynamics of predators, prey and kelp, and ecosystem resilience. Abiotic factors include temperature, turbidity, and chemistry (among others) (Doheny et al., 2023). An over-abundance of kina and the over grazing of kelp systems can result in kina barrens. Kelp forests are an important habitat and food source for many rocky reef dwelling species. Therefore, in making a decision, you must give consideration to the indirect impacts of spiny rock lobster fishing on species that directly rely on kelp (this is also relevant to section 9(a) of the Act - associated or dependent species should be maintained above a level that ensures their long-term viability).

1039. Kelp habitats are likely to be important for a range of harvested and non-harvested species, and any reduction in such habitats is therefore likely to be adverse to spiny rock lobster and other species that rely on kelp for shelter or food (Dayton, 1985).

1040. Fishing-induced trophic cascades, kelp grazers (e.g., butterfish, Shears et al, 2008), and other impacts on the ecosystem due to fishing, sedimentation, and climate change can have long term impacts on kelp abundance and distribution. In turn, this could potentially negatively impact the suitability of rocky reef habitat for juvenile and adult spiny rock lobsters as a refuge for settlement, as well as the availability of their prey species (Stanley et al., 2015).

1041. Kina barrens have been observed in CRA 8, however there is limited information on the distribution and extent of the kina barrens as well as the role of fishing in the development of kina barrens in the region (see heading 9.1 *'Interdependence of stocks'*).

8.4.3 Habitats of particular significance for fisheries management – section 9(c) of the Act

1042. Specific habitats of particular significance for CRA 8 have not been identified, however certain features of rocky and sandy habitats important for spiny rock lobster are discussed in Table 7.

[174] Aquatic Environment and Biodiversity Annual Review (AEBAR) 2021: A summary of environmental interactions between the seafood sector and the aquatic environment (mpi.govt.nz).

Table 7: Summary of information on potential habitats of particular significance for fisheries management for CRA 8.

Fish stock	Spiny rock lobster –CRA 8
Potential habitat of particular significance	• No specific habitats of significance have been identified for CRA 8. <u>Juveniles:</u> • Spiny rock lobsters have high fecundity and an extensive pelagic larval stage of up to two years, which results in larval dispersal over wide areas by ocean currents. • During this pelagic phase, larvae are dispersed in the open ocean and carried by currents. The open ocean environment is important during this stage of spiny rock lobster development. • After the pelagic larval phase, larvae metamorphose into the post-larval puerulus stage and settle on coastal shelf rocky reefs. Puerulus sometimes settle on complex seaweeds or bryozoans but less frequently. Puerulus and juvenile spiny rock lobsters preferentially inhabit holes and crevices in hard substrates where light levels are low. • Juveniles have more specificity in habitat use than adults, preferring small holes similar to their size. • Evidence from Australia suggests that kelp habitat is important for spiny rock lobster settlement. However, the relationship for New Zealand spiny rock lobster has not yet been scientifically tested. <u>Adults:</u> • Adult spiny rock lobsters are found in reef habitats up to depths of 200 m, where they inhabit crevices, caves, and rocky overhangs. • Bivalves on sand flats surrounding reefs are a preferred prey for spiny rock lobsters, and they make foraging movements to prey on them nocturnally. • Macroalgae (kelp) increases structural complexity and provides habitat and food for prey species of spiny rock lobster. • Sand, horse mussel beds, and low-lying reef are important habitats during inshore-offshore movements. • Mussel bands in Fiordland have been found to support higher densities of spiny rock lobsters.
Attributes of habitat	• Coastal shelf, up to depths of 200 m • Complex rocky habitats (crevices, caves, rocky overhangs). • Low light levels (juveniles). • Presence of macroalgae increases structural complexity. • Sand, horse mussel beds, and low-lying reef are important for short distance migration and for nocturnal feeding.
Reasons for particular significance	• Successful reproduction, development of juvenile stages, and growth to mature adult sizes is critical to supporting the productivity of spiny rock lobster stocks. • Spiny rock lobsters are predators that forage on algae and benthic invertebrates including pāua, ophiuroids, and kina. • Complex rocky habitats provide critical habitats for spiny rock lobsters, including: - Settlement substrata for juveniles. - Shelter and refuge from predation. - Feeding opportunities.
Risks/threats	• Land-based practices can impact coastal reef habitats, including through sedimentation and eutrophication. • Climate change: - In the long-term oceanographic circulation patterns (currents, gyres, eddies) could be impacted by climate change, and changes in seawater temperature and predation may affect survival and settlement of spiny rock lobster larvae. - Seawater temperature change is known to affect complex coastal reef habitat (such as kelp) of spiny rock lobster, which has the potential to inhibit larval settlement, and the survival of juvenile and adult spiny rock lobster (through loss of habitat and food source).
Existing protection measures	• Several mātaitai reserves (discussed above in '*Mātaitai reserves and other customary management tools*'). • Several marine reserves in the Fiordland Marine Area (discussed below in '*Relevant statements, plans, strategies, provisions, and documents*' and '*Other plans and strategies*').
Evidence	• Flood, A. S. (2021). *Gut Instincts: Feeding behaviour of the rock lobster, Jasus edwardsii* (Doctoral dissertation, ResearchSpace@Auckland). • García-Echauri, L., Liggins, G., Cetina-Heredia, P., Roughan, M., Coleman, M. A. & Jeffs, A. 2020. Future ocean temperature impacting the survival prospects of post-larval spiny lobsters. Marine Environment Research, 156, 104918.

Fish stock	Spiny rock lobster –CRA 8
	• Hinojosa, I. A., Gardner, C., Green, B. S., Jeffs, A., Leon, R. & Linnane, A. 2016. Differing environmental drivers of settlement across the range of southern rock lobster (*Jasus edwardsii*) suggest resilience of the fishery to climate change. Fisheries Oceanography, 26 (1): 49-64. • Shaffer, M.R. and Rovellini, A., 2020. A review of habitat use, home range and connectivity for selected New Zealand species. *Prepared for the Department of Conservation, Wellington, New Zealand*, p.43. • Fisheries New Zealand (2023). Fisheries Assessment Plenary, November 2023: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 669.p.

1043. The extent to which there are specific areas within CRA 8 that are habitats of particular significance for fisheries management in relation to life cycle stages of spiny rock lobsters has not yet been identified.

1044. A study examining the influence of habitat and predation on spiny rock lobster in Tasmania has found improved spiny rock lobster survival in structurally complex kelp forests relative to low-complexity barren habitats, likely due to the shelter provided by kelp (Hinojosa et al., 2016). However, this trend was not observed in a 2015 study conducted in northeast New Zealand, the authors suggested that while kelp forests may provide shelter, they also have higher abundance of lobster predators (Hesse et al., 2015).

1045. Because kelp (macroalgae) can be indirectly impacted by spiny rock lobster fishing, under a higher TAC setting there is a higher risk of reduced food availability and settlement habitat for spiny rock lobster in some areas of CRA 8. However, further research is required to better understand the relationship between kelp habitat and settlement and survival of spiny rock lobster in CRA 8.

1046. FNZ considers that there is a relatively low risk of the proposed CRA 8 options having detrimental impacts on kelp habitats given that biomass in CRA 8 is estimated to be increasing under current fishing levels, and the TAC options proposed are moderate and aim to maintain the stock at a high biomass level.

8.5 Considerations for setting sustainability measures under section 11 of the Act

1047. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying sustainability measures (such as the TAC change proposed for CRA 8 as part of this paper). These include:

a) any effects of fishing on any stock and the aquatic environment; and
b) any existing controls under the Act that apply to the stock or area concerned; and
c) the natural variability of the stock concerned; and
d) any relevant planning instruments, strategies, or services.[175]

8.5.1 Effects of fishing on any stock and the aquatic environment – section 11(1)(a)

1048. You must take into account any effects of fishing on any stock and the aquatic environment when making your decision about the CRA 8 TAC.

1049. "Effect" is defined widely in the Act.[176] The broader effects of removing spiny rock lobster from CRA 8 on the ecosystem as well as the more direct effects of potting need to be considered.

1050. Information relevant to the effects of spiny rock lobster potting on any stock and the aquatic environment is discussed above in heading 8.4 *'Environmental principles'* and below under heading 9 *'Setting a Total Allowable Catch – section 13 of the Act'*. Further analysis is provided under heading 13 '*Options and Analysis*' below.

[175] Sections 11 (2) and (2A).

[176] Section 2(1) of the Act defines "effect" to mean the direct or indirect effect of fishing, and includes any positive, adverse, temporary, permanent, past, present, or future effect. It also includes any cumulative effect, regardless of the scale, intensity, duration, or frequency of the effect, and includes potential effects.

8.5.2 Existing controls that apply to the stock or area – section 11(1)(b)

1051. You must take into account any existing controls under the Act, including rules and regulations made under section 2(1A) that apply to the stock when setting or varying the TAC.

1052. A range of existing management controls apply to CRA 8, including:

a) **Gear restrictions:** nationally, there is a prohibition on the use of spears for taking spiny rock lobsters by both recreational and commercial fishers. Recreational fishers are also prohibited from using spring loaded loop or lassos as well as set or baited nets for taking spiny rock lobster.

b) **Number of pots (recreational only):** there is a maximum number of pots that may be used, set, or possessed in New Zealand fisheries waters on any day for recreational purposes. All pots and surface floats must be legibly and permanently marked with the fisher's surname and initials. Individual recreational fishers are generally restricted to no more than three pots, while two or more recreational fishers on a vessel are restricted to a combined maximum of six pots.

There are two exceptions to this in CRA 8. Bylaws for Te Waka ā Te Wera/ Paterson Inlet Mātaitai Reserve provide different restrictions on the number and size of pots used by recreational fishers (see heading 7.3 *'Mātaitai reserves and other customary management tools.'*).

Within the Fiordland (Te Moana o Atawhenua) Marine Area, an individual recreational fisher is restricted to no more than three rock lobster catching pots. In the case of two or more persons on a vessel, the maximum vessel rock lobster pot limit is three rock lobster pots. Fiordland Marine Area specific provisions also allow the use of rock lobster holding pots in addition to rock lobster catching pots. Holding pots are excluded from other rock lobster pot limits and escape gap requirements. There is a limit of one holding pot per person or a maximum of two holding pots per vessel if there are two or more persons on board. Holding pot surface floats must be clearly and permanently marked with the vessel name, and the characters 'HP1' and 'HP2' to denote a holding pot.

c) **Escape apertures**: a fisher must not set, use, or possess on a vessel a rock lobster pot, unless the pot has at least two rectangular apertures (other than the mouth of the pot) through which undersize spiny rock lobsters are able to escape. This applies to both recreational and commercial fishers. There are different escape gap aperture requirements depending on the recreational pot design and construction.

d) **Size restrictions:** A Minimum Legal Size (MLS) applies to take of rock lobster in CRA 8. The MLS is different between commercial and recreational fishers. Commercial fishers can take female spiny rock lobsters at or above 57 mm tail width at any time of year. Recreational fishers in CRA 8 can only take male lobsters with tails wider than 54 mm and females with tails wider than 60 mm. In 2012, the previous Minister agreed to retain the commercial differential MLS, because the differentials were not considered to impact on stock sustainability (the sizes are taken into account in stock assessments), and because of the significant economic impact that any increase in size would have.

In 2014, the government then decided against allowing recreational fishers to take spiny rock lobsters at the lower commercial minimum legal size, because of compliance and enforcement challenges associated with a differential size regime for recreational fishers. However, at the time, the commercial sector (and NRLMG sector members) supported recreational fishers having access to the same minimum legal size limited population as commercial fishers.

e) **Prohibited states:** nationally, it is illegal to take or possess spiny rock lobsters carrying external eggs (in berry), or spiny rock lobsters in the soft-shell stage (post-moulting). This applies to both recreationally and commercially caught fish.

f) **Daily limits (recreational only):** No person may take or possess more than six rock lobsters on any one day in CRA 8, apart from the internal waters of Milford Sound (Piopiotahi) where no person may take or possess more than three rock lobsters on any one day.

g) **Area closures:** area restrictions set under the Act can apply to both recreational and commercial fishers. Area closures may be put in place to ensure sustainable utilisation or to protect habitats of particular significance for fisheries management. There are several mātaitai reserves that fall within CRA 8 (refer to heading 7.3 *'Mātaitai reserves and other*

customary management tools') as well as several marine reserves in the Fiordland marine area of CRA 8 (see heading 8.5.4 *'Relevant statements, plans, strategies, provisions, and documents - section 11(2)'*). Within the internal waters of Fiordland, commercial fishing is prohibited. This applies to 15 named fiords. See Figure A3 in **CRA 8 Annex 2** for a map of the area closures. Additional areas that prohibit lobster potting and vessel anchoring are established in Fiordland. Marine reserves are not fisheries management tools but are included here as examples of area restrictions utilised within CRA 8.

h) **Accumulation limits (recreational only):** Within CRA 8 there are no amateur fishing accumulation limits, which prevent fishers from possession of more than the daily limit of fish, including rock lobsters. The Fisheries (Amateur Fishing) Regulations 2013, regulation 157 defence provision allows a defence of possessing more than the specified daily limit of any fish species, if the fisher can prove the fish were not taken in excess of the daily limit. The current defence exceptions are blue cod and pāua, constraining accumulation to two times the daily limit, if legally taken on two days or more.

However, within the Fiordland (Te Moana o Atawhenua) Marine Area in CRA 8, there is a Regulation 160(2) defence provision to allow individual fishers to possess and accumulate up to a maximum of 15 rock lobsters taken over three or more days without exceeding the daily limit of six rock lobsters on any one day. This is conditional on the rock lobster being held in labelled containers or bags that contain only rock lobsters taken on a single day; and are clearly labelled to record the individual fishers full name, the date the lobsters were caught and the number of lobsters in the container. In the case of accumulated rock lobsters stored in a holding pot, fishers must maintain a written record detailing the various individual fisher's names, date the fish were caught, the number held in the holding pot and the GPS coordinates.

8.5.3 The natural variability of the stock – section 11(1)(c)

1053. You must take into account the natural variability of the stock when setting or varying its TAC.

1054. A variety of environmental factors are thought to influence the productivity of spiny rock lobster populations, including water temperature, ocean currents, shelter availability, and food availability (Linnane et al., 2010). Lobsters grow at different rates around New Zealand and female lobsters mature at different sizes (Annala, 1983).

1055. Spiny rock lobster larvae spend a long time in a planktonic stage, swimming and drifting in the ocean for up to 24 months. This means that larvae hatched in one area may be retained in that area by local eddy systems, carried to other areas by currents, or lost to New Zealand entirely. In New Zealand, genetic evidence suggests that larvae may originate a considerable distance from the settlement site. The number of 'puerulus', the final planktonic developmental phase of spiny rock lobster, that settle to the sea floor varies among areas and from year to year.

1056. Puerulus settlement may be affected by environmental factors such as the amount of suitable habitat available, the persistence of storms, prevailing ocean currents, sea temperature, food availability, and predation. Large numbers of puerulus larvae also die before reaching suitable habitat, which is due in part to predation, but may also be a result of unfavourable environmental conditions.

1057. Information on variability in growth, maturity, available abundance, mortality, and recruitment is incorporated into the stock assessments that inform spiny rock lobster management. This information informed the development of options discussed in this paper.

1058. CRA 8 appears to be in a period of high recruitment (based on data from puerulus settlement surveys and estimates in the rapid assessment update), and therefore abundance is expected to remain high for at least the next few years. However, if recruitment were to decrease then the biomass of CRA 8 may in turn decrease. Annual biomass assessments (through full stock assessments and rapid assessment updates) and the operation of a management procedure will provide regular monitoring of the fishery and allow for responsive change to management measures if trends in recruitment or biomass change.

Climate change

1059. The ocean around New Zealand is, in some regions, warming at a rate well in excess of the global average (Sutton & Bowen, 2019). While the extent to how this will impact the wider ecosystem is largely unknown, it can be expected that there will be an impact on spiny rock lobster, including their spatial variability. Current studies (refer to heading 8.4.3 '*Habitats of*

particular significance for fisheries management – section 9(c)') and recent work undertaken by the rock lobster stock assessment team (a FNZ contracted research group) indicates a potentially negative relationship between sea surface temperature and spiny rock lobster recruitment in northern New Zealand. This work is preliminary and requires further scrutiny, however this could be a significant development.

1060. Spiny rock lobsters are likely to be affected by climate change and ocean acidification (Cornwall & Eddy, 2015). Organisms such as spiny rock lobsters are particularly susceptible to ocean acidification because it lessens their ability to lay down calcified body structures during each moult (Bell et al., 2013, Hepburn et al., 2011).

1061. Changes to kina and spiny rock lobster productivity may have wider consequences in coastal ecosystems, because these species often have important ecosystem roles (Pinkerton et al., 2008; Cornwall & Eddy, 2015) (refer to heading 8.4.1 '*Associated or dependent species – section 9(a)'* and heading 9.1 *'Interdependence of stocks'*). Changes to ocean circulation patterns also have the potential to affect the recruitment of the spiny rock lobster, given the extended phyllosoma (larval) stage.

1062. Extended periods of extremely warm ocean temperatures known as marine heatwaves[177] are increasing in intensity and frequency across the globe with trends predicted to accelerate under future climate change. New Zealand experienced several marine heatwaves in recent years (Salinger et al., 2019, Bell et al., 2023), causing a range of impacts including temporary southern migrations of warm-water fish and loss of ecologically important seaweeds (Thomsen et al., 2019, Salinger et al., 2020, Thomsen et al., 2021).

1063. Marine heatwaves may have direct effects on spiny rock lobster through temperature stress affecting their physiological condition (Oellermann et al., 2020) or indirect effects through impacts on associated habitats e.g., kelp forests.

1064. FNZ will continue to monitor for potential impacts on spiny rock lobster abundance in CRA 8 through annual rapid assessment updates and full stock assessments.

8.5.4 Relevant statements, plans, strategies, provisions, and documents - section 11(2)

1065. In setting or varying the TAC of this stock, you must have regard to the following statements, plans, strategies, provisions, and planning documents under section 11(2) of the Act, that apply to the coastal marine area and that you consider to be relevant.

1066. The following plans and strategies are relevant for CRA 8.

Regional plans- section 11(2)(a)

1067. Two regional councils have coastlines within the boundaries of CRA 8: West Coast and Southland. Each of these authorities have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats.

1068. 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 are no provisions specific to spiny rock lobster.

1069. FNZ has reviewed these documents and the provisions that might be considered relevant can be found in Table A of the **Addendum**. FNZ considers that the proposed options in this paper are consistent with the objectives of these relevant regional plans.

1070. 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.

Fiordland (Te Moana o Atawhenua) Marine Management Act 2005

1071. The Fiordland (Te Moana o Atawhenua) Marine Management Act 2005 (**The Fiordland Marine Act**) applies to the Fiordland area, which lies within CRA 8.

1072. Section 26 of the Fiordland Marine Act requires that all persons (including management agencies) exercising powers or carrying out functions in the Fiordland (Te Moana o Atawhenua)

[177] The scientific definition of marine heatwaves is when seawater temperatures are warmer than the 90th percentile of the local long-term (25-year) average for at least five consecutive days (Hobday et al., 2016).

Marine Area must take into account any advice or recommendations provided by the Fiordland Marine Guardians. This includes actions under the Fisheries Act 1996, such as the TAC settings of CRA 8 within this review.

1073. Input from the Fiordland Marine Guardians for this review was sought during November 2023, and they provided a written submission which is summarised below under heading 11 *'*Submissions'. Additional analysis of feedback from the Fiordland Marine Guardians is under heading 13 *'Options and analysis'*.

8.5.5 Relevant services or fisheries plans – section 11(2A)

1074. Under section 11(2A), before setting or varying any sustainability measure or making any decision or recommendation under the Act to regulate or control fishing, you must take into account -

a) any conservation services or fisheries services; and
b) any relevant fisheries plan approved under Part 3 of the Act; and
c) any decisions not to require conservation services or fisheries services.

1075. There are no fisheries plans approved under section 11(2A) specific to CRA 8, or of specific relevance to this review of measures for the fishery.

1076. Fisheries services of relevance to the options in this paper include the research used to monitor stock abundance, such as contracted projects for stock monitoring and stock assessment, tag deployment and recapture, and puerulus settlement monitoring. In addition, fisheries services include the tools used to enforce compliance with management controls in the fishery.

1077. FNZ notes that historically the CRA 8 fishery has not had observer or on-board camera coverage, but there has been some observer coverage which started from the 2023/24 fishing year. In addition, Fisheries Compliance regularly monitors the CRA 8 area to ensure that management controls are being adhered to.

8.5.6 Other plans and strategies

1078. The following plans and strategies are not mandatory considerations under section 11 of the Act, but they may be considered relevant to this review.

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

1079. FNZ considers that the sustainability measures proposed for CRA 8 are generally consistent with relevant objectives of the Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy – including Objective 10, which is to ensure that ecosystems are protected, restored, resilient, and connected from mountain tops to ocean depths; and Objective 12, which is to manage natural resources sustainability.

1080. For more information on Te Mana o te Taiao and its relevance, see heading 3.3 of the *Introduction and Legal Overview*.

9 Considerations for setting the TAC - section 13 of the Act

1081. As outlined above in '*Status of the stocks'*, the best available information on the status of CRA 8 includes:

i. The last full CRA 7 and CRA 8 stock assessment conducted in 2021.
ii. The 2023 CRA 7 and CRA 8 rapid assessment update.
iii. Trends in CPUE and the 2022/23 CPUE estimate from the voluntary logbook programme.
iv. Outputs from the proposed management procedure.

1082. CRA 8 is estimated to be at or above the interim B_{MSY} management target of 40% SSB_0 and your decision to set the TAC would be made under section 13(2)(a) of the Act. Under section 13(2)(a), you must set a TAC that maintains the stock at or above a level that can produce *MSY* while having regard to the interdependence of stocks. You have discretion to manage the stock at or above *MSY*, but your discretion is not unfettered. It is important to recognise that you must exercise your discretion to promote the purpose of the Act and its principles.

1083. As outlined in *'Status of the stocks'*, the 2023 rapid assessment estimated CRA 8 biomass to be 62% SSB_0 (unfished spawning stock biomass), and very likely (>90% probability) to be above the target biomass level of 40% SSB_0. These results suggest that there is an opportunity to provide for greater utilisation from 2023/24, and that a modest increase to the TAC of CRA 8 would maintain the stock at or above *MSY*.

1084. Under both options proposed for CRA 8, FNZ considers that the TAC would be set consistent with the objective of maintaining the stock at or above a level that can produce the *MSY*, while also having regard to the interdependence of stocks. While there are no forward projections available to determine precisely what level the stock would be at following the specified TAC changes, the management procedure used to inform Option 2 aims to maintain the stock well above the 40% SSB_0 management target.

9.1 Interdependence of stocks

1085. When setting the CRA 8 TAC under section 13, you must have regard to the interdependence of stocks. The interdependence of stocks involves consideration of the effects of fishing on associated stocks affected by fishing for the target stock (see heading 8.4 '*Environmental principles*' above*)*.

1086. Examples include non-target fish species (bycatch) or benthic species that are incidentally taken or impacted by fishing gear. The role of the target stock in the food chain should also be considered. In particular, interdependence involves direct trophic relationships between stocks (i.e., one stock is likely to be directly affected through a predator-prey relationship by the abundance of another stock).

1087. Evidence suggests predation upon spiny rock lobsters by octopus, rig, blue cod, grouper, southern dogfish, seals, and other spiny rock lobsters. Reducing the abundance of spiny rock lobster in CRA 8 could reduce food availability for spiny rock lobster predators. However, these species have relatively broad diets and it is unlikely that any of these species are entirely dependent on spiny rock lobster as a food source.

1088. Spiny rock lobsters are ecologically important predators in New Zealand's rocky reef ecosystems, feeding on a wide range of prey such as molluscs, crustaceans, annelid worms, macroalgae, echinoderms, sponges, bryozoans, fish, foraminifera, and brachiopods. There is evidence to suggest that top predators on inshore reefs can have a significant role in mitigating sea urchin (kina) barrens, which are less biologically diverse environments than the kelp forest habitats they replace. Large rock lobsters are considered an important predator of kina given that they are one of the only reef predators with the ability to consume larger kina.

Kina or urchin barrens and fisheries-induced trophic cascades

1089. Much of the available information relating to the relationship between fishing and kina barrens comes from northeastern New Zealand. However, the information from northeastern New Zealand is not directly comparable to CRA 7 or CRA 8 because of differences in the environment and ecology of coastal reefs between the regions (Wing et al., 2022). Wing et al. (2022) note that southern areas such as Fiordland show substantially different patterns to Northland, as it has "intact native forested catchments, comparatively low fishing pressure, and a large regional network of marine reserves."

1090. The majority of literature on the causes of kina barrens focuses on reefs in northeastern New Zealand where removal of top predators of kina are considered a primary factor. The occurrence of kina barrens may also be influenced by a range of other environmental factors, such as environmental and climatic influences and species' demographics. The extent of kina barrens and relative importance of contributing factors varies regionally across New Zealand (Schiel., 2013, Wing et al., 2022). It should be noted that multiple causality does not mean that the role of fishing can be disregarded.

1091. Kina barrens are reported to occur in parts of southern New Zealand (Shears, 2007). Within CRA 8, kina are more common on the southern coasts. Around Stewart Island, kina are abundant in the sheltered Paterson Inlet but are less abundant and have patchy distribution in more exposed sites (Shears and Babcock, 2007).[178]

1092. A 2019 scientific study assessed fish diversity, kina abundance, and the occurrence of kina barrens between fished areas and marine reserves in Fiordland and the Marlborough Sounds

[178] Quantitative description of mainland New Zealand's shallow subtidal reef communities (Part 1 of 8) (doc.govt.nz).

(Udy et al., 2019). In Fiordland, where there were relatively high densities of potential sea urchin predators (rock lobster and banded wrasse), there were lower densities of sea urchins and a smaller proportion of urchin barrens habitat.

1093. While kina barrens occur in southern New Zealand, they do not appear to be extensive, and bottom-up forces like marine heatwaves and land-based inputs may play a stronger role in controlling kelp distribution than fishing effects on the food web (Udy et al., 2019, Wing et al., 2022). However, if environmental stressors (such as marine heatwaves) reduce kelp density, then a trophic cascade may be more likely to be occur (Foster and Schiel, 2010).

1094. While there is uncertainty in the threshold of abundance and size structure of spiny rock lobster required to reverse or prevent further spread of kina barrens (along with other predators and other factors affecting kelp), the best available information on the status of CRA 8 suggests that the stock is in a period of high abundance relative to historical stock status (i.e., since about the 1970s).

1095. Option 2 proposes a larger increase to the TAC. This would result in a lower abundance of spiny rock lobster than Option 1. However, FNZ considers there is limited risk associated with either Option given the abundance of spiny rock lobsters in CRA 8 is estimated to be increasing and the proposed TAC increase is modest relative to the estimated abundance of the stock. In addition, marine reserves and area restrictions in the Fiordland Marine Area offer a range of fishing restrictions within the inner fiords that already support enhanced abundance of spiny rock lobster (Clark, 2023) (see Figure A3 in **CRA 8 Annex 2**).

Interdependence of CRA 7 and CRA 8

1096. The CRA 7 and CRA 8 stocks are considered to comprise one biological stock (see heading 3.1 *'Biology'* and heading 4 *'Status of the* stocks'). Tagging data suggests that as juvenile spiny rock lobsters in CRA 7 mature, some migrate into the southern areas of CRA 8, and only a small proportion of the catch taken from CRA 7 is consequently comprised of mature females. FNZ assesses both CRA 7 and CRA 8 concurrently to account for their interdependence and recognises that a TAC decision for one of these two stocks can have an influence of the future stock status of its neighbouring stock.

9.2 Harvest Strategy Standard (HSS)

1097. Section 13 of the Act provides for the setting of a TAC for CRA 8, and guidance is provided by the HSS. The High Court has held that the HSS is an implied mandatory relevant consideration that you must have regard to when setting a TAC under section 13 of the Act, and the Court of Appeal has confirmed the decision of the High Court.[179]

1098. The 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 QMS. It is intended to provide guidance on 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.

1099. The HSS outlines the Ministry's approach to relevant sections of the Act and forms a core input to the Ministry's advice to you on the management of fisheries. The HSS defines a hard limit as a biomass limit below which fisheries should be considered for closure and a soft limit as a biomass limit below which the requirement for a formal time-constrained rebuilding plan is triggered.

1100. Under the HSS, the default management target is 40% SSB_0 (unfished spawning stock biomass), the soft limit is 20% SSB_0, and the hard limit is 10% SSB_0. The default management target of 40% SSB_0 currently applies to CRA 8 as an interim target.

1101. In addition, the HSS specifies requirements for management procedures such as those proposed for CRA 7 and CRA 8. The HSS specifies that management procedures should be designed to ensure that the probability of:

a) Achieving the *MSY*-compatible target or better is at least 50%.
b) Breaching the soft limit does not exceed 10%.
c) Breaching the hard limit does not exceed 2%.

[179] *Fisheries Inshore New Zealand Ltd v Royal Forest and Bird Protection Society of New Zealand Incorporated* [2023] NZCA 359.

d) Alternatively, an overall requirement that breaching the soft limit does not exceed 5% can apply.

1102. In 2022, CRA 8 was assessed to be at 62% of SSB_0, and CRA 7 and CRA 8 combined were assessed to be at 54% of SSB_0. CRA 8 is very likely (>90% probability) to be above the 40% SSB_0 management target, and very unlikely (<10% probability) to be below the soft and hard limits.

1103. In respect to the review of CRA 8, the HSS assists in meeting the requirements of sections 13(2)(a) by providing that stocks should be managed to fluctuate around a specified target based on *MSY*-compatible reference points or better. Application of the proposed CRA 8 management procedure through to 2027/28 is expected to meet the requirements of the HSS and is very likely (>90% probability) to maintain the stock above 40% SSB_0.

1104. For further information on the specifications of the proposed CRA 8 management procedure, refer to subheading 5.5 *'CRA 8 management procedure proposed for 2024'* and **CRA 8 Annex 1**.

10 Information principles - section 10 of the Act

1105. Under section 10 of the Act, decision-makers are required to take into account four information principles:

a) decisions should be based on the best available information[180].
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.

1106. FNZ considers that the information presented in this paper represents the best available information.

Uncertainty in information

1107. In various sections of this paper, FNZ has pointed out where information is uncertain and warrants caution for your decision making, in line with the principles above.

1108. As discussed under heading 4 *'Status of the stocks'* there is some uncertainty in the stock status of CRA 8 with respect to *MSY* and estimates of recreational and illegal catch.

1109. In addition, over the past five years there has been no observer coverage in CRA 8 (although FNZ notes that some observer coverage has begun from the start of the current fishing year). Given this, there is increased uncertainty associated with estimates of environmental interactions in the fishery.

1110. Some risks in the use of management procedures have been highlighted above in heading 5 '*Proposed management* procedures' and below under heading 13 '*Options and analysis'*. One of the key risks to consider in the proposed application of the CRA 7 and CRA 8 management procedures in informing appropriate catch limit settings is that their success depends on the reliability of CPUE as a measure of stock abundance, and it is difficult to determine how accurately CPUE reflects abundance because it can also be influenced by other factors (such as reporting changes). However, FNZ perceives this risk to be low given that the CPUE series used to inform the CRA 7 and CRA 8 management procedures have been review and accepted by the Plenary as being reliable indicators of CRA 7 and CRA 8 abundance.

1111. In addition, there are several areas where more research and analysis is required to understand the role that spiny rock lobster do and can have in their ecosystem (this includes controlling kina populations). For example:

[180] Section 2(1) of the Act defines "best available information" to mean "the best information that, in the particular circumstances, is available without unreasonable costs, effort, or time".

a) The biomass threshold and size frequency distribution of spiny rock lobster required to ensure their ecosystem role (such as preventing kina barrens from occurring or to reverse existing barrens that may exist in CRA 8).

b) Due to environmental variability, and the range of other biotic and abiotic factors, the extent to which the relationship between kina barrens and fishing pressure is applicable to CRA 8.

c) The specific contribution that spiny rock lobsters make to healthy reef ecosystems in CRA 8 relative to other predatory species.

d) The extent of the impact that climate change and marine heat waves will have on spiny rock lobsters.

e) The size composition of the CRA 8 stock required to support a healthy ecosystem.

Weight to give uncertain information

1112. You have discretion as to how much weight to give uncertainty in information noted above. However, the information principles note that you cannot use the absence of, or any uncertainty in, any information as a reason for postponing or failing to take any measure to achieve the purpose of the Act.

1113. In considering both the uncertainty in the current information, and availability of new information, you must ultimately be satisfied that your current decision promotes the purpose of the Act.

11 Submissions

11.1 CRA 7 management procedure

1114. A total of 14 submissions were received in relation to CRA 7. Nine of these supported the use of a management procedure (Option 2), while one submitter opposed the use of a management procedure (Option 1). Four submissions were received that referred to catch limits in general but did not address CRA 7 specifically.

1115. Table 8 summarises the submissions received and shows submitters' support for each option.

11.2 CRA 8 management procedure and TAC settings

1116. In total, 27 submissions were received for the review of the proposed management procedure and TAC settings for CRA 8. 19 submissions supported implementation of the management procedure (Option 2) and one submission supported rejecting the management procedure (Option 1).

1117. Regarding the TAC settings, one submission supported Option 1, 20 supported Option 2, one did not indicate a preferred option, and one proposed a modified version of Option 2. Four submissions were received that referred to catch limits in general but did not address CRA 8 specifically. Table 9 summarises the submissions received and the submitters' support for each option.

1118. Submitters' and respondents' comments on the proposed options are addressed under the heading '*Options and analysis'* below.

Table 8: Written submissions and responses received for the proposed management procedure for CRA 7.

Submitter	Option supported			Notes
	1 (Reject)	2 (Approve)	Other	
The NZ Sport Fishing Council (**NZSFC**), the New Zealand Angling and Casting Association (**NZACA**), the New Zealand Underwater Association (**NZUA**), LegaSea	✓			Considers a management target and an index of abundance alternative to CPUE should be agreed prior to implementing a management procedure. Considers a management procedure does not account for ecosystem considerations.
G. Haggerty		✓		Previous management procedures performed well and safeguarded the stock by recommending reduced catch when CPUE decreased.
G. Creighton (NZ Red Limited)		✓		Management procedures have been successfully used for many years to rebuild this fishery to the abundant state it is now in.
Gisborne Fisheries		✓		Limited risk which is outweighed by the positives of providing confidence, certainty, and stability in the management regime. The CPUE series is reliable.
J. White (Jasus Fishing Limited)		✓		Previous management procedures worked well.
M. Peychers		✓		Management procedures have been integral in the management and success of the CRA 8 fishery. They have been used to rebuild the fishery and lift it to levels that other lobster fisheries in New Zealand have not replicated.
New Zealand Rock Lobster Industry Council (**NZ RLIC**)		✓		The management procedure was previously successful resulting in an increase for the stock. They provide responsive changes to catch limits, greater certainty of management actions, and simplify the process of interpreting and applying fisheries information.
Otago Rock Lobster Industry Association (**ORLIA**)		✓		Endorse the use of ER data to inform management procedures for CRA 7. Consider management procedures have served the fishery well in the past. Apprehensive the TAC was not reviewed.
P. Creighton (NZ Red Holdings Limited)		✓		Management procedures have been successfully used for many years to rebuild this fishery to the abundant state it is now in.
Te Ohu Kaimoana		✓		Support the implementation of the management procedure. Support the NZ RLIC submission.
Generic submissions				
B. Leonard			✓	Disputes the removal of animals from their home environment and advocates that all catch limits should be reduced to zero.
J. Williams			✓	Submitted generally to say there should be no increases.
N. Lani			✓	Submission relates to management measures for kina. No proposals for kina are being consulted on.
P. Harvey			✓	States current harvest of fish is not sustainable, and that it is better to err on the side of caution. Implies opposition to an increase to recreational or commercial harvest.

Table 9: Written submissions and responses received for the review of CRA 8.

Submitter	TAC option supported			Management procedure option supported		Notes
	1	2	Other	1 (Reject)	2 (Approve)	
The NZ Sport Fishing Council (**NZSFC**), the New Zealand Angling and Casting Association (**NZACA**), the New Zealand Underwater Association (**NZUA**), LegaSea	✓			✓		Considers a management target and an index of abundance alternative to CPUE should be agreed prior to implementing a management procedure. Considers a management procedure does not account for ecosystem considerations. Supports increasing the recreational allowance to align with best available information. Wants to abolish the differential sub-MLS regime.
A. Butler (Oldage Trading)		✓			✓	Considers this system has been working for at least 20 years and the fishery appears sustainable.
CRA 8 Rock Lobster Industry Association (**CRA 8 RLIA**)		✓			✓	Previous operation of management procedures successfully rebuilt the fishery. The management procedure is conservative. Stock status data indicates a TACC increase will not pose sustainability risks. Considers illegal take estimates are unrealistically high. Advocates for further management of recreational harvest, particularly amateur charter vessels.
D. Nyhon (D. P. Nyhon Holdings Ltd)		✓			✓	Management procedures have been successfully used as the main management tool for more than 20 years. The stock is predicted to increase and the proposed TACC increase is conservative. Considers there is evidence of an overabundance of rock lobster which is affecting pāua.
G. Haggerty		✓			✓	Has 40 years of experience in the fishery and abundance is the highest they have observed. Previous management procedures performed well and protected the stock by recommending TACC decreases when CPUE decreased.
G. Creighton (NZ Red Ltd)		✓			✓	Management procedures have successfully rebuilt the fishery to its current abundant state. The procedure is conservative and will allow for continued growth even with increased extraction. Allowances appear appropriate. No concern of impacts on aquatic environment.
Gisborne Fisheries Ltd.		✓			✓	Management procedures have a demonstrable successful history and the proposed management procedure meets the dual purpose of the Fisheries Act to provide for sustainable utilisation. Not increasing the TACC would result in a missed utilisation opportunity.
Southern Seafoods Ltd - H. Cave		✓			✓	The fishery is in a very healthy state and can handle a sizeable increase to TACC. The fishermen will be rewarded for their stewardship. Fishers are catching much faster and more easily in recent seasons. Economic benefit for Stewart Island economy. Considers potential detrimental effect of overabundance of lobster.

Submitter	TAC option supported			Management procedure option supported		Notes
	1	2	Other	1 (Reject)	2 (Approve)	
J. Davison		✓				Has 30 years of experience in the fishery and has observed an increase of rock lobster.
J. Excell (J E L Investments Ltd)		✓			✓	Management procedures are responsive to the latest fisheries data and provide confidence for all participants in the fishery. Logbook CPUE series is robust. Has 32 years of experience in fishery and during that time has not observed the fishery to perform as well as it is now. Considers the other sources of mortality allowance is set too high and the recreational allowance is set too low. The wide size distribution of lobsters mitigates concerns of kina barrens.
J. White (Jasus Fishing Ltd)		✓			✓	Considers previous management procedures were successful.
L. Squires (FV Titan)		✓				Has 20 years of experience in the fishery and the stock has improved over this time. Fishers are working less pots, high grading harder, and daily averages are still going up.
M. Peychers		✓			✓	Proven success of previous management procedures. The fishery is performing better than all other rock lobster fisheries in Australasia. Recent CPUE trends suggest the stock may not decrease given an increase in TACC. Cannot assess recreational allowance given the lack of accurate data on current recreational catch.
M. Ian Boyce, K. Jane Boyd (CLM Trustees 2017 Ltd)		✓			✓	Rock lobster abundance is high and steadily increasing. Wants to abolish the differential sub-MLS regime.
N. Anderson (N.D. Anderson Trust)		✓			✓	Management procedures have been the main management tool for more than 20 years and have proved successful. Considers the CRA 8 stock will continue to increase in abundance.
New Zealand Rock Lobster Industry Council (**NZ RLIC**)		✓			✓	The new management procedure is conservative, and very likely to maintain the stock above the HSS guidelines. The research for the region does not suggest an environmental risk associated with a TACC increase. Advocates for material improvements to the approach to measure recreational catch if the allowance is increased. Uncertainty in illegal take estimates. TACC increase provides economic benefit for regional economies.
Otago Rock Lobster Industry Association (**ORLIA**)		✓			✓	Endorses NZ RLIC's submission.

Submitter	TAC option supported			Management procedure option supported		Notes
	1	2	Other	1 (Reject)	2 (Approve)	
P. Creighton (NZ Red Holdings Ltd)		✓			✓	Management procedures have successfully rebuilt the fishery to its current abundant state. The procedure is conservative and will allow for continued growth even with increased extraction. Allowances appear appropriate. No concern of impacts on aquatic environment.
R. Chanel (Chanel Projects Ltd)		✓			✓	The success of CRA 8 is the result of good management procedures. CRA 8 industry has a conservative approach. Consider there may be an imbalance caused by overabundance of rock lobster if an increase is not applied.
S. Nyhon		✓			✓	Management procedures have been successfully used as the main management tool for more than 20 years. The stock is predicted to increase and the proposed TACC increase is conservative. Considers there is evidence of an overabundance of rock lobster and this is affecting pāua.
W. Hansen		✓				Has 50 years of experience in the fishery and considers the stock is at the best health it has been at since the 1970s. Would like a system to record recreational catch.
Te Ohu Kaimoana			✓		✓	Proposes 10% TAC increase, 11% TACC increase, and 1 tonne increase to the other mortality caused by fishing allowance with no change to the recreational allowance. Consider that increasing the recreational allowance impacts kaitiaki and customary fishers and reallocates customary take to recreational fishers.
Fiordland Marine Guardians	Fiordland Marine Guardians remain neutral with respect to the setting of the TACC.				✓	The stock assessment results of high abundance are consistent with their observations and community feedback. Consider the stock is at a level not experienced since prior to the 1970s. Limited concern of ecological consequences associated with TACC increased but recommend ongoing ecological monitoring. The management procedure will make management more responsive to indications of fluctuations in the size of the stock. Consider the proposed increase to the recreational allowance is insufficient to account for current recreational harvest.
Generic submissions						
B. Leonard			✓			Disputes the removal of animals from their home environment and advocates that all catch limits should be reduced to zero.
J. Williams			✓			Submitted generally to say there should be no increases.
N. Lani			✓			Submission relates to management measures for kina. No proposals for kina are being consulted on.
P. Harvey			✓			States current harvest of fish is not sustainable, and that it is better to err on the side of caution. Implies opposition to an increase to recreational or commercial harvest.

12 National Rock Lobster Management Group (NRLMG) views

1119. The NRLMG met following consultation, however some members representing Te Ohu Kaimoana, and the New Zealand Underwater Association (NZUA) were unable to attend, therefore the views expressed at the NRLMG meeting may not be representative of the whole membership. However, Te Ohu Kaimoana and the NZUA provided feedback in separate submissions during consultation which are summarised above under heading 11 *'Submissions'* and below under heading 13 *'Options and analysis'*.

1120. The NRLMG members who were present did not reach consensus on options regarding the management procedures for CRA 7 and CRA 8. Commercial representatives and Te Rūnanga o Ngāi Tahu supported implementation of the management procedures. Further description of the rationale for support of industry members is given under heading 13 'Options and analysis' below. Recreational and environmental advocates did not support reinstating management procedures prior to setting an agreed management target for the fishery, environmental representatives further clarified that their support would depend on a management target with an ecological component.

1121. In addition, recreational representatives did not consider commercial CPUE is a reliable index of rock lobster abundance and therefore did not support management procedures based on commercial CPUE. Commercial representatives consider the CPUE series for CRA 7 and CRA 8 are reliable, noting they were evaluated and approved by the Rock Lobster Working Group and the 2023 November Plenary. Further, commercial representatives believe there are limited viable alternatives for measuring abundance of the fishery.

1122. The NRLMG also did not reach consensus on options to adjust the TAC, TACC, and allowances of CRA 8. Commercial representatives supported Option 2 while recreational advocates supported Option 1. Environmental representatives did not support changes to the catch limits until there is agreement on management targets. However, as an alternative the environmental sector could support Option 1. Te Rūnanga o Ngāi Tahu did not support the increase to the recreational allowance proposed under both options, and instead supported a modification of Option 2 (discussed further under heading 13.4 '*Other options proposed by submitter*s').

1123. Te Rūnanga o Ngāi Tahu and industry members consider that information on recreational harvest in CRA 7 and CRA 8 is inadequate and impedes management of the fisheries and have advocated for material adjustments to the approaches taken to measure recreational harvest. This is discussed further under heading 13.5 '*Other matters raised*.' below.

13 Options and analysis

13.1 CRA 7 management procedure

1124. FNZ is proposing two options for CRA 7: one would reject the use of this previously approved management procedure (Option 1), and the other would confirm its continued use in the management of CRA 7 fishery through to 2027/2028, unless reviewed earlier (Option 2) (refer back to heading 5.4 *'CRA 7 management procedure proposed for 2024'* and Figure 7 for more specific details of the proposed management procedure).

13.1.1 Option 1 – Reject the use of the previously approved CRA 7 management procedure

1125. This option would retain the *status quo* for the fishery. Under this option the management procedure would not be used to inform whether the TACC of CRA 7 should be reviewed for change each year. If not used, FNZ would rely on other information (primarily on rapid assessment updates) to determine when and how the TACC should be reviewed.

1126. This option was supported by one submission from joint submitters: the New Zealand Sport Fishing Council (**NZSFC**), LegaSea, New Zealand Underwater Association (**NZUA**), and New Zealand Angling and Casting Association (**NZACA**). The joint submitters consider that an agreed management target and an agreed reliable index of abundance are required before selecting a management procedure. The joint submitters suggest that commercial CPUE is not a reliable index of abundance as it does not allow for changes in market demands, fishing operations, increased efficiency, shifts in areas fished, and changes in discard rates or reporting rates that may influence CPUE.

1127. In addition, the joint submitters consider that a management procedure is a single species assessment and therefore cannot account for known or unknown ecosystem considerations that must be taken into account when setting a TAC under the Act.

13.1.2 Option 2 - Confirm the continued use of the previously approved CRA 7 management procedure

1128. Under this option, the CRA 7 management procedure (which was previously used up until 2020) would be re-instated from 2024 and used to inform management until 2027/28, unless reviewed earlier. FNZ would use the procedure (as one of the available information sources) to inform when and how the TACC of CRA 7 should be reviewed, noting that the management procedure will 'trigger' the need for an annual review when CPUE reaches certain levels (as shown in Figure 7 above).

1129. It is important to note that this does not mean the TACC of the stock will be decided based solely on the management procedure. The management procedure will help to guide in when and how the TACC should be reviewed, but when a review is initiated FNZ will continue to consider all available information in determining appropriate options for public consultation (which may include options to set the TACC at a different level than is recommended by the management procedure). As with other sustainability reviews, following consultation, you will have discretion in deciding on TAC and TACC settings that are considered to meet the statutory requirements of the Act.

1130. This option is supported by Te Rūnanga o Ngāi Tahu and nine submitters, including Te Ohu Kaimoana, the Otago Rock Lobster Industry Association (**ORLIA**), the New Zealand Rock Lobster Industry Council Ltd. (**NZ RLIC**), Gisborne Fisheries Ltd., and five individual submitters.

1131. Seven of the supportive submissions came from the commercial sector, and a recurring reason for support was that previous operation of this management procedure was successful in rebuilding abundance in the fishery and protected the stock by recommending decreases to TACC during periods of lower CPUE.

1132. Gisborne Fisheries Ltd. suggest there is limited risk associated with operating the management procedure and believe that any risk would be outweighed by positives, including providing confidence, certainty, and stability in the management regime.

1133. NZ RLIC support management procedures because they provide responsive changes to catch limits based on stock abundance as assessed by commercial catch rates, provide greater certainty of management actions in response to sustainability concerns or utilisation opportunities, and they simplify the process between the Ministry and stakeholders to interpret and apply fishery information.

13.1.3 Discussion

1134. Reinstating the CRA 7 management procedure would provide several benefits for management of the stock. This includes providing greater certainty for stakeholders in the assessment and management process. Operation of the procedure would also help to maximise stability in commercial fishing yields and would respond appropriately to changes in stock status given that it recommends stronger changes when CPUE deviates more significantly.

1135. The risks of reinstating the management procedure are limited. One risk to consider is that the population dynamics of CRA 7 would have changed since the last evaluation of this management procedure against a full stock assessment in 2015 (CPUE, recruitment, and biomass in CRA 7 have increased since 2015). This creates some uncertainty as to how the CRA 7 stock will respond to operation of this management procedure. However, FNZ considers that this risk is limited given that this management procedure has previously operated successfully (between 2013/14 and 2020/21) and CRA 7 biomass increased during the previous operation of the management procedure. The management procedure is also proposed to operate for a relatively short duration, as it is expected to be replaced after the stock is next assessed (currently scheduled for 2027).

1136. Another risk to consider in operation of the management procedure is that its success depends on the reliability of CPUE as a measure of stock abundance, and as noted above, some submitters do not believe that CPUE is a reliable index of abundance as it does not allow for changes in market demands, fishing operations, increased efficiency, shifts in areas fished, and changes in discard rates or reporting rates that may influence CPUE. The CPUE standardisation approach does address variation in some factors (areas and months fished, vessel effects) and makes provision for changes in efficiency, at a coarse level of spatial and

temporal resolution. FNZ acknowledges that it is difficult to determine how closely CPUE changes reflect abundance because changes can also be related to other factors. However, FNZ considers that despite this, the risk of using CPUE as measure of abundance for this fishery is low because:

a) the 2023 CPUE series for CRA 7 has been accepted by the Plenary as being a reliable indicator of abundance;
b) the revised standardisation process is more conservative in interpreting CPUE;
c) CPUE will not be used alone to inform management of the stock – rapid assessment updates will continue to be carried out annually to help inform the stock status and appropriate management actions; and
d) the CPUE series is also used to inform the stock assessments for CRA 7. This means that even if the management procedure is not adopted, CPUE will still be a factor used in informing sustainable TAC and TACC settings in CRA 7 (just without specific guiding rules).

1137. FNZ does not agree with the view from the joint recreational submitters that an agreed management target is required before selecting a management procedure. FNZ and the NRLMG are progressing work to develop agreed management targets in rock lobster fisheries. As a part of this work, FNZ intends to support the development of an agreed management target for CRA 7 in the future. However, this is currently not possible because the vulnerable biomass reference level of CRA 7 cannot be estimated independently of CRA 8. Future development of a management target would consider tāngata whenua and stakeholder's aspirations for the fishery and its surrounding environment. This should not prevent you from approving a management procedure now. We also note that if a different management target was agreed during operation of this management procedure, the procedure could be reviewed earlier than 2027/28 to take into account the new agreed target.

1138. The joint recreational submitters also raised a concern that a management procedure is a single species assessment and therefore cannot account for known or unknown ecosystem considerations that must be considered when setting a TAC under the Act. FNZ recognises this but reiterates that the catch limits for the stock will not be decided based solely on the management procedure. During operation of the management procedure, any review of the stock for changes would also be informed by analysis of wider ecosystem considerations, in line with your statutory requirements under the Act.

13.2 CRA 7 TAC settings

1139. The current TAC, allowances and TACC of CRA 7 are outlined below.

TAC: 134.5	**TACC:** 111.5	**Customary:** 10	**Recreational:** 5	**Other mortality**: 8

1140. Regardless of whether the management procedure is adopted for the CRA 7 fishery, FNZ is not proposing any changes to the TAC settings of CRA 7 for the upcoming 1 April 2024 fishing year. The current settings appear to be appropriate based on the 2023 rapid assessment update and the proposed CRA 7 management procedure (refer to heading 4 - *status of the stocks* and heading 5 – '*Proposed management procedures'* above).

1141. One submitter, the ORLIA (the commercial stakeholder organisation for CRA 7), expressed apprehension about the latest CPUE data used by the stock assessment team to inform the decision to not review the TACC for CRA 7 for the 2023/24 fishing year. The ORLIA consider that the standardised CPUE series may not accurately detect recent increases in rock lobster abundance in CRA 7 that fishers have observed. In addition, the ORLIA consider the lack of an option for a TAC increase does not adequately provide for the social, economic, or cultural wellbeing in Otago.

1142. The ORLIA requested that the next stock assessment for CRA 7 and CRA 8 (currently scheduled for 2027) is brought forward to address these perceived issues.

1143. FNZ reiterates that the CPUE series for CRA 7 has been accepted by the Plenary as a reliable indicator of abundance. It is therefore considered appropriate to use CPUE, in conjunction with the rapid assessment update and management procedure, to inform whether the TAC should be reviewed for an increase.

1144. FNZ does not consider it necessary to bring forward the full stock assessment for CRA 7 and CRA 8. Prior to the next full assessment, management of the CRA 7 fishery will continue to be

supported by information from the rapid assessment updates, CPUE, and if agreed, the proposed CRA 7 management procedure.

13.3 CRA 8 management procedure and TAC options

13.3.1 Current settings

A management procedure is not currently being used in management of the CRA 8 fishery				
TAC: 1,453	**TACC**: 1,251	**Customary**: 30	**Recreational**: 33	**Other mortality**: 139

1145. The *status quo* is not proposed as an option in this review for CRA 8. FNZ considers that maintaining the current recreational allowance would not be appropriate because it does not align with the best available information on recreational fishing (see heading 6.3 *'Recreational'* above).

1146. The current recreational allowance of 33 tonnes was set in 2009. Since then, the best available information indicates that both the abundance of spiny rock lobster and recreational harvest has increased, however, there is some uncertainty in current recreational harvest. As discussed under heading 6.3 *'Recreational'*, FNZ consulted on a best available estimate of 39 tonnes for 2022/23 recreational harvest, this was based on information from the 2017/18 NPS, amateur charter vessel reporting, and section 111 landings.

1147. After consultation, provisional results from the more recent 2022/23 NPS became available. Based on the provisional 2022/23 NPS results, the 2022/23 estimate for all recreational harvest is 36 tonnes.

1148. FNZ considers that there is uncertainty in recreational harvest, and current levels of harvest could be between 36 and 39 tonnes. Both of these estimates are above the current allowance and FNZ considers the allowance should be increased to reflect this. An increase to the allowance is considered appropriate in light of the high abundance within CRA 8.

1149. No submitters supported maintaining the current catch settings.

13.3.2 Option 1 – Reject new management procedure and apply small increase to TAC and recreational allowance.

Reject the use of the new CRA 8 management procedure and set the TAC, allowances, and TACC as follows:				
TAC: 1,459 (↑ 6)	**TACC**: 1,251	**Customary**: 30	**Recreational**: 39 (↑6)	**Other mortality**: 139

Rejection of management procedure

1150. Under this option the new management procedure for CRA 8 would not be used as a trigger to determine when and how the TACC should be reviewed for changes (refer to heading 5.5 '*CRA 8 management procedure proposed for 2024*' and Figure 8 for details of the proposed management procedure). FNZ would rely on other information (primarily on annual rapid assessment updates) to determine when and how the TACC of CRA 8 should be reviewed in future. The consequences of this are considered below under the 'new management procedure' subheading under heading 13.3.3 '*Option 2*' below.

1151. The joint submitters NZSFC, LegaSea, NZUA, and NZACA supported rejecting the proposed management procedure for CRA 8. Their general reasons for opposing the management procedure for CRA 8 are the same as the reasons for opposing the procedure in CRA 7, as discussed above in paragraphs 1126 and 1127.

TAC

1152. Under Option 1 the TAC would increase from 1,453 to 1,459 tonnes, a six tonne (0.4%) increase pursuant to section 13(2)(a) of the Act.

1153. The CRA 8 stock appears to have been increasing in biomass in recent years and is very likely (>90% probability) to be above the interim management target. Based on this, FNZ considers that there is a utilisation opportunity for CRA 8.

1154. This option reflects a cautious approach that would not maximise the utilisation opportunity that exists. However, it would carry less sustainability risk than Option 2 (a proposed increase) and it would place more weight on uncertainty in the extent of kina barren distribution in CRA 8 and

the potential influence of spiny rock lobster fishing on the creation of kina barrens (see heading 9.1 *'Interdependence of stocks'* above, and the discussion section further below).

1155. Because the TAC change under this option would not provide for increased catch by any sector, it is extremely unlikely that adopting this option would lead to any change in fishing behaviour or increase in fishing effort for spiny rock lobster. It is therefore also unlikely that this option would lead to any increased impacts on the environment or on any interdependent stocks.

1156. This option would forgo potential economic benefits. Under this option, assuming the TACC is fully caught, the annual port price[181] revenue would be $1.60 million lower than the 2022/23 fishing year, and $21.65 million higher than the 5-year average, based on annual port prices and landings. The 2023/24 port price is $93.47/kg. An analysis of the potential economic impact of this option in comparison with Option 2, is provided below under heading 12 'Economic context'.

Allowances

1157. The customary Māori allowance is proposed to remain at 30 tonnes for all options as it is considered to be appropriate. As discussed under heading 6.2 '*Customary Māori*' above, customary reporting reveals that authorised customary harvest of CRA 8 has been 8 tonnes on average over the last five years, with a maximum annual authorised harvest of 16.9 tonnes in 2020. Tangata Tiaki are currently withholding approximately 15 to 20 tonnes of customary authorisations per year to rebuild rock lobster abundance in the near shore to develop a customary shallow water fishery.

1158. The current recreational allowance does not align with the best available information for estimates of recreational harvest (which are between 36 and 39 tonnes). Option 1 proposes to increase this allowance from 33 tonnes to 39 tonnes, an increase of 6 tonnes (18%), to ensure that it accounts for recreational fishing. An allowance of 39 tonnes is proposed for all options.

1159. The allowance for 'all other sources of mortality caused by fishing' is proposed to remain at 139 tonnes. The current estimate of illegal catch and handling mortality (126 tonnes in the 2022/23 fishing year) is within the allowance.

TACC

1160. Under Option 1 the TACC would remain at 1,251 tonnes.

1161. It carries the lowest sustainability risk of the options presented and would maintain current commercial utilisation. However, it carries a higher likelihood of constraining commercial utilisation opportunities and places less weight on the most recent rapid assessment update that suggests CRA 8 is well above the management target.

Submissions

1162. The joint submitters NZSFC, LegaSea, NZUA, and NZACA support Option 1 to increase the recreational allowance so that it aligns with the current best available information on recreational harvest. Currently, there is no agreed management target for CRA 8 apart from the default target set out in the HSS. The joint submitters consider that given the statutory requirement for precautionary management, that you request FNZ to work with the NRLMG to set ecosystem-based fisheries management targets before considering any increases to the TACC (FNZ's view on this is discussed below under 'Discussion'). This view is also held by Environmental Conservation Organisations of New Zealand (ECO). ECO are a member on the NRLMG but did not provide a formal submission.

13.3.3 **Option 2 -** Confirm the use of the new CRA 8 management procedure

Confirm the use of the new CRA 8 management procedure and set the TAC, allowances, and TACC as follows:				
TAC: 1,601 (↑148)	**TACC:** 1,39 (↑141)	**Customary:** 30	**Recreational:** 39 (↑6)	**Other mortality:** 140 (↑1)

[181] Each year, MPI sends a voluntary survey to all licensed fish receivers (LFRs) to calculate the port price index for the year ahead. Port price represents the greenweight price per kg paid on a particular day and not an average for the whole year. The fishing method is not included in the survey even though a particular method may receive a higher landed price. Port prices represent what commercial fishers receive at port, 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.

New management procedure

1163. Under this option, the new management procedure for CRA 8 would be used until 2027/28, unless reviewed earlier. FNZ would use the procedure, as one of multiple tools, to guide when and how the catch limits should be reviewed. As has been proposed under this option, FNZ would use the management procedure to help inform initial TAC and TACC settings for consultation (though as noted above for CRA 7, this does not imply that the TACC would be set based solely on the management procedure). FNZ would continue to consider additional information in determining appropriate TAC options for public consultation when CRA 8 is reviewed.

1164. Nineteen submitters supported adopting the management procedure for CRA 8, including the CRA 8 Rock Lobster Industry Association (**CRA 8 RLIA**), NZ RLIC, the ORLIA, Te Ohu Kaimoana, the Fiordland Marine Guardians, Gisborne Fisheries Limited, and 13 individual submitters (the majority of which are commercial operators). Te Rūnanga o Ngāi Tahu did not provide a written submission, however indicated support for implementing the management procedure.

1165. Many of these submitters noted that management procedures have been successful management tools for CRA 8 for more than 20 years and suggested that the positive status of the fishery is the result of past operation of these tools. One submitter stated that previous management procedures have safeguarded the stock during periods of low abundance by recommending decreases to TACC as CPUE decreased.

1166. A common reason for support was that the management procedure is considered conservative. Gisborne Fisheries Ltd suggested the proposed management procedure meets the dual purpose of the Act, to provide for sustainable utilisation. Submitters, including NZ RLIC and CRA 8 RLIA, suggested this management procedure aligns with the conservative approach of CRA 8 industry which aims to manage the stock above *MSY* to maximise economic return from the fishery by allowing operators to target fishing effort and retain sizes of lobsters that meet favourable market prices. One individual submitter suggested that the conservative nature of the management procedure will help provide for continued growth of the stock even with increased extraction.

1167. Submitters provided a range of benefits associated with operating a management procedure including management that is responsive to the latest fisheries data and providing confidence for all participants and security of commercial assets. Additional benefits associated with management procedures raised by NZ RLIC are summarised above in paragraph 1133.

1168. In addition, the Fiordland Marine Guardians, NZ RLIC, and one individual submitter noted that the voluntary logbook data provides a robust measurement of CPUE to inform the management procedure.

TAC

1169. Under Option 2 the TAC would increase from 1,453 to 1,601 tonnes, a 148 tonne (10%) increase pursuant to section 13(2)(a) of the Act.

1170. This option acknowledges the utilisation opportunity indicated by the high probability that CRA 8 is above the management target, as detailed above and in heading 4 *'Status of the stocks'*.

1171. This TAC setting has been guided by the proposed management procedure (see above) which has been formally and independently evaluated by the Rock Lobster Working Group (a Science Working Group convened by FNZ).

1172. Under this option an increase in fishing effort is expected. This would result in a lower abundance of spiny rock lobster than Option 1. However, the proposed TAC increase is modest relative to the high estimated abundance of the stock. Thus, there is uncertainty as to whether this option may lead to increased impacts on the environment or on any interdependent species.

1173. The social and cultural benefits of this option in comparison with Option 1 are uncertain. However, there is a potential economic benefit for Ngāi Tahu whānui through providing for increased commercial utilisation because at least 14.4% of CRA 8 quota is owned by their settlement entity.[182] The income from this quota, either through sales of Annual Catch

[182] This value is likely an underestimation because it only accounts for quota from settlements and quota owned by known Māori entities (i.e., iwi associations). Quota owners and fishers are not required to report if they are Māori and therefore the value does not contain quota owned by individuals, some of which may be Māori.

Entitlement (**ACE**) holdings or direct fishing can be used to fund a range of social and cultural services.

1174. This option would provide for substantial economic benefits. Under this option, assuming the TACC is fully caught, the annual port price revenue would be $11.58 million higher than the 2022/23 fishing year, and $34.82 million higher than the 5-year average,[183] based on annual port prices and landings. The 2023/24 port price is $93.47/kg (see heading 12 *'Economic context'* below). Downstream benefits to associated business and communities are anticipated, though these benefits are more difficult to measure.

Allowances

1175. The customary Māori allowance is proposed to remain at 30 tonnes and the recreational allowance is proposed to increase to 39 tonnes, consistent with the reasoning provided above under Option 1.

1176. The allowance for all other mortality caused by fishing under Option 2 is proposed to be increased to 140 tonnes - a one tonne or 0.7% increase from the current allowance. This is based on the current estimates of 'all other sources of mortality caused by fishing' (126 tonnes in 2022/23), and then increasing it by 11% to reflect likely increases in other mortality (handling mortality) as a result of increased fishing.

TACC

1177. Under Option 2 the TACC is proposed to increase from 1,251 to 1,392 tonnes, which would provide for a modest increase in commercial utilisation. This TACC setting is informed by the management procedure (see heading 5 *'Proposed management procedures'* and **CRA 8 Annex 1** for more information).

1178. This option would allow for increased commercial harvest, increasing the maximum landed catch by 141 tonnes (11% increase). The potential economic benefits of this TACC increase are summarised above in paragraph 1174 and below under heading 12 *'Economic context'*.

Submissions

1179. This TAC option was supported by 20 submitters, including CRA 8 RLIA, NZ RLIC, Gisborne Fisheries Limited, the ORLIA, and 16 individual submitters (many of whom are commercial operators in CRA 8).

1180. A recurring theme in submissions was that the current abundance is the highest that has been observed since the 1970s or 1980s. While the Fiordland Marine Guardians presented a neutral position regarding the TACC options, they noted that their observations and community feedback align with the stock assessment results which indicate rock lobster abundance is high and at a level not experienced since prior to the 1970s. One individual submitter, stated that fishers are catching rock lobster on soft sediment, a substrate not preferred by rock lobster, which they suggest indicates a high abundance of rock lobster. The same submitter noted that the 2023 CPUE estimate is more than double the second best performing spiny rock lobster fishery in Australasia (being the Western Australia fishery).

1181. The NZ RLIC, CRA 8 RLIA, and an individual submitter cited economic benefits for southern regional economies as a result of a proposed increase to the TACC. NZ RLIC suggest the TACC increase proposed under this option could result in an increased export revenue of $19.3 million based on the 2022 calendar year data (2,738 tonnes of spiny rock lobster was exported in 2022 to earn $376 million).

1182. Many submitters that supported this option considered that there is limited sustainability risk associated with the increased commercial utilisation proposed under this option. NZ RLIC and one individual submitter suggested that the current and ongoing high abundance of rock lobster in CRA 8 should mitigate any risk of trophic cascades. Another submitter suggested that the size distribution of rock lobsters in CRA 8 is very widespread and large lobsters are abundant which helps mitigate the risk of kina barren development.

1183. Further, NZ RLIC and CRA 8 RLIA suggest that an increase to the TACC is unlikely to result in increased benthic impacts or bycatch as a TACC increase would not necessarily result in an

[183] The increase in average landing revenue over the last 5 Fishing Years has been driven by both an increase in port price and an increase in quantity landed. Annual quantity landed has ranged from 1,017 tonnes (April 2019/20) to 1,302 tonnes (April 2020/21). Port price has ranged from $68.23/kg (2021-22) to $94.70/kg (2022-23).

increase in fishing effort. They state that over the last 10 years, as abundance and CPUE have increased, fishing effort has halved thus reducing the number of potlifts and the number of interactions between the commercial pots and the marine environment.

1184. Some submitters (D.P. Nyhon Holdings Ltd, Chanel Projects Limited, Southern Seafoods, and J. Excell) suggested that there is some evidence of an overabundance of rock lobster in CRA 8, that some lobsters are showing signs of hungers and stress, and that they have observed effects on the pāua population through predation by large lobsters. However, FNZ is not aware of any further information to support these claims.

13.3.4 Discussion

CRA 8 management procedure

1185. The benefits that would be attained from agreeing to use the new management procedure in CRA 8 are the same as the benefits discussed for CRA 7 under heading 13.1.3 '*Discussion*' above. Ultimately it will provide greater certainty for stakeholders in the assessment and management process for CRA 8 and help to maximise stability in commercial fishing yields.

1186. While some submitters raised concerns with reinstating a management procedure in CRA 8 because it relies on CPUE, FNZ notes that as with CRA 7, the CPUE series for CRA 8 has been accepted by the Fisheries Assessment Plenary as being a reliable indicator of abundance. Moreover, CPUE and the proposed management procedure will not be used alone to inform management; reviews of the stock will continue to also be informed through rapid assessment updates and other information.

1187. FNZ also has further confidence in the proposed management procedure for CRA 8 because:

- The management procedure has been recently evaluated and the results of this suggest that its use would not pose a risk to stock sustainability. Use of the CRA 8 management procedure through to the 2027/28 fishing year is expected to outperform the requirements of the HSS and is very likely (>90% probability) to maintain the stock above the interim management target and is very unlikely (<10% probability) to result in biomass dropping below the soft and hard limits.
- The rule proposed in this new management procedure is more conservative than the previous rules that operated between 2016/17 and 2020/21 and is the most conservative of the 24 rules initially considered. The rule is designed to manage CRA 8 at a higher CPUE (i.e., higher biomass), with stock biomass expected to be maintained well above the target level.
- Simulation testing of the new management procedure suggests it will continue to provide for utilisation benefits for all sectors in CRA 8.

1188. As outlined above for CRA 7, FNZ does not agree with the view of some submitters that a management target needs to be agreed before selecting a management procedure. You have discretion to approve the CRA 8 management procedure now based on the information available. If a specific management target is agreed for CRA 8 in the future, the management procedure can be reviewed to ensure the agreed target is taken into account in its operation.

CRA 8 TAC options

1189. As highlighted by the submissions, the CRA 8 stock appears to be in very good health with many observing abundance to be at a high level when compared to recent historical status. The views of these submitters reinforce the results of the 2021 stock assessment, the 2023 rapid assessment update, and the recent CPUE data for CRA 8, all of which indicate that the stock is well above the interim management target and on an increasing trajectory.

1190. As emphasised by submitters, the proposed increase to the TAC and TACC under Option 2 would provide additional benefits for southern regional economies, including an increase in landings and export revenue. At the same time, the risks appear to be limited. This notion is supported by the fact that the proposed increases are based on outputs of the management procedure, which is expected to maintain stock biomass above target and continue to provide benefits for all sectors of the fishery.

1191. One of the primary risks identified for increasing the TAC of CRA 8 is that there is uncertainty in what the potential effects may be for the wider ecosystem. There is uncertainty in the potential influence of increasing removals of spiny rock lobster through fishing (as proposed under

Option 2) on prey species, and notably, on kina barren proliferation (refer to heading 9.1 *'Interdependence of stocks*').

1192. There is also overall uncertainty in the extent of kina barrens in the CRA 8 area. Kina barrens have been observed in some regions of CRA 8, including the West Coast and Fiordland (Shears, 2007; Doheny et al., 2023). Kina barrens may also be present in other regions of CRA 8 that have not yet been detected, as there has been less research on the distribution of kina barrens in the region compared to northern New Zealand. Fishing of spiny rock lobsters in other regions of New Zealand (notably northeastern New Zealand) has been implicated in the prevalence of kina barrens. However, Wing et al., (2022) note that southern areas such as Fiordland show substantially different patterns to Northland, as it has "intact native forested catchments, comparatively low fishing pressure, and a large regional network of marine reserves.", these factors may explain why kina barrens do not appear to be a major concern in Fiordland.

1193. The available scientific research suggests that marine heatwaves and land-based inputs may play a stronger role than trophic cascades in affecting kelp abundance and distribution in southern New Zealand (see heading 9.1 '*Interdependence of stocks'*). However, removal of key predators such as spiny rock lobster from the environment may further reduce ecosystem resilience to these stressors.

1194. As highlighted above, the overall level of spiny rock lobster biomass required to maintain its role in the ecosystem (i.e., in relation to predator prey interactions and prevention of trophic cascades) is unknown, but it is likely that a higher abundance would increase this certainty. Thus, Option 2 provides less certainty than Option 1 that spiny rock lobster biomass will remain at an as yet unknown level that will allow them to play their part in delivering ecosystem functions and reduce the potential for the creation of further kina barrens within CRA 8.

1195. Notwithstanding this, FNZ considers there is limited risk for the wider environment and of potential impact on kina barrens associated with increasing the TAC (under Option 2). Biomass of the CRA 8 stock is very high compared with the past few decades; estimated to be at a level of 62% SSB_0, above the interim management target of 40% SSB_0. In addition, the TAC increase under Option 2 is moderate and based on a conservative management procedure which aims to maintain the stock at a high biomass level above the interim *MSY* target.

Concerns raised regarding the allowances proposed under the CRA 8 TAC options

1196. NZ RLIC, CRA 8 RLIA, and one individual submitter suggested that the illegal take proportion of the other sources of mortality is estimated unrealistically high. Further analysis of feedback relating to measurement of illegal catch is provided under heading 13.5 '*Other matters raised*'.

1197. In addition, multiple submitters stated it was difficult to ascertain if the increase to the recreational allowance proposed under both options would account for current recreational catch, as they consider current harvest is higher than the 39-tonne estimate. The Fiordland Marine Guardians consider that the proposed increase to the recreational allowance will still be below the current levels of recreational fishing, based on their analysis of recreational catch reported from amateur charter vessels and observations of increased recreational fishing on private vessels in Fiordland. Submitters feedback regarding the measurement of recreational harvest is summarised below under heading 13.5 'Other matters raised'.

1198. The Fiordland Marine Guardians note that Te Rūnanga o Ngāi Tahu do not support an increase to the recreational allowance. However, the Fiordland Marine Guardians consider that the allowance does not cap recreation harvest but is used to account for recreational harvest as part of the TAC. Therefore, they consider it is prudent to ensure the allowance provides the most accurate reflection possible of total recreational harvest.

13.4 Other options proposed by submitters

1199. Te Ohu Kaimoana proposed a modification to Option 2, which is consistent with input from Te Rūnanga o Ngāi Tahu. The alternative option proposes a 10% increase to the TAC, 11% increase to the TACC, and a 1 tonne increase to the other sources of mortality caused by fishing allowance, consistent with Option 2, however without an increase to recreational allowance. The alternative option is shown below.

TAC: 1,594 (↑142)	**TACC:** 1,392 (↑141)	**Customary:** 30	**Recreational:** 33	**Other mortality**: 140 (↑ 1)

1200. As detailed earlier (in *'Input and participation of tāngata whenua'*) Te Rūnanga o Ngāi Tahu have expressed concern that recreational fishing within CRA 8 constrains the customary needs of tāngata whenua. Tangata Tiaki have advocated that the recreational allowance should not be increased, and alternatively measures should be taken to constrain recreational harvest within the current allowance of 33 tonnes. However, Te Rūnanga o Ngāi Tahu support an increase to the TACC because of benefits for customary commercial fishers. Te Ohu Kaimoana endorses the input of Te Rūnanga o Ngāi Tahu.

1201. FNZ is not proposing an option that would constrain recreational harvest at this time given the current high abundance of rock lobster in CRA 8. FNZ will continue to engage with Te Rūnanga o Ngāi Tahu and the recreational sector to address these issues outside of this review, potentially through exploring more localised measures.

13.5 Other matters raised

13.5.1 Removal of the differential Minimum Legal-Size (MLS) regime in CRA 7 and CRA 8

1202. In CRA 7 and CRA 8, differential Minimum Legal Sizes (**MLS**) apply for commercial fishers. In CRA 7, commercial fishers can take male and female rock lobsters at or above 127 mm tail length (equivalent to 47 mm tail width for males and 48 mm tail width for females) from 1 June to 19 November. In CRA 8, commercial fishers can take female rock lobsters at or above 57 mm tail width at any time of year. An MLS of 54 mm tail width for males and 60 mm tail width for females applies to recreational fishers in CRA 7 and CRA 8.

1203. Two submitters commented on the differential MLS regime in these fisheries. The NZSFC (and its associates) advocated for the removal of the differential MLS regime in both CRA 7 and CRA 8, and in the meantime, mandatory reporting of the number or weight of sub-MLS rock lobsters landed by commercial fishers. An individual submitter also supported revoking the differential MLS in CRA 8.

1204. The NZSFC consider that the MLS for a fishery should consider the context of sustainability regarding sexual maturity. The NZSFC note that the commercial differential MLS of females for both CRA 7 and CRA 8 is below the estimated size at which 50% of female rock lobsters reach maturity in these fisheries (their submission suggests 58.2 mm tail width for both CRA 7 and CRA 8). Both submitters suggest that removing the differential MLS would allow for additional breeding cycles before fish become vulnerable to the fishery.

1205. In addition, the NZSFC suggested landing sub-MLS fish results in a reduction of yield-per-recruit[184] by removing a larger number of rock lobster per tonne of ACE which fishes down new recruits before they have a chance to grow. NZSFC feel there is no longer a need for the differential MLS considering the increases in rock lobster abundance in CRA 8.

1206. The other individual submitter also suggested it would decrease confusion as to where lobsters are caught and eliminate the change of under size rock lobster being taken from neighbouring areas.

1207. As discussed above under heading 8.5.2. *'Existing controls that apply to the stock section 11(1)(b)'*, the differential MLS regime in CRA 7 and 8 was reviewed in 2012 and 2014, and the government at the time decided to retain the regulations.

1208. FNZ considers there is no major sustainability risk associated with maintaining the differential MLS given the recent increases in abundance observed in both CRA 7 and CRA 8, and a review of the differential MLS regime is out of scope of this current review.

1209. However, feedback from MPI Fisheries Compliance indicates that the differential MLS regimes for CRA 7 and CRA 8 both have unique regulation administration approval requirements to enable Otago and Southland license fish receivers (LFRs) to receive, handle, transport, and process rock lobsters for either export consignment or domestic sale. The two separate CRA 7 and CRA 8 differential MLSs pose similar administrative compliance implications for Fisheries Officers and the industry. This includes ensuring local LFRs receiving either CRA 7 or CRA 8 rock lobsters for live export are complying with appropriate MPI Chief Executive approvals. The LFR approvals and conditions require any CRA 7and CRA 8 differential MLS rock lobsters to be identifiable and kept separate from other QMA rock lobsters, particularly ungraded live rock

[184] Yield-per-recruit is the expected lifetime yield per fish recruited in the stock at a specific age.

lobsters consigned from the respective regions to approved live export Transhipment Point facilities in Christchurch and Auckland.

1210. In the case of New Zealand domestic sales, Fishery Officers outside of Otago and Southland can expend considerable time confirming the origin and legality of domestic sale rock lobster that are smaller than the national MLS during inspections at dealers in fish (such as fish distributors, retail outlets, and restaurants). MPI Compliance also note the inconvenience for retailers and sellers while Fisheries Officers undertake inspection enquiries. FNZ will continue to monitor the efficacy of this regime.

13.5.2 Merging of the CRA 7 and CRA 8 Quota Management Areas (QMAs)

1211. The ORLIA requested that merging of the CRA 7 and CRA 8 QMAs is considered for discussion. The ORLIA believe that the biological relationship between CRA 7 and CRA 8 (discussed under heading 4 *'Status of the stocks'*) impedes the ability to manage the fisheries separately. Further, the submitters consider that merging the QMAs would simplify stock assessments for CRA 7.

1212. Regulatory alteration to the CRA 7 and CRA 8 QMAs is provided for under either section 25A or 25B of the Fisheries Act. This can allow for the amalgamation of the two QMAs. A regulatory alteration under 25A can be done in agreement with at least 75% of quota owners in both CRA 7 and CRA 8, or without quota owner agreement under 25B if you consider it necessary to ensure sustainability (having considered alternative options).

1213. Amalgamating the two QMAs would be time-consuming, and its effectiveness at present is unknown. Previous informal discussions with CRA 8 fishers indicated a lack of support for amalgamating the two QMAs, and at this time FNZ does not consider there is a sustainability risk with the current QMA arrangement. FNZ acknowledges there is good evidence that the populations in these two QMAs are interconnected, which is why they are currently assessed using a two-region model and reviewed concurrently. The Rock Lobster Working Group have recommended that an alternative model structure be explored for the next fill assessment of these stocks in 2027/28, to better account for regional differences in population dynamics.

13.5.3 Recreational charter vessels and information on recreational catch

1214. Te Rūnanga o Ngāi Tahu and a number of submitters, including Te Ohu Kaimoana, NZ RLIC, the ORLIA, CRA 8 RLIA, and the Fiordland Marine Guardians, raised concern about the timeliness and substantial uncertainty of recreational harvest in CRA 7 and CRA 8. These submitters consider a need for reliable and credible recreational harvest data is critical.

1215. The Fiordland Marine Guardians, the ORLIA, and one individual submitter advocated for the introduction of a reporting system for recreational fishers, suggesting the Mainland Catch app could be used (an app developed by the recreational body Fish Mainland which allows for self-reporting of recreational catch).

1216. NZ RLIC, the Fiordland Marine Guardians, and Te Ohu Kaimoana raised concern regarding catch reporting from amateur charter vessels. Catch reporting has been mandatory for amateur charter vessels since 2010, however, NZ RLIC raised concern that monitoring and enforcement of amateur charter vessel reporting has been overlooked. They go on to state that they do not consider the reported amounts of spiny rock lobster catch by amateur charter vessels to be credible. The Fiordland Marine Guardians have advocated for you to introduce an Electronic Reporting System for amateur charter vessels.

1217. In their submission, CRA 8 RLIA stated that Environmental Southland has imposed a moratorium on consents for new amateur charter vessels until the Southland regional Coastal Plan is reviewed in response to increases in the number of amateur charter vessels operating. CRA 8 RLIA consider recreational catch will continue to increase and will exceed the allowance if steps are not taken to constrain catch. They also advocate for managing the number of amateur charter vessels operating within CRA 8. The CRA 8 RLIA suggested that you direct FNZ to address this matter in your decision letter.

1218. A number of submitters expressed doubt about the certainty of recreational estimates from the NPS. In particular, the Fiordland Marine Guardians suggest that the NPS does a poor job at estimating amateur fishing catch in Fiordland. NZ RLIC suggested that decisions need to be made on a material adjustment to the approach used to estimate recreational catch, as they consider the NPS does not provide adequate information for management.

1219. FNZ acknowledge that recreational estimates from the NPS are highly uncertain for CRA 7 due to limited participation in the survey and in the fishery as a result of low population density in the region. However, recreational harvest is a relatively small percentage of the combined annual commercial and recreational harvest in CRA 7 and CRA 8 (estimated to be 2% and 1%, respectively, based on provisional 2022/23 NPS results).

1220. In late 2022, FNZ convened a subgroup of the Marine Amateur Fisheries Working Group (**MAFWG**), which includes stakeholders, to explore alternative methods of estimating recreational rock lobster catch. The MAFWG met three times in 2023, and outcomes from this group will be used to inform future management considerations in 2024. However, NZ RLIC suggests there are two approaches that are evident from the alternatives considered to improve recreational harvest information; either the panel surveys and creel surveys are more comprehensive and more frequent (acknowledging the increase in costs) or different regulatory approaches that are less expensive and more efficient need to be considered (e.g., registration). FNZ have been exploring the benefits of more creel surveys in QMAs where recreational fishers account for a greater proportion of the total rock lobster harvest (in CRA 1 and CRA 2), but the cost of extending this approach to all lobster QMAs would be considerable.

1221. Final up-to-date recreational harvest estimates for all rock lobster stocks will become available in early 2024 following the analysis of the 2022/23 NPS, which will help inform the MAFWG. In turn this will assist FNZ on how to proceed with gathering recreational harvest information.

13.5.4 Illegal take

1222. In their submissions, the CRA 8 RLIA and NZ RLIC highlighted the reliability of illegal take estimates, noting that poor estimates are inadequate to support stock assessments. NZ RLIC submits that further work on addressing illegal take estimates is necessary to inform stock assessments and adequate management. They consider that introducing accumulation limits for recreational fishers could help address illegal take in rock lobster fisheries.

1223. FNZ acknowledges that there are uncertainties around estimates of illegal take, however, by its very nature illegal take is cryptic (i.e., unknown) and gauging the actual extent is difficult to quantify.

13.5.5 Recreational telson clipping

1224. Telson clipping is cutting off the bottom third of the telson (the central part of the tail fan) so that it is noticeably shorter than the other sections of the tail fan. This marks a lobster as having been recreationally caught and therefore not able to be sold, bartered, or traded.

1225. NZ RLIC see value in telson clipping, highlighting that this measure provides an additional tool for compliance to address illegal take. NZ RLIC recommend that telson clipping be introduced nationally (in all QMAs) for recreationally caught spiny rock lobsters.

1226. Telson clipping was introduced in the CRA 2 fishery and the remainder of CRA 5 (outside Kaikoura) in July 2020 and applies to all recreational (including section 111) catch. The measure was aimed to help address the potential for illegally taken lobsters to end up being sold and displacing legally taken product in the restaurants, retail, and hospitality trade.

1227. It should be noted that telson clipping of recreational caught spiny rock lobsters does not impede illegal sales that occur through social media channels, which is the primary platform for illegal sales. FNZ has investigated the effectiveness of telson clipping and note that illegal sales typically occur through social media, community or social groups, rather than fish wholesalers, retailers, or restaurants. In addition, large scale “poachers” are already in the practice of avoiding detection. As such, FNZ does not have a high level of confidence that regulations requiring telson clipping of recreational caught spiny rock lobsters is an effective measure to prevent illegal sales.

1228. FNZ will continue to monitor and assess the effectiveness of the telson clipping measure in CRA 2 and CRA 5 and will consider reviewing telson clipping requirements if necessary.

13.5.6 Digital monitoring (Electronic Reporting System)

1229. As discussed above under paragraph 922, the transition to the Electronic Reporting System (ERS) for commercial catch and effort information in 2019 resulted in a disruption to CPUE time series. The reasons for this include data being collected on a different spatial and temporal

scale, new reporting codes, and some issues with operators incorrectly interpreting the new reporting requirements.

1230. NZ RLIC convened a series of workshops in collaboration with Ministry for Primary Industries (**MPI**) to address misunderstandings and improve reporting. Analysis undertaken afterwards suggests the workshops have not resolved the ER reporting issues.

1231. NZ RLIC consider that the issues causing poor ER data needs to be urgently resolved and that a number of causes contribute to ER reporting issues including operator error, misunderstanding due to complexity and terminology issues, and different reporting platforms.

1232. The lack of CPUE from ER data going forward is problematic, as this data is used in stock assessments as an index of abundance and is vital to assessing spiny rock lobster stocks. However, FNZ considers this is less of an issue for CRA 7 and CRA 8. In 2023, the Rock Lobster Working Group and the November Plenary concluded that ER data for CRA 7 is reliable enough to inform CPUE, and that data from the voluntary logbook system provides a robust CPUE series for CRA 8. Regardless, FNZ is investigating potential solutions to the issues arising from electronic reporting errors.

1233. NZ RLIC also continues to express concern about the current regulations that require commercial fishers to report predated fish and theft from commercial holding pots, and balance ACE for theft from holding pots. They consider the regulations conflict and create poor reporting incentives for commercial fishers. In addition, NZ RLIC consider the general requirement for commercial fishers to retain and land most QMS finfish species does not recognise that most or all of those species when taken in pots could be returned to the sea live for use by other sectors or benefit to the stocks. FNZ will be consulting later this year on whether to provide a landing exception that would allow commercial fishers to return certain QMS finfish species to the sea if caught by potting or trapping and are likely to survive.

13.5.7 Ecological monitoring

1234. The Fiordland Marine Guardians consider rock lobster are a key species in Fiordland's marine ecosystems, and that kina barrens are not observed to be widespread in Fiordland at present. However, they advocate for monitoring of ecological effects of changing rock lobster abundance, such as kina barrens, as part of the management of this fishery. They consider the lack of current major ecological concerns should not delay implementation of an ecological monitoring framework as time series are the foundation of robust monitoring programmes.

14 Socio-economic context

1235. The CRA 8 fishery supports many people, including quota holders, commercial fishers, licensed fish receivers (**LFR**s), and seafood processing facilities. To give a sense of scale and distribution, based on data from the last three April Fishing Years, in CRA 8 there have been on average 148 quota owners, supplying ACE to 66 permit holders, landing rock lobster to 12 LFRs. CRA 8 has slightly more participants for all parts of the supply chain than the 10-year average. There is some cross over of participants between CRA 7 and CRA 8, but they are primarily different.

1236. Over the last 3 years in CRA 8, 28% of quota was owned by 4 entities, and 72% was owned by the remaining 144 entities (Table 10). Settlement quota makes up 10% of CRA 8 quota and the proceeds of this quota (via ACE sales or direct fishing) enable hapū/iwi to provide direct support to their communities. At the end of the April 2022/23 fishing year, in CRA 8, 21% of ACE was held by 4 entities, and the remaining 79% of ACE was held by 67 entities. On average over the last 3 fishing years in CRA 8, 22% of greenweight was landed by 4 permit holders, while the remaining 78% was landed by 62 permit holders. Also, in CRA 8, 94% of greenweight was landed to 4 LFRs, and the remaining 6% was landed to 8 LFRs.

Table 10: Number of entities and the distribution of ownership between the entities for CRA 8. Statistics on Annual Catch Entitlement (ACE) is based on data at the end of the April 2022/23 fishing year, and the remaining data is an average based on the last three fishing years.

	Number of entities	Percentage held/landed by top four entities
Quota	148 quota owners	28%
Annual Catch Entitlement (ACE)	71 ACE holders	21%
Greenweight (kg) landed by permit holders	66 permit holders	22%
Greenweight (kg) landed to licensed fish receivers	12 licensed fish receivers	94%

1237. Spiny rock lobster is primarily exported. In the 2022 calendar year, 2,738 tonnes of spiny rock lobster were exported with a Free on Board (**FOB**)[185] value of NZ $376 million.

1238. Potential changes in revenue have been calculated from the proposed TACC changes and the respective port prices[186] within CRA 8 for the 2023/2024 fishing year. Over the last five years the average annual port price revenue has been $95.29 million in CRA 8, while over the same period the estimated average annual FOB export revenue was $141.38 million in CRA 8.

1239. The average price of CRA 8 ACE (the earnings quota owners receive when selling their ACE) for the 2022/23 fishing year was $51,218.55 per tonne. More detail on CRA 8 ACE and quota prices over the last five years can be found in Table 11.

Table 11: Number of transfers and average prices of ACE and quota for CRA 8.[187]

April fishing year	Annual Catch Entitlement (ACE)		Quota	
	Number of transfers	Average price (per tonne)	Number of transfers	Average price (per tonne)
2022/23	492	$51,218.55	22	$1,627,751.27
2021/22	453	$47,420.6	25	$1,322,388.29
2020/21	529	$44,439.21	15	$1,487,508.51
2019/20	500	$56,647.37	14	$1,441,139.60
2018/19	429	$51,037.82	30	$1,525,323.52

1240. Under Option 1, the current TACC setting would be retained at 1,251 tonnes. This would not result in any increase in commercial harvest of spiny rock lobster thus not resulting in any increase in annual revenue.

1241. Under Option 2, the TACC would increase from 1,251 tonnes to 1,392 tonnes. This would allow for increased commercial harvest, increasing the maximum landed catch by 141 tonnes – a 11% increase. Under this option, assuming the TACC is fully caught, the annual port price revenue would be $11.58 million higher than the 2022/23 fishing year, and $34.82 million higher than the 5-year average[188], based on annual port prices and landings. The 2023/24 port price is $93.47/kg.

[185] Free on board is 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.

[186] Each year, MPI sends a voluntary survey to all licensed fish receivers (LFRs) to calculate the port price for the year ahead. Port price represents the greenweight price per kg paid on a particular day and not an average for the whole year. The fishing method is not included in the survey even though a particular method may receive a higher landed price. Port prices represent what commercial fishers receive at port, 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.

[187] Quota and ACE trading prices registered with FishServe may include transactions between related commercial entities and the averages may understate true market/transfer price.

[188] The increase in average landing revenue over the last 5 Fishing Years has been driven by both an increase in port price and an increase in quantity landed. Annual quantity landed has ranged from 1,017 tonnes (April 2019/20) to 1,302 tonnes (April 2020/21). Port price has ranged from $68.23/kg (2021-22) to $94.70/kg (2022-23).

15 Deemed value rates

1242. The annual deemed value rates for rock lobster stocks (including CRA 7 and CRA 8) are set at a high level (above port price) in recognition that they support high value and selective target fisheries, where strong incentives are needed for fishers to avoid catching in excess of ACE.

1243. FNZ is satisfied that the current deemed value rates for CRA 8 are consistent with section 75(2)(a) of the Act, in that they provide sufficient incentive for fishers to balance their catch with ACE. Because of this, FNZ did not propose any deemed value rate changes as part of this review.

1244. One submission, from CRA 8 RLIA, received during consultation commented on the CRA 8 deemed value rates. The submitter considered the current settings are appropriate.

16 Conclusions and recommendations

1245. The CRA 7 and CRA 8 spiny rock lobster stocks both appear to be in good health. The rapid stock assessment update conducted in 2023 estimates their combined biomass to be above the interim management target, and there are signals that biomass is likely to continue increasing under the current catch settings.

1246. The current positive status of these stocks reflects efforts taken to rebuild these fisheries over the past few decades, including the successful operation of management procedures in both fisheries up until 2020. This review proposes reinstating the previous management procedure in CRA 7 and implementing a new management procedure for CRA 8 until 2027/28, or until reviewed earlier, for both stocks.

1247. There was strong support from tāngata whenua and representatives of the commercial sector for reimplementing management procedures in both CRA 7 and CRA 8.

1248. Some recreational submitters and environmental representatives of the NRLMG expressed hesitations about the management procedures and do not support their use at this time. The NZ Sport Fishing Council have also suggested that management targets should be agreed for the fisheries before the procedures are reinstated. FNZ is progressing work towards setting management targets for spiny rock lobster fisheries in collaboration with the NRLMG, but at this time it is not possible to develop alternative management targets for the CRA 7 and CRA 8 fisheries because vulnerable biomass reference levels cannot be estimated independently for each stock.

1249. Our view is that the work towards agreed management targets is not a reason to delay the use of the management procedures in supporting continued monitoring and management of these stocks. FNZ also notes that if management targets are developed and agreed during the operation of these procedures, then the procedures can be reviewed earlier than 2027/28 to incorporate the new targets.

1250. Overall, FNZ considers that implementing the management procedures would have significant benefits for management of both fisheries, including helping maintain the combined CRA 7 and CRA 8 stocks at or above *MSY* until the next stock assessment and review of these management procedures in 2027/28 (in line with the statutory requirements under the Act). FNZ also considers the management procedures will provide a more established and agile management approach for responding quickly to changes in stock abundance on an annual basis. FNZ considers that the risks of implementing the management procedures are limited and outweighed by the potential benefits. This is particularly the case in CRA 8, where the management procedure proposes to use a more conservative rule than previously operating procedures to manage the stock to a biomass level above the interim management target of 40% SSB_0, to benefit all sectors of the fishery.

1251. Therefore, FNZ is recommending that you agree to reinstate the previous management procedure in CRA 7 and approve the new management procedure in CRA 8 until 2027/28, or until reviewed earlier, for both stocks.

1252. The CRA 7 TAC was not considered for review as part of this review because the current settings appear to be appropriate based on the 2023 rapid assessment update and the output of the proposed CRA 7 management procedure. Operation of the proposed CRA 8 management procedure recommended an increase to the CRA 8 TACC for 1 April 2024, this aligns with the TACC increase proposed under Option 2.

1253. Given the recent rapid assessment results, record high CPUE, and trends of increasing abundance in CRA 8, FNZ considers that there is an opportunity to sustainably increase utilisation of the stock.

1254. Te Rūnanga o Ngāi Tahu and Te Ohu Kaimoana oppose the increase to the CRA 8 recreational allowance proposed under both Options 1 and 2 on the basis that it constrains customary rights and restricts the exercise of kaitiakitanga. Te Ohu Kaimoana proposed an alternative option which incorporates the increase to TACC and the allowance for other mortality caused by fishing proposed under Option 2 while retaining the current recreational allowance. FNZ considers it inappropriate to constrain recreational harvest at this time given the current high abundance of rock lobster in CRA 8.

1255. Our preference is that you agree to Option 2 for the TAC of CRA 8, which would apply a modest increase to the TAC, the allowances for recreational take and other mortality caused by fishing, and the TACC.

1256. We consider this option would appropriately respond to the positive stock status and increasing abundance in CRA 8, with limited risks for the stock and surrounding ecosystem. The proposed increases are based on outputs of the management procedure, which is expected to maintain stock biomass above target and continue to provide benefits for all sectors of the fishery. Option 2 would also place weight on the strong support from submissions for a TACC increase.

1257. FNZ notes that you have discretion to make separate decisions on the use of this management procedure and the CRA 8 TAC settings from 1 April 2024. However, we recommend that you agree to both together as per Option 2. This would mean agreeing to use the CRA 8 management procedure through to the 2027/28 fishing year and agreeing to increase the TAC and TACC of CRA 8 in line with the management procedure from the upcoming 1 April 2024 fishing year.

17 Decision for CRA 7

Option 1

Agree to reject the use of the proposed management procedure, as specified in **CRA 7 Annex 1**, for CRA 7.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(Fisheries New Zealand preferred option)*

Agree to use the proposed management procedure, as specified in **CRA 7 Annex 1**, to guide TAC setting in CRA 7 from 1 April 2024 until the fishing year beginning 1 April 2027, or earlier if considered necessary.

Agreed / Agreed as Amended / Not Agreed

18 Decisions for CRA 8

Option 1

Agree to reject the use of the proposed management procedure, as specified in **CRA 8 Annex 1**, for CRA 8.

Agreed / Agreed as Amended / Not Agreed

AND

Agree to set the CRA 8 TAC at 1,459 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 30 tonnes;
ii. Increase the allowance for recreational fishing interests from 33 to 39 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 139 tonnes;
iv. Retain the CRA 8 TACC at 1,251 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(Fisheries New Zealand preferred option)*

Agree to use the proposed management procedure, as specified in **CRA 8 Annex 1**, to guide TAC setting in CRA 8 from 1 April 2024 until the fishing year beginning 1 April 2027, or until an earlier review is considered necessary.

Agreed / Agreed as Amended / Not Agreed

AND

Agree to set the CRA 8 TAC at 1,601 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 30 tonnes;
ii. Increase the allowance for recreational fishing interests from 33 to 39 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 139 to 140 tonnes;
iv. Increase the CRA 8 TACC from 1,251 to 1,392 tonnes.

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

Hon Shane Jones
Minister for Oceans and Fisheries

/ / 2024

CRA 7 Annex 1: CRA 7 (Otago) management procedure specifications

Management procedures have operated in the CRA 7 fishery from 1996/97 until the 2020/21 fishing year.

In 2013, the Minister responsible approved a new CRA 7 management procedure to operate from the 2013/14 fishing year until the 2018/19 fishing year. In 2015, a new stock assessment was carried out for CRA 7 in conjunction with CRA 8. The 2015 stock assessment model was used to re-evaluate the performance of the CRA 7 management procedure, and the procedure was extended to the 2020/21 fishing year.

Some important elements of the CRA 7 management procedure are:

- The output variable is Total Allowable Commercial Catch (**TACC**) in tonnes.
- Offset-year standardised CPUE is used as an input to the rule to determine the TACC for the fishing year that begins in the following April.
- CPUE is calculated using the *F0_LFX* procedure which uses landings to a licensed fish receiver and the amount of rock lobsters returned to the water (high graded rock lobsters).
- The management procedure is to be evaluated every year (no "latent year"), based on off-set year CPUE.
- The minimum change threshold for the TACC is 10% and the maximum change threshold is 50%.

Proposed management procedure specifications

The CRA 7 management procedure is based on a generalised plateau rule, illustrated in Figure A1. Between CPUEs of zero and 0.17 kg/potlift the TACC is zero, the TACC then increases linearly with CPUE to 80 tonnes at a CPUE of 1 kg/potlift. The TACC remains at 80 tonnes until CPUE reaches 1.75 kg/potlift and then increases linearly.

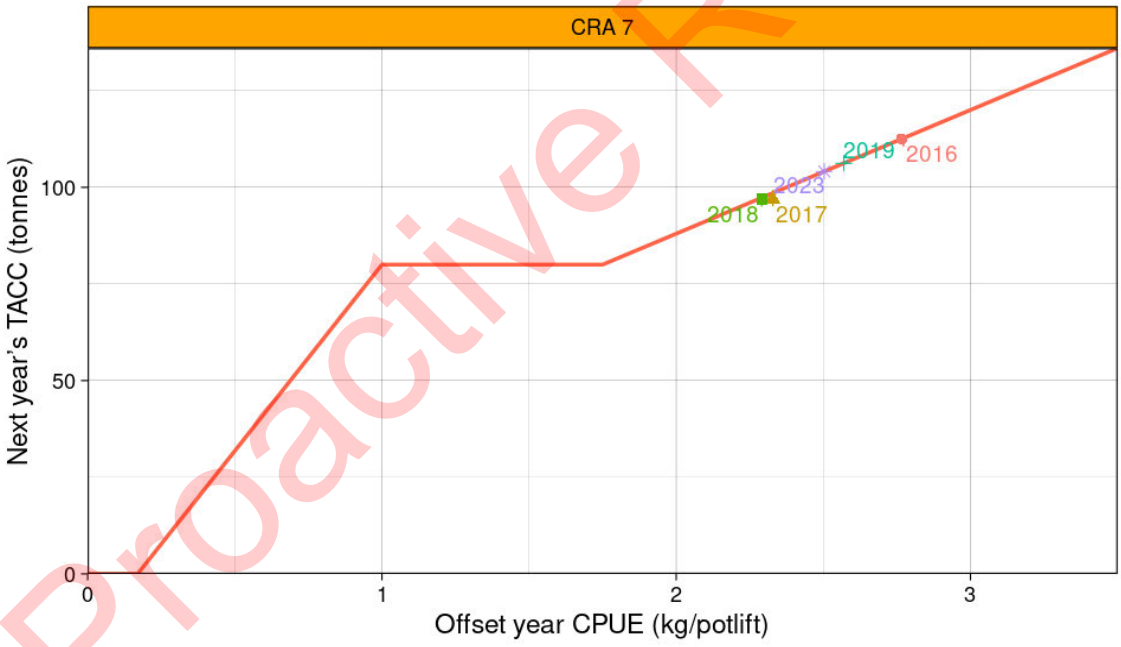

Figure A1. The proposed CRA 7 management procedure, showing the Total Allowable Commercial Catches (TACCs) resulting from evaluations performed from 2016 to 2019 and 2023 (shown as coloured shapes) for the 2017/18 to 2020/21 and 2024/25 fishing years.

Table A1. History of the CRA 7 management procedure. 'Rule result' is the result of the management procedure after operation of all its components.

Year of analysis	Applied to April fishing year	Offset year CPUE at time of analysis (kg/potlift)	Rule result TACC (tonnes)	TAC (tonnes) set by the Minister	TACC (tonnes) set by the Minister
2012	2013/14	0.625	43.96	64	44
2013	2014/15	1.356	66.00	86	66
2014	2015/16	2.304	97.7	117.7	97.7
2015	2016/17	2.212	97.7	117.7	97.7
2016	2017/18	2.766	112.5	132.5	112.5
2017	2018/19	2.328	98.5	117	97.0
2018	2019/20	2.292	97.3	117	97.0
2019	2020/21	2.567	106.2	126.2	106.2
2020	2021/22	-	-	126.2	106.2
2021	2022/23	-	-	134.5	111.5
2022	2023/24	-	-	134.5	111.5
2023	2024/25	2.503	111.5	-	-

CRA 8 Annex 1: New CRA 8 (Stewart Island, Southland, Fiordland) management procedure specifications

Management procedures have operated in the CRA 8 fishery from 1996/97 until the 2020/21 fishing year.

The last management procedure was operated from 2016/17 until the 2020/21 fishing year.

Twenty-four different CRA 8 management procedure options were considered by the NRLMG in late 2023. The NRLMG have put forward one of these rules for consideration (Rule 23).

Some important elements of the CRA 8 management procedures are:

- The output variable is Total Allowable Commercial Catch (**TACC**) in tonnes.
- Offset-year standardised CPUE is used as an input to the rule to determine the TACC for the fishing year that begins in the following April.
- CPUE is calculated from data provided through the voluntary logbook programme, which indexes numbers of legal-sized lobsters caught in dedicated logbook pots (all lobster greater than the MLS including egg-bearing females).
- The management procedure is to be evaluated every year (no "latent year"), based on off-set year CPUE.
- The minimum change threshold for the TACC is 5%. There is no maximum change threshold for the TACC.

Proposed management procedure specifications

The proposed new CRA 8 management procedure is based on a generalised plateau step rule, illustrated in Figure 2A. Between CPUEs of 0 and 0.6 kg/potlift the TACC is zero, the TACC then increases linearly with CPUE to 3.4 kg/potlift, and between CPUES of 3.4 to 7 kg/potlift the TACC is 1,251 tonnes. As CPUE increases above 7 kg/potlift, the TACC increases in steps with a width of 1 kg/potlift and a height of 5.5% of the preceding TACC.

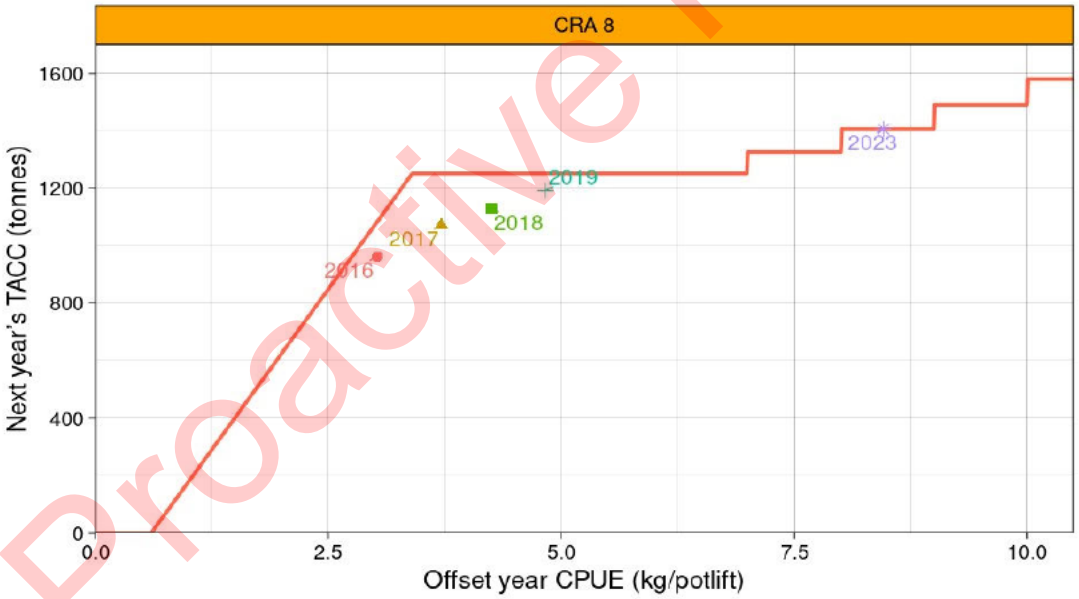

Figure A2. The proposed CRA 8 management procedure, showing the Total Allowable Commercial Catches (TACCs) resulting from evaluations performed from 2016 to 2019 and 2023 (shown as coloured shapes) for the 2017/18 to 2020/21 and 2024/25 fishing years.

Table A2. Results of the proposed new CRA 8 management procedure for the 2023/24 fishing year, after operation of all its components including thresholds.

Proposed CRA 8 rule	Offset year CPUE at time of analysis (kg/potlift)	Rule result TACC (tonnes)
Rule 23	8.455	1,392

CRA 8 Annex 2: CRA 8 (Stewart Island, Southland, Fiordland) spatial regulations map

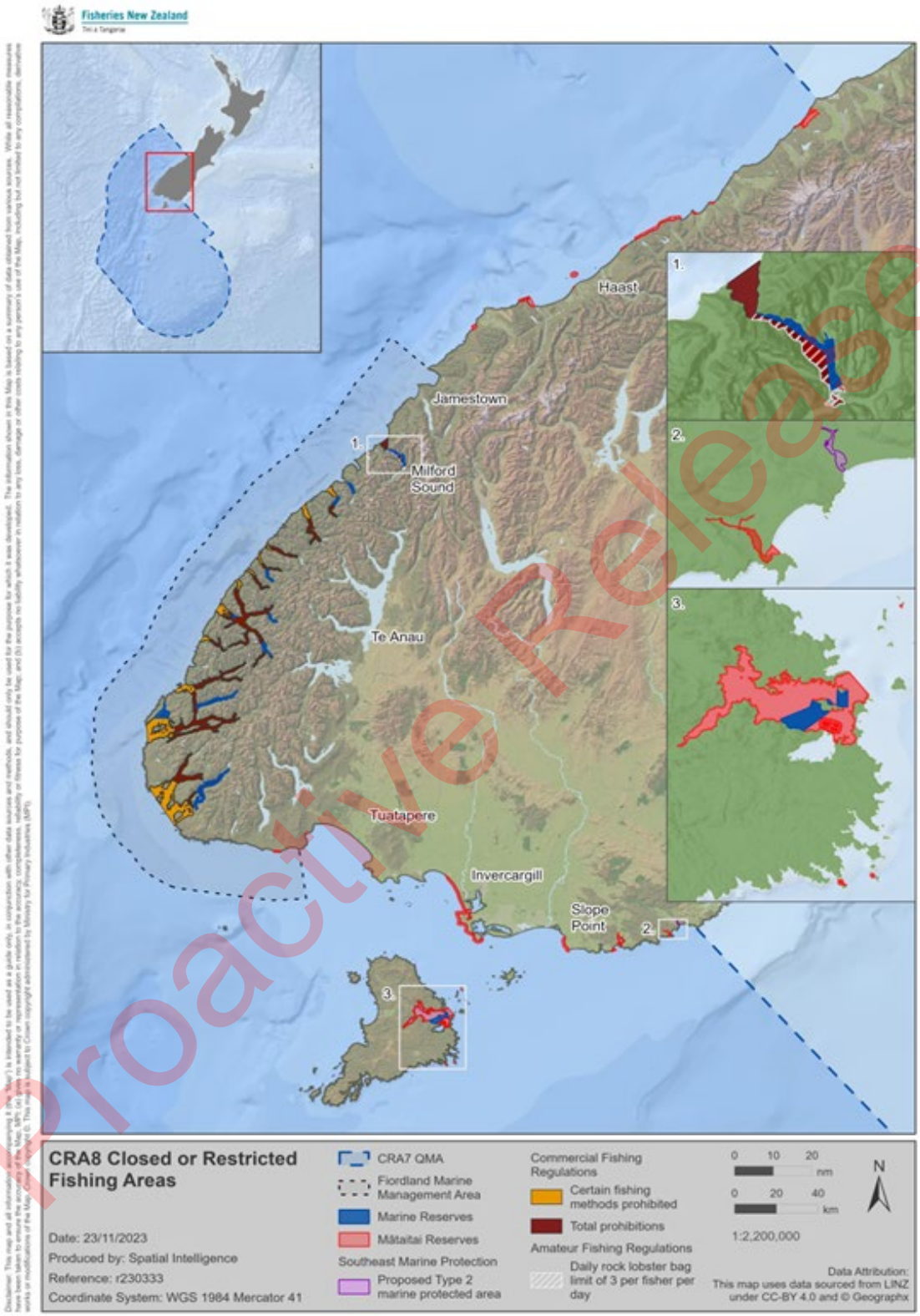

Figure A3. Closed or restricted fishing areas within the rock lobster CRA 8 Quota Management Area. Mātaitai reserves prohibit commercial fishing provided for in the conditions of the mātaitai. All types of fishing are prohibited within marine reserves. The Fiordland Marine Management Area indicates the area that operates under the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005.

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Addendum

Table A: Summary of relevant regional plan provisions and policy statements.

FNZ has reviewed these provisions and policy statements and plans relevant for each of the fish stocks and proposals 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
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."
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: (i) fishing grounds; (ii) shellfish areas; (iii) fish spawning and nursery areas; (iv) bird breeding and nursery areas; (v) fish and bird migration; (vi) feeding patterns; (vii) habitats' importance to the continued survival of any indigenous species; (viii) wildlife and indigenous marine biota; (ix) dune systems; and **(x)** the intrinsic values of ecosystems."
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: a) providing an overview of the resource management issues of the Taranaki region b) identifying policies and methods to achieve integrated management of the natural and physical resources of the whole region. **Section 8. Coastal Environment**

Regional Council	Document	Relevant sections
		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.
Manawatu-Wanganui	**Regional Policy Statement**	**Policy 8-4: Appropriate use and development** Any use or development in the CMA must: • avoid, as far as reasonably practicable, any adverse effects on the following important values: (a) the landscape and seascape elements that contribute to the natural character of the CMA (b) areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the maintenance of indigenous biological diversity (c) the intrinsic values of ecosystems
	Horizons Regional Council One Plan (The Horizons One	**Section 18** of the plan details activities in the coastal marine area. Specifically, it covers; (a) Occupation; (b) Structures; (c) Reclamations and Drainage;

Regional Council	Document	Relevant sections
	Plan includes the Regional Coastal Plan for the Manawatu-Wanganui region)	(d) Disturbances, Removal and Deposition; (e) Water Takes, Uses, Damming and Diversions; (f) Discharges; (g) Noise and Discharges into Air; (h) Exotic and Introduced Plants; and (i) 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: iii. The intrinsic values of the coastal marine area and its components are preserved and protected from inappropriate use and development; iv. 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; v. 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; vi. Land, water, and air in the coastal marine area retains its life supporting capacity; vii. The natural character of the coastal marine area is preserved and protected from inappropriate use and development; viii. Important ecosystems and other natural and physical resources in and adjacent to the coastal marine area are protected from inappropriate use and development; ix. Public health is not endangered through the effects of previous, present, or future activities in the coastal marine area; x. Public access along and within the coastal marine area is maintained and enhanced; xi. 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.

Regional Council	Document	Relevant sections
		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**

Regional Council	Document	Relevant sections
		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: 1 an overview of the resource management issues of the region; and 2 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**	**a. 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: d) Providing an overview of the resource management issues of the region; and **e)** Identifying policies and methods to achieve integrated management of the West Coast's natural and physical resources. **Chapter 9: Coastal Environment** Objectives a) Within the coastal environment: o Protect indigenous biological diversity; o Preserve natural character, and protect it from inappropriate subdivision, use and development; and o Protect natural features and natural landscapes from inappropriate subdivision, use and development. b) 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 Council	Document	Relevant sections
	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: • protection and enhancement of the coast; • water quality; • controls on activities and structures; and • 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: 1. Ecosystem health and indigenous biological diversity including habitats of indigenous a. fauna; b. Biological diversity where the presence of exotic flora and fauna supports indigenous c. biological diversity; 2. Maintain or enhance as far as practicable: a. Areas of predominantly indigenous vegetation; b. Habitats of trout and salmon unless detrimental to indigenous biological diversity; c. 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: i. Avoiding activities that do not have a functional need to locate in the coastal marine area; ii. When an activity has a functional need to locate in the coastal marine area, giving preference

Regional Council	Document	Relevant sections
		iii. to avoiding its location in: a. Areas of significant indigenous vegetation and significant habitats of indigenous fauna; b. Outstanding natural features, landscapes and seascapes; c. Areas of outstanding natural character; d. Places or areas containing historic heritage of regional or national significance; e. Areas subject to significant natural hazard risk; iv. Where it is not practicable to avoid locating in the areas listed in b) above, because of the functional needs of that activity: a. Avoid adverse effects on the values that contribute to the significant or outstanding nature of b)i.-iii; b. Avoid significant adverse effects on natural character in all other areas of the coastal environment; c. Avoid, remedy, or mitigate adverse effects on values as necessary to preserve historic heritage of regional or national significance; d. Minimise any increase in natural hazard risk through mitigation measures; e. 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**

Regional Council	Document	Relevant sections
		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: (1) to promote the sustainable management of the coastal marine area; (2) to minimise conflicts between the users of the coastal marine area; (3) to provide for the communities social, economic, and cultural wellbeing; and, (4) 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**	○ **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**

Regional Council	Document	Relevant sections
		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** (1) 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** 1 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: (i) landscape features (ii) indigenous vegetation and habitats of fauna (iii) cultural and spiritual values