Fisheries New Zealand
Tini a Tangaroa

Appendix Three:

Review of sustainability measures for the 2024 October sustainability round

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Contents

Chapter 1: Legal overview

Overview of powers and obligations under the Fisheries Act

1. This chapter provides an assessment of key information as it relates to your decision-making under the Fisheries Act 1996 (**the Act** or **the Fisheries Act**).

Decisions Ministers may make in relation to sustainability reviews

2. Provisions of the Act allow you, as Minister for Oceans and Fisheries, to:

Part 3: Sustainability measures

- Section 11 sets out various matters that you must take into account or have regard to when setting or varying sustainability measures;
- Section 13 enables you to set or vary a TAC for a quota management stock before the start of a fishing year and sets out the requirements and matters you must have regard to in doing so;

Part 4: Quota Management System

- Section 20 enables you to set or vary a TACC for a quota management stock before the start of a fishing year; and
- Section 21 requires that before setting the TACC for any stock, you first make allowances for Māori customary non-commercial fishing interests, recreational interests, and all other mortality to the stock caused by fishing.
- Section 75 enables you to set or vary deemed value rates to provide an incentive for fishers not to exceed the available annual catch entitlement (**ACE**).

3. In making decisions on those matters there are several things you are required to do and take into account. These are outlined below.

Overarching requirements

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

> **5 Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992**
>
> 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.

4. 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.

5. Section 10 of the Settlement Act also requires you to consult and develop policies and programmes to recognise and give effect to 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

6. For information on input and participation of tangata whenua, see '*Consultation – sections 12 and 21 of the Act*' below.

Application of international obligations – section 5(a) of the Act

7. 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**)[1] and the United Nations Convention on Biological Diversity (**Biodiversity Convention**).[2]

8. 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.[3] 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).[4]

9. 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".[5] 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).

The purpose of the Act – section 8 of the Act

8 Purpose

(1) The purpose of this Act is to provide for the utilisation of fisheries resources while ensuring sustainability.

(2) In this Act,—

ensuring sustainability means—

(a) maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and

(b) avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment

utilisation means conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural well-being.

10. 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".[6] 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".[7]

11. 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".[8]

[1] Convention on the Law of the Sea 1833 UNTS 397 (opened for signature 10 December 1982, came into force 16 November 1994).
[2] Convention on Biological Diversity 1760 UNTS 79 (opened for signature 5 June 1992, came into force 29 December 1993).
[3] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [25].
[4] As stated in *Environmental Law Initiative v Minister for Oceans and Fisheries* [2022] NZHC 2969 at [16].
[5] Convention on Biological Diversity 1760 UNTS 79 (opened for signature 5 June 1992, came into force 29 December 1993), art 1.
[6] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [39].
[7] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [39].
[8] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [59].

Environmental principles - section 9 of the Act

9 Environmental principles

All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following environmental principles:

(a) associated or dependent species should be maintained above a level that ensures their long-term viability:
(b) biological diversity of the aquatic environment should be maintained:
(c) habitat of particular significance for fisheries management should be protected.

12. '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.

13. 'Habitat of particular significance for fisheries management' is not defined in the Act. In 2022, FNZ 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 of the habitat in providing for the fisheries resource and ecosystem. Work is underway to finalise this guidance.

14. In our advice to you, we have taken section 9(c) into account using the best available information (based on peer-reviewed, published sources) indicating potential habitats of particular significance for fisheries management. In doing so we have prioritised nursery, spawning, or egg laying areas using an area-based assessment of all potential habitats of particular significance for fisheries management in the quota management area (**QMA**) for the reviewed fishery considering the interaction with the fishery under review. This assessment considers the interaction for all TAC options for the fishery under review, including assessment of options in which there is no TAC change. Where FNZ has identified a potential risk of an adverse effect, we have included a noting recommendation that this will be further assessed to determine whether it is an adverse effect. The exception is SNA 8 where these potential risks were discussed in the consultation document and further work is proposed in the decision document to consider options to avoid, remedy or mitigate adverse effects on potential habitat of particular significance.

Information principles: Uncertainties and unknowns - section 10 of the Act

10 Information principles

All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following information principles:

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

15. 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."

Consultation – sections 12 and 21 of the Act

Section 12 of the Act

> **12 Consultation**
>
> (1) Before doing anything under any of sections 11(1), 11(4), 11A(1), 13(1), 13(4), 13(7) , 14(1), 14(3), 14(6), 14B(1), 15(1), and 15(2) or recommending the making of an Order in Council under section 13(9) or section 14(8) or section 14A(1), the Minister shall—
>
> (a) consult with such persons or organisations as the Minister considers are representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Maori, environmental, commercial, and recreational interests; and
>
> (b) provide for the input and participation of tangata whenua having—
>
> (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.

16. Before making a decision on sustainability measures, you must consult with people or organisations you consider represent those classes of people who have 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. After making decisions, you must provide the reasons for your decisions to the people consulted.

Input and participation of tangata whenua

17. Before undertaking any sustainability process you must 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.

18. Input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established for that purpose. 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.[9]

19. 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.

Kaitiakitanga

20. In considering the views of tangata whenua, you are required to have particular regard to kaitiakitanga.[10] 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.

21. As noted above, 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.

22. The Court of Appeal discussed the distinction between "have regard" and "have particular regard" in the Kahawai 1 case and stated:[11]

> *One would expect that the term "particular regard" has a meaning that involves a greater obligation on the decision-maker than the requirement to have "regard" to a consideration. Parliament must have intended that the former imported a more onerous obligation than the latter.*

[9] 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.

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

[11] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [99].

23. And that:[12]

> *[W]here the decision-maker is required to have particular regard to a number of factors of varying relevance, which are expressed as general purposes rather than specific criteria, the decision-maker must be permitted to discount those which are not relevant and give varying weight to those that are. In those circumstances, the requirement to have particular regard requires the decision-maker to satisfy himself or herself that the decision meets those of the purposes which are of most relevance, to the extent that that can be achieved in harmony with other relevant considerations applying to the decision.*

24. Input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established for that purpose.

25. 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.[13]

26. 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.

27. 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.[14] 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.

28. 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.

Section 21 of the Act

21 Matters to be taken into account in setting or varying any total allowable commercial catch

(1) In setting or varying any total allowable commercial catch for any quota management stock, the Minister shall have regard to the total allowable catch for that stock and shall allow for—
  (a) the following non-commercial fishing interests in that stock, namely—
    (i) Māori customary non-commercial fishing interests; and
    (ii) recreational interests; and
  (b) all other mortality to that stock caused by fishing.

(2) Before setting or varying a total allowable commercial catch for any quota management stock, the Minister shall consult such persons and organisations as the Minister considers are representative of those classes of persons having an interest in this section, including Māori, environmental, commercial, and recreational interests.

(3) After setting or varying any total allowable commercial catch under section 20, the Minister shall, as soon as practicable, give to the parties consulted under subsection (2) reasons in writing for his or her decision.

(4) When allowing for Māori customary non-commercial interests under subsection (1), the Minister must take into account—
  (a) any mataitai reserve in the relevant quota management area that is declared by the Minister 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 the relevant quota management area that is imposed by the Minister by notice in the Gazette made under section 186A.

(5) When allowing for recreational interests under subsection (1), the Minister shall take into account any regulations that prohibit or restrict fishing in any area for which regulations have been made following a recommendation made by the Minister under section 311.

29. When setting the TACC you must make allowances for Māori customary non-commercial fishing interests, recreational interests, and all other mortality to the stock caused by fishing. Before setting the TACC, you must consult with people and organisations that you consider are representative of those classes of people having an interest in the TACC, including Māori, environmental, commercial, and

[12] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [99].

[13] 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.

[14] Note that some Iwi Fisheries Forums are still developing and/or do not meet regularly.

recreational interests. After making decisions, you must give those consulted the reasons for his or her decisions.

30. The Courts have considered what is involved in making allowances for non-commercial interests. In *Snapper 1*[15] the Court of Appeal said that the recreational allowance is simply the best estimate of what recreational fishers will catch while subject to the controls you decide to impose, such as daily limits and minimum sizes. Having set the TAC, you may apportion it among the relevant interests.[16]

31. The Supreme Court in *Kahawai*[17] endorsed this approach and said that the words 'allow for' require you both to take into account the interests and make provision for them in the calculation of the TACC.[18] The Court further noted that:[19]

> *The sequential nature of the method of allocation provided for in s 21 does not indicate that non-commercial fishing interests are to be given any substantive priority over commercial interests. In particular, the allowance for recreational interests is to be made keeping commercial interests in mind.*

32. Under the customary fishing regulations,[20] customary take is regulated through the authorisation system which requires that all customary fishing is to be undertaken in accordance with tikanga and the overall sustainability of the fishery. This framework was put in place to give effect to legal obligations in the Settlement Act.[21]

33. When allowing for Māori customary non-commercial fishing interests, you must take into account any mātaitai reserves, area closures or fishing method restrictions or prohibitions in the relevant area. The mātaitai reserves and other customary management tools relevant to each review are set out within their respective consultation documents.

34. When allowing for recreational interests you must take into account any regulations that prohibit or restrict fishing under section 311 of the Act.

Judicial guidance on allocation decisions under section 21

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

36. 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.[22] 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.[23] That does not, however, mandate any particular outcome.[24]

37. Importantly, the Act does not confer priority for any interest over the other[25] and does not limit the relative weight which you may give to the interests of competing sectors.[26] It leaves that judgement to you.

38. 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.[27] The requirement to "allow for" the recreational interest can be construed as meaning to "allow for in whole or part".[28] The Supreme Court stated that the Act envisages that the

[15] *New Zealand Fishing Industry Association Inc v Minister of Fisheries* CA 82/97, 22 July 1997 (Snapper 1).
[16] At [17].
[17] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54, [2009] 3 NZLR 438 (Kahawai)
[18] At [55].
[19] At [61].
[20] Fisheries (South Island Customary Fishing) Regulations 1999 and the Fisheries (Kaimoana Customary Fishing) Regulations 1998
[21] Where the customary regulations don't apply customary fishing is regulated under regulations 50-52 of the Fisheries (Amateur Fishing) Regulations 2013 and a similar authorisation system applies.
[22] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [53].
[23] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [55].
[24] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [57].
[25] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [65].
[26] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [61].
[27] *Roach v Kidd* HC Wellington CP715/91, 12 October 1992 at 16 per McGechan J.
[28] *New Zealand Federation of Commercial Fishermen Inc v Minister of Fisheries* HC Wellington CP237/95, 24 April 1997 at 150 per McGechan J.

allowance for recreational interest, as well as Māori customary fishing interests and the TACC, will be a reasonable one in all the circumstances.[29]

39. 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.[30] The consideration of the wellbeing factor (as expressed in section 8 of the Act) requires a balance of competing interests, especially in the case of a shared fishery.[31]

40. In terms of recreational interests, the Supreme Court stated that: [32]

> *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.*

41. 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.[33] Further, the Court of Appeal said: [34]

> *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.*

42. The High Court said earlier in that case: [35]

> *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.*

43. 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: [36]

> *[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.*

44. 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.[37]

45. 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: [38]

> *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*

[29] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [65].
[30] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [53].
[31] *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160 at [61].
[32] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [56].
[33] *New Zealand Fishing Industry Association Inc v Minister of Fisheries* CA82/97, 22 July 1997 at 18.
[34] *New Zealand Fishing Industry Association Inc v Minister of Fisheries* CA82/97, 22 July 1997 at 17-18.
[35] *New Zealand Federation of Commercial Fishermen Inc v Minister of Fisheries* HC Wellington CP237/95, 24 April 1997 at 89 per McGechan J.
[36] *New Zealand Federation of Commercial Fishermen Inc v Minister of Fisheries* HC Wellington CP237/95, 24 April 1997 at 102 per McGechan J.
[37] *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.
[38] *New Zealand Fishing Industry Association Inc v Minister of Fisheries* CA82/97, 22 July 1997 at 20-21.

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.

46. 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.

Statutory considerations relevant to TAC and TACC decisions

47. Below is a summary of your main statutory considerations for varying sustainability measures under the Act. The stock-specific details relating to these considerations have been set out later within the individual stock chapters of this document.

Sustainability measures – section 11 of the Act

11 Sustainability measures

(1) The Minister may, from time to time, set or vary any sustainability measure for 1 or more stocks or areas, after taking into account—

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

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

(c) the natural variability of the stock concerned.

(2) Before setting or varying any sustainability measure under subsection (1), the Minister shall have regard to any provisions of—

(a) any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991; and

(b) any management strategy or management plan under the Conservation Act 1987; and

(c) sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 (for the Hauraki Gulf as defined in that Act); and

(ca) regulations made under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012; and

(d) a planning document lodged with the Minister of Fisheries by a customary marine title group under section 91 of the Marine and Coastal Area (Takutai Moana) Act 2011—

that apply to the coastal marine area and are considered by the Minister to be relevant.

(2A) Before setting or varying any sustainability measure under this Part or making any decision or recommendation under this Act to regulate or control fishing, the Minister must take into account—

(a) any conservation services or fisheries services; and

(b) any relevant fisheries plan approved under this Part; and

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

(3) Without limiting the generality of subsection (1), sustainability measures may relate to—

(a) the catch limit (including a commercial catch limit) for any stock or, in the case of a quota management stock that is subject to section 13 or section 14, any total allowable catch for that stock:

(b) the size, sex, or biological state of any fish, aquatic life, or seaweed of any stock that may be taken:

(c) the areas from which any fish, aquatic life, or seaweed of any stock may be taken:

(d) the fishing methods by which any fish, aquatic life, or seaweed of any stock may be taken or that may be used in any area:

(e) the fishing season for any stock, area, fishing method, or fishing vessels.

Fisheries Plans – section 11A of the Act

11A Fisheries plans

(1) The Minister may from time to time approve, amend, or revoke a fisheries plan.

(2) A fisheries plan approved under subsection (1) may relate to 1 or more stocks, fishing years, or areas, or any combination of those things.

(3) Without limiting anything in subsection (2), a fisheries plan may include—

(a) fisheries management objectives to support the purpose and principles of the Act:

(b) strategies to achieve fisheries management objectives, which may include—

(i) sustainability measures set or varied under any of sections 11, 13, 14, and 15:

(ii) rules to manage the interaction between different fisheries sectors:

(c) performance criteria to measure the achievement of the objectives and strategies:

(d) conservation services or fisheries services:

(e) contingency strategies to deal with foreseeable variations in circumstances.

48. Under section 11A, you may approve or revoke fisheries plans. 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).

49. Other plans and strategies that are not mandatory considerations under section 11 of the Act may be considered relevant to sustainability reviews.

50. **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.

51. **Outputs** means the **goods** and services that are produced by a department, Crown entity, Office of Parliament, or any other person or body.

52. **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

The Hauraki Gulf Marine Park Act 2000

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

7 Recognition of national significance of the Hauraki Gulf

(1) The interrelationship between the Hauraki Gulf, its islands, and catchments and the ability of that interrelationship to sustain the life-supporting capacity of the environment of the Hauraki Gulf and its islands are matters of national significance.

(2) The life-supporting capacity of the environment of the Gulf and its islands includes the capacity—

a. to provide for—

(i) the historic, traditional, cultural, and spiritual relationship of the tangata whenua of the Gulf with the Gulf and its islands; and

(ii) the social, economic, recreational, and cultural well-being of people and communities:

b. to use the resources of the Gulf by the people and communities of the Gulf and New Zealand for economic activities and recreation:

c. to maintain the soil, air, water, and ecosystems of the Gulf.

54. Section 7 of the HGMPA recognises the national significance of the Hauraki Gulf. Section 8 sets out objectives for management of the Gulf. The HGMPA is discussed in individual stock/stock grouping chapters where this is relevant.

> **8 Management of the Hauraki Gulf**
>
> To recognise the national significance of the Hauraki Gulf, its islands, and catchments, the objectives of the management of the Hauraki Gulf, its islands, and catchments are—
>
> a. the protection and, where appropriate, the enhancement of the life-supporting capacity of the environment of the Hauraki Gulf, its islands, and catchments:
>
> b. the protection and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments:
>
> c. the protection and, where appropriate, the enhancement of those natural, historic, and physical resources (including kaimoana) of the Hauraki Gulf, its islands, and catchments with which tangata whenua have an historic, traditional, cultural, and spiritual relationship:
>
> d. the protection of the cultural and historic associations of people and communities in and around the Hauraki Gulf with its natural, historic, and physical resources:
>
> e. the maintenance and, where appropriate, the enhancement of the contribution of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments to the social and economic well-being of the people and communities of the Hauraki Gulf and New Zealand:
>
> f. the maintenance and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments, which contribute to the recreation and enjoyment of the Hauraki Gulf for the people and communities of the Hauraki Gulf and New Zealand.

55. Section 13 of the HGMPA requires that decisions under various acts, including the Fisheries Act, that affect the Hauraki Gulf must have particular regard to sections 7 and 8 of the HGMPA. This applies to the setting or varying of TACCs and deemed values.

> **13 Obligation to have particular regard to sections 7 and 8**
>
> Except as provided in sections 9 to 12, in order to achieve the purpose of this Act, all persons exercising powers or carrying out functions for the Hauraki Gulf under any Act specified in Schedule 1 must, in addition to any other requirement specified in those Acts for the exercise of that power or the carrying out of that function, have particular regard to the provisions of sections 7 and 8.

Relevant strategies and plans

56. Within each stock/stock grouping chapter 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).

57. 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.[39] 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:

58. **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.

[39] 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.

59. **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.

60. 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 stock/stock grouping chapters contain information on potential biodiversity impacts, ecosystem function and habitat protection associated with adjustments to sustainability measures, consistent with your legislative obligations and the intent of Te Mana o te Taiao.

Total allowable catch – section 13 of the Act

The TAC and allocations within it

61. The TAC sets the total quantity of a stock that can be harvested each year. The TAC is set to ensure that stock abundance is at or above the level that will produce the maximum sustainable yield (***MSY***). In cases where stock abundance is below the level that will produce *MSY*, the TAC is varied in a way that will help move abundance back toward *MSY*. After setting or varying the TAC for a stock, a separate decision arises for allocating the TAC. This involves deciding what portion of the TAC is available for Māori customary non-commercial fishing interests, recreational interests, all other mortality to the stock caused by fishing,[40] and commercial fishing (the TACC).

Figure 1: The Total Allowable Catch and components within it.

62. You have considerable discretion in determining the allocation between sector interests (there is no legal priority given to one sector over the other), provided you have considered the relevant factors.

[40] The allowance for all other sources of mortality to a stock caused by fishing is intended to capture matters such as illegal take, discards, and incidental mortality from fishing gear. This allowance can be difficult to estimate and typically varies depending on the likely level of illegal take and predominant fishing methods used.

13 Total allowable catch

(1) Subject to this section, the Minister shall, by notice in the Gazette, set in respect of the quota management area relating to each quota management stock a total allowable catch for that stock, and that total allowable catch shall continue to apply in each fishing year for that stock unless varied under this section, or until an alteration of the quota management area for that stock takes effect in accordance with sections 25 and 26.

(2) The Minister shall set a total allowable catch that—

(a) maintains the stock at or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks; or

(b) enables the level of any stock whose current level is below that which can produce the maximum sustainable yield to be altered—

(i) in a way and at a rate that will result in the stock being restored to or above a level that can produce the maximum sustainable yield, 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 any environmental conditions affecting the stock; or

(c) enables the level of any stock whose current level is above that which can produce the maximum sustainable yield to be altered in a way and at a rate that will result in the stock moving towards or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks.

(2A) For the purposes of setting a total allowable catch under this section, if the Minister considers that the current level of the stock or the level of the stock that can produce the maximum sustainable yield is not able to be estimated reliably using the best available information, the Minister 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.

(3) In considering the way in which and rate at which a stock is moved towards or above a level that can produce maximum sustainable yield under subsection (2)(b) or (c), or (2A) (if applicable), the Minister shall have regard to such social, cultural, and economic factors as he or she considers relevant.

(4) The Minister may from time to time, by notice in the Gazette, vary any total allowable catch set for any quota management stock under this section by increasing or reducing the total allowable catch. When considering any variation, the Minister is to have regard to the matters specified in subsections (2), (2A) (if applicable), and (3).

(5) Without limiting subsection (1) or subsection (4), the Minister may set or vary any total allowable catch at, or to, zero.

(6) Except as provided in subsection (7), every setting or variation of a total allowable catch shall have effect on and from the first day of the next fishing year for the stock concerned.

63. If you consider that stock levels (being the current level of the stock, or the level which can produce the *MSY*) cannot be estimated reliably using the best available information, you must not use the absence of or uncertainty in that information as a reason for postponing or failing to set a TAC. You must set a TAC for the stock using the best available information and 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*. In doing so you must have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock.

64. When moving a stock towards or above a level that can produce the maximum sustainable yield under subsection (2)(b) or (c), or (2A), you must have regard to any social, cultural, and economic factors you consider relevant when considering the way and rate at which a stock is moved towards or above a level that can produce the maximum sustainable yield. This is relevant to your decision making for orange roughy (ORH 7A), blue cod (BCO 5), and John dory (JDO 2) in this round. FNZ has reflected this within our advice to you on these stocks in chapters 4, 5, and 11.

65. Section 13 also provides information about when you can vary any TAC, that decisions must be notified in the *Gazette*, and about when decisions come into force.

Maximum sustainable yield

66. As noted above, section 13 of the Act requires you to set a stock's TAC at a level that maintains the stock at or above a level that can produce the maximum sustainable yield (***MSY***).

67. *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'. A number of factors 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.

68. 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.

69. 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 (which is often an assessment of trends in catch) and are considered to be not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce *MSY* as provided for by section 13(2A) of the Act.

The Harvest Strategy Standard

70. 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.

71. 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).

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

73. The Court of Appeal has held[41] that the HSS is a mandatory relevant consideration that you must have regard to when setting a TAC under section 13 of the Act. In addition, the Court concluded that the HSS is the "best available information" in terms of section 10(a) of the Act in relation to acceptable default probability levels for rebuilding stocks (as well as for other matters relevant to the interpretation of section 13).

74. 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 (set out in Table 1).

Table 1: 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)[42] 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}[43] or 20% B_0, whichever is higher	A formal, time-constrained rebuilding plan will be implemented if this limit is reached.

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

[42] B_0, the level of unfished (virgin) biomass of a fish stock, is the theoretical carrying capacity of recruited or vulnerable biomass. It represents the level of biomass a fish population would eventually return to if fishing was halted.

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

Reference point	Default	Management response
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.[44] T_{min} is the number of years to rebuild a stock to the target, in the absence of fishing.

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

75. In cases where a fish stock's status is known in relation to its management target and/or hard or soft limit,[45] 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.[46] Table 2 below provides a summary of the category descriptions and their associated probabilities.

Table 2: 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 %

76. 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.

77. 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.

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

[44] 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%.

[45] 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.

[46] 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.

Judicial guidance on section 13 of the Act - East Coast Tarakihi decisions

79. A case relating to East Coast tarakihi has provided direction on which matters you must, and must not, consider when deciding to set or vary a stock's TAC. The Court of Appeal found[47] that:

- When setting the TAC under section 13(2)(b), you must determine the "period appropriate to the stock" based solely on scientific information relating to the biological characteristics of the stock and any environmental conditions affecting the stock, and separately from the way and rate of the rebuild.
- The social, cultural, and economic factors are relevant only to the way and rate of the rebuild.
- The Harvest Strategy Standard and associated Operational Guidelines advice on probability for achieving a rebuild is a mandatory relevant consideration in setting the TAC.
- Steps taken by the industry (such as industry rebuild plans) 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 appropriate to the stock.

80. The East Coast tarakihi case relates specifically to the application of section 13(2)(b) which pertains to the rebuild of any stock whose current level is below that which can produce the maximum sustainable yield (***MSY***). Section 13(2)(b) of the Act does not apply to your decision making for any fish stocks in this sustainability round, so you are not required to determine the 'period appropriate to the stock' for any stock under review.

81. In relation to the relevance of the Harvest Strategy Standard, FNZ has provided an overview above in '*Harvest Strategy Standard*', and more specific advice on its relevance is included within the individual advice chapters for each stock.

Alternative TAC for stocks specified in Schedule 3 – section 14 of the Act

82. For stocks listed in Schedule 3 of the Act, you may set a TAC otherwise than in accordance with section 13 if you consider that the purpose of the Act would be better achieved by doing so.

83. Schedule 3 identifies stocks that:

(i) have biological characteristics that make it impossible to estimate maximum sustainable yield;

(ii) have had a national allocation for New Zealand determined as part of an international agreement;

(iii) are managed on a rotational or enhanced basis, or

(iv) comprise one or more highly migratory species.

84. There are no stocks being reviewed in this sustainability round that are listed in Schedule 3 of the Act.

Setting and variation of the total allowable commercial catch (TACC) – section 20 of the Act

20 Setting and variation of total allowable commercial catch

(1) Subject to this section, the Minister shall, by notice in the Gazette, set in respect of the quota management area relating to each quota management stock a total allowable commercial catch for that stock, and that total allowable commercial catch shall continue to apply in each fishing year for that stock unless varied under this section, or until an alteration of the quota management area for that stock takes effect in accordance with sections 25 and 26.

(2) The Minister may from time to time, by notice in the Gazette, vary any total allowable commercial catch set for any quota management stock by increasing or reducing that total allowable commercial catch.

(3) Without limiting the generality of subsections (1) and (2), the Minister may set or vary a total allowable commercial catch at, or to, zero.

(4) Every total allowable commercial catch set or varied under this section shall have effect on and from the first day of the next fishing year for the quota management stock concerned.

(5) A total allowable commercial catch for any quota management stock shall not—

(a) be set unless the total allowable catch for that stock has been set under section 13 or section 14; or

(b) be greater than the total allowable catch set for that stock.

85. Once the TAC is set for a stock, you must set the Total Allowable Commercial Catch (**TACC**) for the stock. The TACC cannot be larger than the TAC for a stock.

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

The effect of increases in Total Allowable Commercial Catch – section 23 of the Act

86. Section 23 sets out the actions and calculations that must be implemented in the event the TACC of any stock that has preferential allocation rights associated with it is increased. Preferential allocation rights are sometimes referred to as "28N rights". In the 2024 October sustainability round, the only fish stock with associated 28N rights is SNA 8 (west coast North Island snapper). Information on preferential allocation rights for SNA 8 has been included within our advice to you on this stock.

Statutory considerations relevant to deemed value rate decisions

Deemed value framework

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

88. On the first day of each fishing year,[48] all quota owners are allocated ACE, based on their share of quota and the current Total Allowable Commercial Catch (**TACC**). ACE may be freely traded between fishers to balance against catch. Under the catch balancing regime, deemed values are charges that commercial fishers must pay for every unprocessed kilogram of QMS fish landed in excess of their ACE holdings ($/kg).

89. The purpose of the deemed values regime is to provide incentives for individual fishers to acquire or maintain sufficient ACE to cover catch taken over the course of the year while allowing flexibility in the timing of balancing, promoting efficiency, and encouraging accurate catch reporting. By achieving this purpose, deemed values act to protect the long-term value of stocks and support kaitiakitanga[49] by providing incentives for the overall commercial catch for each QMS stock to remain within the total available ACE.

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

Minister to set deemed value rates – section 75 of the Act

75 Minister to set deemed value rates

(1) For each quota management stock, the Minister must, by notice in the Gazette, set an interim deemed value rate and an annual deemed value rate for that stock, and those rates continue to apply in each fishing year for that stock unless varied under this section.

(2) In setting an interim deemed value rate or an annual deemed value rate, the Minister—

(a) must take into account the need to provide an incentive for every commercial fisher to acquire or maintain sufficient annual catch entitlement in respect of each fishing year that is not less than the total catch of that stock taken by that commercial fisher; and

(b) may have regard to—

(i) the desirability of commercial fishers landing catch for which they do not have annual catch entitlement; and

(ii) the market value of the annual catch entitlement for the stock; and

(iii) the market value of the stock; and

(iv) the economic benefits obtained by the most efficient commercial fisher, licensed fish receiver, retailer, or any other person from the taking, processing, or sale of the fish, aquatic life, or seaweed, or of any other fish, aquatic life, or seaweed that is commonly taken in association with the fish, aquatic life, or seaweed; and

(v) the extent to which catch of that stock has exceeded or is likely to exceed the total allowable commercial catch for the stock in any year; and

(vi) any other matters that the Minister considers relevant.

[48] Depending on the stock, fishing years commence 1 October, 1 April, and 1 February.

[49] 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.

75A Requirement to consult in relation to deemed values

Before setting any interim deemed value rate or annual deemed value rate under section 75, the Minister must, if practicable, consult persons or organisations that the Minister considers represent classes of persons who have an interest in the stock, including Māori, recreational, commercial, and environmental interests.

91. The chapter for deemed value rate reviews sets out how FNZ's recommendations are consistent with your mandatory statutory consideration under section 75(2)(a).

92. As a measure of the market value of a stock's ACE, FNZ uses an annual ACE price value that is calculated by FishServe using information supplied as part of registering ACE transfers.

93. As a measure of a stock's market value, FNZ uses port prices. These are calculated annually via a survey of that collects information on the average price paid by licenced fish receivers to independent fishers from whom they receive fish.

Deemed Value Guidelines

94. The Deemed Value Guidelines April 2020 (**Deemed Value Guidelines**) set out the operational policy that Fisheries New Zealand will use to inform the development of proposals on the setting/adjusting of deemed value rates. The 2020 version of the Guidelines was developed as part of the deemed values review and supersedes the previous (2012) version.

95. In summary, the Deemed Value Guidelines set out six statements used to inform the setting of deemed value rates:

a) Deemed value rates should incentivise fishers to balance catch against annual catch entitlement;
b) Deemed value rates should incentivise accurate catch reporting;
c) Differential deemed values may be set;
d) Other relevant matters may be considered when setting deemed value rates;
e) The interim deemed value rates of all stocks should be set at 90% of the annual rate; and
f) The deemed value rates for Chatham Island landings may be lower. [50]

96. The Deemed Value Guidelines are not intended to be overly prescriptive and should provide for flexibility in the deemed value rate settings of individual stocks to meet the sustainability and utilisation objectives of the Act. They serve only as a guide and do not preclude you from taking into account relevant information on a case-by-case basis. As such, the deemed value rates of some stocks may depart from the Guidelines, if appropriate.

Types of deemed value rate

97. The deemed values regime does not create a standard deemed value rate, but a set of rates that apply under different circumstances:

- **Interim deemed value rates** are invoiced each month for every kilogram of unprocessed fish landed in excess of ACE. If the fisher subsequently sources ACE to cover their catch, the interim deemed value payments are remitted. All interim deemed value rates are currently set at 90% of the basic annual deemed value rate in line with the recommendations in FNZ's Deemed Value Guidelines. Permits are suspended if deemed value debt remains above $1,000 to incentivise fishers to cover deemed value invoices promptly, rather than delay balancing.
- **Annual deemed value rates** are invoiced at the end of the fishing year on all catch in excess of ACE. If the fisher has not sourced ACE by the end of the fishing year, the difference between the interim and annual deemed value rates is invoiced for all catch in excess of ACE.
- **Differential deemed value rates** (also known as ramping) are the progressively- increased annual deemed value rates that apply to some stocks as the percentage by which a fisher's catch in excess of ACE also increases. The standard approach, which is set out in the Deemed Value Guidelines, is to increase the annual rate in 20% increments, up to a maximum of 200% of the annual deemed value rate. However, more or less stringent schedules may be applied depending on the specific circumstances of the stock.[51] Differential rates provide fishers with a stronger incentive to remain

[50] The price for fish landed in the Chatham Islands is generally lower than the price for the same species landed elsewhere because of the higher cost of transporting fish to markets. Therefore, there may be reasons to set different deemed value rates for the Chatham Islands.

[51] For vulnerable or rebuilding stocks, or those taken with a high degree of selectivity, a more stringent differential schedule may be appropriate. Likewise, less stringent differential schedules may be more appropriate for low value, low TACC stocks where targeted fishing does not occur.

within their ACE holding and reflect the increasingly detrimental impact of higher levels of over-catch on sustainability and the long-term value of the resource.

Review of the deemed values regime

98. A multi-stakeholder review of the operation of the deemed values regime was conducted during 2019. The outcome of the review was a series of recommendations on how the operation of the deemed values regime could be improved. These recommendations were subsequently accepted by FNZ and have been used to develop options for deemed value rate reviews.

Chapter 2: Review of deemed value rates for silver warehou (SWA 3 & SWA 4)

Part 1: Overview

Background

99. Deemed values are charges that commercial fishers must pay for every kilogram of fish[52] landed in excess of their Annual Catch Entitlement (**ACE**) holdings ($/kg).[53] Deemed value rates are set by the Minister for Oceans and Fisheries, by *Gazette* Notice, under section 75 of the Fisheries Act 1996 (**the Act**). By providing incentives for commercial catch to not exceed the available ACE, deemed values are a key component of the catch balancing regime.

100. Commercial catch of many fish stocks can be hard to accurately predict. The deemed values regime must therefore be sufficiently flexible to provide fishers with a mechanism to deal with unintended and accidental catch in excess of ACE, whilst providing incentives and constraint to limit over-catch.

101. Deemed value rates are grouped into three types:

- Interim rates: the rate charged during the year, which is remitted if ACE is obtained;
- Annual rates: the base rate charged at the end of the fishing year for catch in excess of ACE; and
- Differential rates: increased annual rates for higher levels of excess catch (also known as ramping).[54]

102. The setting of deemed value rates and differential schedules is guided by Fisheries New Zealand's (**FNZ**'s) Deemed Value Guidelines. The Guidelines are an operational policy statement used by FNZ to guide the development of advice to the Minister on the setting of deemed value rates, consistent with the Minister's statutory requirements under section 75 of the Act.

103. In consideration of the particular circumstances relevant to each stock, the Minister has discretion on what level to set the interim and annual rates at, and what differential schedule to apply.

104. Two fish stocks have been prioritised for standalone deemed value rate reviews for the upcoming fishing year starting on 1 October 2024: silver warehou in SWA 3 and SWA 4.

105. The stocks identified for deemed value rate review were primarily informed through the Catch Balancing Review Process. The purpose of the Catch Balancing Review Process is to identify those stocks where catch balancing issues are of concern, and to provide options for management responses based on the potential causes of the over catch/economic changes in the fishery and stock specific considerations. The Catch Balancing Review Process was developed during the 2019 review of the deemed values regime.

106. The Commercial Catch Balancing Forum comprises industry representatives, Te Ohu Kaimoana, and FNZ officials. It meets annually as part of the Catch Balancing Review Process. The purpose of the Forum is to discuss stocks where catch balancing issues are of concern and provide information and input into decision-making on what the appropriate management response may be.

107. Additionally, some submissions received as part of the review of sustainability measures for SWA 4 undertaken earlier in 2024 commented on the quantum of deemed values that had been incurred for both SWA 3 and SWA 4 over time.

108. More information on your statutory considerations relevant to deemed value rate decisions is included in Chapter 1: *Legal overview*.

109. As part of the consultation on the 18 fish stocks being reviewed for catch limit and allowance changes as part of the October 2024 sustainability round, FNZ provided relevant analysis around deemed value rate settings. FNZ presented an opportunity for feedback and comments on the settings for each stock.

[52] Fish being those managed under the Quota Management System.
[53] Annual catch entitlement (ACE) is the right to catch a certain amount of a fish stock during a fishing year.
[54] Refer to Chapter 1: '*Legal overview*' for more information on the different types of deemed value rate.

Silver warehou (SWA 3) - East coast South Island, and **SWA 4** – Southland, Chatham Rise, and Sub-Antarctic

Silver warehou / warehou
Seriolella punctata

Figure 1. Quota management areas (QMAs) for silver warehou with the SWA 3 and SWA 4 QMAs highlighted.

Stock information

110. Silver warehou is an important commercial species. In SWA 3 and SWA 4 it is mostly (95%) taken by the deepwater trawl fleet (vessels greater than 28 metres in overall length).

111. During the last five completed fishing years (2018/19 to 2022/23), around two-thirds of the total estimated catch of silver warehou in SWA 3 and SWA 4 was taken as non-target catch in squid and hoki target tows. Around 20% was targeted. These proportions are consistent between the two QMAs.

112. The SWA 3 QMA encompasses one fishery management area (**FMA**), the south east (coast) (FMA 3). The SWA 4 QMA is a large area comprising three FMAs: FMA 4 (eastern Chatham Rise), FMA 5 (Southland), and FMA 6 (Sub-Antarctic) (Figure 1).

113. Silver warehou in SWA 3 and SWA 4 are considered likely to be the same biological stock. The best available information for the stock is from research undertaken during 2022 and 2023 (Dunn and McGregor, 2023). This is summarised in the May 2024 Fisheries Assessment Plenary (**the Plenary**) and indicates that there was an increase in the biomass of silver warehou across the SWA 3 and SWA 4 QMAs that peaked during the early 2000s.

114. The peak in biomass during the early 2000s was followed by a decline. However, based on various catch per unit effort (**CPUE**) indices, biomass appears to have remained relatively high (compared to the 1990s) between the mid-2000s and the end of the study period (the 2020/21 fishing year). The Chatham Rise trawl survey index, which is independent from CPUE indices derived from fisher-reported data, shows a broadly similar trend over the same time period.

115. The TAC/TACCs of both stocks have been reviewed twice in recent years. The TACC for SWA 3 was increased for the 2020/21 and 2023/24 fishing years, on both occasions by 10%. This resulted in the TACC going from 3,280 to 4,000 tonnes. For SWA 4, the TACC was increased for the 2020/21 fishing year and will increase again for the 2024/25 fishing year. The TACC has gone from 4,090 to 5,175 tonnes.

116. The SWA 3 stock was not prioritised for a further TAC/TACC review as part of the October 2024 sustainability round as no additional stock assessment information has become available since the 2023 review.

Deemed value rate, port price, and ACE price information

117. Information on the port prices, average annual ACE transfer prices, and basic annual deemed value rates for SWA 3 and SWA 4 is shown in Figure 2 below.

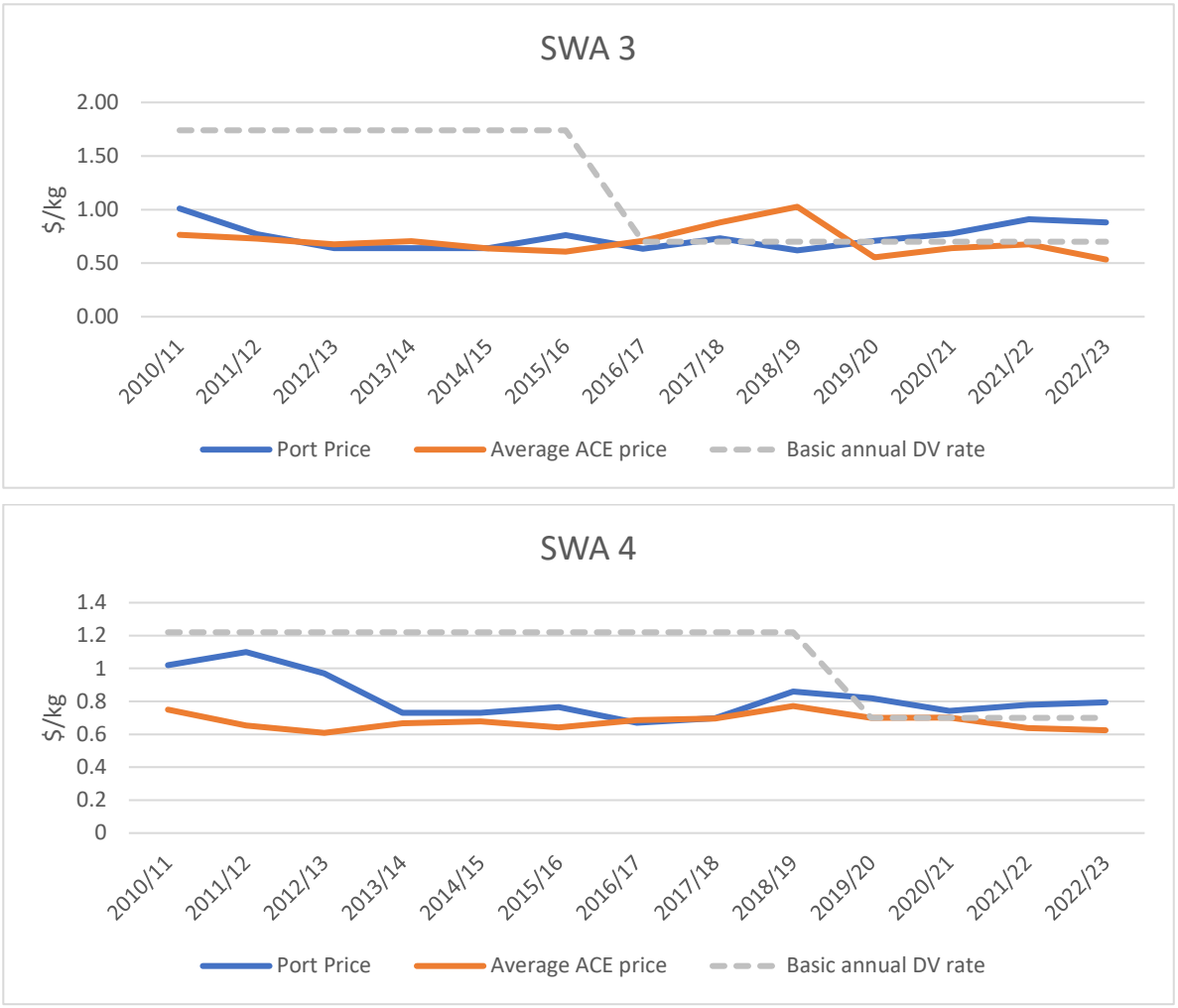


Figure 2: Summary of port price, average annual ACE transfer price, and basic annual deemed value rate information ($/kg) for SWA 3 (top) and SWA 4 (bottom) since 2010/11.

Proposed options

118. The recommended deemed value rates presented in this advice paper are the same as those consulted on.

Table 1: Current and recommended deemed value rates ($/kg) for SWA 3 and SWA 4 from 1 October 2024.

Stocks	Current			
	Interim $/kg	Annual differential rates ($/kg) for excess catch (% of ACE)		
		100-110% (basic)	110-130%	>130%
SWA 3 SWA 4	$0.63	$0.70	**$1.00**	**$2.00**
	Recommended			
	Interim $/kg	Annual differential rates ($/kg) for excess catch (% of ACE)		
		100-150% (basic)	150-200%	>200%
	$0.63	$0.70	$1.00	$1.40

119. These two fish stocks are not subject to catch limit reviews as part of the October 2024 sustainability round.

Rationale

120. Figure 2 indicates that for both SWA 3 and SWA 4, the current basic annual deemed value rate of $0.70/kg sits between port price and average ACE transfer prices in recent years. FNZ is satisfied that this is consistent with the objective of incentivising landing.

121. For the SWA 3 and SWA 4 stocks, around $1.6 million in deemed values has been incurred during the last four completed fishing years (2019/20 to 2022/23), with around 98% of coming from SWA 3.

122. The bulk of this total has resulted from the application of differential deemed value rates i.e., the increased rates that apply to higher levels of excess catch. The differential rates that currently apply to both stocks are shown in bold in Table 1 above.

123. The broad purpose of differential deemed value rates is to reflect the increasingly detrimental impact of over-catch on sustainability and the long-term value of the resource. The deemed value rates for the SWA 3 and 4 stocks were last reviewed in 2019. At that time, it was considered appropriate to maintain a stringent differential schedule (i.e. increased deemed value rates at a relatively low percentage of catch in excess of ACE) to ensure deliberate targeting in excess of ACE did not occur.

124. FNZ now considers, however, that as the majority of silver warehou catch is non-target, the retention of such a stringent differential schedule is not consistent with the objective of incentivising landing. Together with the absence of sustainability concerns, FNZ considers it is appropriate for the current differential deemed value rate increments to be adjusted to be less stringent.

125. The recommended adjustments to the differential rates for SWA 3 and SWA 4 are shown in Table 1. They would come into effect at the start of the 2024/25 fishing year on 1 October 2024.

126. The key aspects of the recommended rates are that:

- The basic annual deemed value rate of $0.70/kg would remain the same but would continue to apply to all catch between 100 and 150% of ACE holdings rather than the current situation where a higher rate applies when catch exceeds 110% of ACE holdings.
- The first of the differential annual deemed value rates would remain at $1.00/kg but would apply to catch between 150 and 200% of ACE holdings rather than between 110-130%.
- The highest deemed value rate would be reduced from $2.00/kg to $1.40/kg. This is twice the basic annual rate, which aligns with the maximum rate that applies to the majority of stocks for which differential deemed value rates are set.

Who will be affected by the proposed changes?

127. As noted earlier, most silver warehou in SWA 3 and SWA 4 is landed by the deepwater trawl fleet (vessels greater than 28m in length). In the last three completed fishing years, 23 vessels landed 99% of SWA 3 and SWA 4 combined.

128. While 22 permit holders incurred deemed values for SWA 3 or SWA 4 during the 2019/20 – 2022/23 fishing years, five permit holders incurred 90% of the total. These are the permit holders whose vessels have taken silver warehou primarily as non-target catch while fishing for hoki or squid.

129. Te Waka a Māui me Ōna Toka and Chatham Islands Fisheries Forums represent iwi with an interest in these two silver warehou stocks. While the latter is not currently meeting, the Chatham Islands Community Fisheries Forum is a vehicle through which input and participation can be undertaken.

Input and participation of tangata whenua

130. FNZ circulated a summary of the stocks proposed for review in this sustainability round (including SWA 3 and SWA 4) to the chairs of the relevant iwi fisheries forums (noted above). FNZ invited feedback from the forums and offered to provide more detailed information for any stocks upon request.

131. No specific feedback was received, and no further information was requested.

Kaitiakitanga

132. 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.

133. Fisheries Plans have been developed for Te Waka a Māui me Ōna Toka, and Rēkohu / Wharekauri (Chatham Islands). Both Plans regard all species as taonga. The recommendations in this paper are consistent with objectives in both Plans regarding sustainable fisheries and commercial fisheries providing for economic wellbeing and prosperity for iwi.

Part 2: Assessment against relevant legal provisions

Overview

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

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

136. Section 75(2)(b) allows you, when setting deemed value rates, to have regard to:

    i) The desirability of commercial fishers landing catch for which they do not have ACE;

    ii) The market value of the stock's ACE;[55]

    iii) The market value of the stock;[56]

    iv) The economic benefits obtained by the most efficient fisher, licensed fish receiver, retailer or any other person from the taking, processing or sale of the fish or any other fish commonly taken in association with the fish;

    v) The extent to which the catch of that stock has exceeded or is likely to exceed the TACC for the stock in any year; and

    vi) Any other matters you consider relevant.

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

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

139. Further, under section 75(6), when setting either interim or annual deemed value rates, you must not:

    i) Have regard to the personal circumstances of any individual or class of person liable to pay the deemed value of any fish, aquatic life, or seaweed; or

    ii) Set separate deemed value rates in individual cases.

140. Under section 75(7), interim or annual deemed value rate settings take effect on the first day of the next fishing year for the stock concerned.[57]

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

142. The options for deemed value rate adjustments proposed within this paper were informed by the above statutory criteria and FNZ's Deemed Value Guidelines (2020).

[55] As a measure of the market value of a stock's ACE, FNZ uses an annual ACE price value that is calculated by FishServe using information supplied as part of registering ACE transfers.

[56] As a measure of a stock's market value, FNZ uses port prices. These are calculated annually via a voluntary survey that collects information on the average price paid by licenced fish receivers to independent fishers from whom they receive fish. 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.

[57] FNZ notes that within the *Regulatory Systems (Primary Industries) Amendment Bill*, which was introduced to the House on 21 May 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 in 2025.

Assessment against statutory criteria

143. FNZ is satisfied that retaining the existing basic annual deemed value rate, together with the recommended adjustments to differential deemed value rates, will continue to provide sufficient incentive for fishers to balance their catch with ACE. This is consistent with your primary obligation under section 75(2)(a) of the Act.

144. FNZ considers the most relevant obligations that you may have regard to under section 75(2)(b) of the Act are:

i) The desirability of commercial fishers landing catch for which they do not have annual catch entitlement (75(b)(i)).

145. It is desirable for catch to be balanced with ACE. However, if the level of catch in excess of the available ACE for SWA 3 or SWA 4 is similar in the future to that seen in recent years, it is unlikely this would result in sustainability concerns for the stock.

ii) The market value of the stock (75(2)(b)(iii)).

146. The basic annual deemed value rate will remain slightly below the port price for both stocks. This is consistent with the approach of setting a deemed value rate that incentivises catch reporting.

iii) The extent to which catch of the stock has exceeded or is likely to exceed the total allowable commercial catch for the stock in any year (75(2)(b)(v)).

147. As noted earlier, while catch has exceeded the TACC (and available ACE) for both stocks several times in recent years, it does not appear to have resulted in sustainability concerns for the stock.

Table 2: Summary of statutory considerations directly relevant to the proposed deemed value rate changes for SWA 3 and SWA 4.

Permissible statutory considerations		Relevant to proposed deemed value rate changes?	
Provision	**Description**	**SWA 3**	**SWA 4**
75(2)(b)(i)	Desirability of commercial fishers landing catch for which they do not have ACE.	✓	✓
75(2)(b)(ii)	Market value of the ACE for the stock.	-	
75(2)(b)(iii)	Market value of the stock.	✓	✓
75(2)(b)(iv)	The economic benefits obtained by the most efficient fisher, licensed fish receiver, retailer, or any other person from the taking, processing or sale of the fish or any other fish commonly taken in association with the fish.	-	-
75(2)(b)(v)	Extent to which catch of that stock has exceeded or is likely to exceed TACC for that stock in any year.	✓	✓
75(2)(b)(vi)	Any other matters considered relevant.	-	-

Part 3: Supporting information

Table 3: Information to support review of deemed value rates for SWA 3 and SWA 4.

Stock	2023/24 TACC (t)	% ACE caught 2022/23[58]	Average ACE price $/kg[59]	2023/24 Port Price $/kg[60]
SWA 3	4,000	122%	$0.53	$0.83
SWA 4	4,500[61]	97%	$0.63	$0.86

Recent catch trends

148. In recent years, catches of both stocks have been close to or above available ACE (refer Figure 3 below). Catch of SWA 3 in particular has exceeded available ACE during each of the last three completed fishing years and is on track to exceed available ACE for the 2023/24 fishing year. Catch of SWA 4 for 2023/24 has already exceeded available ACE.

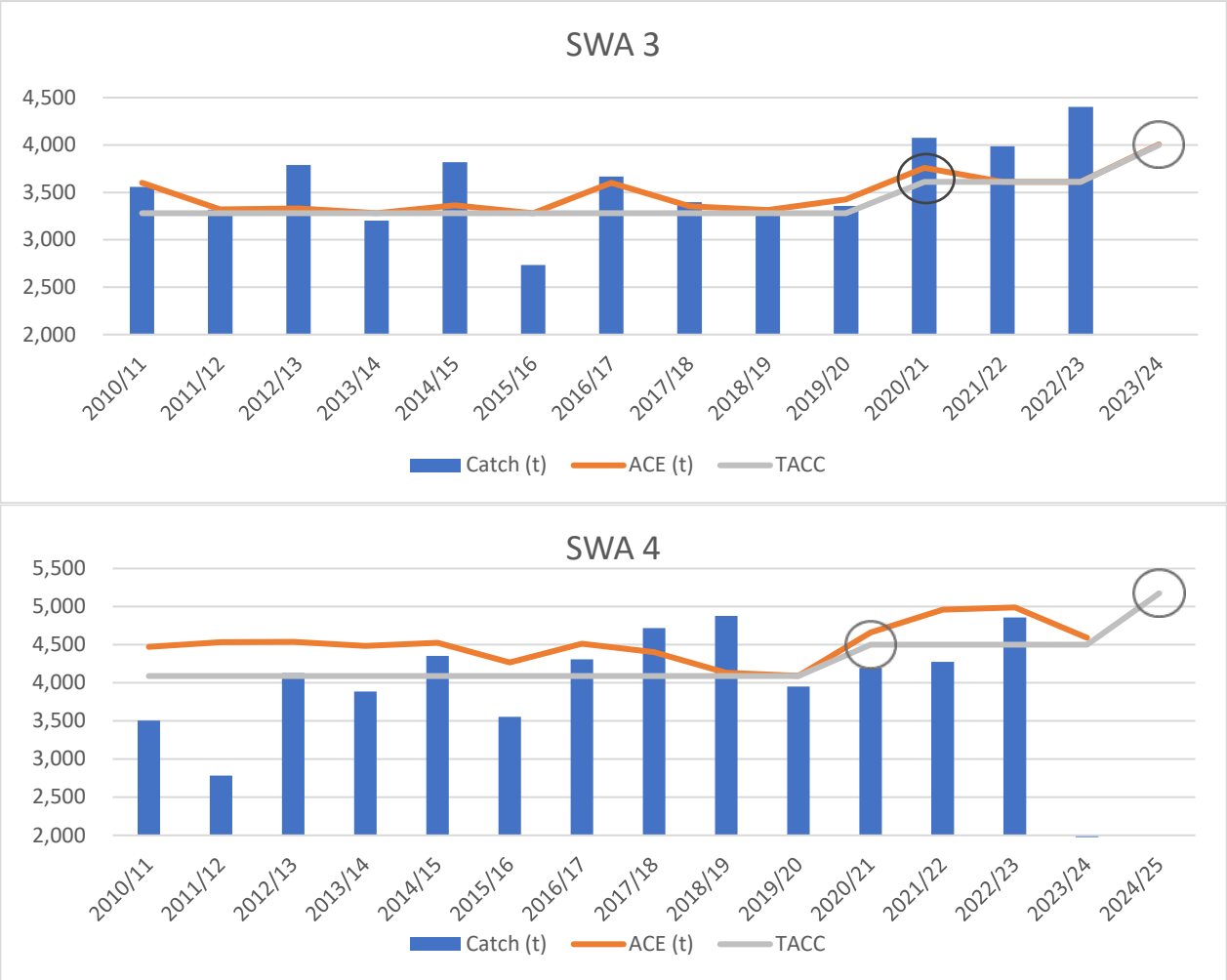


Figure 3: Graphs showing catch, available ACE, and TACCs (in tonnes) for SWA 3 (top) and SWA 4 (bottom) since 2010/11. TACC increases are indicated by the circles.

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

[59] Average price paid per kg of ACE transferred (exc. GST) during the 2022/23 fishing year (as reported by FishServe). Excludes transfers considered unrepresentative of true ACE price.

[60] This is the port price calculated during 2022/23 for use during the 2023/24 financial year.

[61] As part of the April 2024 sustainability round you agreed to set a TACC for SWA 4 of 5,175 tonnes for the 2024/25 fishing year.

Consultation

Consultation in accordance with the Treaty of Waitangi

149. Consultation with Māori is required under section 75A of the Act. Consultation must be conducted in a manner that is consistent with the principles of the Treaty of Waitangi. In line with this, we have tried to provide sufficient information to Māori through public consultation, and engagement with Iwi Fisheries Forums so that the impact of the deemed value proposals on their rights and interests could be understood. We also sought to provide sufficient time to allow for informed responses.

150. The Iwi Fisheries Forums provide platforms for Māori to engage on issues that affect their interests and how they exercise their rights and interests.[62] The setting of deemed value rates can influence what commercial fishers take, and this is of interest to Forums as kaitiaki. As kaitiaki have a responsibility to manage fisheries for both current and future generations consistent with tikanga, this includes an interest in ensuring deemed values do not adversely affect the ability of Māori to fish commercially or sell ACE. This links with the duty of protection under the Principles of the Treaty.

151. SWA 3 and SWA 4 fall within the rohe of Te Waka a Māui me Ōna Toka (South Island) Iwi Fisheries Forum, which includes all nine Iwi of Te Wai Pounamu (South Island), and the Chatham Islands Fisheries Forum.

152. The stocks proposed for deemed value reviews were presented at Iwi Fisheries Forum hui held between May and July 2024. No specific feedback was received relating to the deemed value rate proposals for SWA 3 and SWA 4.

Public consultation

153. FNZ sought feedback on the proposed deemed value rate adjustments during the formal consultation process between 27 June and 1 August 2024.

154. Two submitters provided feedback on the proposed deemed value rate adjustment while one commented on the TACs for the two stocks.

155. Submitters' and respondents' comments on the proposed deemed value rate settings are addressed below. This is followed by a summary of other matters raised during consultation.

Submissions

156. Seafood New Zealand supports the proposed adjustments to deemed value rates for SWA 3 and SWA 4 and state that the adjustments are also supported by quota owners. Seafood New Zealand does not, however, consider a deemed value rate review to be an appropriate substitute for correctly set TACCs. Their submission includes details of the extent of deemed value payments incurred for both stocks over time.

157. Sealord Group also supports the proposed changes but notes that tinkering with deemed value rates is not effective management. In their view, silver warehou becomes a choke species in most years; trying to avoid catching too much silver warehou in the fisheries where it is taken as non-target catch cam impact the efficiency of fishing operations.

Other matters raised during consultation

TAC / TACC

158. While supporting the deemed value rate adjustment, Seafood New Zealand and Sealord Group's preference is for the TAC/TACC for both stocks to be set an appropriate level. Sealord Group requests that FNZ come up with a strategy to economically manage species such as silver warehou in a timely manner. They consider industry is paying too much in deemed values for abundant, unavoidable bycatch, is missing utilisation opportunities, and is not able to prosecute target fisheries optimally.

159. FNZ acknowledges the concerns raised by Seafood New Zealand and Sealord. As well as ongoing monitoring of catches, FNZ is continuing to explore options for further research that may provide more conclusive

[62] Iwi Fisheries Forums may be used as entities to consult iwi with an interest in fisheries. 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 applicable.

information on silver warehou abundance. We note that the option of funding further research is also available to silver warehou quota owners.

160. One individual submitter did not comment on the proposed adjustments to deemed value rates but suggests TACC reductions for both stocks; a 3,500 tonne TACC for SWA 3 and a 4,700 tonne TACC for SWA 4. FNZ did not consult on reviewing the TACC for either stock as part of this consultation round.

Part 4: Conclusions and recommendations

161. FNZ considers the rationale for retaining the existing stringent differential deemed value rate settings is no longer applicable. They were set to deter deliberate targeting in excess of ACE. However, the catch in excess of ACE in recent years has resulted from silver warehou being taken as non-target catch in other fisheries, consistent with a likely increase in abundance.

162. The recommended changes to the deemed value rates for SWA 3 and SWA 4, while remaining consistent with your statutory obligations, represent a pragmatic approach. They will reduce the likelihood of fishers incurring significant deemed value invoices for stocks for which there are no sustainability concerns.

163. The recommended changes are supported by stakeholders.

Decisions

164. FNZ considers that the deemed value rate options below are consistent with your statutory obligations and powers under sections 75(2)(a) and 75(2)(b) of the Act.

Silver warehou (SWA 3)

Option 1 (*FNZ's recommended option*)

Agree to set the interim, annual, and differential deemed values for SWA 3 at the following rates:

Interim $/kg	Annual differential rates ($/kg) for excess catch (% of ACE)		
	100-150% (basic)	150-200%	>200%
$0.63	$0.70	$1.00	$1.40

Agreed / **Agreed as Amended / Not Agreed**

Silver warehou (SWA 4)

Option 1 (*FNZ's recommended option*)

Agree to set the interim, annual, and differential deemed values for SWA 4 at the following rates:

Interim $/kg	Annual differential rates ($/kg) for excess catch (% of ACE)		
	100-150% (basic)	150-200%	>200%
$0.63	$0.70	$1.00	$1.40

Agreed / **Agreed as Amended / Not Agreed**

Hon Shane Jones

Minister for Oceans and Fisheries

16 / 09 / 2024

Chapter 3: Jack mackerel (JMA 7), kingfish (KIN 7 & KIN 8), and pilchard (PIL 7 & PIL 8) – west coasts North and South Islands

Part 1: Overview

Jack mackerel/ hauture
Top: *Trachurus novaezelandiae* (JMN)
Centre: *Trachurus declivis* (JMD)
Bottom: *Trachurus murphyi* (JMM)

Pilchard / mohimohi
Sardinops sagax

Kingfish/ haku
Seriola lalandi

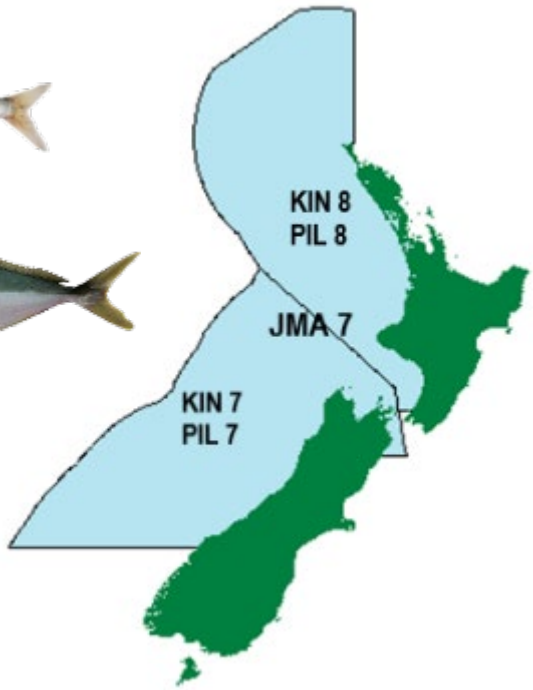


Figure 1: Quota Management Areas (QMAs) for jack mackerel/hauture (JMA), kingfish/haku (KIN), and pilchard/mohimohi (PIL). The KIN 7 and PIL 7 stocks cover the West Coast and top of the South Island, KIN 8 and PIL 8 cover the west coast of the North Island, and JMA 7 encompasses the west coast of both islands.

Rationale for review

165. This chapter reviews sustainability measures for three species or species complexes in their west coast North Island / South Island QMAs for the 1 October 2024 fishing year (Figure 1).

166. Stock assessments that concluded in 2023 indicate there are utilisation opportunities for jack mackerel in JMA 7, and for kingfish in KIN 7 & 8. A review of the TACs for PIL 7 & 8 is also warranted, based on catch data from the period since QMS introduction in 2002.

167. Based on this information, FNZ has consulted on options to increase the TACs of JMA 7, KIN 7 & 8, and PIL 8, and options to reduce the TAC of PIL 7. These five stocks are being reviewed together as the majority of the overall catch is taken by the same fleet of trawl vessels.

168. FNZ is now seeking your decisions to set the TACs for JMA 7, KIN 7, and KIN 8 under section 13(2)(a) of the Fisheries Act 1996 (**the Act**), and your decision to set the TACs for PIL 7 and PIL 8 under section 13(2A) of the Act. Your decisions will take effect from the beginning of the next fishing year on 1 October 2024.

Proposed options and FNZ's recommendations

169. The options in Table 1 differ from those included in the consultation document. For JMA 7, FNZ has updated the *status quo* option (Option 1) to incorporate setting a TAC and allowances for first time. Additionally, all options now include a 5-tonne allowance for Māori customary non-commercial fishing interests. FNZ had proposed this be set at 0 tonnes in the consultation document but changed this proposed setting under all of the options in response to feedback from tangata whenua and submissions.

170. For both KIN 7 and KIN 8, an additional option has been included for a TAC and TACC that is higher than that proposed under Option 3. For PIL 7, FNZ has included an additional option for a TACC that is between the *status quo* and that proposed under Option 2.

171. For PIL 7 and PIL 8, FNZ has updated the *status quo* option (Option 1) to incorporate the allowance for all other sources of mortality to the stock caused by fishing to be set equivalent to 5% of the TACC.

Table 1: Proposed management options (in tonnes) for JMA 7, KIN 7 & KIN 8, and PIL 7 & PIL 8 from 1 October 2024. FNZ's preferred option for each stock is highlighted in orange.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
JMA 7	*Current settings*	*N/A*	*32,536.763*	*N/A*	*N/A*	*N/A*
	Option 1 (*modified status quo*)	32,876.763	32,536.763	5	10	325
	Option 2	34,392	34,037 (↑1,500)	5	10	340
	Option 3	35,907	35,537 (↑3,000)	5	10	355
KIN 7	Option 1 (*Status quo*)	98	44	6	40	8
	Option 2	105 (↑7)	50 (↑ 6)	6	40	9 (↑ 1)
	Option 3	109 (↑11)	54 (↑ 10)	6	40	9 (↑ 1)
	Option 4 (new)	116 (↑18)	60 (↑ 16)	6	40	10 (↑ 2)
KIN 8	Option 1 (*Status quo*)	167	80	19	55	13
	Option 2	179 (↑12)	90 (↑ 10)	19	55	15 (↑ 2)
	Option 3	184 (↑17)	95 (↑ 15)	19	55	15 (↑ 2)
	Option 4 (new)	190 (↑ 23)	100 (↑ 20)	19	55	16 (↑ 3)
PIL 7	*Current settings*	165	150	5	10	0
	Option 1 (*modified status quo*)	173 (↑ 8)	150	5	10	8 (↑ 8)
	Option 2	99 (↓ 66)	80 (↓ 70)	5	10	4 (↑ 4)
	Option 3 (new)	136 (↓ 29)	115 (↓ 35)	5	10	6 (↑ 6)
PIL 8	*Current settings*	80	65	5	10	0
	Option 1 (*modified status quo*)	83 (↑ 3)	65	5	10	3 (↑ 3)
	Option 2	157 (↑77)	135 (↑ 70)	5	10	7 (↑ 7)

172. Twenty submissions commented on at least one of the stocks addressed in this decision document during consultation. Fishing industry submissions supported FNZ's proposals to set a TAC and increase the TACC for JMA 7, and to increase the TAC/TACC for KIN 7 / KIN 8. They also broadly supported reviewing the TAC/TACCs for PIL 7 / 8 but had concerns regarding the reduction proposed for PIL 7.

173. In contrast, submissions from the recreational sector and individuals did not support increasing the TAC/TACC for JMA 7 and KIN 7 / 8, and several sought a reduction in the TAC/TACC for PIL 7 / 8. Additionally, the majority of these submissions expressed concerns regarding baitfish, and the potential ecosystem effects resulting from increased harvest of jack mackerel and ongoing removal of pilchard.

174. The feedback from submissions has been characterised further under the '*Analysis of options*' below. More detail, including other matters raised by submitters, is provided in Part 2 '*Submissions*'.

175. Based on our analysis of these options and incorporating the feedback received, as well as our assessment of the options against legal provisions (see Part 3), FNZ recommends the following options:

- JMA 7 – Option 3
- KIN 7 & KIN 8 – Option 4 (both stocks)
- PIL 7 – Option 3
- PIL 8 – Option 2

176. Rationale for these recommendations is set out at the end of this chapter, with FNZ's conclusions in Part 5 '*Conclusions and recommendations*'.

Analysis of options

Jack mackerel – JMA 7

177. There are three species of jack mackerel that are managed as a species complex. As fishers are not required to record catch on a species-specific basis, observer data is the key source of information on the three species. The JMA 7 fishery has a high level of observer coverage. Since 2012, 60-80% of tows have been observed annually, which means that a species level data set is available to use for stock assessment purposes.

178. *Trachurus declivis* (greenback jack mackerel) is the dominant species of mackerel in JMA 7, comprising between two-thirds and three-quarters of the catch. *T. novaezealandiae* (yellowtail, or horse mackerel) comprises most of the remainder of the catch (Moore et al, 2024). The third species, *T. murphyi*, 'Chilean jack mackerel', is currently taken in small quantities and is estimated to have made up around 1% of catch during the last two years.

179. In 2023, species-specific catch per unit effort (**CPUE**) indices were developed for *T. declivis* (JMD) and *T. novaezealandiae* (JMN) (refer Figures 5 and 6 in '*Part 4: Supporting information*'). This was the first accepted assessment of any type for this stock and is summarised in the May 2024 Fisheries Assessment Plenary.

180. The indices use data from the fleet of large trawl vessels that target jack mackerel in JMA 7. The vessels are all greater than 46 metres in length, which means they are subject to regulations that impose restrictions on where they can operate. As well as being prohibited from operating in the Territorial Sea, trawl vessels greater than 46 m in length are also prohibited from operating in several areas outside the Territorial Sea. The areas referred to are shown in Figure 11 in '*Part 4: Supporting information*'.

181. The spatial restrictions that apply to this category of trawl vessel mean that the CPUE data comes from the proportion of jack mackerel habitat that is accessible to this fleet.

182. The best available information, as published in the 2024 Plenary, indicates that abundance of JMD and JMN began to increase during the mid-2000s and has been maintained for approximately the last 10 years. This increase in jack mackerel abundance has been used to define options for setting a TAC for this stock for the first time.

183. The information indicates that a utilisation opportunity is available through a modest increase to the TACC, reflecting the ongoing level of higher abundance. All options are consistent with section 13(2)(a) in that the stock is expected to be maintained at or above a level that can produce *MSY.*

184. Observer coverage is expected to remain high and the next assessment for JMA 7 is scheduled for the 2025/26 financial year.

Current setting – 32,536.763 tonne TACC

185. FNZ consulted on an option to retain the existing TACC of JMA 7. However, the TAC and allowances have not yet been set and FNZ considers that retaining the TACC alone, without setting the TAC and allowances, would not be appropriate because you are required under the Act to set a TAC for each QMS stock. FNZ has therefore altered Option 1 to include proposed settings for the TAC and allowances of JMA 7.

Option 1 – retain current TACC, set TAC and allowances (modified *status quo*)

Benefits	186. It is likely that effort will remain at a similar level to that seen in recent years. Therefore, it is unlikely there will be changes in environmental impacts or non-target catch of other QMS species such as kingfish and snapper. 187. Abundance is likely to remain at a relatively high level over the short term at least. This option places the greatest weight on the likely importance of jack mackerel as prey for many different predator species.
Risks	188. Retaining the current TACC means forgoing a utilisation opportunity for this stock.
Feedback received	189. An option that does not provide for an increase to the TACC is supported by the majority of submitters. This includes LegaSea, New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, New Zealand Underwater Association (collectively 'the joint submitters'), supporters of the joint submitters, other recreational fishers, and the SPCA.

	190.	Reasons for retaining the TACC are primarily around the unknown impacts of increased jack mackerel catch and the likely importance of jack mackerel to other species. The SPCA cannot support increases for any species caught by trawling for several reasons including welfare impacts for targeted fish.

Option 2 – Set a TAC and increase TACC by 1,500 tonnes (4.5%)

Benefits	191.	While increasing the TACC may result in some increase in effort, the number of target tows is expected to remain well below historical levels.
	192.	Increasing the catch could result in a modest increase in export revenue (1,500 tonnes is estimated to have an export value of approximately $3 million).[63]
Risks	193.	An increase in effort could increase non-target catch of other QMS species such as blue mackerel, kingfish and snapper, with the latter two being species of interest to inshore and recreational fishers.[64] However, the measures implemented by vessel operators in recent years to minimise catch of kingfish and snapper would continue, which mitigates this risk.
	194.	This option may increase the risk to protected species such as common dolphins and seabirds resulting from a slight increase in effort. The risk would be low, however, as the interaction rate with protected species is already at a low level.
	195.	This option carries some risk in terms of impacts on the ecosystem role of jack mackerel species. The risk is considered low, however.
Feedback received	196.	This option was not the preferred option of any submitter. Seafood NZ views it as being too precautionary.

Option 3 – Set a TAC and increase TACC by 3,000 tonnes (9%)

Benefits	197.	Increasing the catch of jack mackerel by 3,000 tonnes could result in additional export revenue of approximately $6 million, assuming all catch is exported.
	198.	Vessels may be able to remain in the fishery for longer during the summer season, particularly if other fisheries are not performing well (for example, if it is a poor season in the squid fishery). This part of the fishing year is typically when catch rates are highest.
Risks	199.	This option has the highest likelihood of increasing the non-target catch of other QMS species. However, as well as ongoing efforts by vessel operators to minimise catch of non-target species, FNZ notes that there may be additional ACE available for west coast kingfish and snapper stocks in 2024/25.
	200.	While this option may increase the risk to protected species such as common dolphins and seabirds resulting from a slight increase in effort, the risk is still low as the interaction rate with protected species is already at a low level.
	201.	This option has a greater risk than Option 2 in terms of impacts on the ecosystem role of jack mackerel species. The risk is still considered low, however.
Feedback received	202.	This option was preferred by Seafood NZ and Sealord Group, with Talley's Ltd endorsing the Seafood NZ submission. Seafood NZ views Option 2 as being too precautionary and notes that under Option 3, the risk to dolphins and other protected species would be low to nominal.
	203.	Sealord Group expresses support for an ongoing management approach of regular CPUE updates and modest TACC adjustments. This is addressed further in Part 2 under *'Other matters raised during consultation'*.

[63] The estimate of export revenue is based on the 2023 export value of frozen whole jack mackerel.
[64] The SNA 7 and SNA 8 stocks are both included in the October 2024 sustainability round.

Other JMA 7 options proposed by submitters

Setting higher customary and other mortality allowances

204. The joint submitters, whose submission is endorsed by several other submitters, suggested a modified *status quo* that would retain the existing TACC, and set the TAC and allowances as below:

- Set the proposed TAC at 32,872 tonnes
- Set the allowance for Māori customary non-commercial fishing interests at 5 tonnes
- Set the allowance for recreational fishing interests at 10 tonnes (*as proposed by FNZ under Options 2 and 3*)
- Set the allowance for all other sources of mortality to the stock caused by fishing at 320 tonnes (equivalent to 10% of the TACC)

205. This proposal differs from FNZ's initial proposal where the allowance for Māori customary non-commercial fishing interests would be set at 0 tonnes under all options while the allowance for all other sources of mortality to the stock caused by fishing would equate to 1% of the TACC.

Allowance for Māori customary non-commercial fishing interests

206. In relation to this allowance, FNZ had proposed this be set at zero tonnes on the basis that there were no records of customary take of jack mackerel in JMA 7.

207. At a hui held on 25 July, Te Waka a Māui me Ōna Toka Forum also indicated support for setting this allowance other than zero, noting past observations of jack mackerel being caught for customary purposes. FNZ notes that there is a deepwater pātaka operating in the jack mackerel fishery, which means there is the potential for some jack mackerel to enter the customary fisheries distribution chain. For this reason, we agree with Te Waka a Māui me Ōna Toka Forum and the joint submitters and recommend the allowance for Māori customary non-commercial fishing interests be set at 5 tonnes under all options.

Allowance for all other sources of mortality to the stock caused by fishing

208. The jack mackerel target fishery has a high rate of observer coverage, which provides more confidence in the information available to estimate this allowance. There is no clear rationale for taking an approach that differs so significantly from all other deepwater stocks for the estimate of this allowance for JMA 7. FNZ therefore does not support setting this allowance equivalent to 10% of the TACC, and remains of the view that a level equivalent to 1% of the TACC is more appropriate.

Kingfish – KIN 7 & KIN 8

209. Kingfish on the west coast of New Zealand are considered to represent a single biological stock. A partial quantitative stock assessment for the KIN 7 / KIN 8 stock was developed in 2019 and 2020. It was based on a CPUE series derived from observer catch and effort data recorded while observers were on vessels operating in the JMA 7 fishery. This data set was used because of the high level of observer coverage as well as the fact that most kingfish catch was taken as non-target catch in that fishery.

210. As with jack mackerel, the CPUE data does not come from the full range of kingfish habitat within KIN 7 / KIN 8.

211. The assessment was updated in 2023, with results summarised in the 2024 Plenary. The assessment indicates that abundance of west coast kingfish increased significantly between 2012 and 2016 and has continued to remain at a high level, well above the interim target (see Figure 7 in '*Part 4: Supporting information*'). This has been used to define options to set the TAC for the KIN 7 and KIN 8 stocks.

212. The information suggests that a utilisation opportunity exists through an increase to the TACC for both stocks. All options are consistent with section 13(2)(a) in that the stock is expected to be maintained at or above a level that can produce *MSY.*

Option 1 – retain current settings (*status quo*)

Benefits	213. This option retains the strong incentives for fishers to release live kingfish wherever possible. Abundance is expected to remain high, at least in the short term.

Risks	214. Retaining the *status quo* results in forgoing the opportunity for additional kingfish catch to be balanced with ACE if it cannot be returned to the sea alive. This could result in deemed values being incurred in some years.
Feedback received	215. Retaining the existing TACCs is supported by the majority of submitters. The joint submitters suggest the *status quo* provides the strongest incentive to both avoid kingfish catch and release live fish. The SPCA cannot support increasing the TAC for a species that is caught by trawl and setnet methods. J. Blyth considers kingfish is worth far more to the recreational sector than the limited commercial market.

Option 2 – Increase combined TACs by 19 tonnes; increase TACC for KIN 7 by 6 tonnes (14%); increase TACC for KIN 8 by 10 tonnes (13%)

Benefits	216. This option is unlikely to change the incentives for fishers to release live kingfish wherever possible. This is because the combined TACCs for both stocks under this option (140 tonnes) would remain well below current overall catch i.e., catch that is retained plus catch that is returned to the water (refer Figure 8 in '*Part 4: Supporting information*'). In the three completed fishing years since the last TAC review, overall annual catch of kingfish has averaged around 230 tonnes while the retained catch component has averaged around 120 tonnes. 217. Retaining incentives for kingfish to be returned to the sea alive wherever possible is consistent with management options developed during the 2020 review i.e., for commercial catch to be constrained to non-target levels only in recognition of the value of kingfish to non-commercial fishers. 218. This option reduces the likelihood of fishers being unable to source enough ACE to balance catch of kingfish that can't be returned to the sea.
Risks	219. The proposed TACCs for each stock under Option 2 remain below the catch recorded as retained in some years. The increases may still mean that fishers are unable to source enough ACE to balance catch of kingfish that can't be returned to the sea.
Feedback received	220. This option was not the preferred option of any submitter.

Option 3 – Increase combined TACs by 28 tonnes; increase TACC for KIN 7 by 10 tonnes (23%); increase TACC for KIN 8 by 15 tonnes (19%)

Benefits	221. This option does not differ significantly from Option 2 in terms of changing incentives to release live kingfish. The combined TACCs (149 tonnes) remain well below the average annual overall catch for the last three years of around 230 tonnes. However, it further reduces the likelihood of fishers being unable to source enough ACE to balance catch of kingfish that can't be returned to the sea. 222. The higher TACCs proposed under this option acknowledge that the introduction of onboard cameras may result in more kingfish being retained by inshore fishers for not meeting the likely to survive criteria.
Risks	223. As per Option 2; the proposed TACCs still remain below catch recorded as retained in some years recently. This option may not lead to all retained fish being able to be balanced with ACE. However, the risk of fishers being unable to balance catch with ACE is lower under this option than under Option 2.
Feedback received	224. This option was preferred by Seafood NZ and Sealord Group, with Talley's Ltd endorsing the Seafood NZ submission. The Southern Inshore Fisheries Management Company Ltd (Southern Inshore) would accept this option for KIN 7 as a minimum but would prefer that the TACC for this stock be increased to 60 tonnes.

Other options for KIN 7 / KIN 8 proposed by submitters

Additional TACC option for KIN 7 and KIN 8

225. As indicated above, Southern Inshore rejects the maximum TACC option provided for KIN 7 (54 tonnes) and recommends a TACC of 60 tonnes.

226. With the existing TACC being 44 tonnes, Southern Inshore's recommendation represents a 16 tonne or 36% increase. The benefits and risks of this option are largely the same as those outlined above for Option 2. It could be viewed as anticipating that kingfish's southward range expansion will continue. It further reduces the risk of fishers being unable to source ACE for fish that they cannot return to the sea.

FNZ considers Southern Inshore's recommendation is in line with your statutory obligations under the section 13(2)(a) of the Act. It is outlined below and is presented for your decision-making as Option 4.

227. In relation to KIN 8, while other fishing industry submitters (Seafood NZ and Sealord Group) supported Option 3, their preference was for more ACE to be available. Sealord notes that for their vessels that fish in the jack mackerel fishery, kingfish represents a low volume, low value product. They will continue to strive to return live kingfish to the sea wherever possible. However, if fish are dead or unlikely to survive, they feel they should not be penalised in the form of deemed values from being unable to return those fish.

228. FNZ acknowledges this suggestion and considers that the rationale for including the additional Option 4 for KIN 7 also applies to KIN 8. The risks and benefits of an additional option for KIN 8 that has a higher TAC / TACC than was included in the consultation document are largely the same as those identified for Option 3 above. The key benefit being the additional ACE that would be available if fishers were unable to return live kingfish to the sea.

229. For these reasons, FNZ has included an additional option for KIN 8. It is outlined below and is presented for your decision-making as Option 4. Under this option the TACC of 100 tonnes is five tonnes higher than it would be under Option 3. The proposed TACC for KIN 8 under Option 4 (100 tonnes) represents a 25% increase from the current 80 tonne TACC.

230. FNZ considers that Option 4 for both stocks would be unlikely to significantly change fisher behaviour. Almost all kingfish would continue to be taken in KIN 7 and KIN 8 as non-target catch, predominantly in trawl fisheries.

Table 2: Proposed Option 4 for KIN 7 and KIN 8.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
KIN 7	Option 4 (new)	116 (↑18)	60 (↑ 16)	6	40	10 (↑ 2)
KIN 8	Option 4 (new)	190 (↑ 23)	100 (↑ 20)	19	55	16 (↑ 3)

Pilchard – PIL 7 & PIL 8

231. Pilchard stocks were introduced into the QMS in 2002. For PIL 7 and PIL 8, the combined TACC was 215 tonnes; 70% of the total (150 tonnes) was allocated to PIL 7 and 30% (65 tonnes) to PIL 8.

232. Since 2002, virtually all recorded catch of both stocks has come from vessels operating in the JMA 7 fishery; 30% of the total catch over that time has come from PIL 7 and 70% has come from PIL 8 (refer Figure 4 in '*Part 4: Supporting information*').

233. The TACCs for PIL 7 and PIL 8 were not based on catch history in the period leading up to QMS introduction because the fleet of vessels that currently operates in the JMA 7 fishery did not become established until the early 2000s. Since that time, the west coast jack mackerel fleet has comprised six to nine vessels per year. When targeting jack mackerel, the fleet sometimes encounters pilchard as non-target catch.

234. Based on the catch location information available since 2002, FNZ considers there is an opportunity to align the TAC/TACCs for PIL 7 and PIL 8 to better reflect where the species is encountered by the pelagic trawl fleet. Very little is known about pilchard distribution in the areas where the pelagic trawl fleet is unable to operate as there is almost no recorded catch from other fishing vessels.[65]

235. As catches of pilchard are known to straddle the QMA boundary, it appears that there may be a single west coast biological stock, although this has not been confirmed.

[65] The term 'pelagic trawl fleet' refers to specialised trawl vessels that use mid-water trawl gear to target species such as jack mackerel. In the 2023/24 fishing year the fleet numbers seven vessels.

236. The inconsistency between the TACCs initially set for PIL 7 and PIL 8 and the subsequent location of pilchard catch has meant that catch has exceeded available Annual Catch Entitlement (ACE) for PIL 8 eight times since 2002 (refer Figure 4 in '*Part 4: Supporting information*').[66] This has resulted in fishers incurring deemed values; during the last four completed fishing years, over $30,000 has been paid for PIL 8.

237. In contrast, catch has only exceeded available ACE for PIL 7 once (refer Figure 4 in '*Part 4: Supporting information*'). This occurred during the same year when the combined catch of both stocks (395 tonnes) exceeded the combined TACCs (215 tonnes), the only time this has happened (refer Figure 9 in '*Part 4: Supporting information*').

238. Option 2 for both stocks comprises an upward adjustment to the TAC / TACC for PIL 8 and a corresponding downward adjustment for PIL 7 with no change to the combined TACC. Other options are available to you, however, including retaining the current TACC for PIL 7, or not decreasing the TACC for PIL 7 by as much as is recommended under Option 2. These other options would involve an increase to the combined TACC.

239. FNZ considers, however, that options that would result in an increase to the combined TACCs for PIL 7 and PIL 8 would be unlikely to introduce sustainability concerns for the pilchard stocks in this area. This is because catch will probably continue to be taken almost entirely as non-target catch in the jack mackerel target trawl fishery. The key outcome of an increase to the combined TACCs is that additional ACE would be available for years when environmental conditions result in more pilchard schools extending offshore where they overlap with the jack mackerel target trawl fishery.

Option 1 – set TAC, increase allowance for other mortality, retain current TACC (modified *status quo*)

Benefits	240. There is no benefit in retaining the *status quo* TACC for both stocks as it does not provide for optimal utilisation.
Risks	241. The likelihood of fishers being unable to balance PIL 8 catch with ACE would remain, as the TACs across both QMAs would not be adjusted based on information available on pilchard distribution across the two QMAs.
Feedback received	242. The option of retaining the *status quo* for both pilchard stocks was only favoured by one submitter, with the SPCA noting it was the most conservative option. 243. Several submitters favoured retaining the *status quo* for PIL 7 only: Southern Inshore, Sealord Group, Talley's Ltd, A. Kotzikas (United Fisheries group of companies), and M. Hardyment. With the exception of A. Kotzikas, these submitters also mention interest in developing a target pilchard fishery, which would be difficult if the TACC were to be reduced. A. Kotzikas noted that the TACC for PIL 7 should not be reduced due to the absence of sustainability concerns. 244. One submitter, D. Miller, favoured retaining the *status quo* for PIL 8 only on the basis of its importance as a food source.

Option 2 – increase combined TAC to 256 tonnes; decrease TACC for PIL 7 by 70 tonnes and increase TACC for PIL 8 by 70 tonnes; set the other mortality allowance for both stocks equivalent to 5% of TACC

Benefits	245. This option is based on catch information that has become available since pilchard stocks entered the QMS in 2002. It would better align the TACs for the west coast pilchard stocks with the species' distribution in the parts of each QMA where it is encountered by the pelagic trawl fleet. 246. The adjusted TACCs would increase the likelihood of fishers being able to balance PIL 8 catch with ACE in most years based on catches recorded since 2002. As shown in Figure 10 in '*Part 4: Supporting information'*, catch of PIL 8 has only exceeded the recommended TACC of 135 tonnes twice since 2002. 247. This option aligns with statements made in 2002 that the allowance for other sources of mortality caused by fishing would be reviewed in future years once more information is available (see '*Fishery characteristics and settings'*).

[66] Commercial fishers are required to balance catch of species managed under the QMS with ACE. Any catch that cannot be balanced means fishers are subject to deemed value payments.

Risks	248. It is acknowledged there is no information other than catch upon which to base the proposed TAC/TACCs, and little quantitative information upon which to base options for all other mortality to the stock caused by fishing.
Feedback received	249. Option 2 for both stocks was not the preferred option of any submitter. While several submitters supported increasing the TAC for PIL 8, they did not support the corresponding decrease for PIL 7. As noted under Option 1, several submitters still consider that a target pilchard fishery could be developed in PIL 7. However, they feel that decreasing the TACC for PIL 7 would make that considerably more difficult. Some also felt that the absence of sustainability concerns meant that a substantial reduction in the TACC for PIL 7 could not be justified. 250. Additionally, Sealord considers that climate change could result in a southward movement of pelagic species such as pilchard.

Other options for PIL 7 / PIL 8 proposed by submitters

Increasing the combined TAC / TACC

251. As indicated above, the preference of several submitters is for there to be an increase to the combined TAC / TACC for both stocks. While these submitters support increasing the TAC / TACC for PIL 8 to take into account catch information over the last 20 years, they do not support decreasing the TAC / TACC for PIL 7. Several submitters cited the impact this would have on a possible target fishery, together with the absence of sustainability concerns.

252. Other than stating that they do not support a reduction, none of the submitters who mention a target fishery in PIL 7 provided any indication of what they consider would be an appropriate TACC. There was also no mention of how much ACE a fisher who wanted to develop a target fishery would require.

253. FNZ considers that implementing Option 2 as proposed would not preclude a possible target fishery in PIL 7. While there would be less ACE, fishers wanting to target pilchard may still be able to acquire ACE. ACE availability would likely be dependent, however, on whether the jack mackerel trawl fleet was experiencing a year of high non-target pilchard catch.

254. An additional option for PIL 7, with a TACC between the *status quo* and Option 2, would go some way to addressing the concerns raised by submitters. It would provide for additional non-target catch to be balanced with ACE in years with high abundance. It would also address concerns about ACE availability for fishers other than those who encounter pilchard as non-target catch and acknowledges no sustainability concerns currently exist for PIL 7.

255. FNZ has therefore included an additional option for PIL 7 for your consideration. Under this option, the TACC would be 115 tonnes, midway between the current TACC (150 tonnes) and the TACC under Option 2 (80 tonnes). FNZ considers this option is line with your obligations under the Act. It is outlined below and is presented for your decision-making as Option 3.

Table 3: Proposed Option 3 for PIL 7.

Option for PIL 7	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 3 (*new*)	136 (↓ 29)	115 (↓ 35)	5	10	6 (↑ 6)

256. The benefits and risks of the options that would result in an increase to the combined TACCs for PIL 7 / PIL 8, which includes the new Option 3 for PIL 7, are outlined below.

Benefits	257. As with Option 2, an increase to the combined TACCs would build on the catch information that has become available since pilchard stocks entered the QMS in 2002. 258. The key benefit of an increase to the combined TACCs is that it would further reduce the likelihood of fishers involved in the jack mackerel fishery being unable to balance PIL 7 or PIL 8 catch with ACE during years of high abundance. 259. For fishers other than those involved in the jack mackerel fishery, the additional ACE may enable consideration of other means of utilising these stocks.

Risks	260. It is unknown what the impacts of providing for additional catch to be balanced with ACE would have on the marine ecosystem. As current catch appears to be driven largely by environmental conditions, options that increase the combined TACCs would be unlikely to result in sustainability concerns.

Decreasing the combined TAC / TACC

261. A separate group of submitters expressed preferences for an overall reduction to the combined TAC/TACC for both stocks. The joint submitters, whose submission was endorsed by several individual submitters, acknowledged the need to review the combined TACC to align with the best available information. They recommend TACCs for the two stocks that reflect landings for the past five years:

- For PIL 7, the TACC should be decreased from 150 to 56 tonnes.
- For PIL 8, the TACC should be increased from 65 to 85 tonnes.

262. This represents a combined TACC of 141 tonnes, a decrease of 74 tonnes from the existing combined TACC of 215 tonnes.

263. The risk from an option that would result in a decrease in the combined TACC is that it increases the likelihood that fishers will not be able to balance catch with ACE in both stocks. FNZ also considers that it would not meet the purpose of the Act, as there is an apparent utilisation opportunity but no sustainability concern. As such, FNZ has not included this option.

Increased allowance for all other mortality to the stock caused by fishing

264. In the consultation document, FNZ proposed setting the allowance for all other mortality to the stock caused by fishing under Option 2 at a level equivalent to 5% of the TACC. This is higher than for most species taken by the deepwater trawl fleet. FNZ's rationale was that as pilchards are small fish, and less robust than other species encountered by this fleet, the amount of other mortality is likely to be higher. For this reason, we consider it appropriate to set the allowance at a higher rate, despite the high level of observer coverage in the jack mackerel target fleet.

265. The joint submitters recommend that this allowance is set equivalent to 10% of the TACC, based on the principle that this methodology should be applied as a minimum to all trawl-caught fisheries. They have not provided further rationale, however, and in the absence of any further information, FNZ's recommendation on this allowance remains unchanged from the consultation document. FNZ has, however, modified the *status quo* option for both stocks to increase this allowance to a level equivalent to 5% of the existing TACCs.

Who will be affected by the proposed changes?

266. The JMA 7 commercial fishery is dominated by the pelagic trawl fleet. Over the last five completed fishing years, eight vessels operated by five permit holders have landed 99% of JMA 7, almost all of which was targeted. 96% of JMA 7 catch was received by three licensed fish receivers, all of whom are also permit holders with vessels operating in the fishery.

267. End of year ACE holdings align strongly with catch. The five permit holders whose vessels landed most of the catch also held most of the ACE (an average of 99% over the last five years).

268. A similar proportion of the PIL 7 and PIL 8 catch over the last five completed fishing years was taken by the same fleet. All pilchard catch taken by this fleet is taken as non-target catch in the jack mackerel target fishery; there is no target fishery for pilchard in this area.

269. While the pelagic trawl fleet is also responsible for the majority of kingfish catch (65% of the combined catch (returned and retained) of KIN 7 / KIN 8 over the past five years) other vessels such as inshore trawlers also take kingfish, primarily from KIN 8. A small number of inshore trawlers recorded around 40% of KIN 8 landings over the last five fishing years. Approximately 120 other vessels have recorded small amounts of KIN 7 or KIN 8 over that time period. Kingfish in this area is rarely targeted

270. Less than 3% of the combined estimated catch of kingfish in KIN 7 and KIN 8 during the last three completed fishing years was by taken set netting. Commercial fishers who take kingfish using this method must retain all kingfish that are above the minimum legal size; the ability to return fish that are likely to survive does not apply to kingfish caught in set nets.

271. While jack mackerel does not rate highly as a recreational target species for eating purposes, it is popular as bait. Collectively, baitfish, which is defined in the Fisheries (Amateur Fishing) Regulations 2013 as

encompassing koheru, scad, anchovy, piper, jack mackerel, pilchard, sprat, and yellow-eyed mullet, are of strong interest to recreational fishers.

272. Kingfish is a species of considerable interest to recreational fishers. The options presented for KIN 7 and KIN 8 recognise this and would continue to provide strong incentives for commercial fishers to release live kingfish wherever possible.

Input and participation of tangata whenua

273. Te Hiku o Te Ika, Mid North West, Ngaa Hapuu o Te Uru o Tainui, Te Tai Hauāuru Iwi, Te Tau Ihu, and Te Waka a Māui me Ōna Toka Iwi Forums represent iwi with an interest in one or more of these stocks.

274. FNZ circulated a summary of the stocks proposed for review in this round (including JMA 7, KIN 7, KIN 8, PIL 7 and PIL 8) to the chairs of the relevant iwi fisheries forums. FNZ invited feedback from the forums and offered to provide more detailed information for any stocks upon request.

275. One item of feedback was received. As noted earlier, Te Waka a Māui me Ōna Toka Forum, at a hui held on 25 July, indicated support for setting an allowance above zero for Māori customary non-commercial fishing interests for JMA 7. FNZ agrees, and recommends setting this allowance at five tonnes under all options.

Fishery characteristics and settings

Table 4: Fishery characteristics and settings for JMA 7, KIN 7 / KIN 8, and PIL 7 / PIL 8.

Commercial (TACC)
276. The **JMA 7** stock was introduced into the QMS in 1987 with a TACC of 20,000 tonnes. Over the next six years, the TACC was increased as a result of administrative processes undertaken following QMS introduction. A final administrative change in 2001 resulted in the current TACC of 32,536.763 tonnes being set, and this has remained unchanged since then. Since 2002/03, catch has ranged between 26,100 tonnes and 36,500 tonnes (refer Figure 2 in '*Part 4: Supporting information'*).
277. Settings for kingfish stocks were last reviewed in 2020; TACCs of 44 and 80 tonnes were set for **KIN 7 and KIN 8** respectively. In the three years since, retained catch has exceeded available ACE for both stocks at least once; in 2022/23 for KIN 7 (by 6.5 tonnes) and in 2020/21 and 2021/22 (by 18.6 and 6.1 tonnes respectively) for KIN 8 (refer Figure 3 in '*Part 4: Supporting information'*). This resulted in deemed values of: • $21,430 for KIN 7 in 2022/23, • $31,531 for KIN 8 in 2021/22, and • $209,127 for KIN 8 in 2020/21.
278. The amount of catch recorded as released alive has been broadly equivalent to the amount retained for both stocks over that three-year period (refer Figure 8 in '*Part 4: Supporting information'*).
279. The TACCs for **PIL 7 and PIL 8** were set in 2002 when the stocks were introduced into the QMS. The TACC for PIL 7 was set higher than that for PIL 8 in recognition of the fact that as there had historically been a target fishery in and around the Marlborough Sounds, it was thought there could be a future utilisation opportunity in that QMA. The TACCs set in 2002 were based on future utilisation rather than catch history in the years immediately prior to QMS introduction.
280. In the period following QMS introduction, the JMA 7 fishery became fully developed and vessels in this fishery started encountering pilchard when targeting jack mackerel. Combined catch from both stocks shows considerable variation and has ranged between 25 and 395 tonnes over that time period (refer Figure 4 in '*Part 4: Supporting information'*). There is little in the way of trend, although recorded catch in PIL 7 has tended to be higher during the last six years than the 15 years prior to that.
281. No target pilchard fishery has developed and virtually all recorded catch has been taken by the pelagic trawl fleet while targeting jack mackerel.
282. Catch of PIL 8 has exceeded available ACE three out of the last four completed fishing years. [67] This resulted in deemed values of: • $5,665 for 2021/22, • $5,481 for 2020/21, and

[67] In August 2024, catch of PIL 8 had already exceeded available ACE for the 2023/24 fishing year.

- $22,197 for 2019/20.

Customary Māori

283. To date, no customary Māori allowance has been set for **JMA 7**. While jack mackerel in JMA 7 has not appeared in records of customary take, a deepwater pātaka is in operation that is centred on the South Taranaki Bight. Because there is the potential for some jack mackerel to enter into the pātaka distribution system, a modest allowance for Māori customary non-commercial fishing interests should be set. FNZ recommends this allowance be set at 5 tonnes under all options.

284. The current customary Māori allowances of 6 tonnes for **KIN 7** and 19 tonnes for **KIN 8** were set during the 2020 review. They reflected current and future catch. The most recent customary catch data indicates that even allowing for customary take that may not be recorded, the existing allowances are thought to be sufficient to provide for current and future catch.

285. A customary Māori allowance of 5 tonnes currently applies to both **PIL 7 and PIL 8**. There is no quantitative information on customary take for this species. FNZ considers the existing allowances remain sufficient to provide for current and future catch.

Recreational

286. To date, no recreational allowance has been set for **JMA 7**. Results from the 2017/18 (Wynne-Jones et al 2019) and 2022/23 (Heinemann and Gray, in prep) recreational harvest estimates of 6.2 tonnes, and 2.6 tonnes respectively, have been used to inform the proposed allowance of 10 tonnes. FNZ considers the proposed allowance reflects current levels of recreational take and provides for the possibility of increased future take.

287. The current recreational allowances of 40 tonnes for **KIN 7** and 55 tonnes for **KIN 8** were also set during the 2020 review. Information from the 2022/23 recreational harvest estimates research project (Heinemann and Gray, in prep) resulted in estimates of 13 tonnes for KIN 7 and 46 tonnes for KIN 8. On this basis, FNZ considers the existing allowances remain above current levels of recreational catch.

288. A recreational allowance of 10 tonnes applies currently to both **PIL 7** and **PIL 8**. While there are estimates of recreational harvest, this data is in the form of the number of fish rather than weight. Estimates for PIL 8 were ~29,000 fish in 2017/18 and ~11,000 fish in 2022/23. For PIL 7, the estimate was ~10,000 fish in 2017/18. The limited observer data available indicates that the average weight of a pilchard is likely to be in the vicinity of 120 grams. On this basis, the recreational harvest estimates equate to 3.5, 1.3, and 1.2 tonnes respectively, indicating that the existing allowances remain sufficient to provide for current and future catch.

Other sources of mortality caused by fishing

289. To date, no allowance for other sources of mortality caused by fishing has been set for **JMA 7**. For other species that are taken by the same vessels e.g. hoki, an allowance that equates to 1% of the TACC is set. FNZ has used the same approach to calculate the proposed allowance for JMA 7.

290. Observer coverage in the jack mackerel trawl fishery has been consistently high (60-80%) since 2012.[68]

291. The current allowances for other sources of mortality caused by fishing are 8 and 13 tonnes for **KIN 7 and KIN 8** respectively. They were set during the 2020 review and equated to 10% of the respective TACC and recreational allowances combined. The approach takes into account the fact that not all kingfish released alive may survive.

    The allowances proposed under all options are based on the same approach.

292. The inshore trawl fleet operating off the west coast of the North Island and in Tasman / Golden Bays is part of the on-board camera programme. Remaining trawl vessels, for example those operating off the West Coast of the South Island, are subject to a camera rollout date of 3 December 2024. High levels of observer coverage on the pelagic trawl fleet operating in the jack mackerel fishery will likely continue.

293. For **PIL 7 and PIL 8** there is currently an allowance of zero tonnes for other sources of mortality caused by fishing. At the time of QMS introduction in 2002, the Ministry of Fisheries noted that it would "*consider setting an allowance in future years once more information is available following the increase in fishing effort that is likely after introduction*".

[68] Information on observer coverage is available on the protected species capture website.

294. While there has been no target pilchard fishing in the period following QMS introduction, jack mackerel trawl effort increased, which has resulted in the pilchard incidental catches reported to date.

295. For all options FNZ proposes this allowance be set for both pilchard stocks at a level equivalent to 5% of the TACC. This is higher than for most species taken by the large vessel trawl fleet. However, pilchards are small fish and likely to be less robust than other species encountered. For this reason, FNZ considers it is appropriate to set the allowance at a higher rate. As noted, observer coverage on the jack mackerel trawl fleet is high and is likely to remain high in the future.

Part 2: Submissions

296. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options or alternatives for the stocks being reviewed, but commented generally about catch limits or other aspects of fisheries management. Those general submissions have been summarised within *'Chapter 1: Legal Introduction and Overview'*, under *'Public consultation for the 2024 October sustainability round'*.

Table 5: Submissions received for JMA 7, KIN 7 & KIN 8, and PIL 7 & PIL 8 during consultation.

	JMA 7				KIN 7				KIN 8				PIL 7			PIL 8			Notes
	Option supported				Option supported				Option supported				Option supported			Option supported			
	1	2	3	Other	1	2	3	Other	1	2	3	Other	1	2	Other	1	2	Other	
Organisations																			
LegaSea, New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, and New Zealand Underwater Association **('*The joint submitters*')**	✓				✓				✓						✓			✓	Suggest *status quo* TACC but set TAC and allowances (for JMA 7). Alternative options for proposed TACCs for PIL 7 / 8 based on average catch over last 5 years.
Piha Deep Sea Fishing Club	✓																		Endorses joint submitters' position on JMA 7.
Royal NZ Society for the Prevention of Cruelty to Animals Inc. **(SPCA)**	✓				✓				✓				✓			✓			Supports most conservative option in all cases.
Seafood New Zealand			✓				✓				✓						✓		Considers kingfish options to be too conservative.
Sealord Group Ltd			✓				✓				✓		✓				✓		Anticipates southward movement of pilchard due to climate change so does not support PIL 7 decrease. Would prefer higher options for kingfish.
Southern Inshore Fisheries Management Company Ltd							✓						✓						Would prefer a higher TACC for KIN 7. Favours *status quo* for PIL 7 to enable fishery development.
Talley's Ltd			✓				✓				✓		✓				✓		Supports Seafood NZ submission on JMA 7 and KIN 7/8. Notes fishers have recently sought opportunities to develop a fishery in PIL 7 so does not support decrease.

	JMA 7				KIN 7				KIN 8				PIL 7			PIL 8			Notes
	Option supported				Option supported				Option supported				Option supported			Option supported			
	1	2	3	Other	1	2	3	Other	1	2	3	Other	1	2	Other	1	2	Other	
United Fisheries Ltd, KPF Investments Ltd, Trawler Fishing Ltd, Pegasus Fishing Ltd (submission from A. Kotzikas)													✓				✓		Suggests combining PIL 7 / 8 QMAs.
Whangamata Ocean Sports Club															✓			✓	Supports joint submitters' position that TACCs for PIL 7 / 8 be based on average catch over last 5 years.
Individuals																			
K. Adair	✓				✓				✓						✓			✓	Endorses LegaSea position on all stocks
M. Currie	✓				✓				✓						✓			✓	Endorses LegaSea position on all stocks
M. Hardyment													✓				✓		Considers there is still the potential for a target fishery in PIL 7 but not if the TACC is reduced.
D. Miller	✓													✓		✓			Raises issue of uncertainty regarding future abundance of JMA 7. Notes importance of baitfish in ecosystem.
B. Price								✓				✓							Comments on management approach for kingfish. Suggests managing higher than 40% B_0 and committing to a 2% annual increase.
D. Henry	✓				✓				✓				✓			✓			Is not convinced there is enough evidence to increase KIN stocks.
M. Watson	✓				✓				✓					✓				✓	Does not clarify preferred settings for PIL 8.
J. Blyth									✓										Considers the economic value of kingfish to be higher for recreational fishers than for commercial.
G. Ryder	✓				✓				✓						✓			✓	Suggests taking the most cautious approach for pilchard stocks but does not provide further clarification.
C. Latour	✓							✓				✓		✓			✓		Bases suggestions on trends in recent catch.
R. Adams	✓														✓				Mentions PIL 7 but does not state a position.

Other matters raised during consultation

Kingfish and pilchard deemed value rates

297. FNZ did not propose any deemed value rate changes as part of this review. However, in recognition of the fact that deemed value and catch limit settings are interlinked (TACC changes can impact how much deemed values are incurred), FNZ welcomed general feedback on the deemed value settings during consultation.

298. A small number of submissions commented on deemed value rates or reiterated concerns with the quantity of deemed values paid across west coast kingfish stocks in recent years by fishers who have been unable to acquire sufficient ACE to balance retained catch.

    M. Watson considers the deemed value rates for KIN 7 / 8 should be increased due to the high survival rate of fish if released immediately and the high value they represent as a recreational species.

299. Sealord submits that the basic annual deemed value rate for KIN 7 and KIN 8 be set at $2.00 / kg and rising to $3.00 / kg for any catch >200% of ACE holdings. By way of comparison, the basic annual deemed value rate for both stocks is currently $3.30 / kg. This rises to $5.00 / kg for catch >200% of ACE holdings.

300. Sealord considers deemed value rates for the two stocks are not appropriately set as they exceed the returns for frozen at sea kingfish, which, for them, is around $2.00 / kg. Sealord also notes that basic annual deemed value rate of $3.00 / kg is higher than the current port prices ($1.59 / kg for KIN 7 and $2.39 / kg for KIN 8).

301. Sealord also commented on the deemed value rates for PIL 7 and PIL 8, both of which are subject to an annual deemed value rate of $0.20 / kg regardless of ACE holding. Sealord does not support the current settings and proposes a basic annual rate of $0.06 / kg rising to $0.12 / kg for catch >200% of ACE holdings (the same rates that apply to anchovy stocks).

    Sealord's view is that for both species, the existing deemed value rates impose a cost that is excessive compared to any financial benefit derived from the catch. They consider this is inconsistent with the Deemed value guidelines, which state that deemed value rates should incentivise accurate catch reporting.

302. Southern Inshore stated that the quantity of deemed values paid across kingfish stocks in recent years is unacceptable, while Seafood New Zealand considers the current management approach to be punitive.

303. FNZ acknowledges these views but has not included recommendations to amend the deemed value rates for PIL 7 / 8 and KIN 7 / 8 in this chapter. Rather, we recommend the deemed value rates for these stocks be discussed at the next meeting of the Commercial Catch Balancing Forum, which is scheduled to be held in November 2024.

Baitfish

304. A large number of individual submitters who commented generally about fisheries management expressed concerns regarding the effects of baitfish harvest on the ecosystem. 'Baitfish' or 'forage fish' are generic terms that refer to small to medium-sized pelagic species that play an important role as prey in marine food webs as the primary food source for larger marine predators, including protected species and commercially important finfish species. The terms can be applied to the three jack mackerel species and pilchard.

305. Several submitters commented on perceived declines in baitfish abundance, particularly on the east coast of the North Island, outside the JMA 7 QMA. One submitter, R. Adams, stated that a decrease in baitfish in all parts of FMA 7 has been noticeable to all commercial and recreational fishers over the last decade. The submitters urge caution, so that the perceived declines on the east coast are not repeated on the west coast.

306. While acknowledging the concerns, FNZ reiterates that the reason a TACC increase for JMA 7 is recommended is that abundance of the two most common species of jack mackerel has increased. FNZ also notes that more broadly, several west coast stocks, such as kingfish, snapper, and blue mackerel, are also undergoing a period of increased abundance.

307. Now that the methodology has been developed and accepted, the JMA 7 stock assessment will be updated on a three-yearly basis. Management settings will be reviewed if there is information to suggest abundance is decreasing.

308. FNZ also notes that as most of the habitat thought to be preferred by pilchard is not accessible to the jack mackerel trawl fleet. This contributes to mitigating the concerns about the effects of baitfish harvest.

However, pilchard catches will continue to be monitored and management settings will be considered for review if information indicates changes in abundance.

Other matters relevant to jack mackerel

309. The joint submitters suggest that vessels operating in the jack mackerel target trawl fishery should be subject to the requirement to install onboard cameras due to the high-volume nature of the fishery and diversity in bycatch. They also acknowledge that vessels operating in this fishery are not subject to plans for future deployment of onboard cameras.

310. Vessels operating in the jack mackerel trawl fishery will remain subject to high levels of observer coverage. Observers are vital in terms of collecting data relating to the three species of jack mackerel that is used to inform abundance indices. Observer data has also used as the basis for kingfish abundance indices. FNZ does not consider that cameras would contribute to developing indices of abundance for other species taken as non-target catch in this fishery, as suggested by the joint submitters.

311. The joint submitters have identified an error relating to observer coverage in the west coast pelagic trawl fishery during the 2021 fishing year. Their submission refers to a published report stating that 33% of tows in this fishery were observed during the 2020/21 fishing year. The figure they referred to (33%) is incorrect and should have been 62%.

Other matters relevant to kingfish

312. T. Orman suggests reviewing the current minimum legal size (MLS) of 75 cm for kingfish taken by recreational fishers as they feel many fish under 75 cm die after being caught and released. They suggest a revised MLS of 60 cm, which would allow recreational fishers to harvest juveniles (immature kingfish).

    Reviewing the MLS that applies to kingfish taken by recreational fishers is outside the scope of this decision paper.

313. B. Price's submission related to KIN 7 and KIN 8 and considered that managing to a target of 40% B_0 was too low. They requested that FNZ commit to a 2% annual increase in biomass. FNZ notes that kingfish in KIN 7 / 8 is already estimated to be well above the interim target reference point that has been developed for this stock.

Other matters relevant to pilchard

314. Sealord and A. Kotzikas (United Fisheries group of companies) both suggest that merging the PIL 7 and PIL 8 QMAs is the best management action in the long term for these stocks.

315. FNZ agrees that as there are unlikely to be separate biological stocks of pilchard in PIL 7 and PIL 8, a single quota management area would be appropriate. Under the Act, there are two mechanisms by which this could be achieved; one requires the agreement of quota owners (section 25A) while the other (section 25B) does not. Section 25B also requires the Minister to be satisfied that the alteration is necessary to ensure sustainability, a requirement that is not applicable to PIL 7 / PIL 8.

316. FNZ encourages the PIL 7 and PIL 8 quota owners to give consideration to merging the PIL 7 and PIL 8 QMAs under section 25A.

317. The joint submitters suggest that a land-all catch policy be implemented for all pilchard caught in the JMA 7 trawl fishery. Pilchard is not listed in the Fisheries (Landing and Discard Exceptions) Notice, which means fishers must retain all pilchard that is taken. The policy suggested by the joint submitters therefore already exists.

Part 3: Assessment against relevant legal provisions

Overview

318. You are being asked to make decisions under section 13 of the Act, to set the TACs for JMA 7, KIN 7, KIN 8, PIL 7 and PIL 8. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

319. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

320. On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in '*Part 4: Supporting information*'.
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 13 of the Act

321. Table 6 below outlines FNZ's assessment of the proposed TAC options for JMA 7, and KIN 7 & KIN 8 against section 13(2)(a) of the Act, while Table 7 outlines FNZ's assessment of the proposed TAC options for PIL 7 & PIL 8 against section 13(2A). These assessments have been informed by the best available information on the status of the stocks (summarised in Part 1 under '*Analysis of options'*, with more information in Part 4 under *'Additional figures'*, and '*Information on biology, interdependence, and environmental factors*').

Table 6: Assessment under section 13(2)(a) of the Act for JMA 7, KIN 7 & KIN 8.

Section 13(2)(a)	322. For JMA 7 and KIN 7 / KIN 8, biomass can be reliably estimated in relation to B_{MSY} from their partial quantitative assessments completed in 2023. These assessments indicate that biomass for the two main jack mackerel species (which account for 99% of the JMA 7 stock), and kingfish, is above the relevant B_{MSY} reference points. 323. As biomass is estimated to be above B_{MSY} and there is a desire to maintain the stocks at or above this level, the TACs of JMA 7 and KIN 7 / KIN 8 would be set or varied under section 13(2)(a) of the Act. Under this provision, you must set TACs using best available information, consistent with the objective of maintaining the stocks at or above B_{MSY}, while having regard to the interdependence of stocks. 324. FNZ considers that all the TAC options proposed for JMA 7 and KIN 7 / KIN 8 would be consistent with the objective of maintaining the stocks above B_{MSY}, given that these stocks are currently above target and the proposed TAC changes are relatively low in magnitude (i.e. unlikely to result in the stocks declining below target). 325. Forward projections are not available to determine precisely where the stocks would be relative to B_{MSY} following any changes to the TACs. Logically, the lower the TACs are set, the higher the stocks would be maintained relative to B_{MSY}.
Harvest Strategy Standard (HSS) See '*The Harvest Strategy Standard' under* Chapter 1 '*Legal Overview'* for more information.	326. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} - compatible reference points. 327. As part of the 2023 JMA 7 stock assessment the Plenary adopted target reference points for the two main jack mackerel species that equated to 35% B_0. This is consistent with the 'medium productivity' status of jack mackerel species as set out in the Harvest Strategy Standard and associated Operational guidelines. The soft limit is 20% B_0, and the hard limit is 10% B_0.

	328. In the 2024 Plenary, *T. declivis* (JMD) is assessed to be Likely (>60%) to be at or above the target while *T. novaezealandiae* (JMN) is assessed to be Very Likely (>90%) to be at or above the target. 329. For kingfish in KIN 7 / KIN 8, an interim B_{MSY} proxy target reference point of twice the mean CPUE in the period 2005-2009 was adopted by the Inshore Fisheries Working Group, consistent with the Harvest Strategy Standard and associated Operational guidelines. 330. In the 2024 Plenary, KIN 7 /KIN 8 is assessed to be Very Likely (>90%) to be at or above the target.
Section 13(2)(a) Interdependence of stocks	331. FNZ considers that the proposed increases to the TACs of JMA 7 and KIN 7 / KIN 8 could have some effect on associated predator and prey species if effort in the associated fisheries increases. However, the proposed TAC changes are not expected to impact effort for KIN 7 / KIN 8, as the species is not commonly targeted by commercial fishers. As noted above, jack mackerel are prey for many species, but any specific impacts for other species (as a result of an increase to the TAC of JMA 7) are uncertain, and their extent cannot be quantified based on the information available.

Table 7: Assessment under section 13(2A) of the Act for PIL 7 / PIL 8.

Section 13(2A)	332. The biomass of PIL 7 / PIL 8 cannot be reliably estimated in relation to B_{MSY} using the best available information, so section 13(2A) applies when setting or varying the TAC. Under this section, you must set a TAC using the best available information that is not inconsistent with the objective of maintaining the stock at or above a level that supports *MSY*, or moving the stocks towards or above a level that can produce *MSY*, while having regard to the interdependence of stocks, the biological characteristics of the stocks, and any environmental conditions affecting the stocks. 333. FNZ's view is that all options presented for PIL 7 / PIL 8 would not be inconsistent with the objective of maintaining the stocks at or above B_{MSY}. The nature of the options (no change, or modest increase to combined TACCs), together with the limited overlap between pilchard distribution and the JMA 7 target trawl fishery means abundance is unlikely to decrease as a result.
Harvest Strategy Standard (HSS) See '*The Harvest Strategy Standard' under* Chapter 1 '*Legal Overview'* for more information.	334. The default HSS management target of 40% B_0 (unfished biomass) applies to PIL 7 and PIL 8, in addition to a soft limit of 20% B_0 and a hard limit of 10% B_0. However, there is insufficient information to estimate the status of PIL 7 / PIL 8 in relation to these reference points.
Section 13(2A)(b) Interdependence of stocks	335. FNZ considers that the proposed changes for PIL 7 / PIL 8 could have some effect on associated species (mainly predators) if it were to result in changes in fishing behaviour and catch levels. Any specific impacts for other species are uncertain, and their extent cannot be accurately quantified based on the information available.
Section 13(2A)(b) Biological characteristics of the stock	336. Pilchard is a fast growing and short-lived species that reaches maturity at around two years of age. This means they are more resilient to changes in fishing pressure than slower growing, longer-lived species (and thus there is a lower sustainability risk when increasing the TAC).
Section 13(2A)(b) Environmental conditions	337. FNZ is not aware of any environmental conditions affecting PIL 7 / PIL 8 that may impact their resilience to the proposed TAC changes. While abundance of PIL 7 / PIL 8 could be affected by changes in sea temperature or marine heatwaves, any specific impacts are unknown, and the extent of these potential impacts cannot be quantified using available information.

Section 13(3) **Factors to have regard to in considering the way and rate the stock is moved towards or above B_{MSY}**	338. Section 13(3) is not considered relevant to the TAC decisions for PIL 7 or PIL 8 because the proposed TAC options only aim to maintain the stocks at or above B_{MSY}. They are not intended to move the stocks to a certain level in a certain way or rate (noting that forward projections are also not available to help FNZ determine what way and rate these options would move the stock in relation to B_{MSY}).

Kaitiakitanga

339. 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.

340. For iwi with interests in the stocks covered in this decision document, Iwi Fisheries Plans have been developed for Te Waka a Māui me Ōna Toka, Te Taihauāuru, Rangitaane, Ngaa Hapuu o Te Uru o Tainui, and Te Hiku o Te Ika.

341. The Plans regard all species as taonga. All options in this paper are consistent with objectives or outcome benefits in all the Plans listed above regarding sustainable fisheries and commercial fisheries providing for economic wellbeing and prosperity for iwi. In Table 8 below, FNZ has summarised the objectives specified within these plans.

Table 8: Summary of management objectives from Iwi Fisheries Forum and Iwi fisheries plans, which are relevant to the reviews of JMA 7, KIN 7, KIN 8, PIL 7 and PIL 8.

Iwi Fisheries Plan	Relevant stocks	Relevant Management Objectives contained in plan
Rangitaane (North Island) Iwi Fisheries Plan	JMA 7 PIL 8 KIN 8	1. Mana and rangatiratanga over Rangitaane (North Island) Fisheries is restored, preserved and protected for future generations. 2. Collaborative iwi partnerships in fisheries and environmental resource management are realised. 3. Rangitaane (North Island) have sufficient capacity to meet their individual and collective responsibilities as tiaki tangata/kaitiaki in partnership with others. 4. Our customary non-commercial fisheries are healthy, sustainable and support the cultural wellbeing of nga iwi o Rangitaane (North Island). 5. Our commercial fisheries are sustainable and support the economic wellbeing of Rangitaane (North Island) hapu and whanau.
Ngā Hapu o Te Uru o Tainui Forum Regional Customary Fisheries Management Plan	JMA 7 PIL 8 KIN 8	Outcome Area 1: Ngaa Hapuu o Te Uru kaitiaki are able to participate in and influence fisheries decision-making. Outcome Area 2: Relationships and partnerships with key stakeholders, managers and agencies are established and maintained.
Te Tai Hauāuru Iwi Forum Fisheries Plan	JMA 7 PIL 8 KIN 8	1. Our customary non-commercial fisheries are healthy, sustainable and supports the cultural wellbeing of Te Tai Hauāuru Iwi. 2. Our commercial fisheries are sustainable and support the economic wellbeing of Te Tai Hauāuru Iwi. 3. Mana and rangatiranga over our fisheries is restored, preserved and protected for future generations. 4. Iwi collaborate in fisheries and environmental resource management to achieve iwi driven objectives.

Iwi Fisheries Plan	Relevant stocks	Relevant Management Objectives contained in plan
Te Hiku o Te Ika Iwi Fisheries Plan	JMA 7 PIL 8 KIN 8	Outcome area 1: Te Hiku's fisheries management decisions and directions reflect a strong leadership. Outcome area 2: Fisheries are developed and used in a manner that gains best value for Te Hiku iwi and hapu. Outcome area 3: The fisheries environment supports a healthy fishery.
Te Waka a Māui me Ōna Toka Fisheries Forum Plan	JMA 7 PIL 7 KIN 7	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.

342. As noted earlier, the only feedback received was in relation to the allowance for Māori customary non-commercial fishing interests for JMA 7. FNZ agrees with this suggestion from Te Waka a Māui me Ōna Toka Forum and recommends setting this allowance at five tonnes under all options.

Mātaitai reserves and other customary management tools

343. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

344. There are no customary fisheries management tools such as mātaitai, taiāpure, or section 186A/186B temporary closures directly relevant to these stocks. Under three different sets of commercial fishing regulations, the pelagic trawl fleet that targets jack mackerel and takes pilchard and kingfish as non-target catch is prohibited from operating within 25 nautical miles of most of the North Island and South Island west coasts (refer Figure 11 in '*Part 4: Supporting information*').

345. Inshore trawl vessels are also subject to restrictions. In much of FMAs 8 and 9 vessels cannot operate within four nautical miles of the coast. In FMA 7, trawling is prohibited in areas including the Marlborough Sounds.

Assessment of the proposals against section 9 of the Act

346. There is not expected to be any change in fishing effort as a result of the options proposed for KIN 7 / KIN 8 and PIL 7 / PIL 8 due to these stocks being taken almost entirely as non-target catch other fisheries, primarily the JMA 7 trawl fishery. For this reason, the analysis below against sections 9(a) and 9(b) of the Act focuses solely on the trawl vessels that target jack mackerel.

Table 9: Assessment under section 9 of the Act for JMA 7.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	347. The jack mackerel target trawl fishery has a low interaction rate with associated and dependent species such as seabirds, marine mammals, and benthic invertebrates. None of the protected species that are encountered are considered high risk. The fish species that are taken as non-target catch are primarily species managed under the QMS and there are no concerns for the sustainability of any of the non-target species. 348. Based on this information, FNZ considers it highly unlikely that any of the proposed options would threaten the long-term viability of any associated or dependent species.

Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	349. The jack mackerel trawl fleet uses mid-water trawl gear exclusively. The gear tends to be fished on or close to the seabed during the day and in the upper part of the water column at night. 350. The use of mid-water trawl gear means benthic impacts are low. Fishing activity is heavily concentrated along previously trawled tow lines. The estimated footprint for bottom-contacting trawls targeting jack mackerel has decreased significantly over time.[69] 351. No significant changes in benthic impacts would be expected if effort increased in this fishery as fishing effort will almost certainly remain within the existing trawl footprint. As noted earlier, the trawl footprint is already constrained due to vessels operating in the fishery being prohibited from operating within 25 nautical miles of most of the North and South Island west coasts. 352. While jack mackerel are likely prey species for a number of predators, FNZ considers that the proposed TAC increases are unlikely to significantly impact these predators based on the magnitude of the proposed increase, and the apparent ongoing abundance of jack mackerel within JMA 7.
Habitat of particular significance for fisheries management should be protected - Section 9(c) of the Act	353. All potential habitats of particular significance for fisheries management present in the JMA 7 QMA are located outside the area of the jack mackerel target trawl fishery. Consequently, no change in risk to habitat of particular significance is expected in the event of changes to the TACC of JMA 7. 354. Changing the TACCs for PIL 7 / 8 and KIN 7 / 8 is unlikely to increase risk of adverse effects on potential habitat of particular significance for fisheries management, as the stocks are taken as non-target catch. Almost all pilchard in PIL 7 / 8 is taken in the JMA 7 fishery. The majority of kingfish in KIN 7 / 8 is also taken in the JMA 7 fishery, with some taken in other fisheries including the trawl fishery for snapper in SNA 8. 355. Some of the proposals to increase the TACCs for stocks in this sustainability round may lead to increased fishing effort in FMA 8 (in particular for SNA 8) and could lead to increased fishing effort (and increased risk of adverse effects) at Patea Shoals. 356. Given the importance of this habitat, FNZ has commenced discussions with key stakeholders and is considering options (including regulated or nonregulated area closures to trawling) to manage the risk of adverse effects of fishing at this site to support the ongoing function of this area in maintaining productive fisheries and ecosystems.

Assessment of the proposals against section 11 of the Act

357. Table 10 below outlines FNZ's assessment of the proposed options for JMA 7, KIN 7, KIN 8, PIL 7 and PIL 8 against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TACs of these stocks.

Table 10: Assessment under section 11 of the Act for JMA 7, KIN 7 / KIN 8, and PIL 7 / PIL 8.

You must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	358. "Effect" is defined widely in the Act.[70] The direct effects of fishing for these stocks need to be considered, as well as the indirect effects of fishing for associated stocks and species, and the surrounding ecosystem. 359. Information relevant to the direct effects of fishing on the stocks is described throughout this paper, particularly in Part 1 in '*Options and analysis*' and '*Fishery characteristics and settings*', and in Part 4 under '*Additional figures*'. The effects of

[69] To illustrate this, in 2002, at the time of the current pelagic trawl fleet becoming established, jack mackerel tows in all areas, including JMA 3, had an annual estimated trawl footprint of close to 6,000km^2. Since 2015, the estimated annual footprint has been under 3,000 km^2 (MacGibbon and Mules 2023)

[70] 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.

	the jack mackerel trawl fishery for associated stocks and species, and the wider ecosystem, are summarised above in Tables 6, 7, 9 and 10, and detailed further in Part 4 under '*Information on biology, interdependence, and environmental factors'* and '*Information on environmental impacts*'. 360. The magnitude of fishing effects on these stocks, their associated species, and the environment, will vary depending on these TAC settings (predominantly the TAC setting for JMA 7, since it is targeted). 361. FNZ considers that the proposed TAC options appropriately balance utilisation of the stocks against the potential effects. However, FNZ also notes that there is potential for greater effects to occur under higher TACs (particularly for JMA 7), and you must take this into account in your TAC decisions.
Existing controls that apply to the stock or area – section 11(1)(b)	362. The primary commercial controls that apply to the stocks addressed in this paper relate to kingfish; there is currently a minimum legal size of 65 cm and fishers may return live kingfish of legal size (unless taken using a set net). The review of these controls must be completed by the end of September 2026. 363. The spatial management measures that apply to trawl vessels greater than 46 m in length have been outlined earlier (refer Figure 11 in '*Part 4: Supporting information'*). 364. The recreational controls that apply, as set out in the Fisheries (Recreational Management Controls) Notice include: • The daily 'baitfish' limit of 50 per person per day applies to jack mackerel and pilchard; • A daily limit of three kingfish per person per day in KIN 7 and KIN 8, and a minimum legal size of 75 cm. 365. There are no relevant customary controls that apply to any of the stocks addressed in this paper.
The natural variability of the stock – section 11(1)(c)	366. The abundance of the two major jack mackerel species in JMA 7 appears to have been stable for the last 8-10 years. 367. After undergoing a period of increased abundance prior to 2015, kingfish in KIN 7 and KIN 8 appear to have been stable since then. 368. While catches of pilchard in PIL 7 and PIL 8 have shown considerable fluctuation over time, it is unclear whether this variability is due to overall abundance or whether it relates to distribution. All catch data comes from vessels operating at least 25 nautical miles offshore. If pilchard schools do not venture this far offshore during a particular fishing year, there will be no catch data.
Fisheries plans, and conservation and fisheries services – section 11(2A)	369. Jack mackerel in JMA 7 is managed as a Tier 1 stock within the National Fisheries Plan for Deepwater and Middle-depth fisheries 2019 - part 1A (**National Deepwater Plan 2019**). 370. This Plan sets out a series of Management Objectives for deepwater fisheries, the most relevant to the JMA 7 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. 371. The National Deepwater Plan 2019 is a formally approved section 11A plan, which you must take into account when making sustainability decisions. The proposed options for JMA 7 are consistent with the Management Objectives in the plan, including those outlined above. 372. Additionally, a Jack Mackerel Fisheries Plan chapter was finalised in 2013. It is not a formally approved section 11A plan. The chapter contains a number of operational

	objectives designed to contribute to the Management Objectives in the National Deepwater Plan 2019. 373. Kingfish and pilchard are managed under the National Inshore Finfish Fisheries Plan (2022), which is also a formally-approved section 11A plan. In this plan, kingfish is a Group 2 species and pilchard is a Group 3 species. 374. The Inshore Plan recognises that for Group 2 stocks, the stocks are managed to provide for moderate levels of use with moderate levels of information to monitor stock status (e.g., partial quantitative assessments). 375. Group 3 stocks are managed to provide for lower levels of use, with lower levels of information to monitor their status. Stocks are monitored against trends in catch over time, and any other relevant information. 376. FNZ considers the options for kingfish and pilchard stocks are consistent with the National Inshore Finfish Fisheries Plan (2022). **Fisheries and conservation services:** 377. The fisheries and conservation services of significance to these stocks have been described throughout this paper in relevant sections. 378. Relevant fisheries services include the research used to monitor abundance, aquatic environment and biodiversity research, and the tools used to enforce compliance with management controls. 379. Compliance is supported by observer and on-board camera monitoring in commercial fisheries. The observer and camera coverage relevant to JMA 7, KIN 7 / KIN 8, and PIL 7 / PIL 8 is described Part 1 under '*Analysis of options*' for JMA 7, and in Table 4 under '*Fishery characteristics and settings*'. 380. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species. 381. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	**Regional plans:** 382. There are six North Island[71] and four South Island[72] Regional Councils or Unitary Authorities that have coastline within the boundaries of FMAs 7-9. 383. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. The provisions of these various documents are, for the most part, of a general nature and relate to the maintenance of healthy and sustainable ecosystems to provide for the needs of current and future generations. There are no provisions specific to the fish stocks addressed in this paper. 384. FNZ has reviewed the documents and the provisions that might be considered relevant are summarised in Addendum 1. FNZ considers the options in this paper are all consistent with the objectives of the relevant plans.
Non-mandatory relevant considerations	
Other plans and strategies	Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy) 385. FNZ considers that the sustainability measures proposed for all stocks are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy 2022. This includes 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 sustainably.

[71] Northland Regional Council, Auckland Council, Waikato Regional Council, Taranaki Regional Council, Horizons Regional Council (Manawatu-Wanganui Region) and Greater Wellington Regional Council.

[72] Marlborough District, Nelson City, Tasman District, and West Coast Regional Council

Information principles: section 10 of the Act

386. The best available information relevant to JMA 7, KIN 7 / KIN 8, and PIL 7 / PIL 8 is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. The table below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in that information.

Table 11: Best available information and key areas of uncertainty for JMA 7, KIN 7 / KIN 8, and PIL 7 / PIL 8.

Best available information	Key areas of uncertainty, unreliability, or inadequacy
Jack mackerel – JMA 7	
FNZ considers that the information presented in this paper represents the best available information. Observer data has been used to derive the CPUE indices for *T. declivis* and *T. novaezealandiae.*	All JMA research projects that use observer data highlight ongoing issues with observers' ability to consistently identify the three different species of jack mackerel. The stock assessment took this into account and excluded data from trips with apparent misidentification of jack mackerel species. Work on identifying species based on the shape of the different ear bones (otoliths) is ongoing. This will further mitigate the risk of misidentification by observers. Information that the stock assessment is based on does not come from the full range of *T. declivis* and *T. novaezealandiae* distribution.
Kingfish – KIN 7 and KIN 8	
FNZ considers that the information presented in this paper represents the best available information. The data used to derive the CPUE indices for kingfish comes from information recorded by observers.	CPUE for the latter part of the time series may have been affected by attempts by vessel operators targeting jack mackerel to avoid catching kingfish (and snapper). The biological data recorded by observers comes from kingfish that are not released alive. It is unclear how representative of the overall catch this data is.
Pilchard – PIL 7 and PIL 8	
FNZ considers that the information presented in this paper represents the best available information. The fisher-reported catch information used to inform the TAC options comes from a fleet of vessels with a high rate of observer coverage.	There is no information on pilchard abundance or stock structure. Catch data is only available from the areas where the jack mackerel trawl fleet operates.
All stocks	
Over the last five fishing years an average of 70% of tows in the target jack mackerel trawl fishery were observed.	

Additional figures

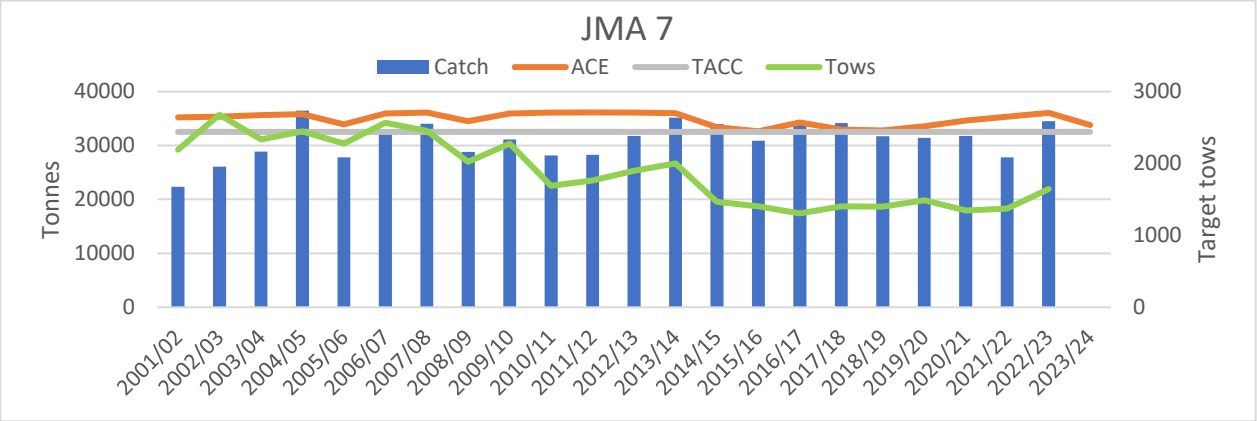


Figure 2: Graph showing catch, total allowable commercial catch (TACC), available ACE (all in tonnes), and number of target tows for JMA 7 since 2001/02.

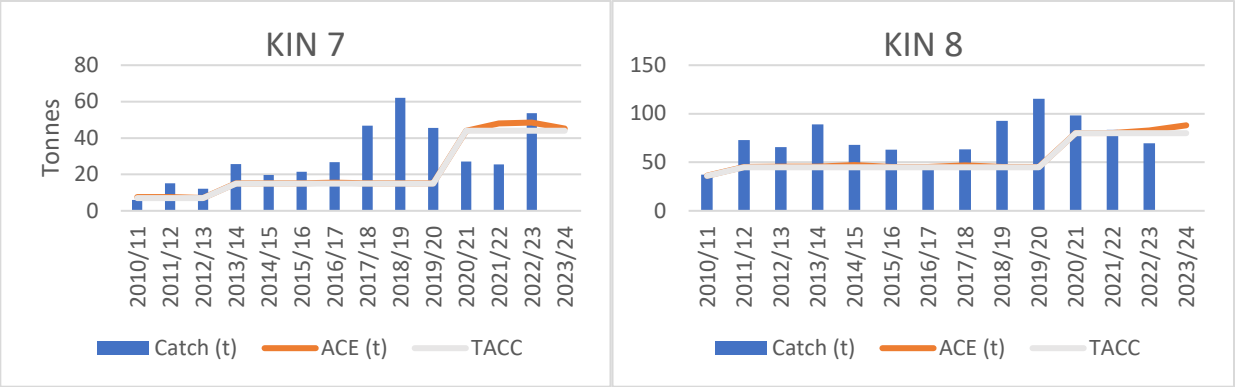


Figure 3: Graphs showing retained catch, total allowable commercial catch (TACC), and available ACE (all in tonnes) for KIN 7 (left) and KIN 8 (right) since 2010/11.

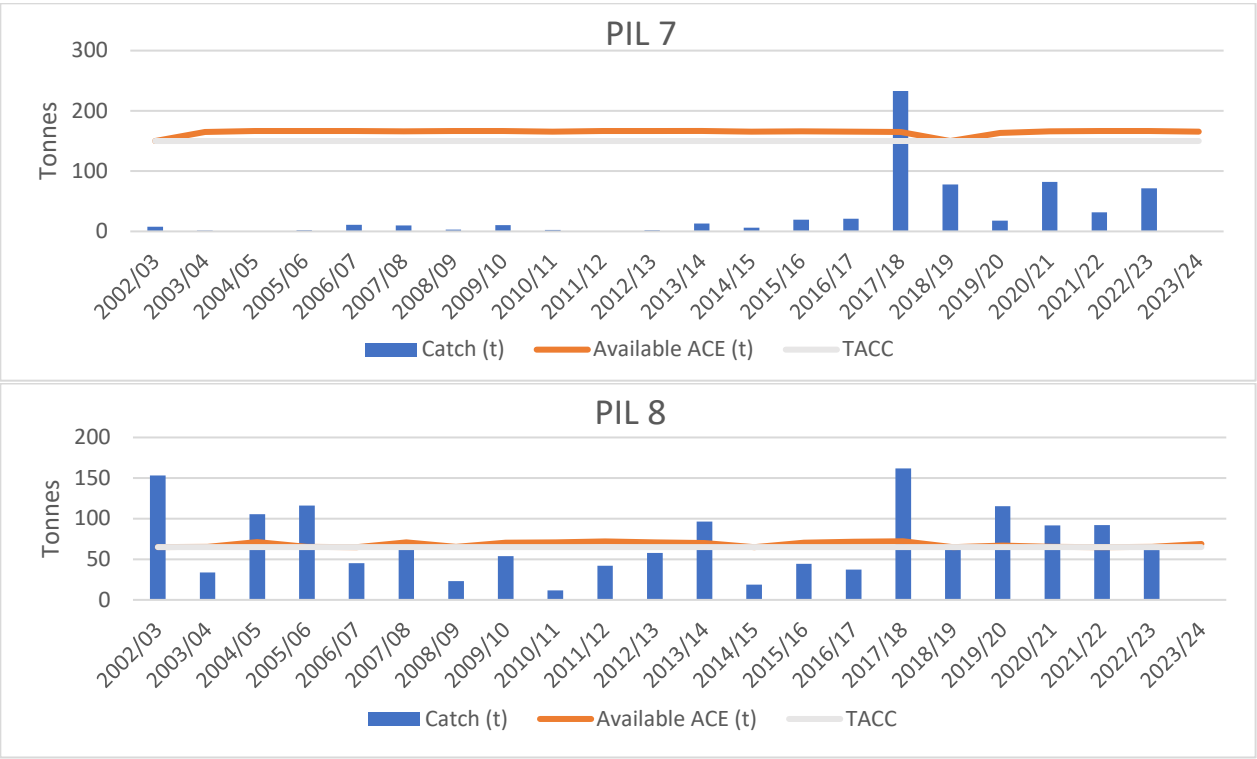


Figure 4: Graphs showing catch, total allowable commercial catch (TACC), and available ACE (all in tonnes) for PIL 7 (upper) and PIL 8 (lower) since pilchard stocks were introduced into the QMS in 2002/03.

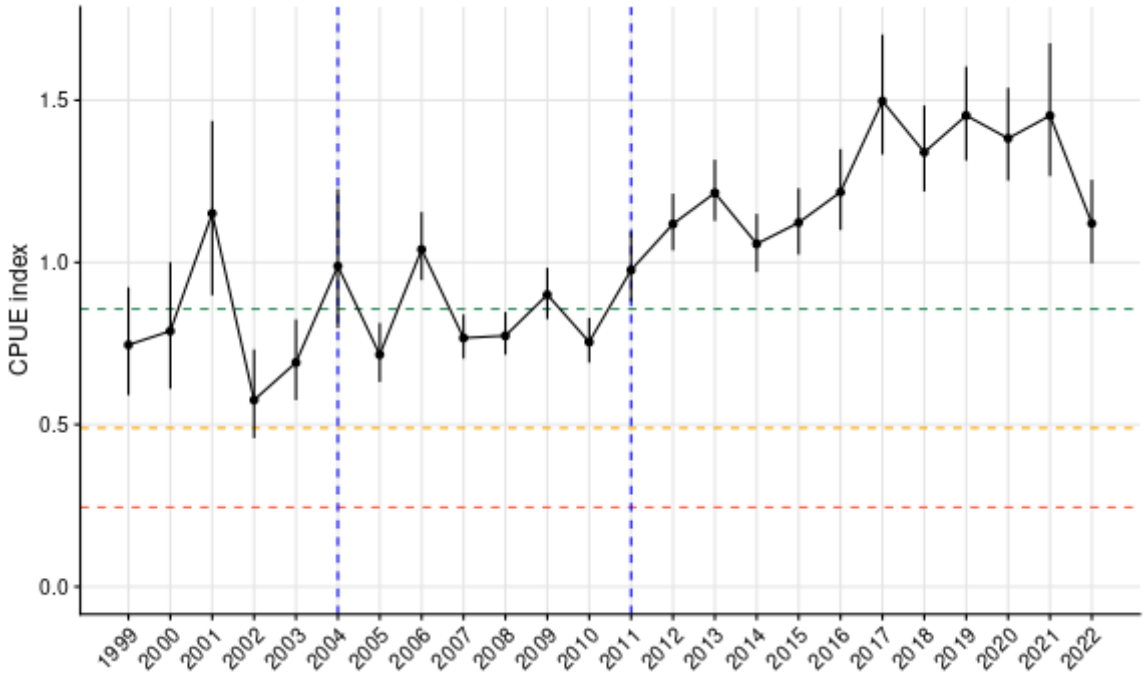


Figure 5: Positive catch standardised catch per unit effort (CPUE) index for *T. declivis* in JMA 7 (calculated from observer data using the subset of tows where length frequency sampling permits estimation of catch by species) relative to the agreed conceptual reference points. The green, orange, and red dashed lines represent the interim target, soft limit, and hard limit, respectively.

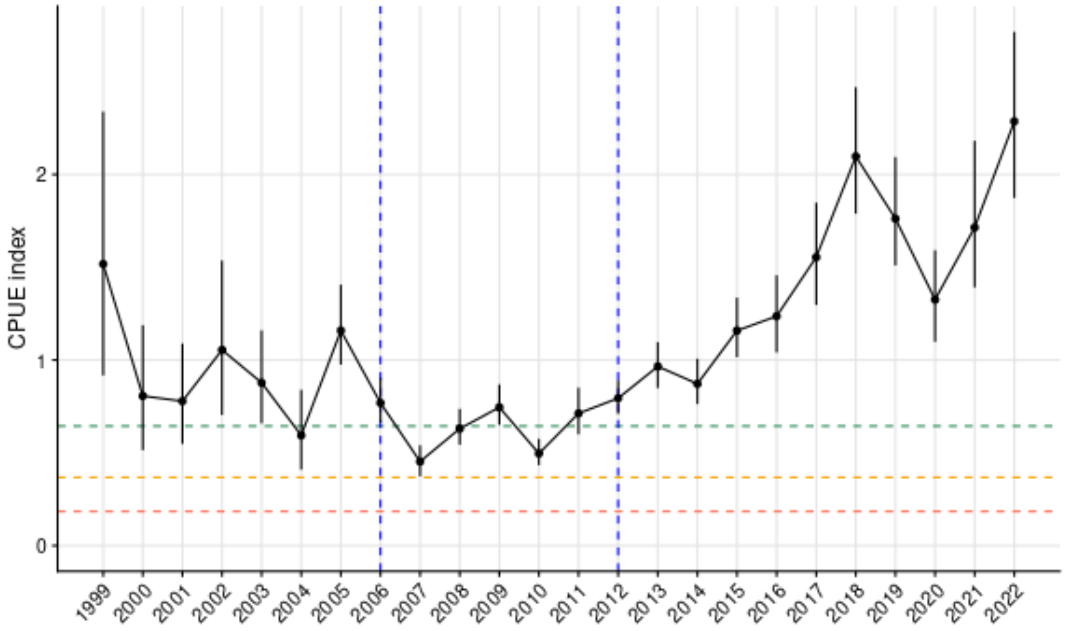


Figure 6: Combined (binomial/positive catch) standardised catch per unit effort (CPUE) index for *T. novaezealandiae* in JMA 7 (calculated from observer data using the subset of tows where length frequency sampling permits estimation of catch by species) relative to the agreed reference points. The green, orange, and red dashed lines represent the interim target, soft limit, and hard limit, respectively.

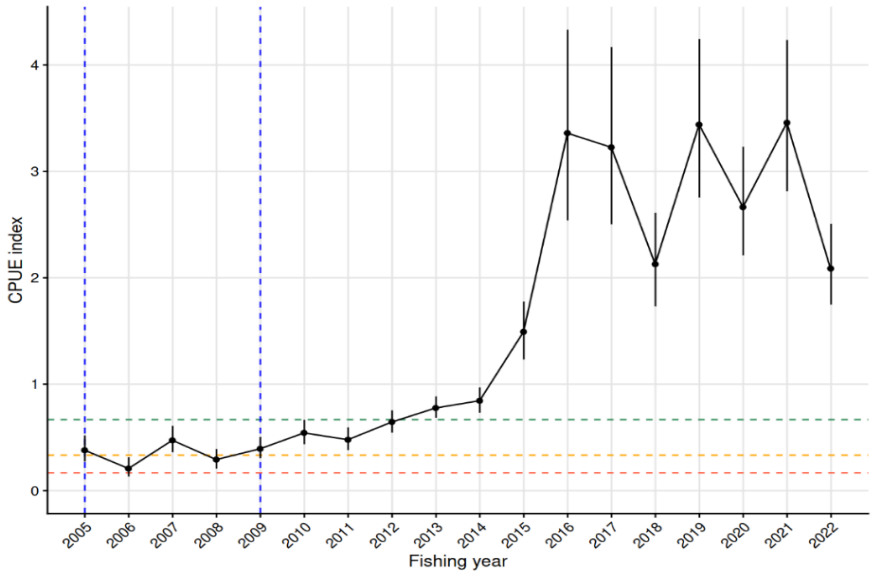


Figure 7: Standardised catch per unit effort (CPUE) index for KIN 7 and KIN 8 from midwater trawling targeting jack mackerel (observer tow-level index), relative to the agreed reference points, defined by the period indicated between dashed blue vertical lines. The green, orange, and red dashed lines represent the interim target, soft limit, and hard limit, respectively.

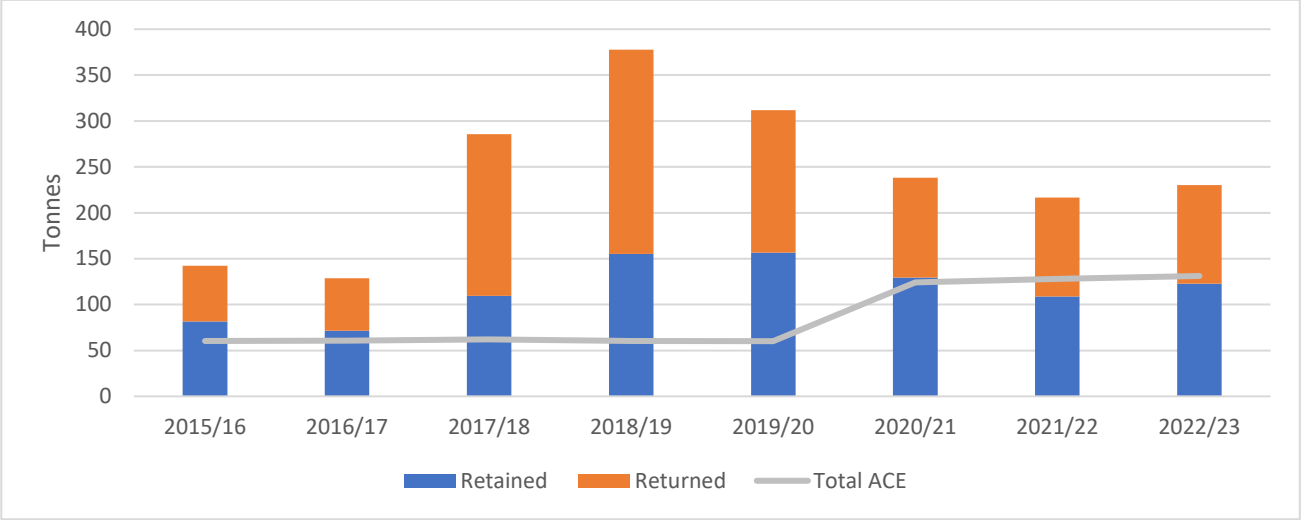


Figure 8: Graph showing quantity of kingfish in KIN 7 and KIN 8 combined that was retained (and balanced with ACE), the quantity that was returned to the sea (including sub-MLS fish), and the sum of available ACE available between 2015/16 and 2022/23.

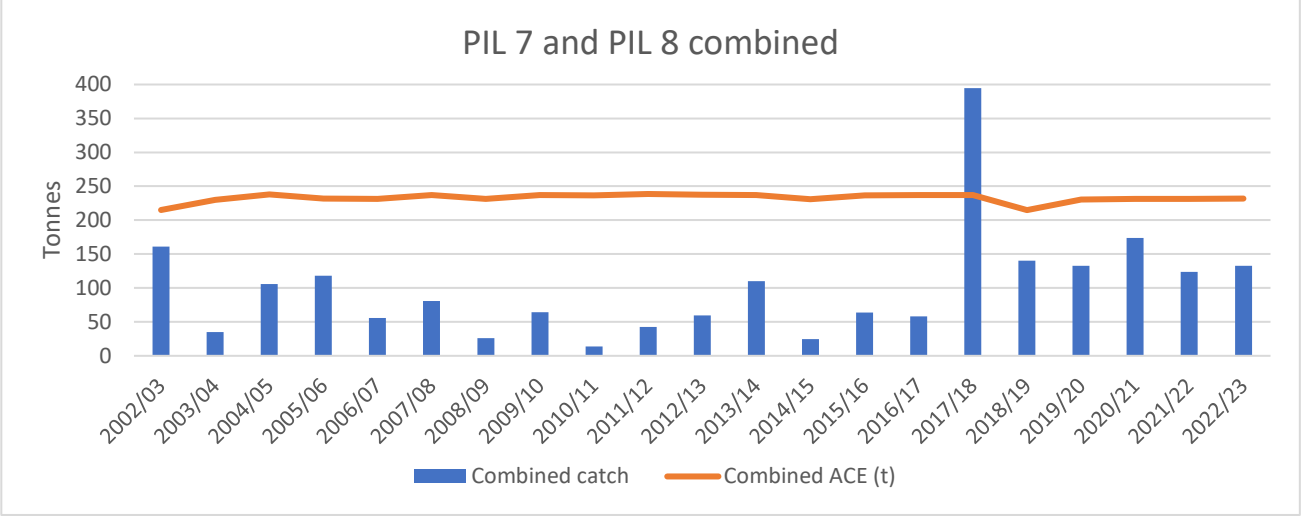


Figure 9: Graph showing annual catch of PIL 7 and PIL 8 (combined) and sum of available ACE for both stocks since QMS introduction in 2002.

Figure 10: Graphs showing catch of PIL 7 (upper) and PIL 8 (lower) compared to the TACCs proposed under Option 2.

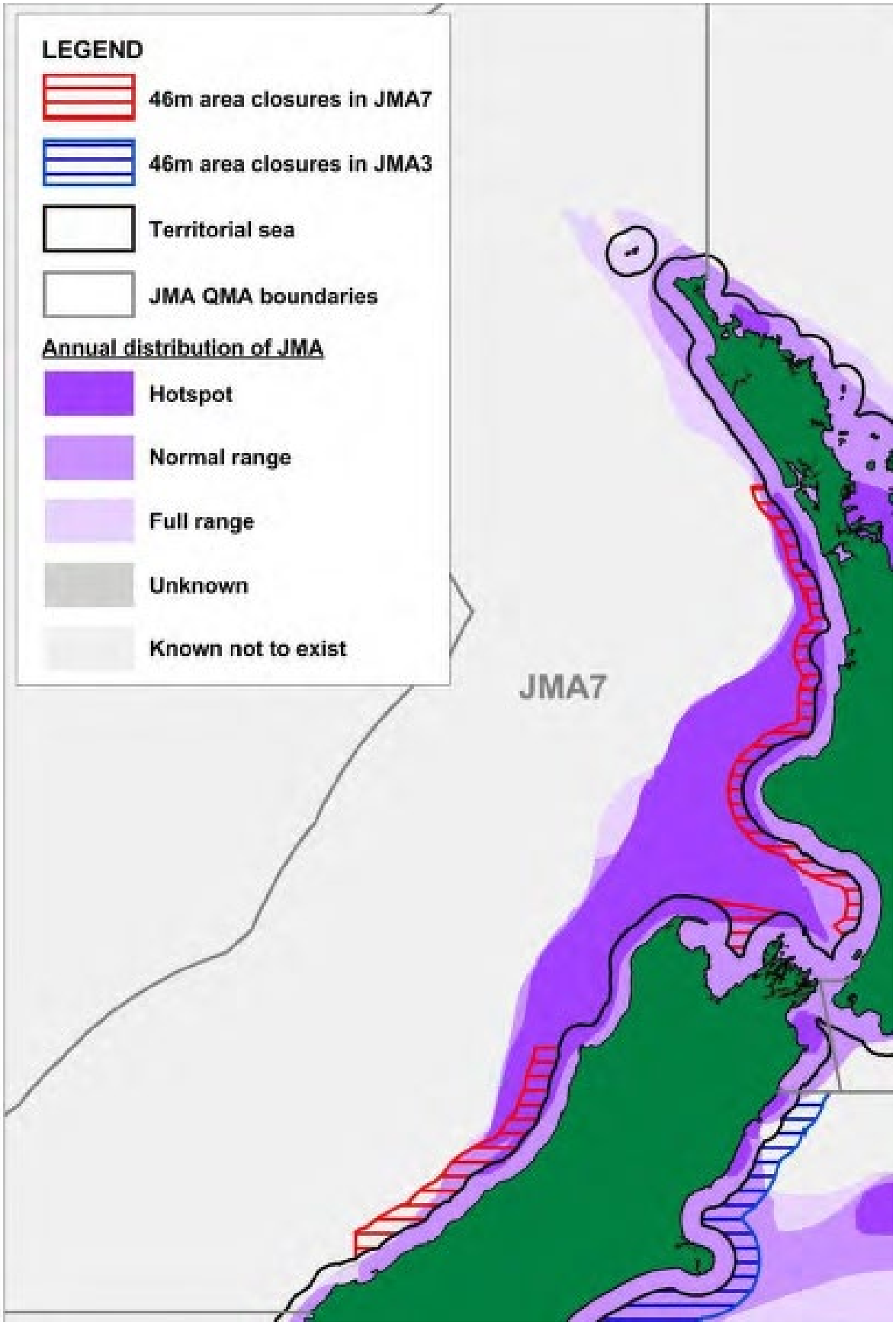


Figure 11: Map showing areas within the JMA 7 QMA (as well as the KIN 7 / 8 and PIL 7 / 8 QMAs) where trawl vessels greater than 46 metres in length are prohibited from operating. The annual distribution of JMA information is a scientific interpretation based in the best available information from published and unpublished sources.

Information on biology, interdependence, and environmental factors

387. This information supports FNZ's assessment of the proposals against section 13 of the Act in '*Part 3: Assessment against relevant legal provisions*'. Information in this section was derived from the jack mackerel, kingfish, and pilchard chapters of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

388. The abundance of **jack mackerels** means they are likely to be prey species for many species of fish, seabirds, and marine mammals. Vessels operating in the JMA trawl fishery cannot operate in areas where vessels greater than 46 m in length are prohibited. A significant proportion of likely JMA habitat is unavailable to the trawl fishery, which contributes to mitigating the relationship between jack mackerels and prey species.

389. Jack mackerel are opportunistic feeders, with their diet comprising predominantly invertebrates such as euphausiids and amphipods. They are known to sometimes eat fish, including pilchard, but fish is not an important contributor to the overall diet.

390. **Kingfish** is a predatory species known to eat a variety of other fish species. FNZ is not aware of any information on the importance of kingfish as a food source to other animals.

391. **Pilchard** is likely to be prey species for many species of larger fish (e.g. kahawai and kingfish), seabirds, such as gannets, and marine mammals, including dolphins.

Biological characteristics

Jack mackerel (JMA 7)

392. There are three species of jack mackerel and fishers are not required to report them separately. The least common species (*T. murphyi*, JMM) currently comprises a very small proportion (~1%) of the overall JMA 7 catch (Moore et al 2024) and is not considered further in this decision document.

393. *T. declivis* (JMD), the dominant species in the overall JMA 7 catch, grows to a maximum length of around 46 cm and has a maximum age of at least 25 years. *T. novaezelandiae* (JMN), the second most common species, grows to a maximum length of around 35 cm and also has a maximum age of at least 25. The ranges of the two species overlap in the northern parts of JMA 7 (the north and south Taranaki Bights and), however *T. declivis* dominates catch off the west coast of the South Island. Both species have moderate initial growth rates that slow after about 6 years.

394. The stock structure of JMA 7 is not well known, however there may be separate east coast and west coast stocks based on differences in growth rates.

Kingfish (KIN 7 & 8)

395. Kingfish are large predatory fish that can exceed 1.5m in length. They are a fast growing, medium-lived species that reaches sexual maturity around 5-6 years of age. There are thought to be separate stocks off the west and east coasts. Tagging studies have shown that kingfish move long distances.

Pilchard (PIL 7 & 8)

396. Pilchards are generally found inshore, particularly in gulfs, bays, and harbours. It is a fast-growing and short-lived species that reaches a maximum length of around 25cm and maximum age of around 9. The main size range is 10-20cm, and these fish are probably 2-6 years old. The species probably reaches sexual maturity at age 2 and diet consists of invertebrates.

Environmental conditions affecting the stock

FNZ is not aware of any specific environmental conditions affecting jack mackerel in JMA 7.

397. Kingfish range has increased in recent years. They have become more common around the South Island, potentially in response to warming ocean temperatures.

398. The distribution of pilchard over areas of the outer continental shelf, where they are encountered by the jack mackerel target trawl fleet, is likely to be related to interannual variability in environmental conditions. The year with the highest combined catch (395 tonnes in 2017/18) coincided with a large marine heat wave, with sea surface temperatures in some areas well above average. Marine heat waves would be expected to become more frequent in a warming world (Fisheries New Zealand, 2022). Pilchards were impacted by occasional natural mass mortalities in the 1990s, attributed to a herpes virus.

Information on environmental impacts

Protected species

Seabirds

399. The most recent seabird risk assessment (Edwards et al 2023) indicates the 'mackerel' fishery group poses very little risk to seabirds. Of the top 30 at risk species, the mackerel fleet contributes 1% of risk to one species (white-chinned petrel). The risk is not expected to change with a modest increase in effort that may occur if the TACC increases. Data from the protected species capture website also indicates that seabird capture rate for all vessels operating off the west coast of the North Island is very low.

400. The jack mackerel trawl fleet is subject to mandatory requirements to deploy seabird scaring devices such as tori lines and/or bird bafflers. In addition, all vessels currently operating have a meal plant and discard very small quantities of material that may attract seabirds.

401. During the last five years four seabird interactions have been recorded by observers, none of which involved birds being caught in the trawl net or warps.

Mammals

402. The pelagic trawl fleet operating off the west coast occasionally interacts with marine mammals when targeting jack mackerel, primarily common dolphins, and fur seals. In the last five completed fishing years a total of five common dolphins and six fur seals have been reported. The low interaction rate is not expected to increase with the modest increase in effort that may occur if the JMA 7 TACC were to increase.

403. When targeting jack mackerel, vessel operators have deployed 'dolphin dissuasive devices' on every tow since 2010.

Fish and invertebrate bycatch

404. The most recent report on fish and invertebrate catch in the jack mackerel fishery (Finucci et al 2022) indicated that jack mackerel accounted for 78% of the total estimated catch between 2002 and 2019. The remaining 22% comprised mostly other QMS species including barracouta, blue mackerel, and frostfish.

405. As abundance of kingfish and snapper has increased in recent years, jack mackerel vessel operators have implemented initiatives to minimise catches of these two species that are important to both inshore commercial fishers and recreational fishers. They have also implemented measures designed to ensure that if kingfish are caught, as many as possible can be returned alive.

406. Vessel operators have indicated that these initiatives will continue regardless of any changes to the JMA 7 TACC.

Biological diversity of the environment

407. Jack mackerel are likely to be important prey species for a number of predators. The ongoing abundance within JMA 7, combined with the fact the trawl fishery does not take place over the entire range of the species' distribution, means that an increase in the TACC is unlikely to result in negative implications for biological diversity and maintenance of the ecosystems balance.

Habitat of particular significance for fisheries management

408. One potential habitat of particular significance for fisheries management in KIN 8 can be found in Table 12, below. KIN 8 catch in relation to this potential habitat of particular significance for fisheries management is taken in other fisheries including the SNA 8 trawl fishery which may have an impact on the habitat. This site is further considered in the SNA 8 paper.

409. There are other potential habitats of particular significance for fisheries management present within the FMA but those areas do not overlap with the area fished for the species for which you are making decisions:

- Subtidal rocky reefs at Waipapa, Rakautara, Omihi, and Oaro (pāua spawning aggregations);
- Kaipara and Manukau Harbours (nursery area for multiple species, including grey mullet, rig/spotted dogfish, and snapper;
- Orange roughy spawning aggregation habitats;
- Intertidal and subtidal shellfish beds at Te Oneroa-a-Tōhe;

- Marlborough Sounds sites for elephantfish spawning and egg laying, including Penzance Bay, Iwirua Point and Kumutoto Bay in Queen Charlotte Sound, from Fitzroy Bay to Savill Bay, Garnes Bay, Kumutoto Bay and Grove Arm in Pelorus Sound and Clifford Bay; and
- Inner Golden and Tasman Bays for juvenile snapper.

Table 12: Potential habitat of particular significance for fisheries management relevant to KIN 8.

Potential habitats of particular significance for fisheries management
Patea Shoals – South Taranaki Bight
Attributes of habitat • Mixed biogenic habitat – sand, low-lying rocky outcrops, worm fields, bivalve rubble, and bryozoan rubble. **Reasons for particular significance** • Known nursery ground for some finfish species and may also be a spawning ground for some finfish species, including John dory. **Risks/Threats** • Extreme weather events, which can modify inshore biogenic habitats, mobile bottom-contact fishing methods, sedimentation from land-based sources or the resuspension of sediments by bottom contact fishing or subtidal sand or mineral mining. **Existing protection measures** • Trawl and set net restrictions along the North Island West Coast to protect Maui dolphin; prohibition of Danish seining around the lower North Island within 3 nautical miles seaward of the mean high-water mark; restricted areas around Taranaki to protect petroleum installations, prohibits fishing in these areas. **Evidence** • Morrison *et al.,* (2014), Morrison *et al.,* (2022), Beaumont *et al.,* (2015), Anderson *et al.,* (2019) and Hurst et al. (2000)

Part 5: Conclusions and recommendations

Jack mackerel – JMA 7

410. To date, the presence of three jack mackerel species in New Zealand waters has made assessing the abundance of the difference species problematic. However, the 2023 JMA 7 assessment resolved these issues by using data from observers to derive CPUE indices for the two most common jack mackerel species.

411. The assessment indicated that biomass of the two most common species (comprising more than 98% of catch) is well above the respective management targets. FNZ considers that a modest increase to the TACC for JMA 7 is consistent with your obligations under the Act to maintain the stock at or above B_{MSY}.

412. FNZ recommends Option 3 for JMA 7; that you increase the TACC by 3,000 tonnes, set a recreational allowance of 10 tonnes, set an allowance of 5 tonnes for customary Māori, set the allowance for other mortality caused by fishing equivalent to 1% of the TACC, and set a TAC for this stock for the first time (of 35,907 tonnes). This option provides for greater utilisation without posing risks to the sustainability of the stock.

413. Some increase in fishing effort may occur in the event of a TACC increase. The jack mackerel trawl fishery has a very low interaction rate with protected species such as seabirds and marine mammals in comparison to some other trawl fisheries. For this reason, an increase in effort is not expected to significantly change the risk to protected species. Similarly, any increase in effort is expected to be within the existing trawl footprint for this fishery.

414. The species that are taken as non-target catch in the jack mackerel trawl fishery are primarily species that are managed under the QMS. While an increase in effort could result in an increase in non-target catch, there are no known sustainability concerns for any of the species taken as non-target catch.

415. In recent years the increase in abundance of non-target species such as snapper and kingfish has meant that fishing activity for jack mackerel has, at times, included a focus on the avoidance of these species. This has resulted in reduced efficiency. An increase in the amount of ACE available for west coast kingfish and snapper stocks in the 2024/25 fishing year may enable vessel operators to harvest jack mackerel more efficiently.

416. The removal of more jack mackerel, which is an important prey species, is not expected to adversely affect the marine ecosystem. The fishery will continue to be monitored, with the next stock assessment scheduled for the 2025/26 financial year. If the assessment indicates abundance of jack mackerels is declining in JMA 7, the stock can be prioritised for management action.

Kingfish - KIN 7 / KIN 8

417. Kingfish abundance in the west coast stocks continues to remain at a high level, and well above the management target, following a rapid increase in the three years prior to 2016.

418. Management of commercial catch is based on providing for unavoidable bycatch in recognition of the value of this species to recreational fishers. This approach means that around half the kingfish taken by commercial fishers in KIN 7 and KIN 8 are returned to the sea alive. The current TACCs, which were set in 2020, mean that despite the ongoing abundance, deemed values can still be incurred when fishers are unable to balance catch of fish that cannot be returned to the sea with ACE; over $260,000 has been incurred across both stocks since 2020/21.

419. FNZ considers that the ongoing level of abundance presents an opportunity to provide for commercial fishers to balance more kingfish catch with ACE in the event that fish are unable to be returned to the sea. For both stocks, Option 3 in the consultation document represented the highest TAC / TACC increases. Under this option the TACC for KIN 7 would increase by 10 tonnes to 54 tonnes, and the TACC for KIN 8 would increase by 15 tonnes to 95 tonnes.

420. Following consultation, an additional option (Option 4) has been included for both stocks. Under this option the TACCs are slightly higher than those under Option 3 (six tonnes higher for KIN 7 and five tonnes for KIN 8). Option 4 would result in the TACC for KIN 7 increasing by 16 tonnes to 60 tonnes, and the TACC for KIN 8 increasing by 20 tonnes to 100 tonnes; this represents an overall increase of 36 tonnes to the combined TACCs of both stocks.

421. The additional ACE that would be available under Option 4 would further reduce the likelihood of fishers being unable to balance retained catch with ACE and incurring deemed values. The new option

acknowledges the suggestions from industry that they should not be penalised (in the form of deemed values) for catching stocks that are well above target reference points.

422. Regardless of which option you choose the ongoing incentives for commercial fishers to return live kingfish to the water wherever possible will remain. These incentives are particularly relevant to operators in the pelagic trawl fleet, for whom kingfish represents a low value product. While the options for TACC increases would provide for some additional catch to be balanced with ACE, the overall amount of ACE that would be available will still remain well below total catch (catch that is retained plus catch returned to the sea).

423. An increase to the TAC/TACCs for KIN 7 and KIN 8 is not expected to result in any changes to fishing effort as kingfish is not targeted in this area.

424. On balance, FNZ recommends Option 4 for both stocks; that you increase the TAC for KIN 7 by 18% to 116 tonnes and increase the TAC for KIN 8 by 14% to 190 tonnes.

Patea Shoals

425. FNZ considers that it would be appropriate for spatial measures to be used at Patea Shoals to better protect this potential habitat of particular significance for fisheries management from trawl disturbance. FNZ considers it is appropriate to explore these measures and will continue discussions with stakeholders and tangata whenua to further develop management options for this area.

Pilchard - PIL 7 / PIL 8

426. FNZ considers there is an opportunity to better provide for utilisation of west coast pilchard stocks based on the two decades of catch information that has become available since QMS introduction in 2002. Since 2002, there has been no development of a target pilchard fishery in PIL 7 or PIL 8. Almost all catch has been recorded on trawl vessels targeting jack mackerel, and has not aligned with the TAC/TACCs that were set in 2002.

427. FNZ recommends Option 2 for PIL 8; setting a TAC of 157 tonnes and increasing the TACC from 65 to 135 tonnes. This option would mean that in most years, fishers who take pilchard as non-target catch in PIL 8 will be able to balance catch with ACE.

428. For PIL 7, all options are available to you. As there is no target fishery in PIL 7, whichever option you choose is unlikely to have any impact on fisher behaviour with pilchard in PIL 7 continuing to being taken mostly as non-target catch in the jack mackerel trawl fishery.

429. Option 2 represents the largest reduction in the amount of ACE that would be available to be balanced with catch (a 70-tonne decrease). Based on catch information since 2002 it is likely that in most years there would be sufficient ACE available. Catch has only exceeded the TACC under this option of 80 tonnes twice over that time period. However, some submitters questioned the need for a TACC reduction of close to 50% in the absence of any sustainability concerns.

430. Under Option 3, the TACC would be 115 tonnes, midway between the *status quo* (150 tonnes) and the TACC under Option 2 (80 tonnes). Catch has exceeded 115 tonnes once since 2002. This option would reduce the likelihood of fishers not being able to balance catch with ACE.

431. Option 1 is to set a TAC and retain the existing TACC of 150 tonnes. Options 1 and 3 acknowledge the point raised by some submitters regarding reducing the TAC/TACC for PIL 7 without sustainability concerns having been identified. These options also consider the submitters who suggested that the TACC proposed under Option 2 would reduce options for fishers who may wish to diversify into pilchard fishing.

432. Pilchard is another important prey species. Options that would result in an increase to the combined TACCs for PIL 7 and PIL 8, would increase the risk of changing the ecosystem role of pilchard in this area. However, the risk is considered low as most habitat thought to be preferred by pilchard does not overlap with jack mackerel trawl fishery, and there is currently no target fishery in this habitat.

433. FNZ agrees with the suggestion raised in some submissions for quota holders to consider amalgamating the PIL 7 and PIL 8 QMAs.

Decision for JMA 7

Option 1

Agree to set the JMA 7 TAC at 32,876.763 tonnes and, within the TAC, to:

i. Set the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Set the allowance for recreational fishing interests at 10 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 325 tonnes;
iv. Retain the JMA 7 TACC at 32,536.763 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the JMA 7 TAC at 34,392 tonnes and, within the TAC, to:

i. Set the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Set the allowance for recreational fishing interests at 10 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 340 tonnes;
iv. Increase the JMA 7 TACC from 32,536.763 to 34,037 tonnes.

Agreed / Agreed as Amended / Not Agreed

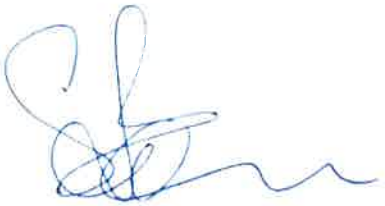
OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the JMA 7 TAC at 35,907 tonnes and, within the TAC, to:

i. Set the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Set the allowance for recreational fishing interests at 10 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 355 tonnes;
iv. Increase the JMA 7 TACC from 32,536.763 to 35,537 tonnes.

Agreed / **Agreed as Amended / Not Agreed**



Hon Shane Jones
Minister for Oceans and Fisheries

16 / 09 / 2024

Decision for KIN 7

Option 1 (*status quo*)

Agree to retain the KIN 7 TAC at 98 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 6 tonnes;
ii. Retain the allowance for recreational fishing interests at 40 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 8 tonnes;
iv. Retain the KIN 7 TACC at 44 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the KIN 7 TAC at 105 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 6 tonnes;
ii. Retain the allowance for recreational fishing interests at 40 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 8 to 9 tonnes;
iv. Increase the KIN 7 TACC from 44 to 50 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3

Agree to set the KIN 7 TAC at 109 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 6 tonnes;
ii. Retain the allowance for recreational fishing interests at 40 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 8 to 9 tonnes;
iv. Increase the KIN 7 TACC from 44 to 54 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 4 *(Fisheries New Zealand preferred option)*

Agree to set the KIN 7 TAC at 116 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 6 tonnes;
ii. Retain the allowance for recreational fishing interests at 40 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 8 to 10 tonnes;
iv. Increase the KIN 7 TACC from 44 to 60 tonnes.

Agreed / **Agreed as Amended / Not Agreed**

Hon Shane Jones
Minister for Oceans and Fisheries

16 / 09 / 2024

Decision for KIN 8

Option 1 (*status quo*)

Agree to retain the KIN 8 TAC at 167 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 19 tonnes;
ii. Retain the allowance for recreational fishing interests at 55 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 13 tonnes;
iv. Retain the TACC at 80 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the KIN 8 TAC at 179 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 19 tonnes;
ii. Retain the allowance for recreational fishing interests at 55 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 13 to 15 tonnes;
iv. Increase the KIN 8 TACC from 80 to 90 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3

Agree to set the KIN 8 TAC at 184 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 19 tonnes;
ii. Retain the allowance for recreational fishing interests at 55 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 13 to 15 tonnes;
iv. Increase the KIN 8 TACC from 80 to 95 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 4 *(Fisheries New Zealand preferred option)*

Agree to set the KIN 8 TAC at 190 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 19 tonnes;
ii. Retain the allowance for recreational fishing interests at 55 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 13 to 16 tonnes;
iv. Increase the KIN 8 TACC from 80 to 100 tonnes.

Agreed **Agreed as Amended / Not Agreed**

AND

Note FNZ will conduct further work, including engaging with tangata whenua, industry, and other stakeholders, to develop options for mitigating fishing related impacts to Patea Shoals.

Noted

Hon Shane Jones
Minister for Oceans and Fisheries
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Decision for PIL 7

Option 1 (*modified status quo*)

Agree to set the PIL 7 TAC at 173 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 0 to 8 tonnes;
iv. Retain the TACC at 150 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the PIL 7 TAC at 99 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 0 to 4 tonnes;
iv. Decrease the PIL 7 TACC from 150 to 80 tonnes.

Agreed / Agreed as Amended / Not Agreed

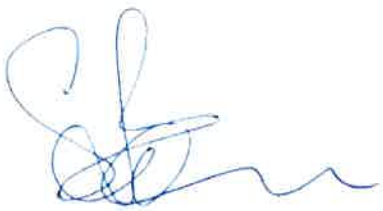
OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the PIL 7 TAC at 136 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 0 to 6 tonnes;
iv. Decrease the PIL 7 TACC from 150 to 115 tonnes.

Agreed **Agreed as Amended / Not Agreed**



Hon Shane Jones
Minister for Oceans and Fisheries

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Decision for PIL 8

Option 1 (*modified status quo*)

Agree to set the PIL 8 TAC at 83 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 3 tonnes;
iv. Retain the PIL 8 TACC at 65 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(Fisheries New Zealand preferred option)*

Agree to set the PIL 8 TAC at 157 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 0 to 7 tonnes;
iv. Increase the PIL 8 TACC from 65 to 135 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Chapter 4: Orange roughy / nihorota (ORH 7A) – Challenger Plateau

Part 1: Overview

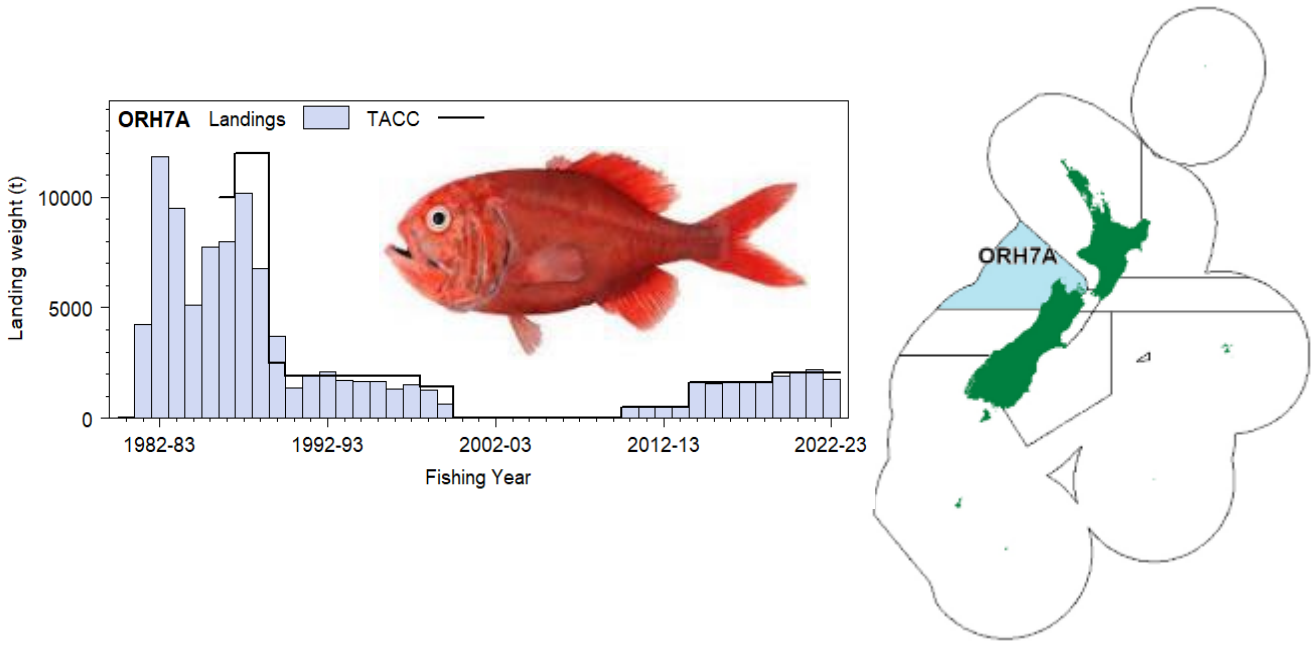


Figure 1: Quota Management Areas (QMAs) and total allowable commercial catches (TACCs) for orange roughy / nihorota (*Hoplostethus atlanticus*), with ORH 7A highlighted.

Rationale for review

434. FNZ is reviewing sustainability measures for orange roughy (*Hoplostethus atlanticus*) in ORH 7A (Figure 1) in response to concerns about the sustainability of fishing at current levels.

435. An updated stock assessment for ORH 7A was completed in 2024 and three models were considered by the Deepwater Working Group (**DWWG**)[73] (Figure 2). The three models are distinguished by the different inputs and assumptions used to inform them. The base model accepted by the DWWG (the 'All2' model, the most optimistic of the three models considered), estimates current biomass to be at 35% unfished biomass (***B*$_0$**).[74] The Plenary review considered the assessment and determined the stock to be 'As Likely As Not' (40-60% probability) to be at or above the lower end of the target biomass range of 30-50% B_0.

436. There is considerable uncertainty in the model, because the most recent abundance information included in the model dates from 2013. While an acoustic survey was undertaken in 2023, the biomass estimates from this survey were not included in the base assessment model, because spawning aggregations could not be found during the survey, and it is uncertain whether the survey timing coincided with peak spawning. The inclusion of this survey (and earlier surveys that had similar issues) in other models presented to DWWG predict a more pessimistic stock status, including the outcome that the stock was below the soft limit (Figure 2).

437. Projections of stock status show that, under all three of the models considered, biomass is predicted to decline if catch is maintained at the current TAC. There is considerable uncertainty attached to all three models, as shown by the wide confidence intervals associated with the stock trajectories, which increases further out in time. Under the base model, biomass is expected to decline to 30% B_0, the bottom of the management target range, after five years (Table 1). This is driven by historic overfishing that reduced the spawning stock biomass (SSB) to a very low level, with fewer fish recruiting into the fishery as a result. The model predicts that recruitment will continue to decline until around 2034 before it begins to increase.

[73] The DWWG is a Stock Assessment Working Group for deepwater species, convened by FNZ and includes industry and non-governmental scientists and representatives. Based on scientific information the DWWG assesses the status of deepwater fish stocks 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.

[74] B_0, the level of unfished (virgin) biomass of a fish stock, is the theoretical carrying capacity of recruited or vulnerable biomass. It represents the level of biomass a fish population would eventually return to if fishing was halted.

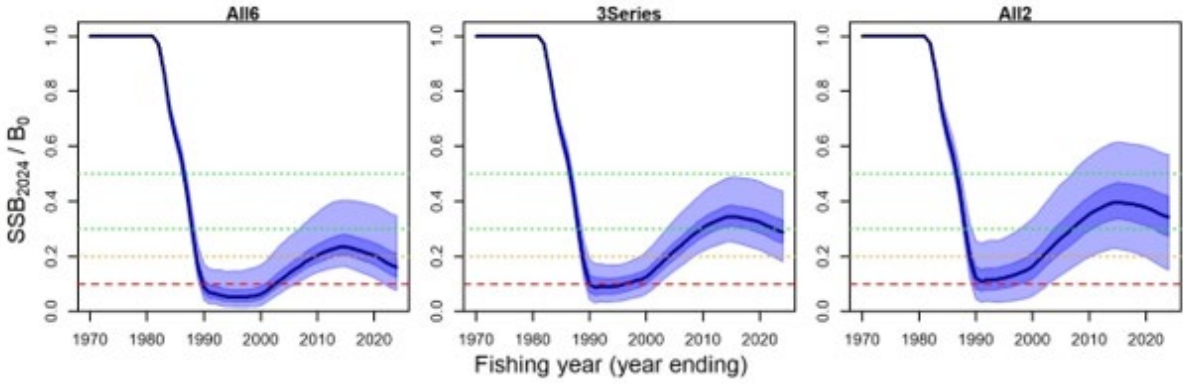


Figure 2: Three models developed for consideration by the Deepwater Working Group showing estimated spawning stock biomass (SSB_{2024}/B_0) trajectory for ORH 7A. The All2 model (right hand side) was accepted as the base model by the Working Group and Plenary. The solid black line shows the median, the darker shaded areas cover 50% of the distribution, and the lighter shaded area 95% of the distribution. The green horizontal lines show the target range, the yellow line shows the soft limit, and the red line indicates the hard limit.

438. These projections indicate a sustainability concern for the stock because there is a risk that, at current catch settings, the stock will decline below the management target range. Based on these projections, and the high uncertainty in the model, FNZ consulted on a broad range of options to reduce the TAC of the stock (by 20%, 40%, or 57%) (Table 3).

439. Under either the current TACC or the two options to reduce the TACC by 20% or 40%, the stock is predicted to decline over the next five years (Table 1). The larger of these reductions proposed (40%) will slow the predicted rate of decline to keep the stock within the management target range with greater confidence until the next stock assessment planned for 2029. Only under the third option (a 57% reduction in the TACC) is the stock predicted to be maintained at the current level of B_0 after five years. Longer term projections suggest that the trajectories will continue to trend downwards, although the uncertainty increases with the length of the projection.[75]

440. Table 2 shows the probabilities of the spawning stock biomass falling below the soft limit of 20% B_0 under the four TACC options discussed in this paper. Note that there is nearly a one in five chance (19% likelihood) that the biomass will fall below the soft limit by 2028-29 if the TACC is retained at the current level.

Table 1: Projected estimates of stock status (expressed as % B_0) for 2024 to 2029 using the base model (All2) with catches at the TACC, and at 0.8, 0.6, and 0.43 of the current TACC. 95% confidence intervals (CIs) are shown in parentheses.

	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29
Current TACC	35 (16–57)	34 (15–56)	33 (14–56)	32 (13–55)	31 (11–54)	30 (10–53)
0.8×TACC (Option 2)	35 (16–57)	34 (15–57)	33 (14–56)	33 (14–56)	32 (13–55)	32 (12–55)
0.6×TACC (Option 3)	35 (16–57)	34 (15–57)	34 (15–57)	34 (15–57)	34 (14–57)	33 (14–57)
0.43 x TACC (Option 4)	35 (16–57)	34 (16-57)	35 (16-57)	35 (16-58)	35 (16-58)	35 (16-58)

Table 2: Percentage probability that the spawning stock biomass will be below the soft limit (SSB <20% B_0) from 2024 to 2029, using the base model (All2) with catches at the TACC, and at 0.8, 0.6 and 0.43 of the current TACC.[76]

p<0.2	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29
TACC	7	9	11	14	16	19
0.8×TACC	7	8	10	11	13	14
0.6×TACC	7	8	8	9	10	10
0.43×TACC	7	8	8	8	8	8

[75] Refer to Table 10 in Part 4 '*Supporting information*' for these biomass projections out to 2038/39.

[76] Refer to Tables 11, 12, and 13 in 'Part 4 '*Supporting information*' for probability scenarios for the stock relative to the hard limit (p<0.1), the soft limit (p<0.2), and being above the lower bound of the target range (0.3) to 2038/39 with catches at the TACC, and at 0.8, 0.6 and 0.43 of the TACC.

441. Based on the information outlined above, FNZ is now seeking your decision to set the TAC of ORH 7A under section 13(2)(a) of the Fisheries Act 1996 (**the Act**). Your decision will take effect from the beginning of the next fishing year on 1 October 2024.

Proposed options and FNZ's recommendations

442. Although the *status quo* was an option that was consulted on, FNZ does not consider the *status quo* to be consistent with your obligations under section 13 to manage stocks to the biomass that will support maximum sustainable yield (B_{MSY} - discussed further in Part 3 of this chapter).

Table 3: Proposed management options (in tonnes) for ORH 7A from 1 October 2024. FNZ's preferred option is highlighted in orange.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 (*status quo*)	2,163	2,058	2	0	103
Option 2	1,730 (↓ 433)	1,646 (↓ 412)	2	0	82 (↓ 21)
Option 3	1,301 (↓ 862)	1,235 (↓ 823)	2	0	64 (↓ 39)
Option 4	942 (↓ 1,221)	885 (↓ 1,173)	2	0	55 (↓ 48)

443. FNZ received 15 submissions in response to the proposals, all of which expressed support for a TAC reduction. In general, eNGOs and individuals supported the largest reduction (Option 4 or larger) and quota owners had varying preferences for Options 2, 3, or 4.

444. The feedback from submissions has been characterised further under '*Analysis of options*' below. More detail, including other matters raised by submitters, is provided in Part 2 '*Submissions'*.

445. Based on our analysis of these options and incorporating the feedback received (see Part 2), as well as our assessment of the options against legal provisions (see Part 3), FNZ recommends **Option 4**. Rationale for this recommendation is set out at the end of this chapter, with FNZ's conclusions under Part 5 '*Conclusions and recommendations*'.

Analysis of options

446. The options proposed for ORH 7A are analysed below with an outline of key risks and benefits. Additional information and rationale to support current and proposed settings within the TAC can be found below in Table 4 under *'Fishery characteristics and settings'*.

Option 1 – retain current settings (*status quo*)

Benefits	447. This option is neutral in the short term with respect to potential impacts on revenue for ACE holders as well as employment (both directly in the fishery and indirectly related to the fishery) assuming all other things remain the same (catch levels and prices remain consistent, export demand, product mix and prices remain consistent, and no external factors are considered).
Risks	448. There is a high risk that this option may not enable the stock to move towards or above a level that supports *MSY*, which would be inconsistent with your requirement for setting the TAC under section 13(2)(a) of the Act. 449. The risk of the stock falling below the target biomass range by 2028/29 is highest out of the options presented. In the long-term there is an economic and reputational risk associated with continuing to fish a depleted stock at the same level and the inability to harvest at sustainable levels, particularly as recruitment is predicted to decline until 2034. 450. The B_{2024} estimate for ORH 7A is 35% B_0 with a wide confidence interval (95% CI of 16 -57). Projections under the current TAC/TACC setting estimate that the biomass would slowly decrease to 30% B_0 by 2028/29. This is above the soft limit, but at the lower bound for the target biomass.

	451.	This estimate of B_{2029} is also associated with a wide confidence interval (95% CI of 10 -53) of remaining within the target biomass range, with up to a 19% probability of being below the soft limit, and up to a 2% probability of being below the hard limit, during the next five years.
Feedback received	452.	No submissions in support of Option 1 were received. ELI agreed with FNZ that retaining the *status quo* would be inconsistent with your obligation under section 13 of the Act to manage the stock at or above a level that can produce the *MSY*.

Option 2 – 20% TACC decrease

Benefits	453.	Option 2 is the smallest TACC decrease of the three TACC reduction options presented. It would have less impact on utilisation in the short-term compared with Option 3 or 4.
	454.	A 20% TACC decrease to 1,646 tonnes is similar to the landings in 2022/23 of 1,717 tonnes and the 1,600-tonne TACC that was in place between the 2015/16 and 2018/19 fishing years, when the TACC was fully caught.
Risks	455.	A 20% TACC decrease to 1,646 tonnes is the least cautious of the three TAC reduction options proposed with respect to sustainability. The risk of the stock falling below the target biomass range by 2028/29 is higher under this option than under Options 3 and 4. Under a 20% TAC/TACC reduction for 2024/25, biomass is projected to slowly decrease to 32% B_0 by 2028/29 (with a 95% confidence interval of 12-55).
	456.	While the estimated current biomass of 35% B_0 is within the management target range, the members of the May 2024 Fisheries Assessment Plenary review considered the uncertainty in the assessment and concluded the stock is "About as Likely as Not" (40–60% probability) to be at or above the lower end of the management target range (30% B_0). Due to the risk that the stock may currently be below 30% (the lower bound of the target range) and that the stock is projected to decline even with a 20% TACC decrease, this option carries greater risk than Options 3 and 4.
	457.	The impact of a reduced TACC on revenue to ACE holders and to employment (both directly in the fishery and indirectly related to the fishery) is not quantified, but is likely to be negative in the short-term, noting that the TACC has been undercaught in three of the last five years.
	458.	A risk with Option 2 is that orange roughy recruitment would still be expected to decline until 2034, so it is likely further TACC reductions would be necessary in the future. Under Option 2, the risk of the stock falling below the target biomass range by 2028/29 is higher than under Options 3 and 4.
Feedback received	459.	A single respondent (Sanford) supported Option 2, with no specific rationale provided. Its submission endorses the Seafood New Zealand (**SNZ**) submission which noted the uncertainty of the science and range of industry views and did not support a specific Option.

Option 3 – 40% TACC decrease

Benefits	460.	The 40% TACC reduction to 1,235 tonnes under this option is more likely to slow the decline in orange roughy biomass compared with Options 1 and 2. It also has a higher probability of keeping the ORH 7A stock within its target range until the next stock assessment scheduled for 2029.
	461.	Under a 40% TAC/TACC reduction, the stock is projected to slowly decrease to 33% B_0 by 2028/29. Additionally, while longer term projections are highly uncertain, the base case indicates that the stock will remain above the lower end of the management target range (Table 10).
	462.	An acoustic survey is planned for 2027/28 to inform a stock assessment in 2029 but should more information become available before then, the TAC/TACC can be adjusted.
	463.	Additionally, this option mitigates the longer-term economic risk associated with a declining stock and uncertain stock assessment. A cautious response to this uncertainty and projections of stock status would give assurance to the public and stakeholders that the stock is being managed sustainably.

Risks	464. As with Options 1 and 2, there is a risk that the TACC reduction will not sufficiently constrain fishing pressure to allow the biomass to remain within the management target range until the next stock assessment, because projections show the orange roughy stock (ORH 7A) is still likely to decline within the next five years. 465. This option comes at a greater cost to utilisation in the short term, but with a similar outcome in stock status after five years. However, given the low natural mortality (*M)* of orange roughy, any fish not taken in the short to medium term would likely be available to catch when stock abundance increases sufficiently to increase the TACC.
Feedback received	466. There was support for Option 3 from three entities. Te Waka ā Maui me Ōna Toka Iwi Fisheries Forum expressed support for either Option 3 or 4, stating that the ORH 7A fishery appears to be in trouble. Talley's Ltd suggest that the dynamics at play in ORH 7A are not conclusive and that the 2023 acoustic survey does not clearly identify a specific reduction in biomass. An individual suggested that a decrease in catches would help the fishery resource increase in size.

Option 4 – 57% TACC decrease

Benefits	467. A 57% TACC reduction to 885 tonnes is the most cautious option with respect to sustainability. It places the most weight on the median estimates in the base model used for the 2024 stock assessment, and the uncertainty of the estimates. Option 4 gives greater recognition to the weaknesses of the All2 model, including the fact it uses survey data that is over a decade old, and also recognises that the two other base models considered by the DWWG were far more pessimistic regarding current stock status in relation to the management target range. 468. Only under a 57% TACC reduction is the stock predicted to be maintained at the current level relative to B_0 after five years. This option is therefore the most likely to constrain fishing pressure enough for the stock to remain at 35% B_0 (within the management target range of 30-50% B_0) and the least likely to risk the stock falling below the target range until the 2029 stock assessment is available. 469. To a greater extent than under Option 3, the TACC reduction under this option can mitigate the longer-term economic and environmental risk associated with a declining stock and relatively uncertain assessment. A cautious response to this uncertainty and projections of stock status would allow fishers to provide assurance to the public that the stock is being managed sustainably.
Risks	470. This option comes at the greatest cost to utilisation in the short term. However, given the longevity and low natural mortality of orange roughy, any fish not taken in the short to medium term would likely be available to catch when stock abundance increases sufficiently to increase the TACC. 471. There is considerable uncertainty in the base model used for the 2024 stock assessment given it only includes biomass estimates from acoustic survey data up to 2013, supplemented by more recent catch and effort data. Feedback from fishers suggests changes in timing and location of spawning aggregations may have affected the 2023 acoustic survey which did not encounter any aggregations, i.e. the spawning fish may have been present elsewhere in ORH 7A. 472. There is a risk that this option may overly constrain commercial utilisation, especially given the wide confidence interval for the SSB_{2024} estimate using the All2 model. There is also a smaller, but not insignificant risk (8% probability) that the TACC reduction under Option 4 is insufficient to prevent the stock falling below the soft limit (Table 2). 473. The next ORH 7A stock assessment is in 2029. Should information indicating a more positive (or negative) stock status become available before then, the TAC/TACC can be adjusted.
Feedback received	474. There was considerable support for Option 4, including from Sealord, iwi quota owners, and one individual. Environmental groups DSSC and ELI supported a TAC reduction of at least as much as that proposed in Option 4. 475. DSCC and ELI question the reliability of the 2024 stock assessment for ORH 7A. They state that past stock assessments of orange roughy have been overly optimistic, and reality is not

	matching up with the stock projections of recovery with acoustic surveys repeatedly finding that orange roughy spawning aggregations are missing from heavily trawled features. They suggest that there is a serious future risk of fishery collapse given that the 2024 stock assessment and previous reports from fishers indicate no spawning aggregations were found where they were expected to be. 476. Seafood New Zealand deferred recommendations on options proposed to individual companies. In their submissions, SNZ focussed on the uncertainty in the assessment, noting that the projections are equivocal, suggesting that the wide confidence intervals render the projections meaningless. SNZ further noted that the total spread is indicative of a model that has no idea what is going to happen, and the projections do not provide a realistic trajectory of stock status, and as such are unable to characterise the nature of any risk accurately. 477. Two quota owners supported Option 4. United Fisheries encourage the most conservative approach for this fishery. Sealord is the largest ORH 7A quota owner, and notes that they will be impacted the most by a large TAC reduction, nevertheless Sealord suggests that ORH 7A must be managed with a high degree of precaution. Sealord note that their very experienced skippers support Option 4 which makes the most sense for the long-term sustainability of the stock. 478. Sealord states that changes are evident in the distribution of spawning roughy in the Challenger area, including observations that traditional aggregations on the Challenger Flats did not form up into marks that could be measured using acoustic survey technology. 479. Sealord submits that the findings of the 2023 survey reflect what fishers have been seeing on the grounds for the last few years and the changes to fishing operations as a result. 480. Sealord note that other fishery operational changes include: • Fishing the 'hazy bottom marks' (indistinct acoustic echoes) rather than the spawning aggregations –these are too close to the bottom to be acoustically measured but the 2023 Tangaroa survey was able to quantify the species composition of these marks, they found them to be mostly comprised of orange roughy. • Increased fishing on the south Challenger Plateau out of season. • Overlaying the ecological changes to the orange roughy fishery is the disparity in price between whole and dressed product – meaning that fishing for large bags in dense aggregations is no longer the desired outcome, and instead smaller bags of better-quality fish are preferred. 481. Sealord state that an abundance of caution and the need to address these observed fishery changes have led to their position that a significant cut to the TACC is required. The amount of fishing effort on the Challenger Flats spawning area will decrease and it is expected that this may lead to the re-formation of these spawning areas inside the EEZ.

Other options proposed by submitters

482. DSCC and ELI indicated support for Option 4 as a minimum, implying that they would also support larger TACC reductions for ORH 7A.

483. DSCC and ELI did not suggest specific alternative options for the TAC and TACC, but DSCC suggests that ORH 7A should be managed at a higher biomass target of at least 50% unfished spawning biomass, and a much greater TACC reduction would be required to meet this higher target. FNZ has discussed this matter further in Part 2 under '*Other matters raised during consultation*'.

Who will be affected by the proposed changes?

484. Orange roughy in ORH 7A is primarily caught as target catch by commercial fishers and there is little orange roughy bycatch from other fisheries. Therefore, the proposed changes are unlikely to constrain catch from other fisheries, nor are they likely to impact either customary or recreational fishers.

485. Based on the last three fishing years, in ORH 7A there have been on average 64 quota owners (10% of quota shares are Settlement quota), providing ACE to six permit holders (1% of all permit holders), landing orange roughy to six LFRs (3% of all LFRs). On average over the last three fishing years, there were 10 vessels landing orange roughy in ORH 7A, of which eight reported targeting orange roughy.

486. Challenger Plateau orange roughy (ORH 7A) is a 'straddling stock', which means that the biological stock extends across the boundary of New Zealand's Exclusive Economic Zone (**EEZ**) and onto the High Seas in the area known as Westpac Bank. The Westpac Bank portion of the stock falls within the jurisdiction of the South Pacific Regional Fisheries Management Organisation (**SPRFMO**), which has a mandate to manage fisheries resources identified within its Convention area, including orange roughy fisheries (on the High Seas).

487. The Westpac Bank catch limit has historically been set as 12.5% of the ORH 7A TACC. SPRFMO set a catch limit for New Zealand in the Westpac Bank Area of 245 tonnes for the 2024 calendar year.

488. Catch taken from the Westpac Bank Area is counted against ORH 7A ACE, and therefore is accounted for within the ORH 7A TACC. New Zealand fishers may take all of their ACE within the New Zealand EEZ, but in 2024 only 245 tonnes total may be taken from the Westpac Bank Area. This ensures that no more than the total TACC is taken, regardless of where the fishing takes place in relation to the Challenger Plateau.

489. Based on 2023 FOB[77] export prices, a reduction of 412 tonnes (Option 2), 823 tonnes (Option 3) or 1,173 tonnes (Option 4) in the ORH 7A TACC equates in the short term to an annual reduction of around $3.1 million, $6.2 million, or $8.8 million in FOB export earnings, respectively. This assumes that export prices and the product mix remain the same, all of the current TACC would otherwise be caught and all orange roughy is exported. However, it should be noted that the 2022/23 ORH 7A catch was 1,771 tonnes (86% of the TACC) which is close to Option 2 levels.

490. Offsetting the potential, short-term losses in export revenue are the long-term economic and social benefits associated with a rebuilt stock, for example maintaining the value of quota. Statistics New Zealand assessed the Asset Value (quota value) of all orange roughy quota in 2019 to be worth NZ$ 547 million, (making it New Zealand's 6th most valuable fish stock). A second socioeconomic benefit of a rebuilt stock is retaining social license by demonstrating to the public that the fishery is managed sustainably.

Input and participation of tangata whenua

491. Te Waka ā Maui me Ōna Toka Iwi Fisheries Forum is the Te Wai Pounamu (South Island) Iwi Fisheries Forum, including all nine tangata whenua iwi: Ngāti Apa ki Ra Tō, Ngāti Kōata, Ngāti Kuia, Ngāti Rarua, Ngāti Tama ki Te Waipounamu, Ngāti Tōa Rangatira, Rangitāne ō Wairau, Te Atiawa o Te Waka a Māui and Ngāi Tahu. Te Waka ā Maui represents iwi with an interest in the ORH 7A stock.

492. FNZ circulated a summary of the stocks proposed for review in this round (including ORH 7A) to the chair of Te Waka ā Maui me Ōna Toka Iwi Fisheries Forum. FNZ discussed proposed options for changes to catch settings with the forum on 25 July 2024, The forum commented that the fishery appeared to be in trouble, and therefore supported either Option 3 or 4.

Fishery characteristics and settings

Table 4: Fishery characteristics and settings for ORH 7A.

Commercial (TACC)
493. The orange roughy fishery on the Challenger Plateau began in the early 1980s with fishing occurring throughout the year. Orange roughy entered the QMS in 1986 with eight QMAs and an October fishing year. Total landings for ORH 7A peaked at 10,000–12,000 tonnes annually from 1986/87 to 1988/89 then declined to less than 2,100 tonnes per annum from 1990/91 until the fishery was effectively closed in 2000/01 (it had a nominal one tonne TACC) in response to concerns about sustainability of the stock, driven at least in part by a strong decline in landings. On 1 October 2010, the TACC was increased from 1 to 500 tonnes to allow research surveys to be conducted using commercial fishing vessels. The TAC and TACC were further increased to 1,680 tonnes and 1,600 tonnes respectively, following a stock assessment in 2014.
494. The TAC and TACC were further increased to 2,163 tonnes and 2,058 tonnes respectively following a stock assessment in 2019. The stock assessment estimated that ORH 7A biomass was 47% of B_0, which is above the mid-point, and near the upper end of the management target range and above the biomass that will support maximum sustainable yield (B_{MSY}) for both the soft limit (20% B_0) and hard limit (10% B_0).

[77] 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.

Subsequent application of a Harvest Control Rule (**HCR**) to indicate sustainable yields showed that there was an opportunity to increase the catch limit for this stock in the short term, despite stock projections showing consistent declines in the biomass trend over five years. Submissions around the HCR (and the Harvest Strategy Standard (HSS) that helps inform it) and FNZ's response are given in '*Other matters raised during consultation*' in Part 2 of this chapter.

495. Total landings from 2014/15 to 2018/19 closely followed the TACCs, and then were on average 89% of the TACC from 2019/20 to 2022/23. During the spawning season (late June to early July) the overall orange roughy target fishing when the fishery was reopened was almost entirely short tows (on features or aggregation). Tow duration increased since 2018, with catch rates reducing over this period. During the non-spawning season effort has increased substantially to a peak in 2022, with tow duration also increasing. Recent catch rates have declined to a relatively low level (Dunn, 2024).

496. FNZ note that the cumulative orange roughy catch from ORH 7A for the current fishing year (Figure 3 below) is well below that of the previous four years. As of 1 August 2024, the total estimated orange roughy catch was down 67% compared to the same time in 2023. Given that orange roughy catch tends to reduce post-spawn and we are nearing the end of the fishing year, it is unlikely that this trend will change significantly in 2023/24.

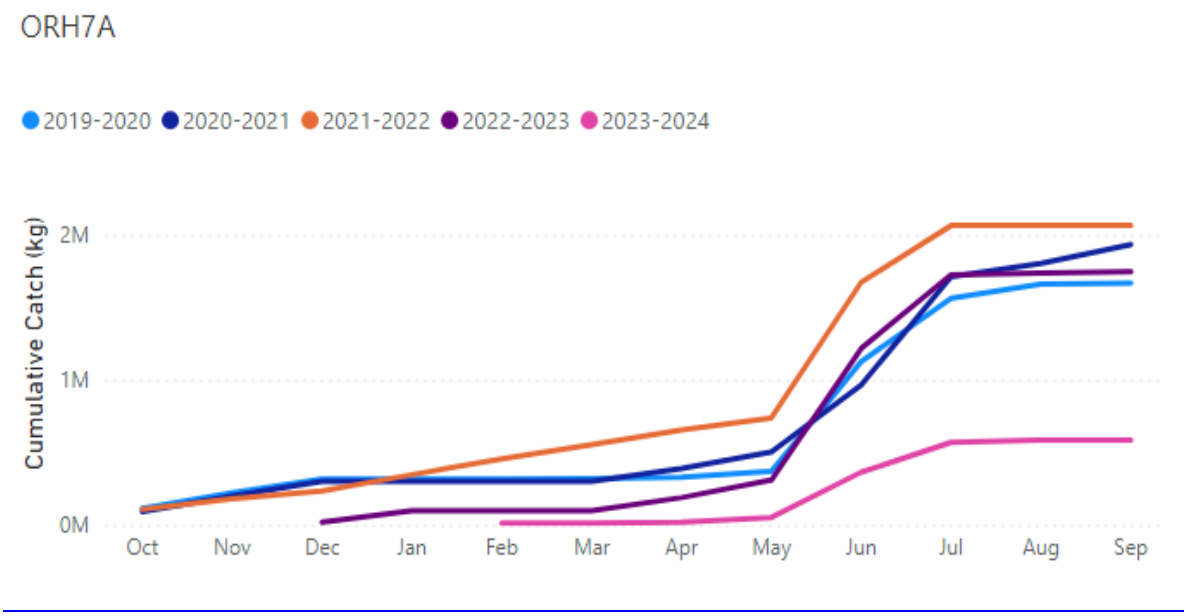


Figure 3: Cumulative estimated fisher-reported orange roughy catch for ORH 7A as of 22 August 2020-2024.

Customary Māori

497. The 26 iwi of the South Island and the West coast of the North Island from Kāpiti to North Taranaki have established, with Sealord Products Limited, a pātaka where fish is taken for customary purposes on the company's commercial vessels and stored for later use for hui or tangi. Consequently, the iwi indicated that they will be issuing permits to vessel operators in the ORH 7A fishery for customary purposes.

498. In 2019 the Iwi Collective Partnership, Te Ohu Kaimoana, and the Te Waka a Māui me Ōna Toka Iwi Fisheries Forum asked that the customary allowance for ORH 7A be increased to two tonnes in acknowledgement of the pātaka system.[78] They consider this system will create more opportunities for the customary take of commercially harvested species including orange roughy in ORH 7A.

499. The customary allowance was increased to two tonnes for the 2019/20 fishing year. However, FNZ is not aware of any information or record of any customary catch taken from ORH 7A.

Recreational

500. Due to the depths and locations at which orange roughy is found, there is no known recreational take of orange roughy. There are no reporting requirements for recreational fishers. FNZ notes that orange

[78] Commercial vessels may catch fish under a customary permit issued by kaitiaki. Under the pātaka system, the fish may be stored at a licenced fish receiver and distributed to iwi when required.

	roughy has not been reported in National Panel Surveys of Marine Recreational Fishers (Wynne-Jones et al., 2014; Wynne-Jones et al., 2019; Heinemann & Gray, 2024) and FNZ has no knowledge of any orange roughy caught by recreational fishers in ORH 7A. FNZ therefore proposes retaining a recreational allowance of zero tonnes under all options.
Other sources of mortality caused by fishing	
501.	This allowance is intended to provide for generally 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 cod-ends, predation, and misreporting.
502.	In the absence of specific information, the approach that is often taken for deepwater stocks is to set the allowance at a level that equates to a specified percentage of the TAC (the specified level generally takes into account the method of fishing and uncertainty in other mortality occurring in the fishery).
503.	For other species taken by the deepwater trawl fleet, such as hoki, hake, and ling, the allowance is set at a level that equates to one or two percent of the TAC. This allowance is set slightly higher for orange roughy, at a level that equates to around five percent of the TAC, due to the history of lost fish due to burst bags, discards, and reporting errors in the ORH 3B fishery on the Chatham Rise in the 1980s.

Deemed value rates

504. FNZ did not propose any deemed value rate changes for ORH 7A as part of this review. However, in recognition of the fact that deemed value and catch limit settings are interlinked (TACC changes can impact deemed values), FNZ welcomed general feedback on the deemed value settings of ORH 7A during consultation.

505. No submissions commented on the deemed value rates for ORH 7A.

506. FNZ remains of the view that deemed value changes are not needed for ORH 7A at this time and is satisfied that the current deemed value rates are consistent with section 75(2)(a) of the Act in that they provide sufficient incentive for fishers to balance their catch with ACE. However, FNZ acknowledges that if the TACC of ORH 7A changes as a result of this review, subsequent changes in the ACE market may result in the need for the deemed value to be re-evaluated in the future.

Part 2: Submissions

507. In total, 15 submissions and responses were received on the proposed options for ORH 7A. None of the submissions supported Option 1. One submission supported Option 2, two supported Option 3, and nine supported Option 4. One respondent supported either Option 3 or 4. One submitter proposed a TAC reduction at least as much as that proposed in Option 4. Table 5 below summarises these submissions.

508. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options or alternatives for ORH 7A but commented generally about catch limits or other aspects of fisheries management. These general concerns are discussed within Appendix Two of B24-0483.

Table 5: Submissions received for ORH 7A during consultation.

Submitter	Option supported					Notes
	1	2	3	4	Other	
Organisations						
Deep Sea Conservation Coalition (**DSCC**)				✓	✓	DSSC is concerned that past stock assessments of orange roughy have been overly optimistic, and reality is not matching up with the stock projections of recovery. Assessments are repeatedly finding that orange roughy spawning aggregations are missing from heavily trawled features. The latest stock survey, and reports from fishers the previous year, indicate that no spawning aggregations were found where expected, this signals a serious future risk from continued fishing
Environmental Defence Society Inc. (**EDS**)				✓		EDS suggest if the reduction to the TAC under Option 4 proves to be excessive, or information indicating a more positive stock status becomes available, the TAC/TACC can be readjusted in the future.
Environmental Law Initiative (**ELI**)				✓	✓	ELI prefer Option 4 but state that it likely does not go far enough as it is not aimed at increasing biomass.
Ngāti Mutunga o Wharekauri Asset Holding Company Ltd (**NMOWAHC**)				✓		NMOWAHC state the fishery is clearly under pressure and requires urgent action. Under Option 2 and Option 3, the stock is predicted to continue to decline. Option 4 is expected to keep the stock at current biomass level after 5 years.
Ngātiwai Holdings Limited (**NHL**)				✓		NHL state the fishery is clearly under pressure and requires urgent action. Under Options 2 and 3, the stock is predicted to continue to decline. Option 4 is expected to keep the stock at current biomass level after 5 years.
Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA**)				✓		SPCA suggest Option 4 is the most cautious option for orange roughy stock and will also reduce the negative impacts of fishing methods on the environment.
Sanford Ltd		✓				No specific rationale provided.
Seafood New Zealand (**SNZ**)					✓	SNZ express no preferred option; and defer to individual SNZ company submissions. Their submission provided comment on the high uncertainty in the assessment and projections. SNZ also note their concern with amount and quality of research undertaken, and outline areas for further investigation.
Sealord Group Ltd.				✓		Sealord notes ORH 7A is under MSC accreditation, it is a straddling stock with SPRFMO oversight, and it has been a success story of a fishery closure and rebuild. ORH 7A must be managed with a high degree of precaution and repeating mistakes of the past would be a significant black mark against our credentials and therefore it makes sense to be the most conservative when dealing with this fishery.

Submitter	Option supported					Notes
	1	2	3	4	Other	
Talley's Ltd			✓			Talley's suggest the dynamics in play are far from conclusive, and the survey completed in 2023 does not clearly identify a reduction in biomass. The survey did not cover all of ORH 7A, so the required number of biological samples were not collected, and aging information was insufficient to inform stock assessment.
Te Pātaka o Tangaroa Limited				✓		Te Pātaka o Tangaroa Limited state the fishery is clearly under pressure and requires urgent action. Under Option 2 and Option 3, the stock is predicted to continue to decline. Option 4 is expected to keep the stock at current biomass level after five years.
Te Waka ā Maui me Ōna Toka Iwi Fisheries Forum			✓	✓		Te Waka ā Maui noted that the fishery appears to be in trouble. They support either Option 3 or 4.
United Fisheries Ltd, KPF Investments Ltd, Trawler Fishing Ltd, Pegasus Fishing Ltd				✓		United Fisheries encourage the most conservative approach for this fishery.
Individuals						
C. Latour			✓			C. Latour suggests a decrease in the TACC would help the number of orange roughy to increase in ORH 7A.
G. Ryder				✓		G. Ryder supports the highest reduction to ensure this fish species is around for future generations and to reduce benthic impact.

Other matters raised during consultation

Stock assessment and research

509. Seafood New Zealand (**SNZ**) and others express their concerns around the amount and quality of research used to inform orange roughy stock assessments, in particular the lack of information around age structure and fishery dynamics, and the application of specific characteristics in the management of the fishery. SNZ provide the example of dispersal and disappearance of spawning aggregation in response to disturbance from trawling leading to pessimistic views of stock status and consequently closure of fisheries and conflict among stakeholders.

510. SNZ support a review of the biological sampling program in terms of sampling, collection protocols and ensuring that adequate numbers of otoliths are collected and aged, to robustly inform stock assessments.

511. FNZ agree that otolith collection and ageing are a priority but note that representative sampling of otoliths is not always achieved due to stratification of fish within the surveyed plume or the inability to locate the spawning plume.

The Harvest Strategy Standard (HSS)

512. The Environmental Law Initiative (**ELI**) suggest that Options 1-3 are likely in breach of the Harvest Strategy Standard (**HSS**). They claim that FNZ should not be using a 30-50% target range for orange roughy but should instead adopt a higher precautionary target spawning biomass of at least 50%. This would be more consistent with operational guidelines for the HSS that outline an additional "very low productivity" category for certain stocks, such as orange roughy, whose natural mortality (deaths by natural and other causes including predation, disease etc) is < 0.1 and/or age at which 50% of fish are mature (A_{50}) is greater than 15 years.

513. DSSC note that in the 2024 stock assessment ORH 7A natural mortality was estimated to be between 0.024 and 0.033, and the age at which 50% of fish are mature for ORH 7A is about 34 years, well above HSS criteria of 15 years for defining a species as low productivity.

514. The HSS guidelines recommend a target biomass of ≥ 45% of unfished biomass B_0 for very low productivity species, but DSCC suggest this is not being followed or even considered in the proposed management options for ORH 7A.

515. DSCC and ELI refer to higher target levels for orange roughy in other jurisdictions: Australia has a default value of 48% B_0, with higher values used in some areas, for example Queensland has a default value of 60% B_0 and Torres Strait fisheries have values of 60-65% B_0. For orange roughy, the Australian Government has agreed to a target biomass for the Cascade Plateau of 60% of unfished spawning levels.

516. DSCC further note Australia uses a minimum default limit reference point [hard limit] of 20% B_0 for orange roughy while New Zealand has only a soft limit of 20% B_0 and hard limit of 10% B_0. As a result of not having sufficiently precautionary limit reference points in place, among other management factors, several of New Zealand's orange roughy stocks have been fished to below 10% B_0 before the HSS was adopted and fishing was stopped.

517. FNZ note that the current target range of 30 – 50% B_0 is drawn from a Management Strategy Evaluation (**MSE**) undertaken in 2014 and reviewed in 2019. The Harvest Strategy Standard notes that MSEs are compatible with the HSS. See '*Assessment of the proposals against section 13 of the Act*' for further discussion on this.

Harvest Control Rule (HCR)

518. SNZ suggest that application of the orange roughy HCR provides a different range of catch options than those provided in the consultation document. However, they note that application of the HCR is problematic because of differences in some of the underlying assumptions, in particular the 2024 stock assessment estimates a lower median natural mortality rate. The application of the HCR against the median B_{2024} values is as unhelpful as the application of the projections, with the HCR proposing TACC increases for the All2 and 3Series models and a less conservative decrease for the All6 model.

519. FNZ acknowledges the development work industry are currently developing new HCRs for orange roughy. SNZ note that in response to the Marine Stewardship Council (**MSC**) Fishery Improvement Plan for orange roughy ORH 3B, the Deepwater Council has implemented a project to support the development of HCRs to inform a management procedure for ORH 3B East and South Chatham Rise, which will be based on simulation testing of a range of simplified age-structured production models. These models can be easily updated with any new acoustic survey, so could be used for other orange roughy stocks, including ORH 7A.

520. Although these models do not constitute a fully quantitative stock assessment, they do provide for the development of a HCR, that in the very least will constitute an agreed fall-back process in the event a stock assessment is associated with significant uncertainty.

UN Fish Stocks Agreement 1995 and SPRFMO Convention

521. ELI state that no discernible attempt has been made by FNZ to assess the compatibility of the current and proposed measures with those that are required under the UN Fish Stocks Agreement 1995 and Article 4 of the SPRFMO Convention. They recommend that FNZ put in place conservation measures that are compatible with those put in place for the stock in the SPRFMO area, including:

- a requirement for 100% observer coverage for bottom trawling;
- allowing bottom trawling to occur only in limited areas specifically designed to avoid significant adverse impacts on vulnerable marine ecosystems; and
- an 'encounter protocol' which results in the closure of a given tow path to fishing if benthic organism bycatch thresholds are reached.

522. DSCC note that SPRFMO sets out a biomass target of at or above 40% B_0 for orange roughy. According to the stock assessment for ORH 7A, this is not being achieved for the straddling stock. The stock is currently and foreseeably below 40% B_0.

523. DSCC suggest a precautionary target of at least 50% of unfished spawning biomass must be adopted for orange roughy as this is clearly a very low productivity stock. The TACC must be reduced by at least the amount proposed in Option 4 to prevent further decline. A greater reduction is strongly recommended to enable recovery towards the SPRFMO target for the straddling stock, at or above 40% B_0. The status of the straddling stock, currently below the SPRFMO target, must be reported to the next SPRFMO scientific committee and Commission meetings and the necessary SPRFMO catch limit reduction and proportional allocation adjustment must be calculated and proposed.

524. Sealord note that under the SPRFMO agreement, a 57% reduction to the TACC will translate to a catch limit of 110 tonnes in the Westpac Bank area (12.5% of the ORH 7A TACC). A catch limit of this size would be uneconomical to fish, despite orange roughy spawning aggregations migrating outside the EEZ contributing to abundant orange roughy stock on Westpac Bank. Sealord therefore urge FNZ to work with SPRFMO to change New Zealand's allocation, suggesting that if fishers were able to catch more fish from the SPRFMO area, this would rest spawning stock inside the EEZ.

Closing seamounts and Underwater Topographic Features (UTFs) to trawling

525. DSCC ask that all seamounts and similar features in New Zealand waters be closed to trawl fishing, to protect the diverse and fragile deep-sea ecosystems that are found on them, on the basis of their biodiversity value, their role as habitats of particular significance to fisheries management and their vulnerability to bottom trawling. DSCC point to the high vulnerability of sessile marine organisms, and corals in particular, to bottom trawling for orange roughy, and their slow recovery following disturbance.

526. DSCC suggest that areas of high coral biodiversity within ORH 7A as well as Westpac Bank constitute vulnerable marine ecosystems (**VMEs**) under both SPRFMO and Food and Agriculture Organization of the United Nations criteria and guidelines so should be submitted to the SPRFMO Scientific Committee for inclusion in the register of known VMEs. DSCC suggest that continued bottom trawling of areas known to have populations of corals protected under the Wildlife Act (1953) indicates intentional, not accidental bycatch and is a failure to implement the Fisheries Act.

527. FNZ note that abundance models for 11 protected coral taxa provided in NIWA (2023) were collectively used to identify hotspots, or areas with relatively higher predicted coral abundance, and that there were several hotspots identified on the Challenger Plateau (Figure 4). Notwithstanding the fact that the models generally had lower certainty in areas where abundance was predicted to be high, a comparison of Figure 4 and Figure 5 suggests that there is little orange roughy fishing around the northern Benthic Protection Area (**BPA**) coral hotspot. Most of the fishing that occurs where the protected species hotspots are modelled to occur is a relatively small pocket at the Central Flats/Pinnacles area to the west of the Northern BPA/north of the Southern BPA. FNZ note that although there is evidence for potential habitats of particular significance for fisheries management for other species in the ORH 7A area, those areas do not overlap with the area fished for orange roughy.

528. In FNZ's view, consideration of VMEs is out of scope because this paper is considering ORH 7A (i.e. in-zone of EEZ). The SPRFMOs registry of VMEs falls under CMM03-2023 which only applies to the SPRFMO Convention area (i.e. out of zone of EEZ). VMEs are not mentioned or defined in the Fisheries Act 1996, nor have any VMEs been registered to date in SPRFMO's register of known VMEs (Annex 9 of CMM03-2023 is blank).

529. DSCC point to overfishing on seamounts and features leading to the long-term loss of spawning aggregations in other orange roughy QMAs. They state that the seamount closures and BPAs within ORH 7A offer no meaningful protection to habitat because they do not encompass the depths at which orange roughy are caught. Consequently, DSCC maintain that seamounts and similar features should be closed to trawling and their ecosystems allowed to recover, in line with the Fisheries Act.

530. FNZ disagree with the assertion that BPAs within ORH 7A offer no meaningful protection to habitat because they do not encompass the depths at which orange roughy are caught. Figure 4 shows estimated abundance of protected corals; the NE and SW corners of the northern BPA in particular have high (≥20-40 corals per 1000 m^2) abundance. In Figure 5, the Challenger North BPA is around 550-800 m depth, and around 40% of that part of the Challenger South BPA that sits within ORH 7A is <1,000 m; both these areas lie within the 700-1,000 m depth range where orange roughy form dense spawning aggregations. These areas are not beyond fishable depth (i.e. beyond the depth at which orange roughy fishing occurs), so FNZ considers the BPAs do offer meaningful protection from the potential effects of fishing in areas that could, or would, be otherwise fished.

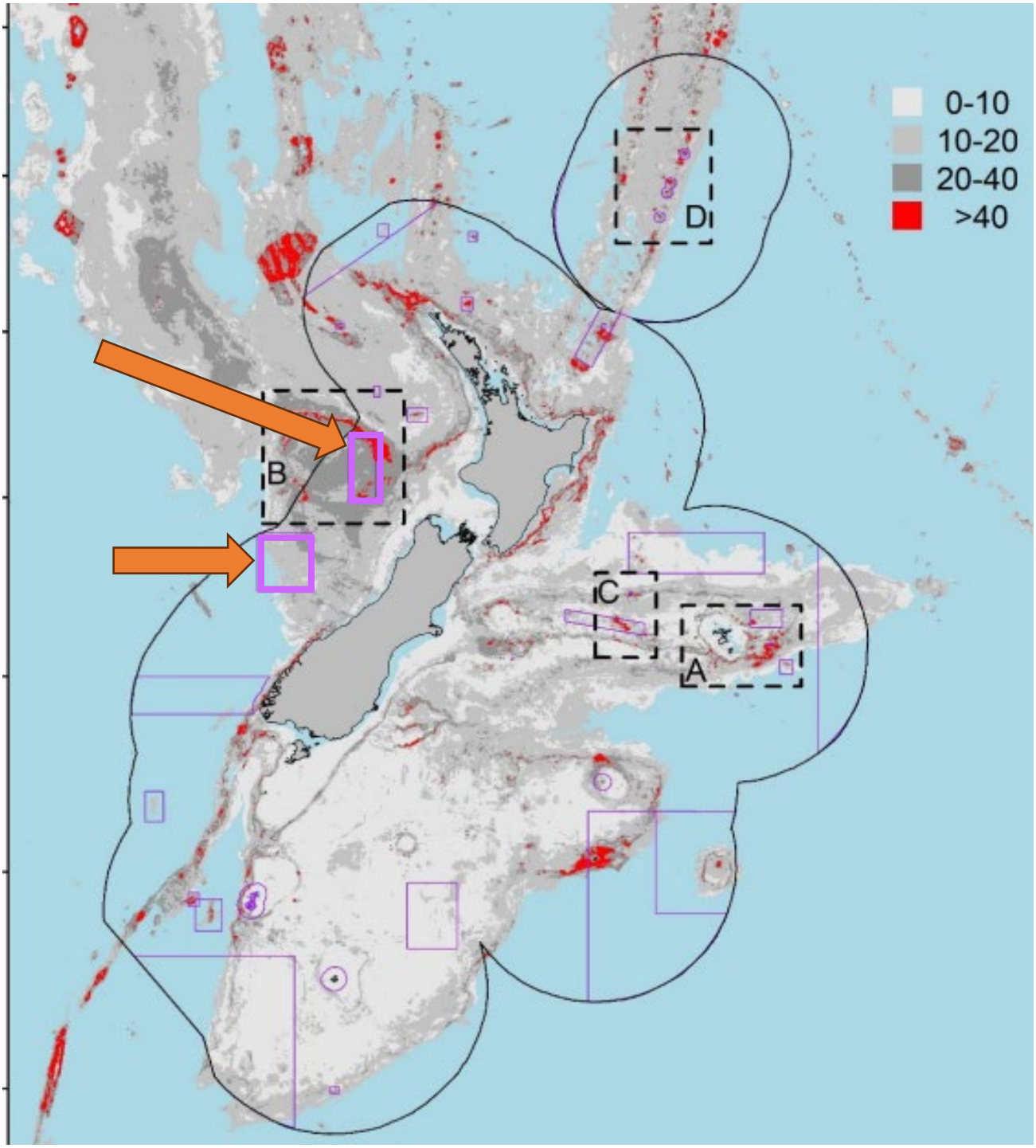


Figure 4: Hotspots of protected coral in the New Zealand region (in red), and the Challenger Benthic Protected Areas (purple boxes indicated by orange arrows). The key at top right refers to estimated abundance of protected corals per 1000 m^2. Dashed black lines are sites referred to in the NIWA report (NIWA, 2023).

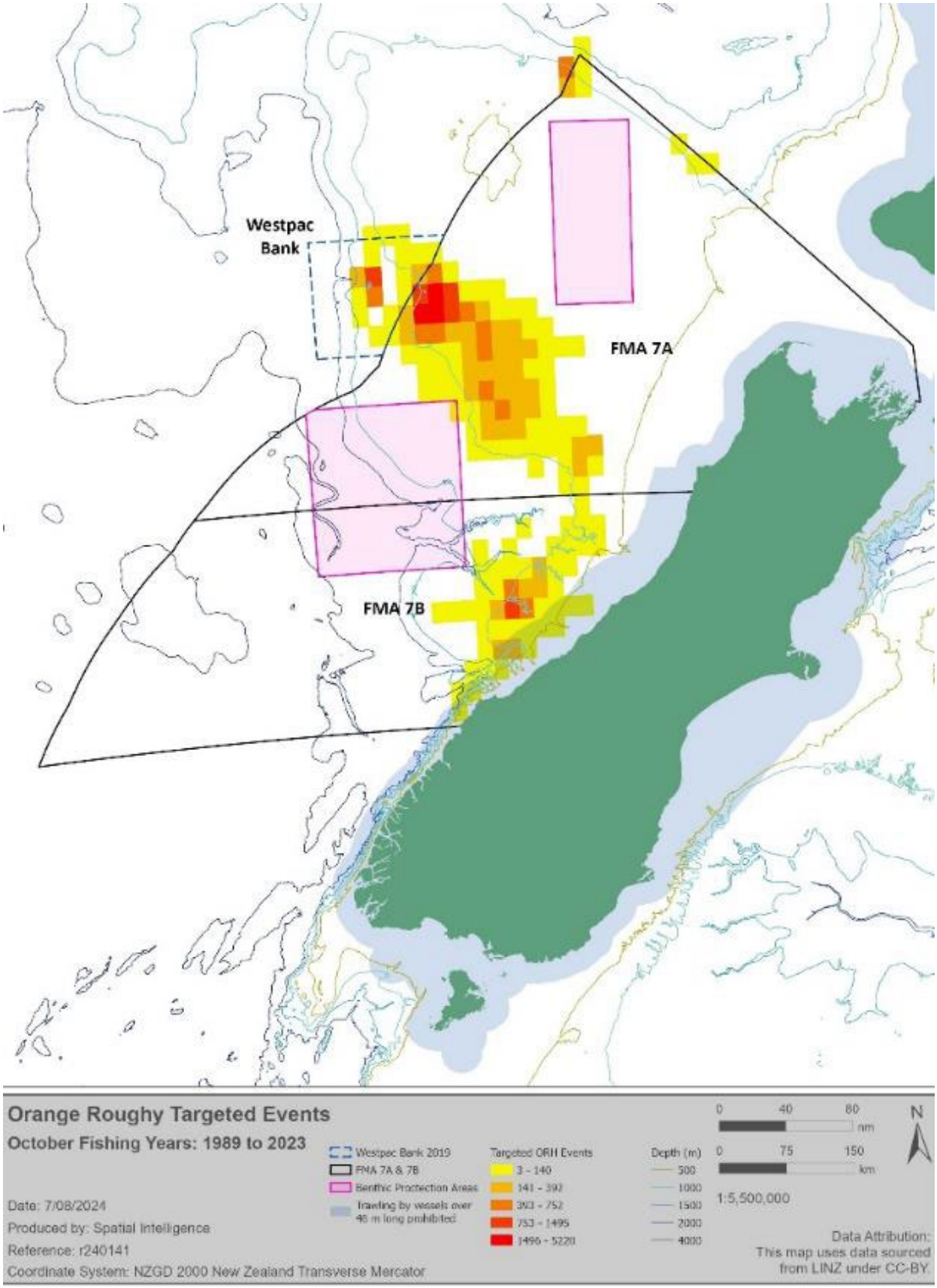


Figure 5: Main orange roughy fishing grounds within ORH 7A and ORH 7B, from 1989 to 2023 fishing years. The Challenger Benthic Protected Areas (purple boxes) and 500 m depth contours are also shown in olive green.

Part 3: Assessment against relevant legal provisions

Overview

531. You are being asked to make a decision under section 13 of the Act, to set the TAC for ORH 7A. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

532. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'. Because ORH 7A is a straddling stock, there is further discussion around international obligations with respect to section 5(a) of the Act in Table 6.

533. On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in Part 4: '*Supporting information'*.
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 5(a) of the Act

Table 6: Assessment under section 5(a) of the Act for ORH 7A.

Section 5 Application of international obligations	534. The primary international obligations in relation to management of the ORH 7A stock is compatibility with SPRFMO. All vessels fishing in the Westpac Bank Area must comply with the SPRFMO Bottom Fishing Conservation and Management Measure. The measure closes over 98% of the SPRFMO Convention Area to bottom trawling and allows fishing only in limited areas. The measure also includes an 'encounter protocol' which results in a move-on rule being triggered and the closure of a given tow path to fishing if benthic organism bycatch thresholds are reached. These management measures are designed to avoid significant adverse impacts on vulnerable marine ecosystems. 535. Compatibility does not require New Zealand to take identical measures to those adopted by SPRFMO. It does require that New Zealand's measures must not undermine the effectiveness of those measures adopted by SPRFMO. FNZ note there is a lot of scope for nations to define their own conservation measures e.g. the relevant part of Article 4 of the SPRFMO convention states: "*In developing compatible conservation and management measures for straddling fishery resources Contracting Parties shall:* (a) take into account the biological unity and other biological characteristics of the fishery resources and the relationships between the distribution of the resources, the fishing activities for those resources and the geographical particularities of the region concerned, including the extent to which the fishery resources occur and are fished in areas under national jurisdiction; (b) take into account the respective dependence of the coastal States and the States fishing on the high seas on the fishery resources concerned; and (c) ensure that such measures do not result in harmful impact on the living marine resources as a whole in the Convention Area." 536. The United Nations Fish Stocks Agreement (1995) (FSA) details obligations relating to the conservation and management of straddling fish stocks. While most of the provisions of the FSA only apply to the High Seas, Article 5 of the FSA also imposes obligations on coastal states to effectively manage straddling stocks such as ORH 7A, within their EEZs. Article 7 of the FSA requires that conservation and management measures established for the high seas and those adopted for areas under national jurisdiction are compatible in order to ensure conservation and management of

	straddling fishery resources in their entirety. Along with current management measures discussed throughout this document, all of the proposed TAC reductions could be expected to result in reduced fishing effort and pressure on the straddling orange roughy stock. This will assist in orange roughy conservation and management, consistent with the FSA as well as SPRFMO objectives.

Assessment of the proposals against section 13 of the Act

537. Table 7 below outlines FNZ's assessment of the proposed options for ORH 7A against section 13(2)(a) of the Act. This assessment has been informed by the best available information on the status of the stocks (discussed in '*Rationale for review'* in Part 1), and the information discussed in *'Information on biology, interdependence, and environmental factors'* within *'Part 4: Supporting Information'*.

Table 7: Assessment under section 13(2)(a) of the Act for ORH 7A.

Section 13(2)(a)	538. The best available information on *MSY* for ORH 7A includes a fully quantitative stock assessment which suggests that the exploitable biomass of the stock is 'As Likely As Not' (40-60% probability) to be above the lower end of the target biomass range of 30-50% B_0 and is expected to decline under the current TAC. 539. There is significant uncertainty related to the base model, as indicated by the 95% confidence interval for the current biomass estimate ranging between 16% and 57% biomass. As noted by ELI in their submission, this calls into question the extent to which the stock level can be reliably estimated. Despite these limitations, the status of the stock in relation to *MSY* was estimated using the best available information and agreed to by the DWWG. Accordingly, the proposed changes for ORH 7A would be made under section 13(2)(a) of the Act. Under this provision, you must set a TAC using best available information that is consistent with the objective of maintaining the stock at or above B_{MSY}, while having regard to the interdependence of stocks. 540. FNZ's view is that all options proposed to reduce the TAC of ORH 7A (Options 2-4) would be consistent with the objective of maintaining the stock above B_{MSY}, as under all options the median estimate of exploitable biomass is projected to remain above the lower end of the target range (30% B_0) within the next five years. Forward projections, while highly uncertain further out in time, suggest that the stock is more likely to be maintained at a higher level relative to B_{MSY} over a 10-year period following a larger TAC decrease. The All2 model was used to inform the estimate of stock status, however there is a risk that stock status could be less than the model output, given the uncertainties in the model, and that the results of other models considered were more pessimistic regarding stock status. Only Option 4 maintains the median estimate of biomass at the current level by 2028-29. The projections also indicate that the stock is likely to decline below B_{MSY} if the current settings are retained. Thus, FNZ's view is that Option 1 (*status quo)* is inconsistent with the objective of maintaining the stock above B_{MSY}.
Harvest Strategy Standard (HSS) See 'The Harvest Strategy Standard' in Chapter 1 'Legal overview' for more information.	541. 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. The HSS is a policy statement of best practice in relation to the setting of 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} -compatible reference points. 542. 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. For orange roughy, the management target range is 30-50% of B_0, with a soft limit of 20% B_0 and a hard limit of 10% B_0. For ORH 7A this means that although a formal rebuilding plan

	has not been triggered, catch reductions are proposed to prevent further decline of the stock.
Section 13(2)(a) Interdependence of stocks	543. Information on interdependencies between orange roughy and other stocks is limited. What is known is summarised in Part 4 under '*Information on biology, interdependence, and environmental factors*'. 544. Orange roughy are generalist predators, and we do not have information to suggest any stocks are particularly interdependent with orange roughy, e.g., predators that rely on orange roughy as a food source, or prey species that are primarily preyed upon by orange roughy. 545. The species associated with orange roughy (predators, prey, and competitors) and stocks bycaught in the orange roughy fishery are likely to be affected by changes in the ORH 7A TAC and TACC, but the extent of these impacts is unknown. 546. Under higher TAC and TACC settings (for example, under the *status quo*) it is likely that more effort will need to be applied to catch the TACC (because orange roughy abundance has decreased and is harder to catch). This could result in greater impacts on any interdependent stocks. The options which propose greater reductions to the TAC (e.g. Options 3 and 4) would likely reduce overall effort with more certainty, and are more likely to prevent orange roughy from declining in abundance, which may result in less impact on any interdependent stocks.

Kaitiakitanga

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

548. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B. There are no customary fisheries management tools such as mātaitai, taiāpure, or section 186B temporary closures relevant to these proposals, because the majority of orange roughy ORH 7A is caught offshore at depths between 700 m and 1,500 m.

549. The best available information for Māori customary take is data collected under the South Island customary regulations. FNZ is not aware of any information or record of any customary catch taken from ORH 7A since no permits have been issued and orange roughy has not been reported under the South Island regulations.

550. Orange roughy (nihorota) is listed as a taonga species in Te Waipounamu (all of South Island) Iwi Fisheries Plan. Te Waka a Māui me Ōna Toka Iwi Fisheries Forum consider all fish species taonga.

551. Te Waipounamu Iwi Fisheries Plan contains objectives to support and provide for the interests of South Island iwi, and contains two objectives which are relevant to the management options proposed for ORH 7A:

- **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.

552. In FNZ's view, the proposed TAC/TACC decreases under all options other than the *status quo* contribute towards Te Waipounamu Iwi Fisheries Plan objectives described above. This is based on the potential to improve sustainability of the fishery and thus ensure long-term commercial activity and therefore economic development opportunities for South Island iwi quota holders.

553. The TAC reductions under Options 2-4 are consistent with maintaining or enhancing the mauri and wairua of fisheries, because the sustainability of orange roughy in ORH 7A should improve. Environmental impacts are reduced by existing regulatory and non-regulatory arrangements, combined with reduced fishing effort. As noted above, Te Waka ā Maui me Ōna Toka Iwi Fisheries Forum expressed support for either Option 3 or 4 at a July 2024 hui so presumably they consider those options best meet the objectives of this plan.

Assessment of the proposals against section 9 of the Act

554. Table 8 below outlines FNZ's assessment of the proposed options for ORH 7A against the environmental principles in section 9 of the Act which you must take into account when considering the ORH 7A TAC. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under *'Information on environmental impacts'* within *'Part 4: Supporting Information'*.

Table 8: Assessment under section 9 of the Act for ORH 7A.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	555. In general, orange roughy fishing in ORH 7A has a low impact on associated or dependent species of seabirds, marine mammals, and fish, but is likely to have some impact on corals and other benthic invertebrates, as discussed in Part 2 under '*Closing seamounts and UTFs to trawling*'. 556. Under the *status quo*, more effort will likely need to be applied to catch the TACC (because orange roughy abundance has decreased and is harder to catch). Consequently, incidental bycatch and disturbance of associated or dependent species could increase. 557. Proposed options to reduce the TAC may result in less effort applied by fishers and consequently proportional reductions in incidental bycatch and disturbance of associated or dependent species. However, the extent of this reduction in effort may be limited as orange roughy abundance has decreased and more effort is likely required to catch the same amount of fish. Consequently, greater reductions to the TAC under Option 3 and 4 would likely reduce overall effort with more certainty than Option 2. 558. It is unlikely that a reduction to the ORH 7A TAC would negatively affect bycatch of seabirds or marine mammals. This is because very low numbers are caught in the ORH 7A fishery: in the ten years between 2010/11 and 2019/20, 16 birds were accidentally captured, and no mammal captures reported between 2018/19 and 2022/23. 559. Based on the information available on interactions with associated and dependent species, FNZ considers it unlikely the long-term viability of these species will be threatened under the proposed TAC options. However, the risk to associated and dependent species is likely to vary depending on the TAC setting (with the potential for greater impact on these species under a higher TAC), and you should take this into account in your decision making.
Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	560. Bottom trawling effort for orange roughy interacts with the seabed and the associated benthic environment. This may lead to the disturbance or loss of some benthic habitat and in turn a reduction in biodiversity. 561. As with the potential impact on associated or dependent species described above, if more effort is applied due to reduced abundance, then negative impacts on the biological diversity of the aquatic environment could also increase if the TAC is maintained. 562. Trawl footprint information suggests the effort in ORH 7A in 2021 was more widespread and intensive than in previous years (discussed further under Biological diversity of the environment, below) and is expanding into new areas, further south of surveyed spawning aggregations. If effort increases for orange roughy fishing in 2024/25 and subsequent years, then the area contacted by bottom trawling could potentially increase, in particular under the *status quo* or Option 2, and less so under Option 3 or Option 4, where reductions in overall effort are likely as a result of significantly reduced TAC.
Habitat of particular significance for fisheries management should be	563. The assessment of impact of trawling for ORH 7A found evidence that trawling may disturb aggregations of orange roughy but there was no evidence that biogenic habitat influences spawning aggregations. No evidence was found of a risk of an adverse effect from trawling on the spawning habitat attributes (Morrison et al., 2014b; Dunn & Forman, 2011.) Based on best available evidence, it is not likely that

protected - Section 9(c) of the Act	a reduced TAC will affect potential habitat of particular significance for fisheries management in the ORH 7A area. 564. There is evidence for potential habitats of particular significance for fisheries management for other species in the ORH 7A area. There is not considered to be a risk of adverse effect on these potential habitats of particular significance for fisheries management from fishing for ORH 7A as there is no overlap with the ORH 7A fishing effort.

Assessment of the proposals against section 11 of the Act

565. Table 9 below outlines FNZ's assessment of the proposed options for ORH 7A against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TAC of this stock.

Table 9: Assessment under section 11 of the Act for ORH 7A.

You must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	566. "Effect" is defined widely in the Act.[79] The direct effects of fishing for orange roughy need to be considered, in addition to the indirect effects of this fishing for associated species and the surrounding ecosystem. 567. Information relevant to the direct effects of fishing on ORH 7A is described throughout this paper, particularly within Part 1 under 'Rationale for review' '*Options and analysis*' and *'fishery characteristics and settings',* and in Part 4 under *'stock status projections'*. Information on the effects of fishing for ORH 7A on other stocks and associated species is summarised above in Table 7, with more information in Part 4, under '*Interdependence of stocks'* and *'Information on environmental impacts'*. 568. The magnitude of these effects of fishing on ORH 7A, associated species and the environment, will vary depending on the ORH 7A TAC setting, with greater effects expected to occur under higher TAC settings. This is something you must take into account in your decision. 569. FNZ notes that the options proposed here are for the ORH 7A TAC/TACC to either be retained or lowered. Therefore, the effects of fishing on any stock and the aquatic environment are expected to be less than current impacts from fishing under options to reduce the TAC/TACC.
Existing controls that apply to the stock or area – section 11(1)(b)	570. Current regulatory management tools (e.g., reporting requirements, gear restrictions, protected species legislation, Benthic Protection Areas (BPAs), and Seamount Closures) as well as voluntary tools (e.g. industry operational procedures, discussed in more detail in the 'Other plans and strategies' section, below) are in place in the ORH 7A area and will remain in place under all of the options for TAC/TACC settings proposed here. Areas closed to trawling within ORH 7A consist of two BPAs, that are indicated on Figure 5 in relation to the QMA area and recent fishing effort.
The natural variability of the stock – section 11(1)(c)	571. Due to their low natural mortality rate and relatively low fecundity, orange roughy populations show relatively low natural variability and have collapsed in the past as a result of fishing pressure. This susceptibility, along with hyperstability[80] make orange roughy particularly susceptible to overfishing, hence the need for particular caution when setting catch limits.
Fisheries plans, and conservation and fisheries	572. The National Fisheries Plan for Deepwater and Middle-depth Fisheries 2019 (**National Deepwater Plan 2019**) provides an integrated, transparent way of defining management objectives, actions, and services required to meet relevant

[79] Section 2(1) of the Act defines "effect" as 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.

[80] Hyperstability describes the situation where catch rates remain high even as the stock is rapidly depleted, due to targeting spawning aggregations at specific areas and times.

services – section 11(2A)	legislative obligations and strategic directions for managing New Zealand's deepwater fisheries, including orange roughy. The National Deepwater Plan 2019 also provides a reporting mechanism to measure progress towards meeting objectives. 573. All orange roughy stocks are managed as Tier 1 stocks within the National Deepwater Plan 2019. Tier 1 stocks are high volume and/or high value target fisheries. A species-specific chapter of the National Deepwater Plan for orange roughy was completed in 2012. The National Deepwater Plan 2019 sets out a series of Management Objectives for deepwater fisheries, the most relevant to ORH 7A 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. 574. The National Deepwater Plan 2019 is a formally approved section 11A plan that you must take into account when making sustainability decisions. The proposed options for ORH 7A are consistent with the Management Objectives in the Plan, including those outlined above. **Fisheries and conservation services:** 575. Fisheries and conservation services of significance have been described throughout this paper where relevant. 576. Relevant fisheries services include the research used to monitor stock abundance (notably, the stock assessment), aquatic environment and biodiversity research, and the tools used to enforce compliance with management controls. 577. Compliance is supported by observer monitoring in commercial fisheries. The observer coverage relevant to ORH 7A is described in table 10 under '*Information principles: section 10 of the Act*' and in '*Part 4: Supporting information*' under '*Information on environmental impacts*'. 578. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species. 579. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	**Regional plans:** 580. Four Regional Councils have coastlines within the boundaries of ORH 7A: West Coast, Tasman, Nelson, and Marlborough. Each region has policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. FNZ has reviewed these documents and the provisions that might be considered relevant are provided in Addendum 1. 581. FNZ considers that the management options proposed for ORH 7A are consistent with the objectives of these relevant regional plans, which generally relate to the maintenance of healthy and sustainable ecosystems to provide for the needs of current and future generations.
Non-mandatory relevant considerations	
Other plans and strategies	582. Deepwater Council (**DWC**) Deepwater Trawl Benthic Operational Procedures 2022-23 and Orange Roughy and Oreo Operational Procedures: The fishing industry, through the DWC, has developed Orange Roughy and Oreo operational plans that outline voluntary management measures, including voluntary sub-area catch limits as well as how operators report to the DWC. Under the Benthic Operational Procedures, if a significant catch of benthic material occurs, operators are instructed to investigate the area with an echosounder and consider how and

	where to undertake the next fishing event to mitigate the risk of a similar outcome. Furthermore, since New Zealand's allocation of allowable catch on Westpac Bank is a function of the TAC for ORH 7A, and all of the options proposed are for a TAC decrease, fishing pressure and potential benthic and other environmental impacts outside the EEZ on Westpac Bank will also decrease. These voluntary measures are not inconsistent with the SPRFMO Bottom Fishing Conservation and Management Measure. 583. Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy 2020) sets a strategic direction for the protection, restoration and sustainable use of biodiversity, particularly indigenous biodiversity. The Strategy sets a number of objectives across three timeframes. The most relevant to setting sustainability measures for ORH 7A are Objectives 4, 10, and 12: • **Objective 4:** Improved systems for knowledge, science, data, and innovation inform our work • **Objective 10:** Ecosystems and species are protected, restored, resilient and connected from mountain tops to ocean depths. • **Objective 12:** Natural resources are managed sustainably. 584. Relevant to Objective 4, FNZ is working with science providers to review and evaluate the data and assumptions that feed into the ORH 7A stock assessment model, including reading more otoliths to enhance the age-length database, and re-examining the variables that inform the stock assessment mode including the acoustic *q* (catchability) and *M* (natural mortality) assumptions that inform stock assessment models 585. Relevant to Objectives 10 and 12, FNZ is progressing to a more integrated ecosystem-based approach to managing oceans and fisheries. In that context, this review contains information on biodiversity impacts, ecosystem function, and habitat protection associated with adjustments to sustainability measures (see '*Assessment of the proposals against section 9 of the Act*').

Information principles: section 10 of the Act

586. The best available information relevant to ORH 7A is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. Table 10 below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in that information.

Table 10: Assessment under section 10 of the Act for ORH 7A.

Best available information	Key areas of uncertainty

2024 stock assessment:
(Level 1 - Full Quantitative Stock Assessment using age-structured CASAL model with Bayesian estimation of posterior distributions)
• ORH 7A biomass is expected to slowly decrease at the current TACC (2,058 tonnes) over the next 5 years.
• Probability of Current Catch or TACC causing ORH 7A biomass to remain below, or to decline below, Limits At TACC:
  o Soft Limit: Unlikely (<40%) within the next 5 years
  o Hard Limit: Very Unlikely (<10%) within the next five years
• The probability of Current Catch or TACC causing overfishing to continue or to commence is assessed as 'Very Unlikely' (< 10%) within the next five years.
	The lack of recent data in the base case model is reflected in the relatively high uncertainty in the stock status. Major areas of uncertainty within the 2024 stock assessment model include the proportion of the stock that is indexed by the acoustic and trawl surveys, and recent productivity, as estimated using *M* and/or year class strength.

Environmental impacts: The best available information is referred to in this Part under '*Assessment of the proposals against Section 9 of the Act*, and '*Assessment of proposals against section 11 of the Act*'; and in '*Part 4: Supporting information*' under '*Information on biology, interdependence and environmental factors*' and '*Information on environmental impacts*'.	In some cases, FNZ has made some assumptions about environmental interactions based on fisher-reported data that may not have been independently verified (by, for example, an on-board FNZ observer). However, orange roughy caught in ORH 7A is almost exclusively caught by larger deepwater vessels, with these vessels having a higher level of observer coverage. In the 2022/23 fishing year, 34% of tows in ORH 7A were observed. Best available information has been assessed to identify potential habitat of particular significance for fisheries management but is limited. No information on biogenic habitat influences on spawning habitat is available.

Part 4: Supporting information

Stock status projections

Table 11: Projected estimates of stock status (expressed as % B0) using the base model (All2) with catches at the TACC, and at 0.8, 0.6, and 0.43 of the current TACC. 95% confidence intervals are shown in parentheses.

SSB/B_0	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39
TACC	35 (16-57)	34 (15-56)	33 (14-56)	32 (13-55)	31 (11-54)	30 (10-53)	29 (9-53)	28 (8-52)	27 (6-51)	26 (5-51)	25 (4-50)	25 (3-50)	24 (2-49)	23 (1-49)	23 (1-49)	22 (1-48)
0.8×TACC	35 (16-57)	34 (15-57)	33 (14-56)	33 (14-56)	32 (13-55)	32 (12-55)	31 (11-55)	31 (10-54)	30 (10-54)	29 (9-54)	29 (8-54)	29 (7-53)	28 (6-53)	28 (6-53)	28 (5-53)	27 (4-53)
0.6×TACC	35 (16-57)	34 (15-57)	34 (15-57)	34 (15-57)	34 (14-57)	33 (14-57)	33 (13-57)	33 (13-57)	33 (13-57)	33 (12-57)	33 (11-57)	33 (11-57)	33 (11-57)	33 (11-57)	33 (10-57)	33 (10-58)
0.43×TACC	35 (16-57)	34 (16-57)	35 (16-57)	35 (16-58)	35 (16-58)	35 (16-58)	35 (16-59)	35 (15-59)	36 (15-59)	36 (15-60)	36 (15-60)	36 (15-60)	37 (15-60)	37 (15-61)	37 (15-61)	37 (15-62)

Table 12: Projected estimates of the probability of stock status being below the hard limit (p<0.1) with catches at the TACC, and at 0.8, 0.6 and 0.43 of the current TACC.

p<0.1	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39
TACC	0	0	1	1	2	2	4	5	6	8	9	11	13	14	16	18
0.8×TACC	0	0	1	1	1	1	2	2	3	4	4	5	6	7	7	8
0.6×TACC	0	0	0	0	1	1	1	1	1	1	2	2	2	2	2	3
0.43×TACC	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1

Table 13: Projected estimates of the probability of stock status being below the soft limit (p<0.2) with catches at the TACC, and at 0.8, 0.6 and 0.43 of the current TACC.

p<0.2	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39
TACC	7	9	11	14	16	19	22	24	27	30	33	36	38	40	42	44
0.8×TACC	7	8	10	11	13	14	16	18	19	21	23	24	25	26	27	29
0.6×TACC	7	8	8	9	10	10	11	12	12	13	13	14	14	15	15	15
0.43×TACC	7	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7

Table 14: Projected estimates of the probability of stock status being above the lower bound of the target range (0.3) with catches at the TACC, and at 0.8, 0.6 and 0.43 of the current TACC.

p>0.3	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39
TACC	66	63	60	56	53	49	46	43	41	39	36	34	32	31	30	28
0.8×TACC	66	64	62	60	58	56	54	52	50	49	47	46	45	44	43	42
0.6×TACC	66	65	64	64	63	62	61	61	60	60	59	59	59	59	59	59
0.43×TACC	66	65	66	66	67	67	68	68	69	69	70	70	71	71	72	72

Information on biology, interdependence, and environmental factors

587. This information supports FNZ's assessment of the proposals against section 13 of the Act in *'Part 3:* Assessment *against relevant legal provisions*'. Information in this section was derived from the orange roughy chapter of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

588. Orange roughy are generalist predators that eat a wide variety of prey, in particular benthopelagic and mesopelagic crustaceans, fishes and squid. These species would be affected to some extent by changes in the ORH 7A TACC, however the extent to which these associated species will be affected is unknown. Similarly, we do not have information to suggest any stocks are particularly interdependent with orange roughy, e.g., predators that rely on orange roughy as a food source, or prey species that are primarily preyed upon by orange roughy.

589. Anderson & Finucci (2022) summarised the bycatch of orange roughy trawl fisheries from 2002/03 to 2019/20. Orange roughy accounted for approximately 80% of the total observed catch and the remainder comprised mainly black oreo, smooth oreo, rattails, shovelnose dogfish, and ribaldo. There are no sustainability concerns for any of these stocks.

590. Anderson & Finucci (2022) also found that total estimated annual discards of non-target QMS species were very low, and that invertebrate species were caught in low numbers.

Biological characteristics

591. Orange roughy are a very slow-growing and long-lived species, known to live 120-130 years, reaching a potential maximum age of over 200 years and a maximum size of about 50 cm (standard length), with an average size of around 35 cm. New Zealand orange roughy are estimated to reach sexual maturity between 32 and 41 years of age, and recruit into the fishery at 15 to 20 years of age (around 23 to 25 cm in length).

592. Spawning occurs once a year between June and early August, in many separate locations from the Bay of Plenty in the north to the Auckland Islands in the south.

593. Spawning orange roughy form dense aggregations at depths of 700 to 1,000 m in areas often associated with underwater topographical features such as hills and canyons. It is thought likely that individual orange roughy do not spawn every year and that fecundity (the potential to produce offspring) is relatively low, although the size of the eggs is relatively large, which suggests their survival rate may also be relatively high.

594. Small aggregations form outside the spawning period, presumably for feeding. Historically, orange roughy has been particularly prone to hyperstability, that is, catch rates remain high even as the stock is rapidly depleted, due to targeting spawning aggregations at specific areas and times.

Environmental conditions affecting the stock

595. FNZ is not aware of any specific environmental conditions affecting the orange roughy stock in ORH 7A to date.

Information on environmental impacts

596. This information supports FNZ's assessment of the proposals against section 9 of the Act in *'Part 3: Assessment against relevant legal provisions*'.

Protected species

Seabirds

597. The orange roughy trawl fleet rarely interacts with seabirds. Based on observed seabird capture rates, the risk to seabirds in orange roughy fisheries is very low relative to many other fisheries. In the ten years between the 2010/11 and 2019/20, a total 16 birds were captured from 6,276 observed tows, which equates to a capture rate of 0.25 birds per 100 tows. Over this period, the average annual observer coverage was 25%.

Mammals

598. The ORH 7A fishery has negligible interactions with marine mammals, with no mammal captures reported in the five most recent fishing years between 2018/19 and 2022/23.

Fish and invertebrate bycatch

599. Management of shark species in New Zealand is guided by the National Plan of Action for Sharks (NPOA-Sharks 2013). FNZ will continue to monitor interactions with deepwater sharks in orange roughy fisheries and consider management action if impacts are found to pose a sustainability risk to any deepwater shark species.

Corals

600. Benthic faunal communities on deep-water seamount features are commonly characterised by extensive growth of branching stony corals, which are protected. New Zealand waters are thought to be home to at least 1,320 coral species, of which 196 are endemic. Bottom trawling for orange roughy can have an impact on these coral groups as well as other fragile invertebrate fauna (Anderson & Finucci, 2022), leading to disturbance or loss of some benthic habitat and in turn a reduction in biodiversity.

601. The nature and extent of those impacts depends on a range of factors such as seafloor type (e.g., mud, sand, or rock), gear type, types of organisms encountered, and oceanographic characteristics. In New Zealand waters, the impacts of fishing on the benthic environment are primarily managed through closure to bottom trawling through Seamount Closures (implemented in 2001), and BPAs, with over 30% of the EEZ closed to bottom trawling.

602. The DWC "*Deepwater Trawl Benthic Operational Procedures*" help to mitigate benthic interactions. This document outlines voluntary procedures to avoid catching corals, how industry respond if corals are accidentally caught, and lists reporting requirements. In the Westpac Bank Area, fishing vessels must comply with high seas fishing permits which implement the SPRFMO Bottom Fishing Conservation and Management Measure. The permit specifies where fishing may take place, and implements an 'encounter protocol', which closes a specified tow path to all bottom fishing if benthic organism bycatch thresholds are reached.

Biological diversity of the environment

603. Bottom trawling effort for orange roughy interacts with the seabed and the associated benthic environment. This may lead to the disturbance or loss of some benthic habitat and in turn a reduction in biodiversity. The nature and extent of those impacts depends on a range of factors such as seafloor type (e.g., mud, sand, or rock), gear type, types of organisms encountered, and oceanographic characteristics. Contact of the trawl gear with the seabed can lead to bycatch of benthic organisms including corals, sponges, and sea anemones.

604. In the New Zealand EEZ, the impacts of fishing on the benthic environment are primarily managed through the closure of parts of the EEZ to bottom trawling through Seamount Closures (implemented in 2001), and Benthic Protected Areas (**BPA**s, implemented in 2007), with 1.2 million km^2 or 32% of the EEZ closed to bottom trawling.

605. FNZ monitors and maps the trawl footprint and the cumulative fishable area contacted by trawl fishing (MacGibbon & Mules, 2023).

606. The annual footprint for bottom-contacting orange roughy trawls in 2021 increased substantially from 2020 at 2,451 km^2 and is the largest in the time series, with the corresponding aggregate area (2,750 km^2) also being the highest in the time series. For the period 1990-2021, ORH 7A had an aggregate swept area of 26,965 km^2, a footprint of 11,187 km^2 and contacted 1,568 cells.[81] This is a noticeable increase from the 1990–2019 analysis when, for the total period, the footprint was 8,975 km^2, the aggregate area was 22,467 km^2 with 1481 cells contacted (Baird & Mules, 2021). This suggests in 2021 the effort in ORH 7A was more widespread and intensive than in previous years.

607. Much of the increase in the footprint between 2019 and 2021 was into cells that have previously been trawled mostly by orange roughy target fishing. Expansion of the overall deepwater fisheries trawl footprint into previously untrawled cells was estimated to cover 59.5 km^2 in 2020 and 85.8 km^2 in 2021, with most of this increase accounted for by tows targeting ORH on the south Challenger Plateau in depths between 800 and 1,000 metres (McGibbon & Mules 2023).

[81] Dividing the EEZ into cells allows the identification of areas where there is higher certainty of genuine new area trawled. A cell is designated as "previously contacted" if a tow or portion thereof from previous fishing years falls within that cell. Cells that are "newly contacted" are those where no tows from previous years fell within the cell. Our estimates of new cell area contacted considers only the "newly contacted cells" where we have higher confidence that the seabed has not been contacted in previous years.

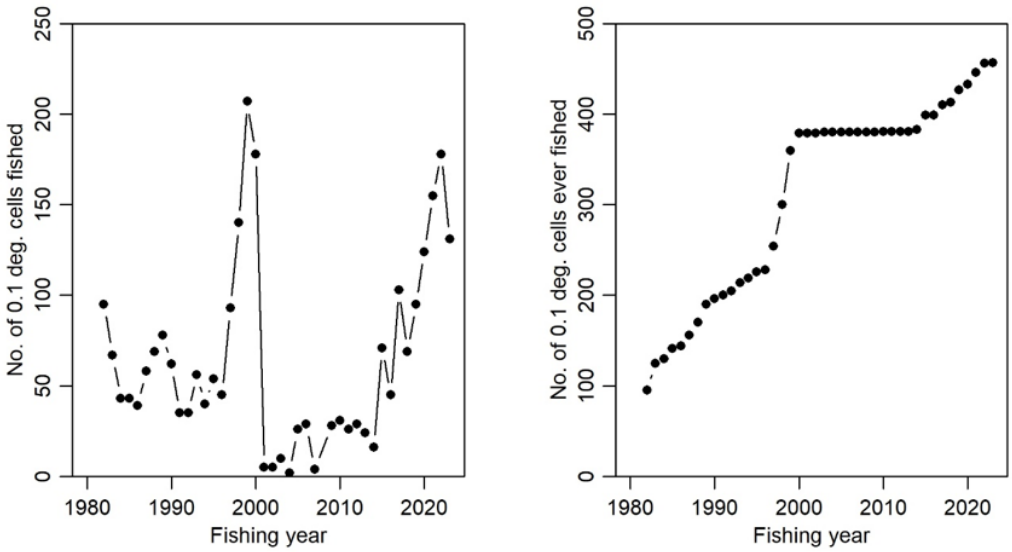


Figure 6: Fishing footprint of the ORH 7A including Westpac Bank bottom trawl fishery targeting orange roughy, expressed as the number of 0.1° latitude and longitude cells fished. The left-hand graph shows the number of cells fished by year, and the right-hand graph shows the cumulative number of cells ever fished. Note that the Westpac Bank catch limit is 12.5% of the ORH 7A TACC; this described further in '*Who will be affected by the proposed changes?*' above. Source: Dunn (2024)

608. Further information from the characterisation of the fishery as part of the 2024 stock assessment work indicates that the footprint is spreading notably south (away from northern spawning aggregations fished when the fishery re-opened in 2011) from 2021. This change in distribution of effort away from the northern features where spawning aggregations were fished is consistent with patterns observed prior to the closure of the fishery in 2000. Additionally, by 2023 the trawl footprint reached a level similar to that in the late 1990s, although the footprint after 2015 included areas new to the fishery (Dunn 2024).

Habitat of particular significance for fisheries management

609. Potential habitats of particular significance for fisheries management in ORH 7A can be found in Table 15 below. There are other potential habitats of particular significance for fisheries management present within the FMA, but those areas do not overlap with the area fished for the species for which you are making decisions:

- Marlborough Sounds sites for elephantfish spawning and egg laying, including Penzance Bay, Iwirua Point and Kumutoto Bay in Queen Charlotte Sound, from Fitzroy Bay to Savill Bay, Garnes Bay, Kumutoto Bay and Grove Arm in Pelorus Sound and Clifford Bay; and
- Inner Golden and Tasman Bays for juvenile snapper.

Table 15: Potential habitat of particular significance for fisheries management relevant to ORH 7A.

Persistent orange roughy spawning sites
Attributes of habitat • Spawning aggregations occur over underwater topographic features (**UTF**s) that include knolls and seamounts, as well as flat areas characterised by muddy sediments. Depth, longitude, latitude, sediment type, bottom temperature, and current convergence zones, the depth, height and diameter of the feature, and impact on local current regimes are found to be important influences on structuring fish assemblages. • There is no available evidence that biogenic habitat is an attribute of ORH spawning habitat. **Reason for particular significance** • These habitats support persistent spawning areas for orange roughy. Spawning is critically important in supporting the productivity and recruitment of orange roughy. **Risks/threats** • The assessment of impact of trawling on spawning habitat identified no evidence of a risk of an adverse from trawling on known habitat attributes of the spawning habitat (depth, sediment type,

Persistent orange roughy spawning sites
bottom temperature, current convergence zones and topographic structure of features). Non-fishing risks include changing oceanographic conditions via climate change and mining or other activity that would alter geological features driving upwelling or circulation patterns. **Existing protection measures** • In the New Zealand EEZ, the impacts of fishing on the benthic environment are primarily managed through the closure of the EEZ to bottom trawling through Seamount Closures (implemented in 2001), and BPAs, with over 30% of the EEZ closed to bottom trawling. These closures are intended to protect biodiversity but given there is no evidence that biogenic habitat influences spawning, BPAs and seamounts are not considered to provide protection to the spawning habitat. • In the Westpac Bank Area, fishing vessels must comply with high seas fishing permits which implement the SPRFMO Bottom Fishing Conservation and Management Measure. The permit specifies where fishing may take place, and implements an 'encounter protocol', which closes a specified tow path to all bottom fishing if benthic organism bycatch thresholds are reached. **Evidence** • Baird & Mules, 2021; Clark et al., 2019; Clark et al., 2022; Dunn & Forman, 2011; NIWA, 2015; O'Driscoll et al., 2003; Morrison et al., 2014b.

Part 5: Conclusions and recommendations

610. The best available information from the 2024 stock assessment estimates current biomass for orange roughy in ORH 7A to be at 35% unfished biomass, which is within the management target range of 30 – 50% B_0. Projections of stock status indicate the stock is expected to decline based on current fishing effort.

611. There is considerable uncertainty in this estimate (and future projections of stocks status) as the most recent abundance information included in the base case model is from 2013. The treatment of more recent abundance information in the 2024 stock assessment (including an acoustic survey undertaken in 2023) strongly influences the resulting interpretation of stock status from the alternative models considered.

612. The inclusion of this more recent abundance information in alternative models presented to the DWWG predict a more pessimistic stock status, indicating that the stock may be below the soft limit.

613. The recent abundance information was ultimately excluded in the final base case model used to inform the stock status of 35%. On this basis, options proposed to reduce the ORH 7A TAC (Options 2-4) could be considered to meet your obligation to maintain the stock at or above a level that can produce *MSY*. Under all of these options the median estimate of spawning biomass is projected to remain above the lower end of the target range (30% B_0) within the next five years.

614. Feedback received from submissions indicate there is a broad concern with the performance of the ORH 7A fishery. While a range of factors can influence total catch in a fishery in any one year (e.g. market and operational changes), estimated catch from the fishery in 2023/24 is less than half that of recent years. The distribution and size of catches in the current and more recent fishing years support observations and results from the 2023 acoustic survey (larger catches taken on the Westpac Bank and lesser catches within the EEZ), which suggests the potential absence of spawning aggregations in some areas within the EEZ.

615. FNZ considers that given: (i) the results and uncertainty in the 2024 ORH 7A stock assessment, (ii) the risk that stock status could be much more pessimistic (demonstrated by the results of the alternative models), (iii) the vulnerability of orange roughy stocks, and (iv) observations from submissions; there is a need for a significant reduction in the ORH 7A TAC.

616. FNZ recommends that you choose **Option 4**, because it is the option most likely to maintain the ORH 7A stock at or above B_{MSY} and best fits the purpose of the Act which is to provide for the utilisation of fisheries resources while ensuring sustainability. Option 4 is a 57% TACC reduction to 885 tonnes, which is the largest reduction proposed. It is the most cautious option with respect to sustainability. It places the most weight on uncertainty in the median estimates in the base case model used for the 2024 ORH 7A stock assessment and the concerns about the stock raised in submissions.

Decision for ORH 7A

617. Option 1 (*status quo*) is presented below because it was consulted upon. However, **FNZ considers there to be a significant risk that maintaining the *status quo* will result** in ORH 7A biomass declining to a level further below B_{MSY}. On this basis, FNZ considers this option to be inconsistent with your obligations for setting the TAC under section 13(2)(a). **We therefore strongly advise against Option 1**.

Option 1

Agree to retain the ORH 7A TAC at 2,163 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 2 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 103 tonnes;
iv. Retain the ORH 7A TACC at 2,058 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the ORH 7A TAC at 1,730 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 2 tonnes;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 103 to 82 tonnes;
iv. Decrease the ORH 7A TACC from 2,058 to 1,646 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3

Agree to set the ORH 7A TAC at 1,301 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 2 tonnes;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 103 to 64 tonnes;
iv. Decrease the ORH 7A TACC from 2,058 to 1,235 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 4 *(Fisheries New Zealand preferred option)*

Agree to set the ORH 7A TAC at 942 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 2 tonnes;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 103 to 55 tonnes;
iv. Decrease the ORH 7A TACC from 2,058 to 885 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon Shane Jones

Minister for Oceans and Fisheries

16 / 09 / 2024

Chapter 5: Blue cod / Rāwaru (BCO 5) – Southland, Sub-Antarctic

Part 1: Overview

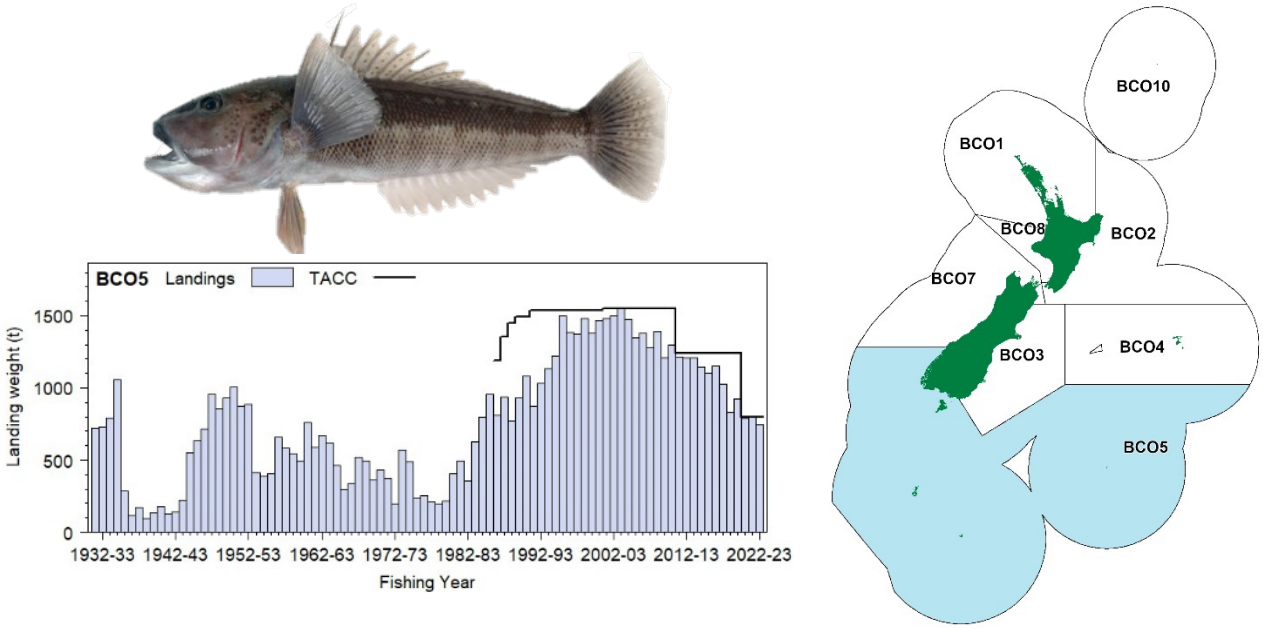


Figure 1: Quota Management Areas (QMAs) and total allowable commercial catches (TACCs) for blue cod / Rāwaru (*Parapercis colias*), with BCO 5 highlighted.

Rationale for review

618. Despite management interventions, catches of blue cod in BCO 5 have declined over the last 20 years (see Figure 1). In 2020, an assessment estimated the stock was at 36% of unfished biomass (B_0), below the management target of 40% B_0. A more recent stock assessment was commissioned for 2024, but rejected by the Fisheries Assessment Plenary on the grounds that it did not fit the data and was unrealistically optimistic (FNZ - Fisheries Assessment Plenary, May 2024).

619. The assessment model failed to fit to the recent decline in the proportion of females to very low levels (a new trend since the last assessment), and an alternative model including sex transition required further work which was not achievable in the time available. Other issues in the assessment included model diagnostics, the year class strength trend, concerns over the catch per unit effort (**CPUE**) being hyperstable, and fishers moving further afield to maintain catch rates and average fish size.

620. Due to the rejection of this assessment, the current level of the stock cannot be reliably estimated. However, recent surveys and other information indicate a sustainability concern, suggesting the stock may be declining further below a level that can produce the maximum sustainable yield (***MSY***), especially in Foveaux Strait.

621. A 2023 Foveaux Strait potting survey (Beentjes & Miller, 2024) concluded relative abundance in the Foveaux Strait part of the fishery had declined 57% since 2020 (see Figure 2) and was significantly overfished. A length-at-age survey of the commercial catch (Beentjes & Bian, *in prep*) shows few female cod above the minimum legal size (**MLS**) of 33 cm within Foveaux Strait. A skewed sex ratio[82] in blue cod populations is considered to indicate overfishing and has implications for spawning success and recruitment. FNZ is also concerned hyperstability[83] in commercial CPUE may be masking serial depletion.[84]

[82] Blue cod are protogynous hermaphrodites (born female but at some point in their lifespan change sex to male), with some individuals over a large length range changing sex from female to male, especially when overfished.

[83] The term hyperstability describes a process where relationships between fish catch rates and abundance of fishes become uncoupled, such that catch rates can remain higher than expected as fish abundance declines.

[84] Where, as each local area is fished out, effort moves to another area which in turn becomes depleted before the effort is shifted again. This can give the appearance of maintaining sustainable catches rather than the overfishing that is occurring.

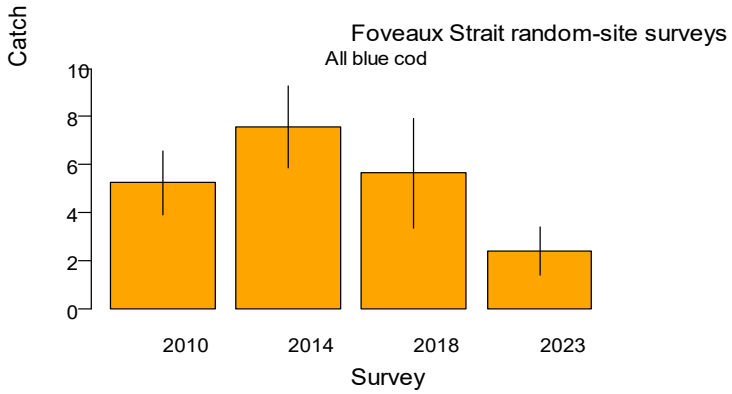


Figure 2: Foveaux Strait (Statistical Area 025) random-site potting survey catch rates of all blue cod by survey year. Error bars are 95% confidence intervals (Beentjes & Miller, 2024).

622. In line with the information outlined above, FNZ consulted on options to reduce the TAC of BCO 5 for the upcoming fishing year.

623. A CPUE-based Harvest Control Rule (**HCR**),[85] commissioned by the BCO 5 Association (representing fishers and quota holders), shows declining CPUE in all the fishery statistical areas (see Figure 6), and recommends a TACC decrease from the current 800 tonnes to 665 tonnes (Neubauer, *in prep* - see Figure 5). One of the TACC options consulted on (Option 2) proposes to reduce the TACC of BCO 5 in line with this HCR. FNZ also consulted on an option for a greater TAC and TACC reduction than proposed by the HCR, noting the concerns of hyperstability and depletion outlined above.

624. FNZ is now seeking your decision to set the TAC of BCO 5 under section 13(2A) of the Fisheries Act 1996 (**the Act**). Your decision will take effect from the beginning of the next fishing year on 1 October 2024.

625. A decision under Option 2, 3 or 4 would involve a reduction to the recreational allowance of BCO 5. This will require subsequent changes to the BCO 5 recreational daily limit and 'Traffic Light Rating' (under the National Blue Cod Strategy). Changes to these recreational controls are not being proposed as part of this review. If you agree to reduce the recreational allowance as part of your decision, FNZ will consult further on recreational controls, including through public drop-in sessions, which will inform further advice to you.

Proposed options and FNZ's recommendations

626. In response to consultation and the information given in submissions, FNZ is proposing a fourth option, being an intermediatory reduction between Option 2 and 3.

Table 1: Proposed management options (in tonnes) for BCO 5 from 1 October 2024. FNZ's preferred option is highlighted in orange.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 *(status quo)*	925	800	20	85	20
Option 2	774 (↓ 151)	665 (↓135)	20	70 (↓15)	19 (↓1)
Option 3	587 (↓338)	500 (↓300)	20	53 (↓32)	14 (↓6)
Option 4 (new)	677 (↓248)	580 (↓220)	20	62 (↓23)	15 (↓5)

627. A total of 20 submissions were received. Four related to other matters such as a marine reserve around Ruapuke Island and amateur charter vessel rules. Of the 16 remaining submissions, two supported Option 1, seven supported Option 2, five supported Option 3 and two supported alternative options. Environmental groups and most individuals supported a cautious approach. Recreational fishing representatives supported a reduction of the TACC while maintaining the allowance for recreational fishing at the current level. Commercial interests mostly supported Options 1 or 2, while also citing high levels of recreational fishing occurring in Foveaux Strait as a factor in the current decline in abundance of blue cod in the area.

[85] Harvest control rules, or 'management procedures' are pre-agreed guidelines that determine how much fishing can take place, based on indicators of the targeted stocks status, in this case CPUE. Information about the HCR for BCO 5 is set out in the May 2024 Fisheries Assessment Plenary.

628. The feedback from submissions has been characterised further under the '*Analysis of options*' below. More detail, including other matters raised by submitters, is provided in Part 2 '*Submissions'*.

629. Based on our analysis of these options, latest data from the fishery and incorporating the feedback received, as well as our assessment of the options against legal provisions (see Part 3), FNZ recommends the new Option 4. Rationale for this recommendation is set out at the end of this chapter, with FNZ's conclusions in Part 5 '*Conclusions and recommendations*'.

Analysis of options

Option 1 – retain current settings (*status quo*)

630. The *status quo* was presented during consultation for discussion, and to provide stakeholders an opportunity to present any new information for your consideration. However, it was made clear in the consultation document that the *status quo* poses the greatest risk to the sustainability of blue cod in BCO 5.

631. FNZ considers it unlikely that the *status quo* does meets section 13(2A) of the Act, which requires you to set a TAC that is not inconsistent with the objective of maintaining or moving the stock toward or above a level that supports *MSY* (see Part 3, Table 4 for more information and analysis of this view).

Benefits	632. The current settings would maintain the potential economic and recreational benefits of the fishery if the TAC and TACC can be fully caught.
Risks	633. As the TAC is well above the projected catch for the current year, this option will not constrain catch to reverse the trend of declining abundance in Foveaux Strait. While the status of BCO 5 in relation to the biomass target of 40% is uncertain, when last assessed in 2020 it was estimated at 36% of the target and recent surveys indicate it may have further declined, especially in Foveaux Strait. Consequently, it is unlikely that this option is consistent with your obligation under the Act to maintain the stock at or above this target. Fishing mortality in the Foveaux Strait part of the fishery in 2023 was nearly seven times higher than the target reference fishing mortality indicating that overfishing is occurring, and relative abundance showed a significant decline of 57%.
Feedback received	634. Fourteen submitters acknowledged a decrease in the TAC was required, but many put forward a range of possible explanations for the declining catches, such as weather, greater economic return from the rock lobster fishery, and marine heat waves. 635. Two BCO 5 quota holders considered the downturn in the fishery is likely environmental resulting from recent marine heatwaves, especially in the Foveaux Strait area. They consider high levels of recreational fishing are also affecting stocks in this area. One requested the review be deferred until more information on the response of the stock to heatwaves is obtained. *FNZ response* 636. FNZ recognises that there may be other factors contributing to declines in the BCO 5 fishery, nevertheless you must set the TAC of the stock at a level that ensures fishing will remain sustainable (as per the purpose of the Act), and in line with the best information available to you. 637. While there is some uncertainty regarding how heatwaves may be impacting the stock, this uncertainty should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act (as per section 10(d) of the Act), and you should also be cautious in light of this uncertainty (as per section 10(c)).

Option 2 – 16% TAC decrease

Benefits	638. Reduces fishing pressure to improve sustainability and the likelihood of population rebuild. 639. The TACC reduction to 665 tonnes is consistent with the CPUE-based HCR developed by the BCO 5 Association and is the industry-preferred option.
Risks	640. The TACC under this option is likely to be higher than the landings for BCO 5 for the current fishing year, in which case this option will not reduce fishing mortality to the target and the stock will continue to be overfished. After ten months of the current fishing year (to end of July) landings are 500 tonnes. If the TACC remains higher than catch, it runs the risk of the TACC

	"chasing the fishery down" to below the limits (Beentjes et al., in prep and Neubauer in prep, see Figure 6). 641. The HCR informing this option relies on CPUE data. Because fishing practices in BCO 5 have changed over time, there is a risk that this CPUE data masks the extent of declining biomass in the fishery. As a result, operation of the HCR may be insufficient to ensure utilisation is sustainable.
Feedback received	642. This was the preferred option of the BCO 5 Association representing most quota holders, on the basis that it is consistent with the HCR. One submitter favoured Option 2 without offering any reasoning. Two further quota holders submitted the downturn in the fishery is likely environmental, a result of recent marine heatwaves, especially in the Foveaux Strait area and that high levels of recreational fishing are also affecting stocks in this area. Two submitters considered a TAC reduction was necessary and supported either Option 2 or 3, or something in between, depending upon final analysis. 643. It was suggested that blue cod is present in BCO 5 but has moved to deeper, cooler habitat at the margins of the fishery and will return when environmental conditions stabilise. Some fishers report fishing deeper waters to maintain catches.

Option 3 – 37% TAC decrease

Benefits	644. As the largest reduction proposed, this option is the most cautious with respect to sustainability. 645. It would enable a TACC to be set that is lower than the catch for the current fishing year (currently 500 tonnes with two months of the fishing year remaining), increase the rate and likelihood that the stock rebuilds to or above the biomass target, and is the most likely to prevent overfishing from occurring. It also reduces catch to a level that recognises environmental changes, such as marine heatwaves, which may be influencing blue cod recruitment.
Risks	646. A decrease of 37% to the TAC would reduce economic value in the short term and would require reduced recreational limits. 647. There is the potential that blue cod are still present in BCO 5 but have moved to deeper, cooler habitat as some fishers report success fishing deeper waters to maintain their catches.
Feedback received	648. Te Waka a Māui me Ōna Toka Forum supports Option 3 as a cautious approach. 649. Five submitters considered a significant decrease in the TAC was required as there is sufficient evidence that catch is declining, and that overfishing is contributing to the decline. They considered that marine heatwaves are also a threat to blue cod sustainability, and as such, a precautionary approach is required at this time. These submitters held concerns for the role of blue cod in the coastal ecosystems and were concerned at the consistent decline in BCO 5 commercial landings over the last 20 years with the TACC essentially chasing the catch downwards.

Option 4 – 27% TAC decrease

650. In response to consultation and the information provided in submissions, FNZ is proposing a fourth option, a 27.5% decrease, being intermediatory between Options 2 and 3.

Benefits	651. Electronic reporting and monthly harvest returns show catch rates in the fishery have substantially increased since the consultation document was released, and the projected catch for the current fishing year is likely to be slightly higher than estimated in the consultation document. While noting this may be due to changes in effort and to hyperstability, this option takes this into account by setting a slightly higher TACC but one that remains lower than projected catch for the current fishing year. Reducing the TAC to below current catch is important to ensure fishing levels are reduced below current fishing pressure, thereby, allowing a rebuild of abundance. 652. It reduces catch to a level that helps to ensure that the stock rebuilds to or above the biomass target and reduces the likelihood of overfishing, and that further declines in stock size are

	prevented. While still cautious with respect to sustainability it will reduce economic implications relative to Option 3. 653. This option takes into consideration the environmental and other reasons put forward in submissions to explain the decline in catches (see 'Feedback received' for Option 2). It recognises the potential that blue cod may still be present in BCO 5 but have moved to deeper, cooler habitat as some fishers report fishing deeper waters to maintain catches.
Risks	654. The option may be insufficient to reverse the decline in the stock and/or slow any rebuild of the fishery. 655. A decrease of 27% to the TAC would reduce economic value in the short term and would likely require reduced recreational limits.
Feedback received	656. Three submitters advocated for a TAC between Options 2 and 3 on the basis that a significant reduction was required but that reasons beyond fishing were affecting the stock.

Other options considered or supported by submitters

No decrease to the recreational allowance

657. Two recreational fishing clubs and Fish Mainland submitted there should be no change to the allowance made for recreational fishing, maintaining the *status quo* allowance of 85 tonnes, while reducing the TACC if this is deemed necessary for sustainability reasons. They base this on a lack of faith in the National Panel Survey of Recreational Fishing (**NPS**) results for BCO 5, and a misunderstanding of the Foveaux Strait potting survey methodology and results. FNZ notes the methodology of both survey types have been internationally reviewed and the surveys themselves peer reviewed through FNZ's Science Working Groups. FNZ also note concern from commercial fishers regarding the level of recreational fishing occurring.

658. The available information, including a 20-year decline in catch and the implications of recent heatwaves shows this important shared fishery is under pressure. It is appropriate that all sectors contribute to a rebuild of the fishery.

Who will be affected by the proposed changes?

659. BCO 5 is caught predominantly as a target species with small amounts taken as bycatch. Based on the last three fishing years, there have been on average 63 quota owners (5% of all quota owners), providing ACE to 73 permit holders (11% of all permit holders), landing blue cod to 23 LFRs (12% of all LFRs). On average over the last three fishing years, there were 79 vessels landing blue cod in BCO 5 (10% of the fleet), of which 49 reported targeting blue cod.

660. Short-term decreases in returns from the fishery are expected under Options 2, 3 and 4 for fishers, quota holders and LFRs. However, this is in the context that a proportion of ACE is not currently caught and the ability of the fishery to sustain higher catches. In the medium-term, due to the longevity of the species, much of the foregone blue cod catch should be available to catch when stock abundance increases.

661. BCO 5 is a popular fishery for recreational fishers from Bluff, Stewart Island, Riverton, and Fiordland. Reducing the allowance and any subsequent amendment of recreational controls will affect recreational these fishers by limiting catch in the short term but, in combination with a reduced TACC, will improve recreational fishing success as the fishery rebuilds.

Input and participation of tangata whenua

662. Te Waka a Māui me Ōna Toka Iwi Forum represents iwi (Kāi Tahu) with an interest in this blue cod stock.

663. FNZ circulated and discussed a summary of the stocks proposed for review in this round (including BCO 5) with Te Waka a Māui me Ōna Toka Iwi Forum in March and July 2024. FNZ engaged further with the iwi fisheries forums during consultation, invited feedback, and offered to provide more detailed information for any stocks upon request.

664. Te Waka a Māui me Ōna Toka Iwi Fisheries Forum has informed FNZ that the Forum supports Option 3. They also support a move to an 'amber' traffic light setting under the National Blue Cod Strategy but with a daily limit of 5 cod per person, a vessel limit of three daily limits, and no accumulation. They also support an increase in the minimum legal size from 33 cm to 35 cm.

Fishery characteristics and settings

Table 2: Fishery characteristics and settings for BCO 5.

Commercial (TACC)
665. The TACC has been reduced twice, from 1,548 tonnes to 1,239 tonnes in 2011, and again to 800 tonnes in 2020.
666. BCO 5 commercial catch is almost exclusively (98%) caught by potting with the remainder from bottom longline and trawl.
667. The TACC was under-caught in the 2022/23 fishing year. Fishers reported a significant drop in catch in the Foveaux Strait part of the fishery since September 2023 and into this current fishing year. The fishery is currently well under-caught in 2023/24 compared to the equivalent period in previous years.
Customary Māori
668. Customary catch for BCO 5 is provided for by the Fisheries (South Island Customary Fishing) Regulations 1999.
669. The customary allowance for BCO 5 is 20 tonnes, this was increased from two tonnes in 2020/21. FNZ records show that 20 customary authorisations were recorded over the last decade, most recently in the third quarter of 2021/22, accounting for approximately 12.1 tonnes. Customary harvest may also occur under recreational daily limits. Special events requiring hākari[86] also rely on appropriate access to kaimoana.
Recreational
670. The 2022/23 National Panel Survey of Marine Recreational Fishers (**NPS**) (Heinemann & Gray, *in prep*), estimates recreational catch as 95 tonnes (± 17 tonnes (CV)), comprising 53 tonnes from 'private' fishers, 20 tonnes from charter vessels, and 22 tonnes under section 111 of the Act (recreational catch on a commercial fishing vessel). This is higher than the current 85-tonne recreational allowance. The 2022/23 NPS estimated private catch as having declined 17% since the 2017/18 survey. The recreational daily limit is 15 blue cod across most of BCO 5 (following the 'green traffic light' rules for areas with the healthiest blue cod stocks, under the National Blue Cod Strategy). Other area specific daily limits apply within Fiordland, including no accumulation, and a daily limit of 10 in Waka ā Te Wera Mātaitai Reserve.
671. Under Options 2, 3 and 4, FNZ is proposing to review whether changes to the traffic light rating are also appropriate (as per the National Blue Cod Strategy) to reduce recreational fishing pressure in BCO 5.
Other sources of mortality caused by fishing
672. The allowance for other sources of mortality caused by fishing is an allowance intended to provide for generally unrecorded mortality of fish associated with fishing activity. This includes fish that escape from pots and subsequently die from injuries, accidental loss from lost or damaged fishing gear, predation, and misreporting.
673. In 2018, the mesh size of pots was increased allowing for the escape of undersize cod. This results in very low mortality from the commercial potting fishery. The current allowance (20 tonnes) is set at a level equivalent to 2.5% of the TACC. However, based on reports of predation of released fish from recreational fishers, FNZ considers it more appropriate to set the allowance at a level equivalent to 2.5 % of the combined TACC, Māori customary and recreational allowances.

Deemed value rates

674. FNZ did not propose any deemed value rate changes for BCO 5 as part of this review. However, in recognition of the fact that deemed value and catch limit settings are interlinked (TACC changes can impact deemed values), FNZ welcomed general feedback on the deemed value settings of BCO 5 during consultation.

675. No submissions commented on the deemed value rates for BCO 5.

[86] A feast, banquet or celebration.

676. FNZ remains of the view that deemed value changes are not needed for BCO 5 at this time. FNZ is satisfied that the current deemed value rates are consistent with section 75(2)(a) of the Act in that they provide sufficient incentive for fishers to balance their catch with ACE. However, FNZ acknowledges that if the TACC of BCO 5 as changes as a result of this review, subsequent changes in ACE market may result in the need for the deemed value to be re-evaluated in the future.

Part 2: Submissions

677. A total of 20 submissions were received on the proposed options for BCO 5 during consultation. Two of the submissions supported Option 1, seven supported Option 2, five supported Option 3 and two supported alternative options (Table 3). Four submissions did not submit directly in relation to the TAC, but submitted on other related matters, such as a proposed marine reserve for Ruapuke Island and amateur charter vessel rules.

678. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options or alternatives for BCO 5, but commented generally about catch limits or other aspects of fisheries management. These general concerns are discussed within Appendix Two of B24-0483.

Table 3: Submissions received for BCO 5 during consultation.

Submitter	Option supported				Notes
	1	2	3	Other	
Organisations					
BCO5 Association Inc.		✓			Prefers Option 2 based on the CPUE-based Harvest Control Rule developed and supported by the Association.
Divesouth Fishing and Diving Club Inc.				✓	Submits the TAC should be reduced to a level that is sustainable but do not support a reduction to the allowance for recreational fishing.
Environmental Defence Society Inc.			✓		States there is significant uncertainty as to the biomass of BCO 5 with indications of reduced numbers of females in some areas, and declining relative abundance with catch consistently declining over the last 20 years. Blue cod is a low productivity species with a constrained home range, making it less resilient to fishing pressure and susceptible to localised depletion. Option 3 is the most likely to prevent further overfishing of BCO 5. Option 2 will fail to drive a reduction in fishing mortality and the stock will continue to be overfished because the TACC under Option 2 may be higher than current landings for BCO 5.
Fiordland Marine Guardians		✓	✓		Supports a reduction in the TAC (Option 2 or 3) as there is sufficient evidence that blue cod catch is declining and overfishing is contributing to the decline.
Fish Mainland				✓	Disagrees with information used. Submit there should be no reduction in the allowance made for recreational fishing.
Ngāi Tahu Seafood			✓		Supports an option with a TACC of 550 tonnes. They are not convinced that blue cod within BCO 5 have moved to deeper, cooler habitat.
Riverton Fishermen's Company Limited & Johnson & DeRijk Packing Co Ltd.		✓			States that environmental issues are the cause of the decline.

Submitter	Option supported				Notes
	1	2	3	Other	
Royal New Zealand Society for the Prevention of Cruelty to Animals Inc (SPCA)			✓		Supports Option 3 as it is the most cautious approach to fishing BCO 5, and it reflects the need to seriously reduce the fishing pressure on stocks that have been declining for over twenty years and the environmental challenges of warming ocean waters.
Seafood New Zealand		✓			Supports the BCO5 Association submission.
Southern Fresh Blue Cod & Seafood Ltd	✓				States that environmental issues (heatwaves) are the cause of decline in BCO 5, and suggest the review be deferred until after winter.
Tautuku Fishing Club Dunedin and Haast Inc				✓	Supports the Fish Mainland submission. Supports a TACC reduction to 665 tonnes (Option 2) or 500 tonnes (Option 3) while keeping the allowance for recreational fishing at 85 tonnes, the allowance for Māori customary fishing and other sources of fishing mortality at 20 tonnes each (i.e. a TAC of 790 tonnes or 625 tonnes).
W D King & Sons Ltd		✓			States that environmental issues (heatwaves) are the cause of decline in BCO 5, and suggest the review be deferred until after winter.
Individuals					
A. Ballantyne	✓				The submitter, a BCO 5 quota holder and LFR, proposes changes to recreational management and rules, and compensation for quota holders upon a TACC reduction.
D. Nelson		✓			Supported Option 2. Did not provide rationale.
G. Ryder			✓		States that with heatwaves likely to get more frequent and severe, a cautious approach should be followed.
J. White				✓	Supports a TAC change between Options 2 or 3 as a slightly more aggressive approach to address the steady decline of BCO 5.
M. Latta				✓	Proposes an alternative option proposed applies to Foveaux Strait and amateur charter vessel management rules.
M. Saunders				✓	Proposes a marine reserve for Ruapuke Island.
P. Trainor				✓	Proposes a marine reserve for Ruapuke Island.
R. Gopinath				✓	Proposes a marine reserve for Ruapuke Island.

Other matters raised during consultation

Recreational daily limits

679. Commercial submitters consider there is significant recreational fishing pressure in Foveaux Strait and seek a reduction in recreational catch. On the other hand, many recreational submitters note that the commercial sector takes 8 times the recreational catch and consider that no reduction in recreational access to BCO 5 is warranted.

680. FNZ will consult further on recreational controls, including through public drop-in sessions, which will inform advice to you later this year.

Effect of climate conditions and marine heatwaves.

681. Modelling studies show bottom temperature trends in coastal BCO 5, including Fiordland, Foveaux Strait and the Snares shelf have increased by up to 2+ degrees over the last 40 years (Behrens et al (*in prep*)).

682. Several marine heatwaves have been recorded across BCO 5, especially in 2022 and 2023 with periods of sea surface temperatures of 18°C or higher. While blue cod can survive temperatures ranging from 8° C to 22°C they show elevated heart rates and respiration when exposed to elevated temperatures (Burn, 2017: "When fish find themselves faced with changes outside of their tolerance range, they are likely to redistribute to areas more favourable.")

683. Ngai Tahu Seafood note in their submission that research conducted by Plant and Food Research between 2015 and 2018 documented that exposure to temperatures at or above 18°C resulted in higher mortality rates in fertilised eggs, hatchlings, free-swimming larvae, and post-juvenile blue cod larger than 25 mm.

684. In addition to direct impacts to blue cod physiology, marine heatwaves have already resulted in localised loss of macroalgae in the region (Tait et al. 2021, Thomsen et al. 2019), reducing key foraging and sheltering habitat for blue cod.

Changes to management measures

685. Various submitters also advocated for a number of other changes to the management settings of BCO 5, including:

- Increasing the MLS from 33 cm to 35 cm.
- Formalising the HCR.
- Improved monitoring of recreational catch.
- Review of the "filleting at sea" rule.
- Increased engagement from FNZ with recreational fishing (including at club level).
- Review of the Traffic Light settings and change process.
- Increase in pot mesh size.
- Limiting commercial fisher pot numbers and size.
- Compensation for quota reductions.

686. FNZ will engage with the relevant sectors under the National Blue Cod Strategy, on these suggestions later in the year, this will likely include public drop-in sessions in Invercargill.

Part 3: Assessment against relevant legal provisions

Overview

687. You are being asked to make a decision under section 13 of the Act, to set the TAC for BCO 5. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

688. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

689. On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in Part 3 (Supporting information).
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 13 of the Act

690. Table 4 below outlines FNZ's assessment of the proposed options for BCO 5 against section 13(2A) of the Act. This assessment has been informed by the best available information on the status of the stock (discussed in Part 1 under '*Rationale for review*' and the information discussed in *'Information on biology, interdependence, and environmental factors'* within *'Part 4: Supporting Information'*.

Table 4: Assessment under section 13(2A) of the Act for BCO 5.

Section 13(2A)	691. While a stock assessment was undertaken in 2024, it was rejected by the Plenary and stock status is therefore unknown in relation to B_{MSY}. Because the status of the stock cannot be reliably estimated in relation to B_{MSY} using the best available information, any changes to the TAC of BCO 5 should be made under section 13(2A) of the Act. 692. Under this section, you must set a TAC, using best available information, that is not inconsistent with the objective of moving the stock towards or above a level that supports *MSY*, while having regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. 693. While status in relation to B_{MSY} cannot be reliably estimated, commercial landings have declined over the past 20 years. The 2023 Foveaux Strait potting survey indicated a significant decline in abundance plus a high level of overfishing and the CPUE-based HCR recommended a TAC decrease. Considering this, FNZ is concerned that the stock is likely below B_{MSY} and is proposing potential TAC reductions which aim to allow biomass to recover (through reduced fishing pressure) to a level that supports *MSY*. 694. FNZ's view is that Options 2, 3 and 4 (which propose 16%, 37% and 27% reductions, respectively) would not be inconsistent with the objective of moving the stock towards or above a level that supports *MSY,* as all options aim to reduce fishing pressure on the stock to allow biomass to recover. 695. FNZ sought feedback on the *status quo* option during consultation, and two submissions supported it. However, FNZ considers it unlikely that the stock will be moved to a level that supports *MSY* under the *status quo* (noting the information above suggesting a decline in abundance under recent catch levels). Thus, FNZ considers the *status quo* would be inconsistent with section 13(2A) of the Act, and therefore advises against the *status quo* option.

Harvest Strategy Standard (HSS) See 'The Harvest Strategy Standard' in Chapter 1 '*Legal overview*' for more information.	696. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} - compatible reference points. 697. 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 BCO 5. However, there are no available estimates of B_{MSY} (the biomass that would enable BCO 5 to deliver *MSY*), and as such there is uncertainty as to where biomass of the stock currently sits in relation to the target and limits set out by the HSS. 698. While unknown, as noted above, FNZ is concerned that BCO 5 may be below B_{MSY} based on available information and considers that catch reductions would be prudent to allow biomass to recover.
Section 13(2A)(b) Interdependence of stocks	699. The proposed decreases to the TAC of BCO 5 may well have beneficial effects for the ecosystem as blue cod are key predators that contribute to the balance of the ecosystem. However, the specific impacts are uncertain, and their extent cannot be quantified based on the information available.
Section 13(2A)(b) Biological characteristics of the stock	700. Blue cod are a low productivity species, exhibit sex changes from female to male and have a constrained home range. These characteristics make blue cod less resilient to fishing pressure and localised depletion. This means a higher level of caution is warranted when setting the TAC for blue cod stocks.
Section 13(2A)(b) Environmental conditions	701. FNZ considers that environmental conditions (such as elevated temperatures and heatwaves) are likely to be having some effect on physiology and habitat, and thus, the resilience of BCO 5 to fishing pressure, however, identifying specific impacts is difficult, and their extent cannot be quantified based on the information available.
Section 13(3) Factors to have regard to in considering the way and rate the stock is moved towards or above B_{MSY}	702. Section 13(3) is considered relevant to the proposed TAC changes for BCO 5 because the options aim to move the stock toward a level that can produce *MSY.* Forward projections are not available to help FNZ determine what way and rate these options would move the stock in relation to B_{MSY}. However, logically, a larger reduction in the TAC would move the stock toward a level that supports *MSY* faster than a small reduction or no change. In considering the way and rate at which the stock is moved, you must have regard to relevant social, cultural, and economic factors. Information on these factors can be found under the headings '*Who is affected by the proposed changes?*' and '*Input and participation of tangata whenua*'. 703. In general, a TAC reduction under any of the options proposed (besides *status quo*), if below current catch, will have a short to medium term negative financial effect on those involved in the commercial fishery. Reduced allowances and future recreational daily limit changes may have a negative effect on the customary and recreational fishers who value the species as a food source or sport. The economic and cultural value of the stock is likely to benefit in the longer term, however, from a recovered biomass as a result of a TAC reduction.

Kaitiakitanga

704. 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.

705. The Te Waka a Māui me Ōna Toka Forum identifies blue cod as taonga species of significance in their fisheries plan. Tangata whenua have shown greater interest in blue cod and its management over recent years with the National Blue Cod Strategy being developed by FNZ in partnership with the forum.

706. FNZ considers that the proposed management options are in keeping with the management objectives in the Te Waka a Māui me Ōna Toka Fisheries Forum Plan which generally relate to active engagement with iwi and the maintenance of healthy and sustainable fisheries. The relevant management objectives are:

707. 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.

Mātaitai reserves and other customary management tools

708. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

709. The mātaitai reserves, area closures, fishing method restrictions, and prohibitions that apply in BCO 5 are listed in Table 5 below.

Table 5: Mātaitai reserves and other customary management tools that apply to BCO 5.

Customary area	Management type
Te Waka a Te Wera Pikomamaku Kaikuka Horomamae Waitutu Oreti Motupōhue Ōtara Ōmaui	**Mātaitai reserve** Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.

710. It is anticipated that the proposed TAC decreases may have a positive impact on the availability of blue cod in these areas, as reduced fishing pressure on the stock is likely to result in an increase in abundance and the distribution of commercial fishing effort outside of these areas.

Assessment of the proposals against section 9 of the Act

711. Table 6 below outlines FNZ's assessment of the proposed options for BCO 5 against the environmental principles in section 9 of the Act which you must take into account when considering the BCO 5 TAC. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under *'Information on environmental impacts'* within *'Part 4: Supporting Information'*.

Table 6: Assessment under section 9 of the Act for BCO 5.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	712. BCO 5 is predominantly a targeted potting fishery in which there are few interactions with associated and dependent species, such as seabirds, mammals, and fish and invertebrate bycatch species. White pointer sharks, which are a Nationally Endangered species, have previously been caught in the BCO 5 potting fishery. However, the captures appear to be infrequent (2 were reported in the last 5 years). 713. FNZ is proposing options to reduce the TAC of BCO 5 which would result in a reduction in interactions with associated and dependent species. Based on this, and the information on interactions summarised above, FNZ considers it highly unlikely that any of these proposed options would threaten the long-term viability of any associated or dependent species.
Biological diversity of the aquatic environment should	714. Changes in the TAC of BCO 5 are unlikely to have a direct impact on diversity of the aquatic environment because the predominant fishing method used (potting) has minimal impacts for benthic habitats and other species. However, blue cod are predators with an important ecosystem function, and there could

be maintained - Section 9(b) of the Act	be indirect effects from changes in blue cod abundance. Specifically, if blue cod numbers continue to decline, this may have top-down effects for other species, which could impact biological diversity and the maintenance of the ecosystem's balance. For example, the development of kina barrens. 715. The proposed reductions to the TAC and TACC of BCO 5 aim to prevent further declines in abundance and therefore should provide more certainty that the biological diversity of the environment will be maintained. There is less certainty that diversity will be maintained under the *status quo* because under the current TAC abundance is likely to continue declining.
Habitat of particular significance for fisheries management should be protected - Section 9(c) of the Act	716. The risk of adverse effects of cod potting is generally low and therefore will have a low risk of adverse effects on the potential habitat of particular significance for fisheries management in BCO 5.

Assessment of the proposals against section 11 of the Act

717. Table 7 below outlines the FNZ assessment of the proposed options for BCO 5 against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TAC of this stock.

Table 7: Assessment under section 11 of the Act for BCO 5.

You must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	718. "Effect" is defined widely in the Act.[87] The direct effects of fishing for blue cod need to be considered, as well as the indirect effects of this fishing for associated stocks and species, and the surrounding ecosystem. 719. Information relevant to the direct effects of fishing on BCO 5 are described throughout this paper, particularly in Part 1 in '*Rationale for review*', Figure 2, '*Options and analysis*' and *'fishery characteristics and settings',* and in Part 4 under '*Additional figures*'. The effects of the BCO 5 fishery for associated stocks and species, and the wider ecosystem, are summarised above in Table 4 and Table 6, and detailed further in Part 4 under '*Information on biology, interdependence, and environmental factors'* and *'information on environmental impacts'.* 720. The magnitude of fishing effects on blue cod, associated species and the environment, will vary depending on the TAC setting for BCO 5. FNZ considers that the proposed TAC options appropriately balance utilisation of BCO 5 against these potential effects. 721. Cod potting has minimal direct effects on other stocks or the aquatic environment. A small amount of contact with the seabed occurs from the deployment of cod pots so there is unlikely to be any significant damage to the benthic environment from this. However, FNZ notes that greater direct effects for blue cod are expected to occur under a higher TAC i.e. the risk of the stock declining further would be greater if the TAC is set at a high level. As noted above, there could be ecosystem risks associated with a large decline in blue cod, given the important functional role they have in the ecosystem. You must take these potential effects into account in your TAC decision.
Existing controls that apply to the stock or area – section 11(1)(b)	722. The recreational daily limit is 15 fish between Slope point and Sand Hill Point and 10 from Sand Hill Point to Abut Head. The daily limit in Te Waka ā Te Wera Mātaitai Reserve is 10 fish. Other area specific daily limits apply within the fiords of Fiordland, including no accumulation limit (see the Fiordland Regulations).

[87] 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.

	723. Both commercial and recreational cod pots have a minimum mesh size of 54 mm. The MLS for both recreational and commercial fishing is 33 cm.
The natural variability of the stock – section 11(1)(c)	724. There is little information available about natural variability of blue cod stocks. Based on the maximum age of blue cod and their observed site fidelity, FNZ considers it likely there is low natural variability in unfished populations of blue cod. 725. Given this low natural variability, blue cod are considered to be moderately susceptible to overfishing, and this suggests the TAC should be set cautiously.
Fisheries plans, and conservation and fisheries services – section 11(2A)	National Inshore Finfish Fisheries Plan: 726. BCO 5 is managed as a Group 1 stock under this Plan. Group 1 stocks provide higher levels of benefit and are highly desirable to all sectors. Group 1 stock status is determined by a fully quantitative stock assessment. The Plan also sets out that where it is likely the stock will remain below the target reference point and/or the fishing mortality threshold is being exceeded (as it is in Foveaux Strait), a review of management settings is appropriate. FNZ considers that the options proposed are consistent with this. National Blue Cod Strategy 727. This sets out the strategic direction for blue cod stocks including BCO 5, including that the stock is closely monitored and regularly reviewed. **Fisheries and conservation services:** 728. Fisheries and conservation services of significance have been described throughout this paper where relevant. 729. Relevant fisheries services include the research used to monitor BCO 5 abundance (described under '*Rationale for review*' in Part 1) and the tools used to enforce compliance with management controls. 730. Compliance is supported by observer and on-board camera monitoring in commercial fisheries. The observer coverage relevant to BCO 5 is described in '*Information principles: section 10 of the Act*'. 731. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species. 732. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	**Regional plans:** 733. There is one regional council that has a coastline within the boundaries of BCO 5: Environment Southland. This region has policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. FNZ has reviewed the documents and the provisions that might be considered relevant. A summary of these can be found in Addendum 1. 734. 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. There are no provisions specific to BCO 5.
Non-mandatory relevant considerations	
Other plans and strategies	Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy) 735. FNZ considers that the sustainability measures proposed for BCO 5 are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy. This includes 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 sustainably.

Information principles: section 10 of the Act

736. Key information used to inform the status of BCO 5 includes the May 2024 Fisheries Assessment Plenary, the Foveaux Strait potting survey (Beentjes & Miller, 2024), the length and age of the commercial catch (Beentjes & Bian, *in prep*), and the CPUE based Harvest Control Rule (Neubauer, *in prep*) and other publications in the references section. Much of the data used to develop the options in this paper, such as CPUE and landings data, is fishery dependent.

737. Key uncertainties in the information presented include:

- The stock assessment undertaken in 2024 was rejected by the Plenary, and thus, stock status cannot currently be reliably estimated in relation to B_{MSY}.
- Fishing behaviour has changed over the years with implications for the consistency of CPUE data.
- The length and age study (Beentjes & Bian in prep) had low sample numbers from Foveaux Strait with more, older, larger fish from the margins of the fishery. This may have resulted in an overestimate of older fish in the population and also would have masked the full extent of the change in sex ratio, which would have been higher in the core Foveaux Strait area where fish were smaller.
- The future impact of climate change and marine heatwaves is uncertain. This knowledge gap precludes determining what an appropriate precautionary target should be.

738. There are also uncertainties regarding protected species and environmental interactions occurring in the BCO 5 fishery due to low levels of independent verification (over the last five fishing years, the average observer coverage was only 1% of events that caught blue cod in BCO 5).[88]

[88] 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.

Additional figures

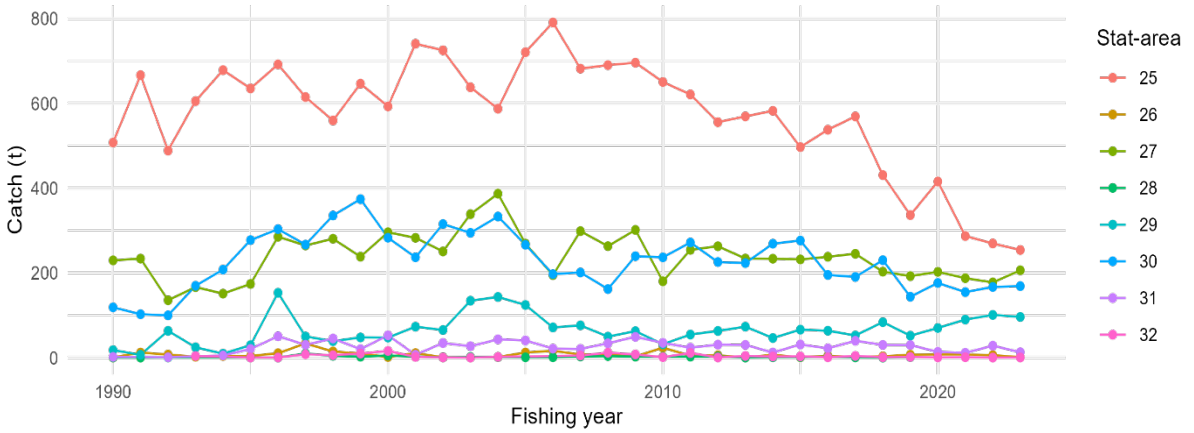


Figure 3: Landings (tonnes) of blue cod from BCO 5 for method cod pot (CP) by statistical area, from 1989–90 to 2022–23 (Beentjes & Bian, *in prep*).

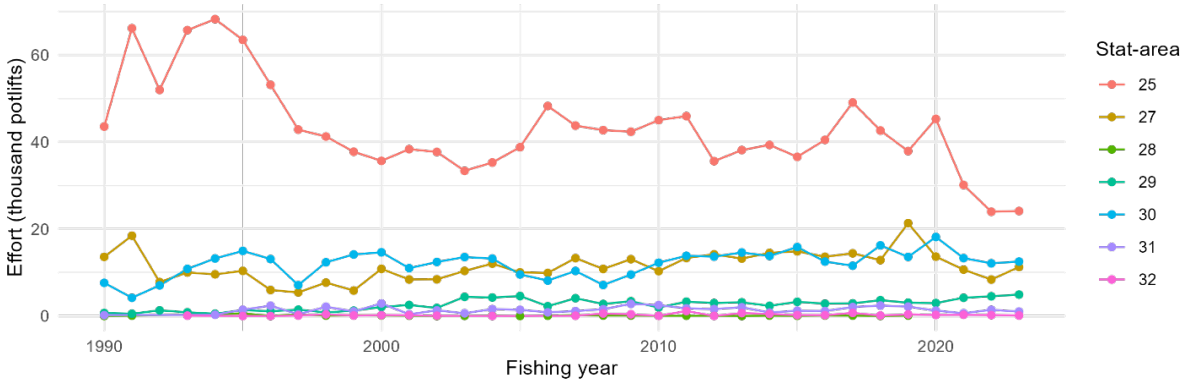


Figure 4: Effort (pot lifts) by statistical area in BCO 5 for method cod pot from 1989–90 to 2022–23 (Beentjes & Bian, *in prep*).

739. Figure 3 shows the significant decreasing trend in catch from the Foveaux Strait since the mid-2000s and Figure 4 shows the drop in effort in the Strait since 2020.

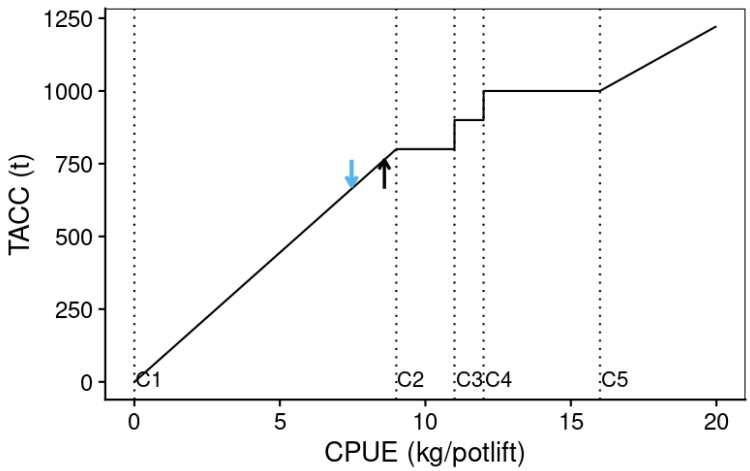


Figure 5: Harvest Control Rule output values for November 2023 (black arrow) and May 2024 (blue arrow) (Neubauer, *in prep*). Based on the rule, a TACC of 665 tonnes (blue arrow) is indicated as appropriate for BCO 5.

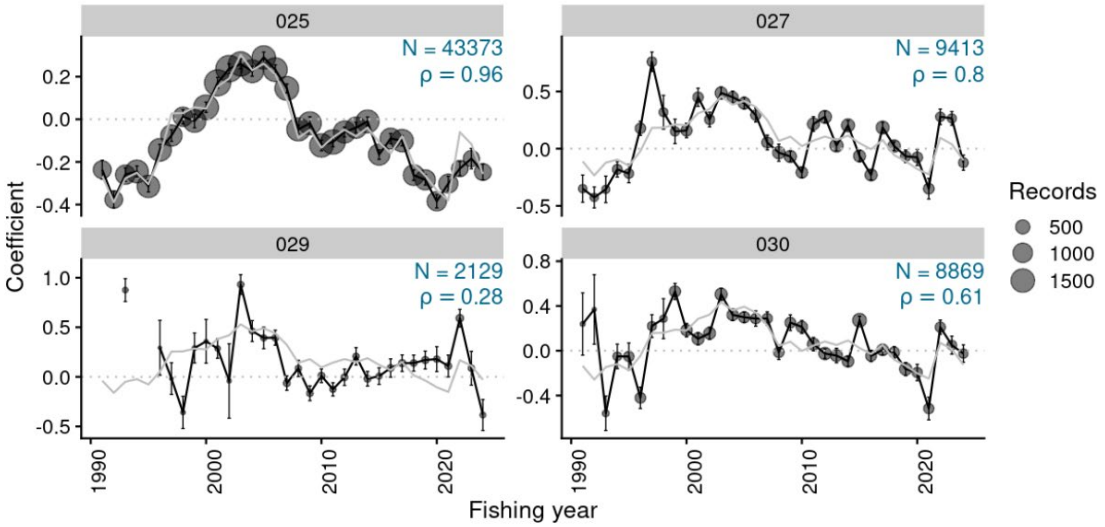


Figure 6: BCO 5 CPUE updated from September 2023 to April 2024 showing a decrease in CPUE across the statistical areas (Neubauer, *in prep*).

740. Figure 6 shows a uniform and sudden drop in CPUE from about 2020 in all four statistical areas that are important to the BCO 5 fishery.

Information on biology, interdependence, and environmental factors

741. This information supports FNZ's assessment of the proposals against section 13 of the Act in *'Part 2:* Assessment *against relevant legal provisions*'. Information in this section was derived from the blue cod chapter of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

742. Blue cod is an opportunistic carnivore which feeds on a wide variety of benthic invertebrates and fish. There is limited information regarding predators of blue cod. As a top predator, blue cod plays an important role in maintaining the balance of species in coastal food webs, including in the complex habitat and reef edge habitat they prefer. They are a predator of kina on southern reefs and may play an important role in preventing the development of urchin barrens (Doheny *et al*., 2023).

743. Further information about potential impacts on other species is discussed under '*Assessment of proposals against section 9 of the Act*'.

Biological characteristics

744. Blue cod is a bottom-dwelling species endemic to New Zealand. It can be caught from a few metres' depth to about 150 m across a range of habitats including reef edges, shingle/gravel, biogenic reefs, or sandy bottoms close to rocky outcrops. It is most common in the cooler waters south of Cook Strait. It is categorised as a low productivity species. Generally, blue cod exhibit a constrained home range and are therefore susceptible to localised depletion. Blue cod is relatively long lived with a maximum age of 32 years and is a protogynous hermaphrodite (individuals can change sex from female to male). The catch-at-age study (Beentjes & Bian, *in prep*) showed few female cod above the MLS in Foveaux Strait. While having implications for spawning and recruitment, this unbalanced sex ratio is considered to be an indicator of overfishing.

Environmental conditions affecting the stock

745. There have been significant positive trends in the number of marine heatwave days, events, and intensity across New Zealand since 1981 with marine heat waves affecting Stewart Island and Foveaux Strait in four of the past six years (Montie *et al*., 2023, Salinger *et al*., 2023). Elevated temperatures may have had effects on blue cod distribution, spawning, and recruitment. Studies on blue cod from the east coast of the South Island suggest there may be a strong negative association between blue cod abundance and sex ratio with

the impacts of detritus and increasing sea surface temperature (Brough *et al*., 2024). Elevated temperatures may also have an indirect impact via kelp die-off as cod depend on kelp for shelter and food (Wade, 2020).

Information on environmental impacts

746. This information supports FNZ's assessment of the proposals against section 9 of the Act in *'Part 2: Assessment against relevant legal provisions*.

Protected species

Seabirds

747. Ninety eight percent (98%) of blue cod in BCO 5 are caught by cod potting. This method is understood to have minimal interactions with seabirds, however, there has been very little observer coverage in this fishery to verify this (over the last five fishing years, on average observer coverage was 1% of events that caught blue cod in BCO 5).

748. No seabird interactions have been reported in the BCO 5 potting fishery over the past five fishing years (2018/19 – 2022/23).

Mammals

749. There are no recorded interactions with marine mammals attributed to the BCO 5 fishery. Potting is understood to have minimal interactions with mammals, however, there has been very little observer coverage in this fishery to verify this (over the last five fishing years, on average observer coverage was 1% of events that caught blue cod in BCO 5).

Fish and invertebrate bycatch

750. There is a small bycatch from cod potting including wrasse species, conger eels, carpet shark and octopus. While a small amount of contact with the seabed is inevitable from the deployment of cod pots, FNZ considers it unlikely to result in significant damage to benthic invertebrates.

751. Over the past five fishing years (2018/19 – 2022/23) two white pointer sharks have been reported caught by fishers targeting blue cod in BCO 5 using pots. White pointer sharks are classed as 'Threatened Nationally Endangered' under the New Zealand Threat Classification System. The management of protected fish interactions within New Zealand's commercial fisheries is guided by the NPOA Sharks (2013).

Biological diversity of the environment

752. Blue cod are opportunistic carnivores which feed on a wide variety of benthic invertebrates and fish and are likely the dominant predator in many reefs and other habitats in BCO 5. A decrease in the BCO 5 TAC is likely to improve blue cod abundance with positive implications for biological diversity and maintenance of the ecosystems balance.

Habitat of particular significance for fisheries management

753. Potential habitats of particular significance for fisheries management in BCO 5 can be found in Table 8, below.

754. There are other potential habitats of particular significance for fisheries management present within the FMA but those areas do not overlap with the area fished for the species for which you are making decisions:

- Subtidal rocky reefs at Waipapa, Rakautara, Omihi, and Oaro for pāua spawning aggregations;
- Orange roughy spawning aggregations; and
- Intertidal sand beach (Oreti) for juvenile toheroa.

Table 8: Potential habitat of particular significance for fisheries management relevant to BCO 5.

Biogenic reef in parts of Foveaux Strait (blue cod)
Attributes of habitat Mixed emergent invertebrates (e.g., sponges, ascidians, molluscs, bryozoans) through parts of Foveaux Strait (Jiang and Carbines, 2002; Carbines and Cole 2009). **Reasons for particular significance** Juvenile blue cod habitat in Foveaux Strait differs from that of adults. Juveniles can grow faster and in higher abundance on areas of biogenic reef in Foveaux Strait than on other habitats nearby (Jiang and Carbines, 2002). Potentially significant habitat is patchy and distributed across the central and eastern strait, and in bays around the coast of Stewart Island/Rakiura. **Risks/Threats** Disturbance of habitat structure and resuspended sediment from bottom contact fishing. The effects of changing climate on these habitats are not fully understood, but increased rainfall on land leading to increased sedimentation at sea, as well as warming oceans, has potential to be detrimental to suspension-feeding invertebrates e.g., some bryozoans. **Existing protection measures** Trawl restrictions: Trawling by vessels over 46 m long is prohibited - Fisheries (South-East Area Commercial Fishing) Regulations 1986: 4A. **Evidence** Jiang and Carbines (2002), Carbines and Cole (2009), Jones et al. (2018), Morrison et al. (2014).

Live and dead oysters with emergent epifauna in Foveaux Strait
Attributes of habitat Shells of molluscs, particularly convex shells and especially oyster shells are key juvenile oyster habitat (Michael, 2019). The nature of an association with biogenic habitats is presently unclear but a link between oysters and biogenic habitats has been noted (Cranfield et al., 1999; Michael, 2019). **Reasons for particular significance** The Bluff Oyster fishery is largely self-sustaining due to the majority of larvae of the target species, *Ostrea chilensis*, having a very short larval phase (Cranfield and Michael, 1989). Spat survival is highest just above the sediment (Michael, 2019), a habitat provided by convex shells. **Risks/Threats** Mobile sediments reduce spat survival and buries adults (Street et al., 1973; Michael, 2019). Storms are common and water is relatively shallow meaning sediment movement is frequent. Changing oceanographic conditions are predicted to increase storm frequency and temperatures (Bodecker et al., 2022). Mining, bottom contact fishing and other activities that would alter geological features or contribute to mobilising sediments is also a potential threat. Oyster fishers are recorded as working the edges of biogenic habitats (Michael, 2019). Oyster dredging is recorded as catching mostly small volumes of emergent epifauna in 20 – 25 % of commercial tows (Michael, 2019). **Existing protection measures** Trawl restrictions: Trawling by vessels over 46 m long is prohibited - Fisheries (South-East Area Commercial Fishing) Regulations 1986: 4A. Oysters are managed through the quota management system which regulates the level of fishing. **Evidence** Bodeker et al. (2022), Cranfield and Michael (1989), Cranfield et al. (1999), Michael (2019), Street et al. (1973)

Part 5: Conclusions and recommendations

755. The best available information shows there is a sustainability risk for blue cod in BCO 5. Commercial catch has declined, the 2023 Foveaux Strait potting survey concludes relative abundance has declined 57% since 2018, and this area is estimated to be significantly overfished. The sex ratio of blue cod in this area is also skewed with males predominating, which is a further indicator of overfishing with negative implications for spawning and recruitment. The CPUE assessment from the HCR recommends a TACC reduction and shows CPUE has declined in all statistical areas important to the fishery. Available information suggests climate change and marine heatwaves may be negatively affecting the fishery.

756. A range of different views were received during consultation on the proposed options. Commercial interests generally supported a TAC decrease to 774 tonnes with a TACC of 665 tonnes (Option 2). Many recreational submitters did not support a reduction in the allowance for recreational fishing but considered a reduction to the TACC may be necessary for sustainability reasons. Environmental NGOs, Ngai Tahu Seafood, and Te Waka a Māui me Ōna Toka Iwi Fisheries Forum supported a TAC of 587 tonnes (Option 3) or an option between Options 2 and 3.

757. Taking this feedback into account (and that projected annual commercial landings for this year are likely to be higher than thought prior to consultation), FNZ has included and is recommending a new option (Option 4) which is intermediate between Options 2 and 3. This would set the TAC at 677 tonnes and reduce the TACC and the allowance for recreational fishing. This reduction will limit the level of commercial and recreational catch, helping ensure that catches remain within sustainable limits and allowing a rebuild of the fishery.

758. While many recreational submitters did not support reducing the allowance for recreational fishing, given that most recreational effort occurs within the most affected part of the fishery, Foveaux Strait, FNZ considers all sectors should contribute to the rebuild of this important shared fishery.

759. You have an obligation to set the TAC for BCO 5 based on the best information available to you, and this decision must not be inconsistent with the objective of moving the stock towards or above a level that supports *MSY*.

760. Changes to recreational controls are not being proposed as part of this review. If you agree to reduce the recreational allowance as part of your decision, FNZ will consult further on recreational controls, including through public drop-in sessions, and will provide you with further advice.

761. FNZ notes several submissions recommended changes to regulations and management settings for BCO 5. FNZ will engage with the relevant sectors regarding these suggestions.

Decision for BCO 5

762. Option 1 for BCO 5 has been presented below for your consideration. However, FNZ considers there to be a significant risk under this option that catches at this level would likely result in biomass declining to a level further below B_{MSY}. On this basis, FNZ considers it may be inconsistent with your requirements for setting the TAC under section 13(2A), and we therefore do not recommend this option.

763. We note that you have discretion to make your own assessment of this risk, and of the consistency of this option with section 13(2A).

Option 1

Agree to set the BCO 5 TAC at 925 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Retain the allowance for recreational fishing interests at 85 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 20 tonnes;
iv. Retain the BCO 5 TACC at 800 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the BCO 5 TAC at 774 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Decrease the allowance for recreational fishing interests from 85 to 70 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 20 to 19 tonnes;
iv. Decrease the BCO 5 TACC from 800 to 665 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3

Agree to set the BCO 5 TAC at 587 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Decrease the allowance for recreational fishing interests from 85 to 53 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 20 to 14 tonnes;
iv. Decrease the BCO 5 TACC from 800 to 500 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 4 *(Fisheries New Zealand preferred option)*

Agree to set the BCO 5 TAC at 677 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Decrease the allowance for recreational fishing interests from 85 to 62 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 20 to 15 tonnes;
iv. Decrease the BCO 5 TACC from 800 to 580 tonnes.

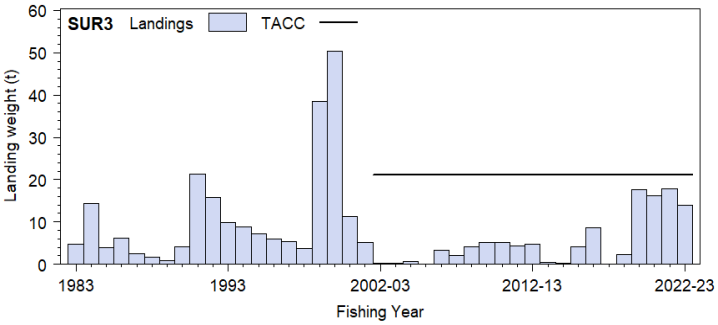
Agreed / **Agreed as Amended / Not Agreed**

Hon Shane Jones
Minister for Oceans and Fisheries

16 / 09 / 2024

Chapter 6: Kina (SUR 3) – East Coast South Island

Part 1: Overview



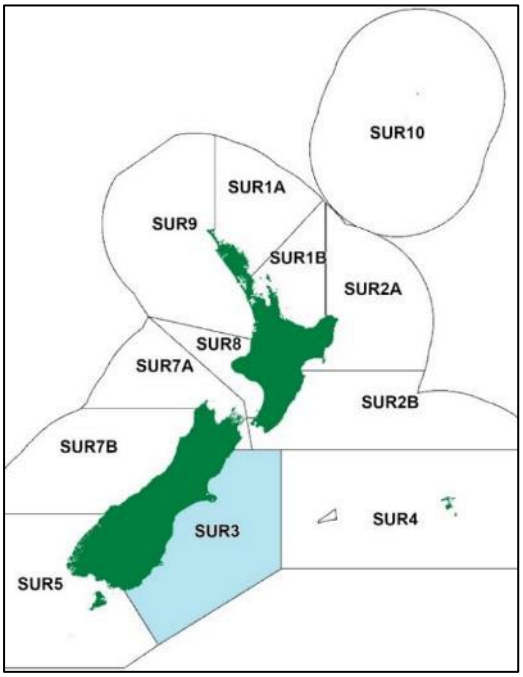


Figure 1: Quota Management Areas (QMAs) and total allowable commercial catches (TACCs) for kina (*Evechinus chloroticus*), with SUR 3 highlighted).

Rationale for review

764. The TACC for SUR 3 has remained at low levels and the fishery has been lightly exploited since entering the Quota Management System (**QMS**) in 2002. To date, there is a lack of knowledge about the stock or the impacts of fishing on the kina population within SUR 3.

765. Biomass estimates from a recent survey led by a major quota holder indicates there may be a higher number of kina in some areas surveyed within SUR 3 than the present TAC allows for (McKenzie et al. 2024). Uncertainties in these biomass estimates, the cultural significance of kina, reports of localised depletion of kina within SUR 3, as well as a lack of knowledge around the impact of fishing on recovery and productivity of the stock mean that a cautious approach is required to allow for further utilisation.

766. FNZ has consulted on a range of options to increase the TAC, TACC, and allowances for SUR 3 in line with the survey and new information that has been provided in submissions (Table 1).

767. FNZ is now seeking your decision on the TAC of SUR 3 under section 13(2A) of the Fisheries Act 1996 (**the Act**). Your decision will take effect from the beginning of the next fishing year on 1 October 2024.

Proposed options and FNZ's recommendations

768. FNZ consulted on three TAC options for SUR 3, ranging from maintaining the *status quo* TAC of 42 tonnes to an increase in the TAC to 284 tonnes (Table 1). Option 4 has been added post-consultation to reflect views expressed by the majority of submitters, including the Pāua Industry Council, Sea Urchin New Zealand (**SUNZ**), and the NZ Sport Fishing Council as well as iwi. These submitters support the *status quo* or a more precautionary TAC and TACC increase compared to Options 2 and 3, ranging from 10 to 30 tonnes, with further monitoring and incremental increases when indicated by new data.

Table 1: Proposed management options (in tonnes) for SUR 3 from 1 October 2024. FNZ's preferred option is highlighted in orange.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 (*Status quo*)	42	21	10	10	1
Option 2	163 (↑ 121)	121 (↑ 100)	20 (↑ 10)	20 (↑ 10)	2 (↑ 1)
Option 3	284 (↑ 242)	221 (↑ 200)	30 (↑ 20)	30 (↑ 20)	3 (↑ 2)
Option 4 (new)	84 (↑ 42)	42 (↑ 21)	20 (↑ 10)	20 (↑ 10)	2 (↑ 1)

769. A total of 21 responses were received on the proposed options (Options 1-3). Four submissions from industry representatives involved in the McKenzie et al. (2024) survey, including the majority quota holder Cando Fishing Limited, support the largest TAC increase (Option 3). The Kina Industry Council also supported Option 3 (as a majority viewpoint; some council shareholders opposed this increase). Two submissions from individuals supported Option 2 as a smaller, more cautious TAC increase. These submitters consider this option provides for an increase in utilisation while maintaining a cautious approach due to the low percentage of the estimated biomass to be harvested. The biomass estimates are viewed to be scientifically robust by these submitters as the survey was designed and analysed by NIWA and the results and methods were reviewed by the FNZ Shellfish Working Group.[89]

770. There was strong support for retaining the *status quo* (Option 1), with eleven submissions supporting this including some kina industry participants, representatives of the pāua and rock lobster industry, iwi, scientists, the Kaikōura Marine Guardians[90] and Te Waka a Māui me Ōna Toka Iwi Fisheries Forum.

    These submitters consider a cautious approach is needed due to the cultural importance of kina to iwi, uncertainty in the biomass estimates, the impacts of a large increase in fishing pressure on the kina population that has been anecdotally slow to recover, and potential climate and sedimentation impacts on kina.

771. Pāua and rock lobster industry representatives raised the key ecosystem role of kina as grazers linking primary productivity to predators, with kina an important prey species for blue cod and crayfish fisheries on the South Island's East coast. The potential for localised and serial depletion of kina under large TACC increases was also noted, as was the impact this may have on important recreational and customary kina areas, with iwi and some recreational submitters reporting that kina are becoming increasingly difficult to access.

    Some submitters mistrusted the biomass estimates generated by the survey, considering them implausibly high and conflicting with a range of information and observations presented in their submissions.

772. The feedback from submissions has been characterised further under the '*Analysis of options*' below. More detail, including other matters raised by submitters, is provided further below in Part 2 '*Submissions'*.

    Based on our analysis of these options and incorporating the feedback received, as well as our assessment of the options against legal provisions (see Part 3), FNZ recommends the new Option 4, which would provide for a smaller TAC increase. Rationale for this recommendation is set out at the end of this chapter, with FNZ's conclusions in Part 5 '*Conclusions and recommendations*'.

Analysis of options

773. The options proposed for SUR 3 are analysed below with an outline of key risks and benefits, as well as feedback received on each option during consultation. Additional information and rationale to support current and proposed settings within the TAC can be found below in Table 2 under *'Fishery characteristics and settings'*.

[89] The Shellfish Working Group is a working group convened by FNZ, which oversees the peer review processes and production of the Plenary reports for shellfish stocks. For the presentation of the SUR 3 biomass survey, the working group included participation by FNZ scientists and managers, and various stakeholder representatives.

[90] Under section 7 of the Kaikōura (Te Tai o Marokura) Marine Management Act 2014, the Kaikōura Marine Guardians may advise Ministers and persons exercising statutory powers and performing statutory functions on any fisheries matter related to the marine and coastal environment within Te Whata Kai o Rakihouia i Te Tai o Marokura—Kaikōura Marine Area The recommendations are required to be taken into account.

Option 1 – retain current settings (*status quo*)

Benefits	774. This option recognises the uncertainties associated with the biomass estimates from McKenzie et al. (2024), particularly in terms of scaling the high densities of kina to large areas where the amount of suitable kina habitat is largely unknown in SUR 3. 775. It better provides for the exercise of kaitiakitanga and for further assessment of the kina population before any management changes are made. It would allow further engagement with iwi, rūnanga, and relevant committees of customary protected areas (recognising the cultural significance of kina to iwi and that some of the surveyed areas are within customary protected areas). 776. It recognises there is limited information regarding the impacts of fishing kina in SUR 3, as the fishery has been only lightly exploited in small areas to date and that the majority of submissions opposed an increase in the TAC.
Risks	777. The current TAC represents a low exploitation rate for the wider SUR 3 area. Retaining this TAC would forgo the utilisation opportunity indicated by the high biomass estimated from surveys of over 40,000 tonnes (McKenzie et al., 2024) (see Part 4 '*Supporting information*', Table 9 and 10). Despite uncertainty in aspects of the biomass estimates, they indicate that there is likely to be larger populations of kina in surveyed areas than the present TAC allows for.
Feedback received	778. Option 1 was supported by most submitters including eleven submissions from commercial fishing representatives, tangata whenua, scientists, and the Kaikōura Marine Guardians. It was also the preferred option of Te Waka a Māui iwi fisheries forum. 779. The biomass estimates were considered by these submitters to be implausibly high, conflicting with a range of evidence from individual's personal observations provided in submissions. There was a general desire for a more precautionary approach due to the large number of uncertainties. 780. There were concerns raised with the methodology that many submitters believed led to implausibly high biomass estimates (see *'Other matters raised during consultation'*) and with the personnel involved in the on-water survey. 781. Submitters presented a variety of information from commercial and non-commercial divers as well as from scientists with experience performing research along the coastline suggesting the biomass is much lower than the survey suggests. They consider kina distribution in the areas surveyed is patchy with few high-density aggregations, and that divers often struggle to find kina. Some submitters noted that the TACC has never been caught, however, quota holders state that not all annual catch entitlement (ACE) has been consistently available on the market. 782. There was also concern around the recovery rates of fished kina populations in SUR 3, which are anecdotally slow to recover with little known about recruitment (the proportion of small kina is noted to be very low suggesting recruitment may be low and highly variable). Many submitters wanted to see these uncertainties better assessed before providing for large increases in utilisation. 783. The importance of kina to customary fishers featured in many submissions as did the difficulty for iwi of accessing kina on this coastline. While a harvest plan could reduce concerns of localised depletion, stakeholders noted a lack of engagement to-date around such a plan. 784. The importance of kina to the ecosystem was also noted, with kina providing a key link between primary productivity and being important prey species for a number of high value fisheries in the region including rock lobster and blue cod. This, along with the uncertainties of impacts of a changing climate and environmental factors such as sedimentation were a common reason for a precautionary approach.

Option 2: 121-tonne TAC increase

Benefits	785. This option would allow an increase in utilisation for all sectors, recognising the potential for high biomass estimates in some areas, while adopting a more cautious approach compared to Option 3, to a relatively new fishery that has not been heavily exploited previously. 786. The increase of 10 tonnes to both the recreational and customary allowances recognises the increasing recreational interest indicated by the National Panel Survey of Marine Recreational

	Fishers (**NPS**) (see '*Current settings within the TAC*'), as well as the cultural significance of kina to iwi. 787. This option is estimated to have an additional $970,000 of landed revenue if fully caught, based on the 2023-2024 port price of $9.69/kg.
Risks	788. The sedentary nature and irregular distribution of kina means they may still be susceptible to localised depletion under this option. 789. The surveyed areas in some cases overlap with areas of recreational and customary importance, including customary protected areas, highlighting the need to engage with tangata whenua and other stakeholders on management approaches. 790. While modest in relation to the biomass estimates from McKenzie et al. (2024), this is a large increase to the TAC and an approximately six times increase to the TACC, with uncertainty regarding the biomass estimates (see '*Uncertainties of McKenzie et al (2024) Biomass Survey*'). 791. There may be environmental risks associated with a large TAC increase, with localised reductions to kina populations potentially impacting on ecosystem function if at an unsustainable level.
Feedback received	792. There were two submissions in support of this option from individual submitters on the basis that it was a more cautious increase relative to Option 3. 793. The majority of submitters opposed this option, for the reasons noted above.

Option 3: 242-tonne TAC increase

Benefits	794. This option would provide a significant utilisation opportunity based on the estimated large amounts of available biomass is estimated to have an additional $1.94 million of landed revenue if fully caught, based on the 2023-2024 port price of $9.69/kg. 795. Higher allowances for recreational and customary sectors (relative to Option 2) are provided under this option.
Risks	796. The TAC increase under this option is a less cautious approach with respect to sustainability and risk of localised depletion and fishing impacts (including in areas that overlap with areas of recreational and customary importance). 797. The sedentary nature and irregular distribution of kina means they may be more susceptible to localised depletion under this option. This may have a higher impact on availability of kina for non-commercial customary fishers than other options. 798. While modest in relation to the biomass estimates from McKenzie et al. (2024), this is a large increase to the TAC and approximately 10x the TACC, with uncertainties noted with this data (see '*Uncertainties of McKenzie et al (2024) Biomass Survey*'). 799. There may be higher environmental risks for the largest TAC increase proposed, with reductions in kina if at an unsustainable level, potentially impacting on ecosystem function. 800. Given the strong iwi opposition, this option does not provide for the exercise of kaitiakitanga.
Feedback received	801. Option 3 was supported by four submissions from the quota holder and stakeholders involved with the survey including Cando Fishing Limited, Specialty and Emerging Fisheries Limited as well as the majority of the Kina Industry Council. These submitters consider this option provides for an increase in utilisation while maintaining a cautious approach due to the low percentage of the estimated biomass to be harvested. The estimates are viewed to be scientifically robust by these submitters as the survey was designed and analysed by NIWA and the results and methods were reviewed by the FNZ Shellfish Working Group. 802. While not a mandatory consideration under the Act, quota holders propose a harvest plan based on the TACC increase under Option 3 to allocate catch to each area surveyed and reduce impacts of localised depletion. They noted that there are areas such as mātaitai and closures to commercial kina fishing under regulation that allow for utilisation by non-commercial fishers. 803. Most submitters opposed this option, for the reasons noted above.

Option 4: 42-tonne TAC increase

Benefits	804. This option was added as a more cautious approach to increasing utilisation, recognising the uncertainties raised. The smaller increase to the TACC under this option takes into account the concerns raised in submissions and the significance of kina to customary fishers (see '*input and participation of tangata whenua*' below). 805. While the large biomass estimates from McKenzie et al. (2024) have a high amount of uncertainty which makes the appropriate level of utilisation difficult to determine, they indicate there is likely to be a larger population of kina in some areas of SUR 3 that presents a potential utilisation opportunity. 806. The current TACC of 21 tonnes was set when SUR 3 was introduced to the QMS in 2002. Catches of 40-50 tonnes had occurred prior to QMS introduction, and a higher TACC of 60 tonnes was initially proposed. However, feedback from commercial and other fishers during consultation suggested this TACC was too high (see '*Fishery characteristics and settings*' below). Since then, new areas have been fished and fishers have suggested that the low TACC is a barrier to development of the fishery, with the full ACE not consistently available on the market. The smaller increase to the TACC of 21 tonnes under this option would double the present TACC and allow an expansion of the fishery. 807. This option (along with Option 1) better provides for the exercise of kaitiakitanga and for further assessment of the kina population before considering further increase to the TAC. It would allow catch to be monitored, with data used to inform further expansion of the fishery such as by the implementation of a harvest control rule. The impacts of fishing and subsequent recovery of the population could be monitored through further surveys, with a baseline now established in some areas from McKenzie et al. (2024). 808. The increase of 10 tonnes to both the recreational and customary allowances recognises the increasing recreational interest indicated by the NPS (see '*Fishery characteristics and settings*' below), as well as the cultural significance of kina to iwi.
Risks	809. Similarly to Option 2, the sedentary nature and irregular distribution of kina means they may still be susceptible to localised depletion, with surveyed overlapping with areas of non-commercial importance, including customary protected areas. 810. Additionally, reductions in kina biomass could have associated impacts on the ecosystem and the influence of marine heatwaves, ocean acidification and sedimentation are uncertain. 811. On the other hand, the TAC proposed under this option is very low relative to the biomass of kina estimated from the industry surveys which indicate a larger population of kina in surveyed areas and forgoes some utilisation opportunity relative to Option 2 and Option 3.
Feedback received	812. The Pāua Industry Council, Sea Urchin New Zealand (SUNZ), and the NZ Sport Fishing Council support a more precautionary, incremental TACC increase informed by further data, compared to Options 2 and 3. These submitters suggested that based on the large amount of uncertainty around the biomass estimates and the lack of knowledge around the impacts of fishing on the stock, any TACC increase should be more incremental with suggestions ranging between a 10 to 30 tonne increase. 813. It was suggested that a smaller, more incremental increase would allow for these uncertainties to be better assessed by monitoring impacts of any associated increased catch through further surveys.

Who will be affected by the proposed changes?

814. SUR 3 is an important shared fishery with harvesting by recreational, commercial and customary fishers. Kina are culturally significant to iwi, being listed as taonga species in Te Waka a Māui me Ōna Toka Iwi Fisheries Forum Fisheries Plan.

815. Based on the last three fishing years, in SUR 3 there have been on average 10 quota owners (of which 2 are settlement quota), providing ACE to 3 permit holders, landing kina to 3 licensed fish receivers (LFRs). On average over the last three fishing years, there were 3 vessels landing kina in SUR 3.

816. Options 2 and 3 are estimated to have an additional $970,000 and $1.94 million respectively of landed revenue (based on the 2023-2024 port price of $9.69/kg.) along with associated domestic market earnings. Option 4 will have a smaller increase of around $200,000.

817. There was concern among non-commercial stakeholders including customary fishers, that a large increase to the TACC would increase the risk of localised depletion that would impact on their catch, with many reporting that kina were becoming increasingly difficult to access. This was especially a concern for tangata whenua within Taiāpure that were surveyed.

Input and participation of tangata whenua

818. Te Waka a Māui me Ōna Toka Iwi Fisheries Forum represents the iwi with an interest in SUR 3. The proposal to review SUR 3 was discussed with the forum during consultation, with the forum unsupportive of any increase as they believed the biomass estimates implausibly high and did not trust that the methods or transect locations had been adhered to. They also pointed to the vested interests of the survey team. They were concerned with the impact that large TACC increases would have on the access to kina for customary fishers and believe that it would impact on their customary rights under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, noting that divers already struggled to find kina in the area, including commercial fishers.

819. The proposal was also discussed with the East Otago Taiāpure Committee and Te Rūnanga o Kaikōura during consultation, with both supporting the *status quo* option. The East Otago Taiāpure Committee and Kāti Huirapa Rūnaka ki Puketeraki were concerned with potential impact on customary fishers of any increase to the TAC, stating kina were becoming increasingly difficult to access. The findings of the survey conflicted with their mātauraka (mātauranga), and they would prefer a decrease to the TAC to better provide for customary fishers. They noted that they would discuss options for managing this depletion within the taiāpure by imposing a rahui on commercial kina fishing.

820. Te Rūnanga o Kaikōura noted the importance of kina to customary fishers and were unsupportive of the increases proposed and believed the survey did not align with local knowledge and anecdotal information from divers. They were concerned that there was little information on recruitment and recovery of kina populations following fishing pressure.

Fishery characteristics and settings

Table 2: Fishery characteristics and settings for SUR 3.

Commercial (TACC)
821. Kina are commercially harvested for their roe (eggs) which are removed from the shell and typically sold in punnets or pottles, and almost exclusively consumed by the domestic market (James and Herbert, 2009). 822. SUR 3 was introduced to the QMS in 2002 at a nominal level based on the limited catch that was occurring at the time SUR 3 entered the QMS, with a TACC of 21 tonnes. Initially, a TACC of 60 tonnes was proposed when SUR 3 was introduced to the QMS. However, submissions from the commercial operators at the time believed this would not be sustainable, despite a peak commercial harvest of 40–50 tonnes in the years before QMS introduction. Therefore, the initial TACC was set at 21 tonnes based on average catches and the limited information about the stock. SUR 3 has not been reviewed since entering the QMS as there has been insufficient data to inform a TAC review. 823. The use of underwater breathing apparatus (**UBA**) is prohibited when commercially harvesting kina, so gathering is conducted by hand gathering while freediving. Catches have remained at low levels since 2002, increasing to around 13-17 tonnes since the 2019/20 fishing year with the areas fished being expanded. Catches have never reached the TACC. Most of the commercial harvest in recent years has been taken in a relatively concentrated area in North Otago, with small amounts harvested in Canterbury and Kaikōura.
Customary Māori
824. Kina is an important traditional food for Māori and continues to be gathered under provisions for customary fishing. The customary allowance is set at 10 tonnes. There is limited quantitative information available on the level of customary take of kina and it is likely that many tangata whenua harvest kina under their recreational allowance. Reported customary authorisations in SUR 3 have been as high as around 16,000 kina but are generally much lower than this, ranging from around 160-6,000 kina. There are a number of customary protected areas within SUR 3, some of which include regulations that relate to kina, recognising their importance to tangata whenua.

Recreational	
825.	Kina is a popular recreational species that is exclusively harvested through hand gathering while wading, freediving, or scuba diving, either from shore or from a boat. The use of UBA is permitted in the recreational fishery.
826.	The current recreational allowance is 10 tonnes. Recreational take is estimated by the National Panel Surveys of Marine Recreational Fishers (**NPS**) to have increased from around 5,000 kina in the 2017-18 survey (Wynne-Jones et al., 2019) to around 24,000 in the 2022-23 survey (Heinemann, in prep).
827.	Estimates of mean kina weight are not available to allow recreational catch estimates reported in the NPS to be converted into harvested weight (catches in the NPS are reported as numbers of individual kina). It is thought that due to the low exploitation in SUR 3 kina are large, and by using a conversion factor of 715 g per individual (determined by analysis of mean weight from the recent survey data) the recreational catch from SUR 3 can be estimated at approximately 3.5 tonnes for 2017-18 and 17 tonnes for 2022-23. While catch estimates from the NPS are uncertain due to low participation rates, this trend suggests there is likely to be increasing recreational interest.
Other sources of mortality caused by fishing	
828.	This allowance is currently set at 1 tonne. It is intended to provide for unrecorded mortality of fish associated with fishing, including incidental mortality from fishing methods or illegal fishing. This is naturally difficult to quantify when considering the range of contributing sources and as a result there is uncertainty in the estimates used to set this allowance.
829.	Although there is no minimum legal size for kina, some incidental mortality is likely because roe quality (recovery rate and colour) is commonly assessed by opening 'test' kina underwater. These animals are not subsequently landed. There are no estimates of the magnitude to this incidental mortality. Another potential source of kina mortality in SUR 3 is the use of kina as 'groundbait' to attract fish. Ground-baiting is a practice used among spearfishers that involves collecting kina, placing them in a pile in the middle of an open area, and then breaking them open using a knife, rock, or the butt of a speargun.

Deemed value rates

830. FNZ did not propose any deemed value rate changes for SUR 3 as part of this review. However, in recognition of the fact that deemed value and catch limit settings are interlinked (TACC changes can impact deemed values), FNZ welcomed general feedback on the deemed value settings of SUR 3 during consultation.

831. No submissions commented on the deemed value rates for SUR 3.

832. FNZ remains of the view that deemed value changes are not needed for SUR 3 at this time. FNZ is satisfied that the current deemed value rates are consistent with section 75(2)(a) of the Act in that they provide sufficient incentive for fishers to balance their catch with ACE. However, FNZ acknowledges that if the TACC of SUR 3 changes as a result of this review, subsequent changes in ACE market may result in the need for the deemed value to be re-evaluated in the future.

833. A total of 21 responses were received on these proposed options during public consultation. There was little support for the proposed increases to the TAC with four submissions supporting Option 3. These were from industry representatives involved with the survey, including the majority quota holder, Cando Fishing Limited. One submission from the Kina Industry Council also supported the option, as a majority viewpoint, with some shareholders submitting in opposition to this option. Two submissions from individuals supported Option 2 as the smaller, more cautious TAC increase proposed.

834. There was strong support for Option 1, with eleven submissions, as well as Te Waka a Māui me Ōna Toka Iwi Fisheries Forum, advocating for the *status quo*. Submissions supporting the *status quo* included others in the kina industry, other commercial representatives, iwi, scientists and the Kaikōura Marine Guardians who recommended a precautionary approach due to uncertainty of biomass estimates, impacts of a large increase in fishing pressure to the population that has been anecdotally slow to recover, as well as climate and sedimentation impacts on kina.

835. The key ecosystem role of kina as grazers linking primary productivity to predators was also consistently raised, with kina being an important prey species for significant blue cod and rock lobster fisheries on the South Island's East coast. Furthermore, potential for impacts of localised serial depletion under large TACC increases was noted, especially given that this may impact on the important recreational and customary fisheries in the area and that non-commercial stakeholders reported that kina are becoming increasingly difficult to access.

836. There was a mistrust in the survey data and biomass estimates among submitters, as they believed them implausibly high estimates from the biomass survey conflicting with a range of evidence from individuals' observations presented in their submissions.

837. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options but commented generally about catch limits or other aspects of fisheries management.

Table 3: Submissions received for SUR 3 during consultation.

Submitter	Option supported				Notes
	1	2	3	Other	
Organisations					
LegaSea New Zealand Sport Fishing Council New Zealand Angling & Casting Association New Zealand Underwater Association '***The joint submitters***'				✓	Submitter suggested a precautionary, incremental TAC increase (50 tonnes suggested), increase to the recreational daily limit, implementation of a monitoring plan based on ER/GPR, consideration of predator/prey dependencies and role of kina in rock lobster/blue cod diet, and kina barren formation.
Cando Fishing Ltd			✓		CFL believed that the survey technique is new, so caution is required, but the survey is scientifically robust and the proposed increases provide an appropriate utilisation opportunity. The submitter addresses concerns regarding the survey accuracy and notes any harvest under a higher TACC would occur according to a proposed Harvest Plan which relies on allowing UBA.
East Otago Taiāpure Committee	✓				The submitter questioned the validity of the survey, noting it is at odds with their mātauraka and there is an apparent conflict of interest. They believe their views have been ignored and called for a rāhui on commercial SUR 3 take until an independent survey with proper consultation with manawhenua has taken place. Suggest a reduction is consider a reduction.
Kaikōura Marine Guardians	✓				KMG believe that SUR 3 should be managed as smaller sub-areas. KMG view local anecdotal local information is more reliable than the survey results and any harvest above 21 tonnes should require a special permit.
Kāti Huirapa Rūnaka ki Puketeraki	✓				Submission supports the East Otago Taiāpure Committee submission. They object to the survey work progressing despite significant conflicts of interest, inappropriate methodology, and insufficient consultation. They are opposed to use of UBA and object to any increase in TAC and call for a decrease.
Kina Industry Council			✓		Submission reflects the majority viewpoint of SUR3 quota shareholders KIC believes individual kina fishers may also be submitting their own personal viewpoints. They are interested in using this method for future stock analysis in other SUR areas.
Otago Rock Lobster Association Inc. (**ORLIA**)	✓				They endorse and support Pāua Industry Council's submission. Importance of ecosystem role of kina as a food source for high value stocks in the region such as CRA 7. Support further research.
Pāua Industry Council	✓				PIC have concerns about the biomass estimates used as they contradict local information, and that further assessment is needed before substantial management changes are made. PIC believe a detailed harvest plan is needed before increased harvesting can take place. They believe the risk of underutilisation is non-existent and that there is a risk of serial depletion. PIC believe this review is premature. They note a lack of engagement, particularly with affected tangata whenua. PIC would support smaller, seasonal increases.

Submitter	Option supported				Notes
	1	2	3	Other	
Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA)**	✓				State that Option 1 is the most cautious approach which we feel is warranted given the uncertainties of stock assessment.
Sea Urchin NZ (**SUNZ**)				✓	Suggests a 10-tonne graduated option each year, depending on catch and state the survey is flawed and does not reflect actual trends in the fishery.
Specialty & Emerging Fisheries Group			✓		Endorses and supports the submission from Cando Fishing Ltd.
Te Runanga o Kaikōura Inc	✓				Te Runanga is concerned that there is insufficient information on recruitment and recovery to support an increase, and that there has been feedback from local kina divers that the survey does not reflect what they see in the water.
Individuals					
A. Smith	✓				Believes the survey justifying the proposed increases is flawed - is appears to be biased and the surveyed areas were not representative, the biomass estimates are unreasonably high and information that seems inaccurate and not independent should not be used to justify increases this large.
C. Latour	✓				Believes the data does not indicate a stable population and the role of crayfish has not been adequately considered.
D. Herbert	✓				Does not support Options 2 or 3. Thinks the biomass estimate from the survey is astonishingly high and the survey results conflict with personal and anecdotal observations. States that kina growth in SUR 3 appears slower than in other areas.
C. Hepburn	✓				Believe the survey methodology is questionable and seems biased. Thinks the survey results are not consistent with local knowledge and the increases proposed are too large on the basis of information that does not seem reliable.
D. Nelson		✓			No rationale provided
G. Ryder		✓			Thinks the increase is moderate and the harvest method is low-impact.
D. Timms			✓		States that the survey report indicates abundance is high
K. Adair				✓	Supports LegaSea submission
M. Currie				✓	Supports LegaSea submission

Other matters raised during consultation

Recreational measures: Daily limit increase

838. An increase to the daily limit of kina in SUR 3 was suggested by the joint submitters to provide for utilisation. This is not recommended at this time as there has been feedback that localised depletion may impact on customary fishers and there is likely overlap between the areas fished by these sectors. Unlike other areas, there is no evidence of kina barrens in SUR 3.

Uncertainties in the McKenzie et al (2024) biomass survey

839. There were concerns raised with the survey methodology that many submitters believed led to implausibly high biomass estimates. The transects were not seen to be representative of all habitat types present in the area the biomass estimates were scaled to. It was noted that most transects appeared to be surveyed on suitable kina habitat, particularly in Kaikoura, with high densities of kina which could bias the estimates. They highlighted that similar studies and diver observations have reported patchier distribution of kina, with high numbers of transects in areas where no kina were encountered due to the large proportion of unsuitable habitat types.

840. Some noted the personnel involved were not professional scientific divers and were concerned that there was no on-water verification of the survey, given the quota holder and fishers performing the survey would directly benefit from any TACC increase.

841. FNZ acknowledges the potential for bias due to the lack of independent oversight of the on-water survey. Analysis by NIWA of a limited selection of the GoPro footage taken by the divers did not detect any obvious deliberate bias, but this method of verification was unable to accurately quantify the estimates.

842. FNZ's Shellfish Working Group in reviewing the survey results noted that there is uncertainty in the estimates of the weight of individual kina from length measurements used for calculating overall biomass and in scaling the weight estimates to a larger survey area due to lack of information on the extent of available habitat within the area. The survey was designed in an appropriate manner, but it is unclear how representative the sampled locations were of the larger survey area (and there is currently limited information to test this).

843. FNZ notes the concern that transects appeared to represent good kina habitat despite reports that are large quantities of unsuitable habitat for kina in the wider areas that biomass estimates were scaled to. Where mapping information is available such as the Kaikoura region, the transect start positions are all on hard substrate as indicated in Appendix D of McKenzie et al. (2024), which could indicate bias. However, there is insufficient mapping information in most of these areas to indicate any deliberate bias of selected random sites and FNZ is unable to determine whether there is bias in the biomass estimates.

844. Biomass estimates were scaled to an area down to 15 m water depth for some survey strata, while most free dive harvesting (the current requirement) is limited to areas shallower than 7 to 10 m. The biomass estimates also included the closed Waiopuka (Wakatu Quay) area which may contribute to potential overestimation of the number of kina that are available for harvest. These factors combine to overestimate the kina biomass currently available to this fishery.

845. Given all these uncertainties, FNZ considers that the high biomass estimates should be treated with caution when considering the level of utilisation. However, there is evidence that there are likely larger populations of kina than the present low TACC allows for in some areas, so a small increase may be considered appropriate despite the large uncertainties with the data.

Part 3: Assessment against relevant legal provisions

Overview

846. You are being asked to make a decision under section 13 of the Act, to set the TAC for SUR 3. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

847. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in Part 4 (Supporting information).
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 13 of the Act

848. Table 4 below outlines FNZ's assessment of the proposed options for SUR 3 against section 13(2A) of the Act. This assessment has been informed by the best available information on the status of the stock (summarised in Part 1 under '*rationale for review*', with more information in Part 4 under '*biomass estimates*'), and the information discussed in Part 4 under *'Information on biology, interdependence, and environmental factors'*.

Table 4: Assessment under section 13(2A) of the Act for SUR 3.

Section 13(2A)	849. Because the status of SUR 3 cannot be reliably estimated in relation to the biomass required to support the maximum sustainable yield (B_{MSY}) using the best available information, any changes to the TAC would be made under section 13(2A) of the Act. Under this section, you must set a TAC using best available information that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above a level that supports *MSY*, while having regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. 850. As noted above, SUR 3 has been lightly exploited since introduction to the QMS and, despite uncertainty, biomass estimates (McKenzie et al. 2024) indicate that there may be areas with higher numbers of kina to allow for sustainable higher yields. Based on this, FNZ's view is that a relatively small increase under Option 4 would not be inconsistent with the objective of maintaining the stock at or above a level that supports *MSY*. Due to uncertainties in biomass estimates from the McKenzie et al. (2024) survey, there is less certainty that Options 2 and 3 would not be inconsistent with the objective of maintaining the stock at or above a level that supports *MSY*.
Harvest Strategy Standard (HSS) See '*The Harvest Strategy Standard' under* Chapter 1 '*Legal Overview'* for more information.	851. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} -compatible reference points. 852. 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. It is currently unknown where biomass of SUR 3 sits in relation to these default targets set out by the HSS, however, the information noted above suggests the biomass is likely to be above these default HSS limits.

Section 13(2A)(b) Interdependence of stocks	853. The proposed increases to the TAC of SUR 3 could have some effect on their associated predators such as rock lobster and blue cod. However, these species are generalist predators and the importance of kina in their diet is unknown, so there may not be a large direct impact resulting from this. The structure of algal assemblages may be impacted in localised areas where kina harvesting increases (see '*Interdependence of stocks*' in Part 4). However, the specific impacts are uncertain, and their extent cannot be quantified based on the information available.
Section 13(2A)(b) Biological characteristics of the stock	854. Kina recruitment can vary significantly, and this could impact the resilience of kina populations in SUR 3 to fishing pressure. The survey suggests the kina in SUR 3 are large, with few small kina. This may indicate that recruitment (and recovery of kina populations from fishing impacts) is low or sporadic. Higher fishing pressure (for example under Option 3) could impact on kina populations especially if coinciding with poor recruitment.
Section 13(2A)(b) Environmental conditions	855. Environmental conditions (particularly high levels of sediment input in some areas) will affect how the SUR 3 stock responds to increased fishing pressure. Under Option 2 and particularly Option 3 reductions in kina abundance on localised scales could influence recruitment, which may be compounded by other environmental conditions such as sedimentation and marine heatwaves. However, the specific impacts are uncertain, and their extent cannot be quantified based on the information available.
Section 13(3) Factors to have regard to in considering the way and rate the stock is moved towards or above B_{MSY}	856. Section 13(3) is not considered relevant to the TAC decision for SUR 3 because the options only aim to maintain the stock at or above B_{MSY}. They are not intended to move the stock to a certain level in a certain way or rate (noting that forward projections are also not available to help FNZ determine what way and rate these options would move the stock in relation to B_{MSY}).

Kaitiakitanga

857. 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.

858. Te Waka a Māui me Ōna Toka Forum identifies kina as taonga species of significance in their Fisheries Plan. The relevant management objectives are:

- To create thriving customary non-commercial fisheries that support the cultural well-being of South Island iwi and their 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.

859. Te Waka a Māui me Ōna Toka Forum and other iwi consider that Options 2 and 3 are not in keeping with the first two management objectives noted above as they see that kina are becoming increasingly difficult to access in some areas, and scepticism regarding the biomass estimates and accuracy of the survey.

860. FNZ notes the process followed to ensure that these forum and iwi views are considered in your decision, acknowledges the strong opposition from the forum and other iwi in SUR 3, and notes the inclusion of a new recommended Option 4 which is a modest increase that takes this opposition into account.

861. FNZ considers that the more precautionary options proposed (Options 1 and 4) are in keeping with the management objectives in the Te Waka a Māui me Ōna Toka Fisheries Forum Plan which generally relate to active engagement with iwi and the maintenance of healthy and sustainable fisheries. Options 1 and 4 better provide for kaitiakitanga to be exercised as they more closely align to iwi views, whereas Option 3 and (to a lesser extent) Option 2 do not.

Mātaitai reserves and other customary management tools

862. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

863. The mātaitai reserves, area closures, fishing method restrictions, and prohibitions that apply to SUR 3 are listed in Table 5 below.

Table 5: Mātaitai reserves and other customary management tools that apply to SUR 3.

Customary area		Management type
Kahutara Koukourārata Mangamaunu Moeraki Oaro (freshwater and marine) Ōpihi Waitarakao Otakou Puna-wai-Toriki Rāpaki Bay Tautuku	Te Ahi Tarakihi Te Kaio Te Waha o te Marangai Tuhawaiki Tutaeputaputa Waihao Waikawa Harbour/Tumu Toka Waikouaiti Lyttelton Harbour/Whakaraupō Wairewa/Lake Forsyth	**Mātaitai reserve** Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.
Te Taumanu o Te Waka a Māui Oaro-Haumuri Akaroa Harbour East Otago		**Taiāpure** All types of fishing are permitted within a taiāpure. The management committee can recommend regulations to manage commercial, recreational, and customary fishing.
Waiopuka		**Temporary closures** Section 186A temporary closures are used to restrict or prohibit fishing of any species of fish, aquatic life or seaweed or the use of any fishing method.

864. Mātaitai reserves within SUR 3 are closed to commercial kina fishing. The survey was carried out within taiāpure, and fishers may take a proportion of any potential increase in TACC from within these areas, which could impact on the non-commercial sector. The East Otago Taiāpure committee has indicated in their submission that they will look at options to mitigate this, potentially seeking a rahui on commercial kina fishing.

865. Increased catch levels outside of customary protected areas may impact on the availability of kina for customary fishers. However, there are other areas closed to commercial kina fishing under regulation 11D of the Fisheries (South-East Area Commercial Fishing) Regulations 1986 that are thought to have populations of kina able to be accessed by non-commercial fishers.

Assessment of the proposals against section 9 of the Act

866. Table 6 below outlines FNZ's assessment of the proposed options for SUR 3 against the environmental principles in section 9 of the Act which you must take into account when considering the SUR 3 TAC. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under *'Information on environmental impacts'* within *'Part 4: Supporting Information'*.

867. SUR 3 is a target fishery where commercial harvesting is conducted through hand gathering while freediving; recreational fishers are able to use UBA. The selective nature of this method of harvesting ensures that there is no bycatch or incidental mortality of kina or non-target organisms, even if fishing pressure increases due to a higher TAC. However, if significant (unsustainable) reductions in kina biomass were to occur this could impact ecosystem function, especially over small spatial scales.

Table 6: Assessment under section 9 of the Act for SUR 3.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	868. Kina are harvested by hand-gathering while freediving in SUR 3. The method of hand-gathering is a highly selective one and there is no bycatch of any fish or invertebrate species. 869. Harvesting involves the use of vessels and there is a small risk of direct collisions between seabirds and the vessels, leading to injury or mortality. There are no known captures of marine mammals, seabirds, or protected fish species in New Zealand kina fisheries.
Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	870. Harvesting of kina may lead to a reduction in grazing on a reef resulting in an increase in the abundance of macroalgal and invertebrate species and a corresponding increase in associated biodiversity and potential change in the structure of community assemblages. 871. Kina play an important ecosystem role as grazers that link primary productivity to higher trophic levels. They are an important prey species for a variety of species in the region, including blue cod and rock lobster, supporting valuable fisheries in the area. 872. The extent of these impacts from the proposed increases is unknown but is likely to be localised given the extent of SUR 3 and the relatively large estimated biomass of kina in some areas. 873. There are no published records of kina barrens[91] in SUR 3 and none were identified in survey areas (McKenzie et al. 2024). The proposed increases may reduce the likelihood of barrens developing although there is little evidence to indicate the area is at risk of kina barrens forming. A shift from productive kelp forests to kina barrens would result in reduced primary production and biodiversity. It is acknowledged that kelp habitats are important for a range of harvested and non-harvested species, and any reduction in such habitats is therefore likely to have an adverse effect on the ecosystem.
Habitat of particular significance for fisheries management should be protected - Section 9(c) of the Act	874. Given kina are selectively hand gathered, changes to the TAC under the options proposed are unlikely to increase the risk of adverse effects on potential habitat of particular significance for fisheries management. 875. The ecosystem effects of an overabundance of kina are relatively well known in relation to barren formation, but the effects of removing kina are more uncertain. However, it is unlikely that increased removals would increase the risk of adverse effects on potential habitats of particular significance for fisheries management in SUR 3 where kelp is an important attribute (e.g., those for pāua).

Assessment of the proposals against section 11 of the Act

876. Table 7 below outlines FNZ's assessment of the proposed options for SUR 3 against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TAC.

Table 7: Assessment under section 11 of the Act for SUR 3.

You must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	877. "*Effect*" is defined widely in the Act.[92] The direct effects of fishing on kina need to be considered, as well as the indirect effects of this fishing for the surrounding ecosystem. 878. Information relevant to the direct effects of fishing on kina is described throughout this paper, particularly in Part 1 under '*Rationale for review*', '*Options and analysis*'

[91] Urchin barrens are considered as areas of rocky reef that would normally support healthy kelp forest but have little or no kelp due to overgrazing by urchin (Fisheries New Zealand, 2022)

[92] 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.

	and '*Fishery characteristics and settings*'. The effects of kina harvesting on associated stocks and species and the wider ecosystem are summarised above in Table 6 and detailed further in Part 4 under '*Information on biology, interdependence, and environmental factors*' and '*Information on environmental impacts*'. 879. The magnitude of these effects of fishing on SUR 3, associated species, and the environment, will vary depending on the TAC setting for SUR 3. FNZ considers that the proposed TAC options appropriately balance the utilisation opportunity for SUR 3 against these potential effects. Greater effects may occur under higher TAC settings, and this is something you must take into account in your decision. 880. SUR 3 is a target fishery where commercial harvesting is conducted through hand gathering while freediving. The selective nature of this method of harvesting ensures that there is no bycatch or incidental mortality of kina or non-target organisms and there have been no reported protected species interactions. 881. There are potential indirect effects of kina harvesting that have been discussed above, including the impact of the removal of prey for high trophic level species such as rock lobster and blue cod.
Existing controls that apply to the stock or area – section 11(1)(b)	882. The recreational daily limit for most of SUR 3 is 50 kina per person. Within this the daily limit for kina in the Kaikōura Marine Area and the Tuhawaiki, Te Ahi Tarakihi, Waitarakao Mātaitai reserves is 20 and the daily limit in the East Otago Taiāpure is 10. 883. The use of UBA is permitted for recreational fishers but is not permitted for commercial fishers. 884. There are marine reserves and other protected areas in SUR 3 as well as several regulatory closed areas for commercial fishers under the Fisheries (South-East Area Commercial Fishing) Regulations 1986 that relate to kina (regulation 11D) and shellfish generally (regulation 10).
The natural variability of the stock – section 11(1)(c)	885. Settlement of kina larvae within the SUR 3 fishery is likely to vary between years and may differ among locations and habitats, attributed to the variability in larval mortality. 886. In laboratory and field studies, larval mortality and developmental abnormalities have been observed to increase with increasing concentrations of suspended sediment. This suggests that environmental conditions associated with terrestrial runoff are of importance. 887. Population growth of kina and the establishment of kina barrens has been attributed to fishing of kina predators in areas of New Zealand. However, unsustainable reductions in kina biomass on a localised scale could impact ecosystem function.
Fisheries plans, and conservation and fisheries services – section 11(2A)	888. There are no fisheries plans approved under section 11(2A) specific to SUR 3, or of specific relevance to this review of measures for the fishery. **Fisheries and conservation services:** 889. Fisheries and conservation services of significance have been described throughout this paper where relevant. 890. Fisheries services of relevance to SUR 3 include the research used to monitor abundance (see '*Rationale for review*' in Part 1 and '*Biomass estimates*' in Part 4) and the tools used to enforce compliance with management controls. 891. The SUR 3 fishery has no observer or on-board camera coverage. However, Fisheries Compliance monitors the fishery to ensure that management controls are being adhered to. 892. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species.

	893. FNZ is not aware of any decisions not to require conservation services or fisheries services.
The Kaikōura (Te Tai o Marokura) Marine Management Act 2014	894. The purpose of this Act is to recognise the local, national, and international importance of the coast and sea around Kaikōura as a consequence of its unique coastal and marine environment and distinctive biological diversity and cultural heritage. Under this Act, advice from the Kaikoura Marine Guardians must be taken into account as it relates to the Kaikoura Marine Area. Their advice was provided in several hui during the consultation period as well as by written submission and has been summarised throughout the paper, with the Guardians supporting Option 1.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	**Regional plans:** 895. There are two regional councils that have coastlines within the boundaries of SUR 3: Canterbury and Otago. 896. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. 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 SUR 3. FNZ has reviewed the documents and the provisions that might be considered relevant. A summary of these can be found in Addendum 1. 897. FNZ considers the options in this paper are all consistent with the objectives of these relevant plans.
Non-mandatory relevant considerations	
Other plans and strategies	Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy) 898. FNZ considers that the sustainability measures proposed for SUR 3 are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy. This includes 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 sustainably.

Information principles: section 10 of the Act

899. The best available information relevant to SUR 3 is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. Table 8 below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in that information.

Table 8. Best available information and key areas of uncertainty for SUR 3.

Best available information	Key areas of uncertainty, unreliability, or inadequacy
900. The best available information on the stock includes the biomass estimates from McKenzie et al., 2024[93] and anecdotal information provided from fishers and other submissions received during consultation. 901. The best available information in regard to recreational and customary fishing for these stocks is presented in Table 3. Recreational catch information relies heavily on the results of the 2022/23 National Panel Survey of Marine Recreational Fishers (**NPS**).	903. The McKenzie *et al* (2024) survey was a relatively new method for estimating kina biomass in SUR 3 and was performed by fishers with no formal scientific training. The Shellfish Working Group in reviewing the survey results noted that there is uncertainty in the estimates of the weight of individual kina from length measurements used for calculating overall biomass and scaling of the weight estimates to a larger survey area due to lack of information on the extent of available habitat within the area. The survey was designed in an appropriate manner, but it is unclear how representative the sampled locations were of the

[93] This is an unpublished NIWA report prepared for Sustainable Fisheries Development Limited.

Best available information	Key areas of uncertainty, unreliability, or inadequacy
902. New Zealand Aquatic Environment and Biodiversity Chapter 13 'Trophic and ecosystem-level effects', and Report No. 324, 'Fishery-induced trophic cascades and sea urchin barrens in New Zealand: a review and discussion for management' (Doheny et al., 2023), provide information on the role of fishing in the occurrence of kina barrens in New Zealand.	larger survey area (and there is currently limited information to test this). Biomass estimates were scaled to an area down to 15 m water depth for some survey strata, while most free dive harvesting (the current requirement) is limited to areas shallower than 7 to 10 m. These factors may combine to overestimate the kina biomass currently available to this fishery. 904. There is conflict with biomass estimates in the survey and information (largely anecdotal) provided in submissions suggesting the biomass may be much lower. Given the uncertainties in the biomass estimates, anecdotal evidence is also considered but it is noted that there are inherent limitations with anecdotal accounts.

Biomass estimates

Table 9: Kaikōura area and kina density and biomass estimates by strata. (McKenzie et al., 2024).

Strata	Number of sites	Mean density (kg/square metre)	Mean density standard deviation	Biomass (t)	Biomass standard error (t)	Biomass CV
1	12	1.273	0.785	6,588	1,173	0.18
2	3	1.083	0.559	999	298	0.30
3	3	0.043	0.075	171	171	1.00

Table 10: Moeraki area and kina density and biomass estimates by strata (McKenzie et al., 2024).

Strata	Number of sites	Mean density (kg/square metre)	Mean density standard deviation	Biomass (t)	Biomass standard error (t)	Biomass CV
4	3	4.499	0.825	7,147	757	0.11
5	7	1.872	1.033	20,444	4,263	0.21
6	11	1.184	0.520	19,154	2,534	0.13
7	8	0.035	0.017	477	82	0.17

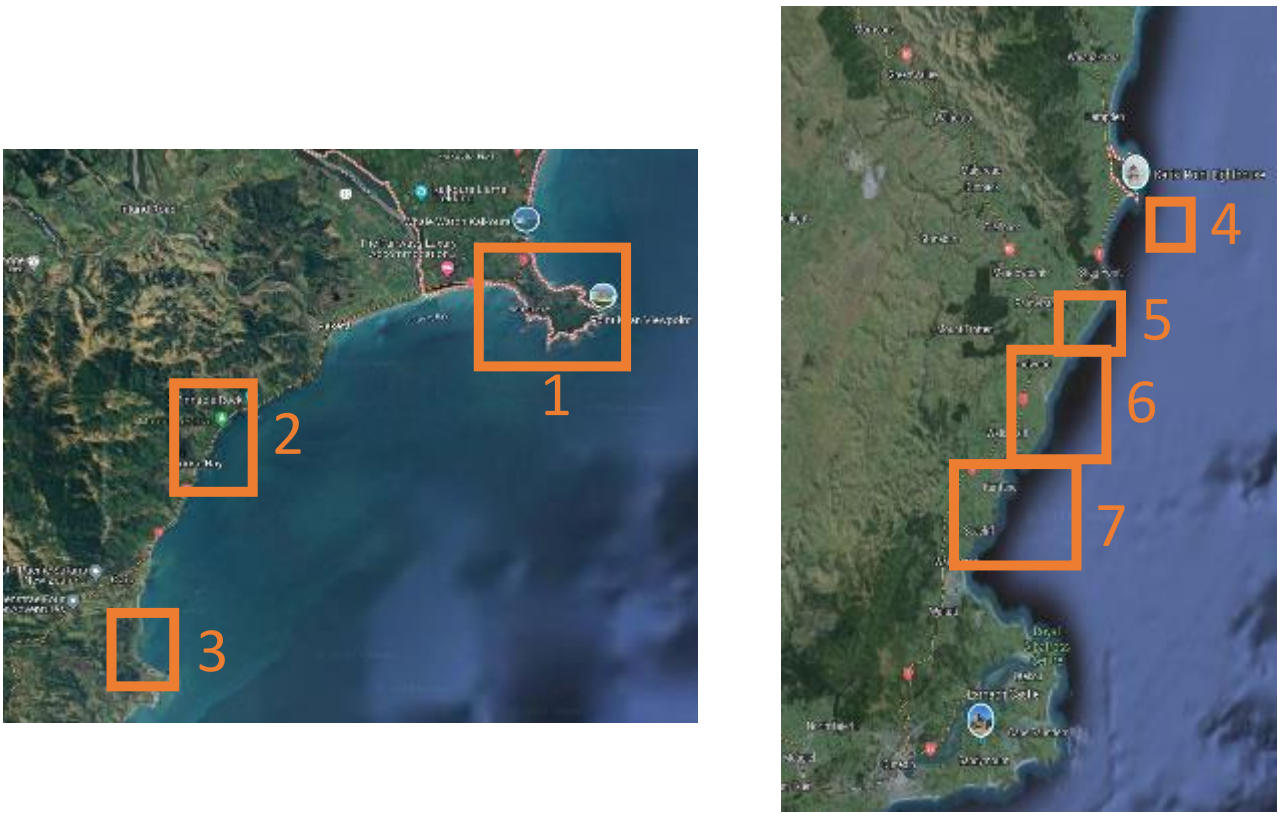


Figure 2: Maps showing the approximate location of each stratum from kina surveys within SUR 3.

Information on biology, interdependence, and environmental factors

905. This information supports FNZ's assessment of the proposals against section 13 of the Act in *'Part 3: Assessment against relevant legal provisions*. Information in this section was derived from the kina chapter of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

906. Interactions between kina, their predators, and the algal species they graze on, has been studied in northeastern New Zealand. In this region observations from marine reserves suggest that fishing of kina predators (snapper and rock lobster) has resulted in a trophic cascade, where in fished areas kina populations have increased and grazed down native kelp, resulting in extensive areas of unproductive barren reef habitat or "kina barrens." Fishing of kina predators is a concern for the development of kina barrens. However, there is no information to suggest kina barrens are widespread in SUR 3.

907. There is little information on the impact of reducing abundances of kina on healthy reef ecosystems, though experimental work in Fiordland suggests harvest of kina could have strong impacts on the structure of algal assemblages and should be treated with caution (Villouta et al., 2001). Some evidence suggests there is an inverse relationship between kina and pāua, as low pāua densities were observed in high concentrations of kina with the species occupying a similar ecological role as grazers (Naylor & Gerring, 2001).

908. Kina are also an important prey species for a wide range of species and fulfil a key ecosystem role in transferring primary productivity to higher trophic levels. Species such as blue cod and rock lobster are important fisheries on the East Coast of the South Island which could be negatively impacted by an increase in the catch levels of kina.

Biological characteristics

909. Kina are found throughout New Zealand and the sub-Antarctic Islands in coastal habitats, generally in waters from the shallow subtidal to depths of at least 60 metres. Kina have an annual reproductive cycle which culminates in multiple spawning events across mid- and late summer. Size at maturity appears to vary between locations and may be as small as 30 mm test diameter (TD) and as large as 75 mm TD.

910. The rate of settlement is likely to vary between years and appears to differ among locations and habitats. Laboratory work has shown that recruitment is negatively impacted by sediment concentration. Likely highly variable recruitment in SUR 3 coupled with high levels of sediment input in some areas could impact successful recruitment.

911. Feeding experiments have indicated that kina possess a selective mode of feeding, being able to distinguish between algal species but with a preference for the kelp *Ecklonia radiata* and to a lesser extent *Sargassum sinclarii, Landsburgia quercifolia* and *Carpophylum maschalocarpum*. However, kina can also feed on encrusting organisms, such as sponges, when algal food is scarce.

Environmental conditions affecting the stock

912. In 2016, the Kaikōura earthquakes caused significant loss of habitat resulting from coastal uplift along the coastline between the Clarence River and Conway River (Alestra et al., 2019; Alestra et al., 2020; Schiel et al., 2021). This area was closed to commercial and recreational kina fishing to protect the surviving populations and associated habitats but has since been reopened.

913. In general, coastal shellfish resources fluctuate naturally and are susceptible to environmental degradation. Potential stressors, other than human harvesting include anthropogenic contaminants, changes in the marine environment associated with human activity, such as increased sediment loading, nutrient enrichment, and climate change; and natural phenomena, such as heat stress, and diseases/parasite events. Likely variable recruitment and settlement events in the area in combination with high sedimentation events from rivers or dredge disposal events could have a large impact on the stock if the timing of such events align, due to the evidence of impacts of sedimentation on larval settlement.

Information on environmental impacts

914. This information supports FNZ's assessment of the proposals against section 9 of the Act in *'Part 3: Assessment against relevant legal provisions*'.

Protected species

915. Kina are harvested by hand-gathering while freediving in SUR 3. The method of hand-gathering is a highly selective one and there is no bycatch of any fish or invertebrate species.

Biological diversity of the environment

916. Harvesting of kina may lead to a reduction in grazing on a reef resulting in an increase in the abundance of macroalgal and invertebrate species and a corresponding increase in associated biodiversity and subsequent impacts on the structure of community assemblages.

917. Kina play an important ecosystem role as grazers that link primary productivity to higher trophic levels. They are an important prey species for a variety of species in the region, including blue cod and rock lobster, supporting valuable fisheries in the area.

918. The extent of these impacts from the proposed increases is unknown but is likely to be localised given the extent of SUR 3 and the relatively large estimated biomass of kina in some areas.

919. No kina barrens have been identified in SUR 3. The proposed increases would reduce the likelihood of barrens developing. A shift from productive kelp forests to kina barrens would result in reduced primary production and biodiversity. It is acknowledged that kelp habitats are important for a range of harvested and non-harvested species, and any reduction in such habitats is therefore likely to be adverse to species that rely on kelp.

Habitat of particular significance for fisheries management

920. Potential habitats of particular significance relevant for fisheries management of SUR 3 can be found in Table 11 below. There are other potential habitats of particular significance present within the FMA, which do not overlap with the area fished for SUR 3.

Table 11: Potential habitat of particular significance for fisheries management relevant to SUR 3.

Subtidal rocky reefs
Attributes of habitat • Rocky crevice/boulder habitat associated with subtidal macroalgal reefs, high energy wave exposure / appropriate water movement for larval dispersal may contribute to successful reproduction and recruitment to the fishery, crustose coralline algae is a cue for settlement, and provides a food source for adults and juveniles, cryptic habitats for juveniles which have a direct connection to adult habitat. **Reason for particular significance** • Rocky crevices and boulders provide substrate for adults to aggregate and support localised recruitment, good source of food, given growth and recruitment success can be influenced by food availability. **Risks/Threats** • Land-based effects, particularly at Waipapa, erosion, high turbidity, earthquakes, ocean warming and acidification. **Existing protection measures** • Steps have been taken to reduce the effects of land-based gravel deposition along parts of the coastline with the placement of concrete barriers and walls where hillsides are close to the coastline. **Evidence** • Alestra et al., (2019), Alestra et al., (2020), Cornwall et al., (2014), Naylor et al., (2006)

921. Most submissions, including from iwi support retaining the *status quo* TAC or a more precautionary TAC and TACC than proposed under Options 2 and 3. Many submissions were sceptical of the biomass estimates derived from the industry led survey. FNZ's Shellfish Working Group acknowledged there are uncertainties in the data and estimates and was unable to determine an appropriate harvest rate from the biomass estimates. It concluded, however, that there is likely to be a larger biomass of kina in some areas of SUR 3 than the present TACC allows for.

922. FNZ recognises the key ecosystem role of kina as grazers that connect primary productivity to higher trophic levels. Kina are part of the diet of high value species in the region such as rock lobster and blue cod and the impacts of increased utilisation are uncertain.

923. Best available information indicates recruitment of kina in SUR 3 may be low and variable and observations from fishers indicate there may be a long recovery time of harvested populations. Recruitment is likely to be influenced by other factors such as sedimentation and kina populations are likely at risk from climate impacts including marine heatwaves and ocean acidification as they are a sessile shellfish species strongly associated with kelp habitat.

924. FNZ also notes the patchy distribution of kina in the region, and the submissions that kina are becoming increasingly difficult to access for both non-commercial and some commercial fishers in certain areas, with some of the surveyed areas overlapping with areas of customary importance.

925. Overall, FNZ considers that due to the uncertainties and strong concern raised by iwi and some stakeholders, a large increase to the TAC and TACC such as that proposed under Option 3 of (i.e. of up to 10 times the current TACC) and, to a lesser extent Option 2, may not be appropriate without further information. Given iwi opposition to the proposed TAC increases there is a risk that this option may not have a particular regard for kaitiakitanga and may result in unsustainable fishing in parts of SUR 3. Therefore, FNZ does not recommend this option.

926. FNZ recommends Option 4 as a smaller, more cautious increase in utilisation in line with the views of some stakeholders, to allow for potential expansion of the fishery that has been lightly exploited to date. SUR 3 is a large area and new areas have been fished since its introduction to the QMS, with some fishers indicating the low initial TACC is a barrier to expansion given the full ACE has not been consistently available.

927. FNZ recommends the recreational and customary allowances are similarly increased from 10 tonnes to 20 tonnes to allow for increasing recreational interest indicated by the NPS, and the importance of kina to customary fishers.

928. A smaller increase to the TAC would allow the impacts of fishing and subsequent recovery of the stock to be assessed by future surveys that address the uncertainties raised in the recent survey. This information can then inform incremental TAC increases to allow further expansion of the fishery supported by an appropriate harvest plan that reduces the risk of localised depletion and takes into account the significance of kina to customary and other non-commercial fishers.

Decision for SUR 3

Option 1 *(status quo)*

Agree to retain the SUR 3 TAC at 42 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 10 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 1 tonne;
iv. Retain the SUR 3 TACC at 21 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SUR 3 TAC at 163 tonnes and, within the TAC, to:

i. Increase the allowance for Māori customary non-commercial fishing interests from 10 to 20 tonnes;
ii. Increase the allowance for recreational fishing interests from 10 to 20 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 1 to 2 tonnes;
iv. Increase the SUR 3 TACC from 21 to 121 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3

Agree to set the SUR 3 TAC at 284 tonnes and, within the TAC, to:

i. Increase the allowance for Māori customary non-commercial fishing interests from 10 to 30 tonnes;
ii. Increase the allowance for recreational fishing interests from 10 to 30 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 1 to 3 tonnes;
iv. Increase the SUR 3 TACC from 21 to 221 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 4 *(Fisheries New Zealand preferred option)*

Agree to set the SUR 3 TAC at 84 tonnes and, within the TAC, to:

i. Increase the allowance for Māori customary non-commercial fishing interests from 10 to 20 tonnes;
ii. Increase the allowance for recreational fishing interests from 10 to 20 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 1 to 2 tonnes;
iv. Increase the SUR 3 TACC from 21 to 42 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon Shane Jones
Minister for Oceans and Fisheries

16 / 09 / 2024

Chapter 7: Kingfish / Haku (KIN 3) – East Coast South Island, Southland & Sub-Antarctic

Part 1: Overview

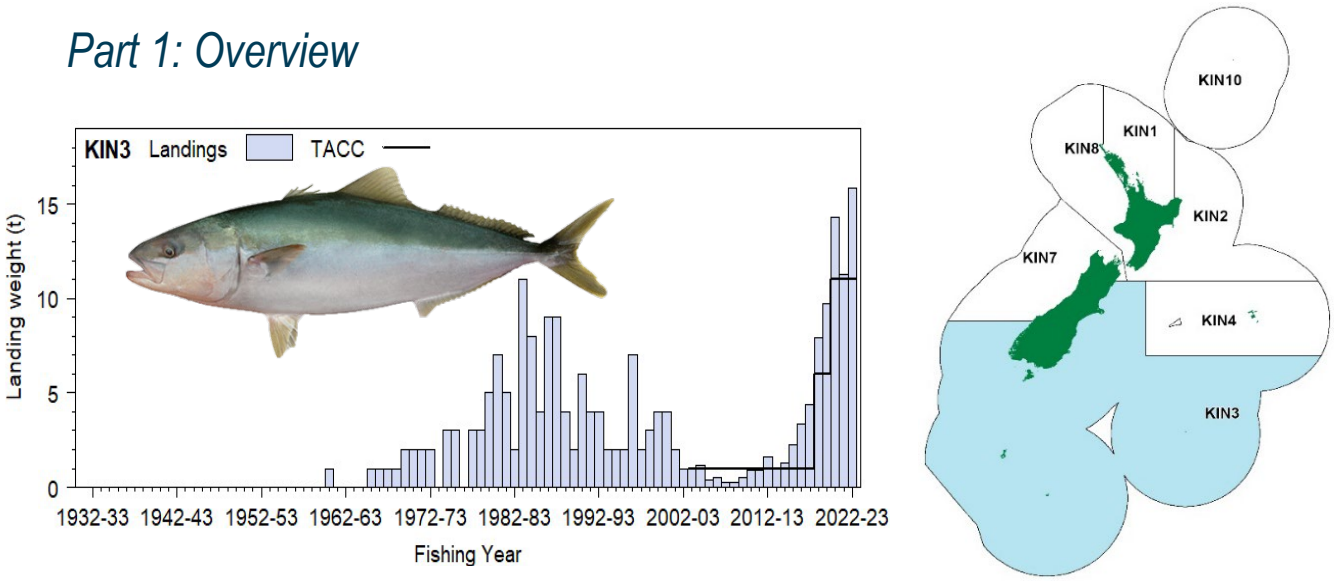


Figure 1: Quota Management Areas (QMAs) and total allowable commercial catches (TACCs) for kingfish/haku (*Seriola lalandi*), with KIN 3 highlighted.

Rationale for review

929. Kingfish (*Seriola lalandi)* in KIN 3 (Figure 1) are taken in low quantities as non-target catch by commercial setnet, bottom trawl and midwater trawl fishers targeting a range of other species.

930. Increased catches and catch per unit effort (**CPUE**) in the last five years indicate a rapidly increasing abundance of kingfish within KIN 3. The TACC has been increased twice since 2018, in 5-tonne increments, to 11 tonnes. (Figures 1 and 3).[94]

931. The increased abundance of KIN 3 is likely to be a range extension from healthy kingfish stocks (KIN 7 and KIN 8) further north. As probable source populations, both KIN 7 and KIN 8 are currently above target (Figures 3 and 4), with the catch limit settings for these two stocks also being reviewed for the 1 October 2024 fishing year. Catch information shows the range of kingfish has expanded significantly, as far south as the Snares Shelf below Stewart Island/Rakiura.

932. This information suggests a utilisation opportunity is available for KIN 3, and FNZ has consulted on options to increase the stock's TAC, allowances for recreational fishing and other mortality, and TACC (Table 1).

933. FNZ is now seeking your decision on the TAC of KIN 3 under section 13(2A) of the Fisheries Act 1996 (**the Act**). Your decision will come into effect from the start of the upcoming fishing year on 1 October 2024.

Proposed options and FNZ's recommendations

Table 1: Proposed management options (in tonnes) for KIN 3 from 1 October 2024. FNZ's preferred option is highlighted in orange.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 (*Status quo)*	23	11	4	6	2
Option 2	33 (↑ 10)	16 (↑ 5)	4	10 (↑ 4)	3.0 (↑ 1)
Option 3	37.5 (↑ 14.5)	20 (↑ 9)	4	10 (↑ 4)	3.5 (↑ 1.5)

[94] 12 tonnes of this has not been landed but returned to sea under section 72(A), previously Schedule 6.

934. FNZ received eight submissions relating to KIN 3 with seven of these specifically relating to the sustainability measures. Support for each option was mixed with two submitters supporting the *status quo* (Option 1), three supporting a TAC increase (Option 2), and two supporting the larger TAC increase (Option 3).

935. The feedback from submissions has been characterised further under the '*Analysis of options*' below. More detail, including other matters raised by submitters, is provided in Part 2 '*Submissions*'.

936. Based on our analysis of these options and incorporating the feedback received, as well as our assessment of the options against legal provisions (see Part 3), FNZ recommends Option 3. The rationale for this recommendation is set out at the end of this chapter, with FNZ's conclusions under Part 5 '*Conclusions and recommendations*'.

Analysis of options

Option 1 – retain current settings (*status quo*)

Benefits	937. This option is the most cautious with respect to ensuring sustainability. It takes into account the limitations in the available information, including the reliance on limited CPUE data and catch trend information. 938. The TACC under this option is lower than current catch levels, which retains incentives for fishers to release live kingfish wherever possible.
Risks	939. As the majority (55%) of kingfish in KIN 3 is taken using setnetting, most fishers will be unable to manage the increasing abundance through releasing live kingfish under section 72A provisions without incurring significant deemed value invoices (kingfish cannot be released from setnets as they are unlikely to survive).
Feedback received	940. Two submitters supported this option. 941. The Royal New Zealand Society for the Prevention of Cruelty to Animals (**SPCA**) submitted this option was the most cautious approach given the uncertainties in the status of the stock. It also considers that while this stock is a bycatch fishery, increasing the TAC may lead to increased discarding. It also raised general welfare concerns for fish and protected species. 942. One individual (G. Ryder) considered the inability to avoid the stock when setnetting is not a good enough reason to allow fishers to exploit it more and instead submitted that industry should be changing or refining methods, especially that setnetting and trawling occurs in areas where protected species occur.

Option 2 – 43% TAC increase

Benefits	943. Option 2 provides sufficient ACE to allow fishers to balance their catch at the current recorded catch levels. This should reduce financial pressure on fishers required to land and pay deemed values for kingfish caught in KIN 3. 944. It is unlikely (based on current understanding of the stock) that the level of TAC change proposed would be a sufficient to encourage targeting of kingfish by commercial fishers, and it is expected that kingfish catch will continue to be incidental. Section 72A of the Act complements this where commercial fishers can, when legally able, release live kingfish they do not want. 945. Increasing the TACC to cover incidental catch-only is consistent with the approach approved when kingfish were put into the QMS in 2003, which was to manage commercial catches to non-target levels only, in recognition of the value of kingfish to non-commercial fishers. 946. Increasing the recreational and allowance for other sources of mortality updates these settings to take into account the latest information.
Risks	947. Despite efforts by commercial fishers to avoid kingfish in KIN 3 and the incremental TACC increases over the past five years, catches have regularly exceeded the available ACE, resulting in substantial deemed value payments. 948. Should kingfish abundance in KIN 3 continue to increase (which seems likely), the TACC increase under this option may provide insufficient ACE to cover incidental bycatch, and fishers who

	cannot release live kingfish under section 72A (i.e. setnet fishers) will continue to incur deemed value payments for kingfish they are required to land.
Feedback received	949. Three submitters specifically supported this option. 950. LegaSea, New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, and New Zealand Underwater Association (collectively '***the joint submitters***') stated that they supported this option on condition that there is a commitment to transition setnet fishers to using more selective fishing methods. The submission recognised the economic impact of deemed values on individual fishers and the natural range expansions of kingfish are unavoidable, however, it stated a modest TACC is needed to retain the incentive to release kingfish that are likely to survive and to discourage targeting by commercial setnet fishers. 951. One individual (K. Adair) stated support for the submission from the joint submitters. Another individual (M. Currie) also supported this option on condition that there is a commitment to transition setnet fishers to using more selective fishing methods. The submission suggested that only a modest increase would be appropriate to discourage targeting by commercial setnet fishers.

Option 3 – 63% TAC increase

Benefits	952. This option is based on the likelihood that the trend of increasing abundance continues because of range extension from the core stocks of kingfish further north. The option increases the recreational allowance to 10 tonnes recognising the high value recreational fishers place on kingfish. 953. It is unlikely (based on current understanding of the stock) that the level of TAC change proposed would be a sufficient driver to encourage targeting of kingfish by commercial fishers, and it is expected that kingfish catch continues to be incidental. Section 72A of the Act complements this where commercial fishers can, when legally able, release live kingfish they do not want. 954. This option will allow setnet fishers to balance more of their catch with ACE.
Risks	955. While it is believed that the increase in KIN 3 is an extension of range from kingfish migrating south from northern populations, kingfish under the minimum legal size have been caught in KIN 3 (1.2 tonnes) which could suggest some spawning and recruitment could be occurring within KIN 3. If so, and if less live kingfish are returned to the sea by commercial fishers, this may negatively impact any emerging spawning stock that is independent of northern kingfish.
Feedback received	956. Two submitters supported this option. 957. Seafood New Zealand supports this option. It also considers that there is no legitimate policy basis for restricting commercial fishing in an abundant fishery to "unavoidable bycatch levels only" (as stated by the previous Minister in the 2020 sustainability review of KIN 3), and that the current management approach of KIN 3 is "punitive" to the commercial sector. In the same submission it requested that the rationale for the proposed TACC increases is revisited as the KIN 3 TACC has been exceeded yearly over the last ten years. 958. Sealord stated its support for this option, and that it supports Seafood New Zealand's submission. Sealord draws attention to the fact that KIN 3 biomass is growing due to range expansion in response to favourable climate change, that this fishery cannot be economically utilised by the deepwater fleet and that sale pricing is lower as the infrastructure to appropriately freeze kingfish is not available. 959. While Seafood New Zealand and Sealord supported this option, both organisations also consider that an even higher TACC increase would be appropriate (see *'KIN 3 options proposed by submitters'* below).

KIN 3 options proposed by submitters

Higher TACC option (supported by Seafood New Zealand and Sealord)

960. Seafood New Zealand and Sealord consider that a higher TACC increase (to ~30 tonnes) would be more appropriate to ensure that catch limits in the coming years are reflective of the increasing abundance, an expected consequence of continued range expansion.

961. Seafood New Zealand noted that the proposed recreational allowances for Options 2 and 3 are 160% of the highest estimate of current recreational catch, and that the same approach should be taken with the TACC allowances that have been proposed. Sealord advocated that a CPUE trend analysis utilised in CCAMLR[95] fisheries would be more appropriate in this instance, suggesting a 27-tonne TACC is more appropriate in line with that approach.[96]

962. FNZ has outlined the risks and benefits of this suggested option below, followed by our view of the option.

Benefits	963. Possible future-proofing for continued catch increases as the natural kingfish range moves further south. 964. Addresses perceived inequity stated by some commercial submissions, that the recreational allowance is a higher proportional increase compared to the TACC.
Risks	965. The proposed 27 tonne TACC would be a 17 tonne/147% increase to the current TACC, almost double the maximum increase to the TACC that was consulted on. Affected stakeholders have not had opportunity to submit on such an increase. 966. While it is believed that the increase in KIN 3 is an extension of range from kingfish migrating south from northern populations, it is possible this stock has spawning fish independent of northern stocks (see '*Risks*' under Option 3). At present KIN 3 catch is unavoidable bycatch, so increasing the TACC to these levels could lead to the targeting of KIN 3 beyond what is sustainable.
FNZ views	967. When kingfish were put into the QMS in 2003, it was agreed to manage commercial catches to non-target levels, in recognition of the value of kingfish to non-commercial fishers. 968. While the proposed recreational allowances are a greater proportional increase in comparison to the TACC for both Options 2 and 3, the actual amounts (tonnage) of the proposed TACCs are a greater increase compared to the proposed recreational allowance. 969. FNZ considers that the proposed KIN 3 TACC increases it consulted on are sufficient to allow commercial fishers to manage their increased kingfish bycatch and ensure KIN 3 remains a bycatch fishery, while the proposed recreational allowance recognises the high value recreational fishers place on kingfish and the uncertainty associated with recreational estimates of catch. 970. Overall FNZ considers the TAC proposed during consultation under Option 3 is an appropriate maximum for this unavoidable bycatch fishery and that a TAC increase above this would increase the probability of KIN 3 being targeted by fishers. The targeting of this stock would likely lead to increased harvest and possibly beyond a point that is sustainable. At the present time FNZ considers that this uncertainty of risk to the KIN 3 stock is unacceptable as it is a low information stock with limited information on its biomass and population dynamics, with only CPUE and catch data available as best information.

Who will be affected by the proposed changes?

971. Kingfish in KIN 3 are caught by commercial fishers as bycatch from the setnet and midwater and bottom trawl fisheries. Based on the last three fishing years in KIN 3, there have been on average 19 quota owners providing ACE to 23 permit holders, landing kingfish to 10 licensed fish receivers (**LFR**s).

972. Over the last three fishing years, the number of vessels catching kingfish in KIN 3 was 32 to 38 vessels, none of which reported targeting kingfish.

[95] Commission for the Conservation of Antarctic Marine Living Resources.
[96] CCAMLR's approach to data-limited exploratory toothfish fisheries: the trend analysis (2021).

973. Recreational fishers report a growing interest in targeting kingfish in KIN 3, especially in the Banks Peninsula area and North Canterbury. This is recognised in the options that propose a TAC increase where the recreational allowance has a proposed increase.

Input and participation of tangata whenua

974. Te Waka a Māui me Ōna Toka Iwi Forum represent iwi with an interest in KIN 3. FNZ circulated a summary of the stocks proposed for review in this round (including KIN 3) to the chair and members of Te Waka a Māui me Ōna Toka Iwi Forum in March 2024. FNZ invited feedback and offered to provide more detailed information for any stocks upon request.

975. Te Waka a Māui me Ōna Toka Iwi Forum met with FNZ staff in July 2024 to discuss reviews in this sustainability round but did not express concerns specific to this fishery or indicate their position on the options proposed.

Fishery characteristics and settings

Table 2: Fishery characteristics and settings for KIN 3.

Commercial (TACC)
976. The commercial catch of KIN 3 is taken by setnet (55%) largely targeting rig, school shark and hapuka bass, bottom trawl (23%), midwater trawl (18%), and other inshore fishing methods (4%).
977. Given the difficulty of commercially targeting kingfish, the high deemed values associated with catching kingfish in excess of ACE, and that fishers are able to return live kingfish to the sea (in circumstances where it is likely to survive), these catches are exclusively unavoidable bycatch when targeting other species.
978. Commercial fishers must also return kingfish under the minimum legal size (**MLS**) of 65 cm, dead or alive.
979. The TAC was reviewed in 2018 and again in 2020, increasing the TACC from 1 tonne to 6 tonnes and then to 11 tonnes.
980. Catches regularly exceed the available ACE resulting in annual deemed value invoices of up to $5,000 for an individual fisher. The amount of KIN 3 caught but not landed between 1 October 2023 to 31 July 2024 (within this fishing year) was 18.6 tonnes, higher than the current TACC.
Customary Māori
981. The current allowance for Māori customary fishing is 4 tonnes, which was proposed to be maintained under all options consulted on.
982. FNZ holds no reports of customary authorisations in KIN 3 and it is assumed customary fishing needs are met under the current allowance, and under recreational limits. While FNZ does not have evidence to suggest change to the customary allowance is needed, the increasing kingfish abundance in KIN 3 may mean increased Māori customary take of KIN 3 through authorisations in the future.
983. Based on best available information FNZ considers this allowance to be appropriate.
Recreational
984. The current allowance for recreational fishing within the TAC is 6 tonnes.
985. In line with the apparent increase in abundance, there have been reports of increased recreational targeting of kingfish from Kaikōura and around Banks Peninsula. Most recreational targeting of kingfish is by rod and reel, with some targeting by spear fishing.
986. The 2022/23 National Panel Survey of Marine Recreational Fishers (**NPS**) (Heinemann & Gray 2024, in prep.) estimated an annual recreational take of 2.54 tonnes. This estimate, combined with estimates of Amateur Charter Vessel harvest (0.9 tonnes), and recreational take under section 111 of the Act (recreational harvest taken by commercial fishers) (0.3 tonnes), provides a total estimated recreational catch of just under 4 tonnes. There is considerable uncertainty in the NPS estimate (coefficient of variation = ±1.7 tonnes). This is considered to be due to the large area encompassed by the KIN 3 QMA, and relatively low number of KIN 3 recreational fishers.

987.	FNZ has proposed that the recreational allowance is increased to 10 tonnes under Options 2 and 3, recognising the high value recreational fishers place on kingfish and the potential that catch has increased since the NPS survey.
Other sources of mortality caused by fishing	
988.	This allowance is intended to provide for generally unrecorded mortality of fish associated with fishing activity. This is naturally difficult to quantify when considering the range of contributing sources and as a result there is uncertainty in the estimates used to set this allowance. The introduction of onboard cameras across most vessels that catch KIN 3 will improve reporting verification and reduce uncertainty around other sources of mortality caused by fishing.
989.	The current allowance was set during the 2020 review at a level that equates to 10% of the TACC, Māori customary and recreational allowances combined. While kingfish are generally robust and thought to survive when returned to sea in good condition (McKenzie *et al*., 2024), this approach takes into account the fact that not all kingfish released alive may survive.
990.	As there is no new information to suggest that a different level would be appropriate, FNZ proposes an allowance based on the same approach under Options 2 and 3.

Part 2: Submissions

991. FNZ received eight submissions specifically in relation to the review of KIN 3 sustainability measures, with two submitters supporting Option 1, three submitters supporting Option 2, two submitters supporting Option 3 and a submitter raising another matter in respect to KIN 3 quota allocation.

992. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options or alternatives for KIN 3, but commented generally about catch limits or other aspects of fisheries management. These general concerns are discussed within Appendix Two of B24-0483.

Table 3: Submissions received for KIN 3 during consultation.

Submitter	Option supported				Notes
	1	2	3	Other	
Organisations					
Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA**)	✓				Considers a cautious approach is needed and concerned an increase in TAC may lead to increased discarding.
LegaSea, New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, New Zealand Underwater Association ('***the joint submitters***')		✓			Conditional upon phasing out setnetting for more targeted methods.
Seafood New Zealand			✓	✓	Also considers a further increase to the TACC to 30 tonnes is appropriate.
Sealord			✓	✓	Also supported Seafood New Zealand's submission.
Individuals					
G. Ryder	✓				Considers industry's inability to avoid kingfish is irrelevant and instead it should either change or refine its fishing methods.
K. Adair		✓			Supports the LegaSea submission.
M. Currie		✓			Conditional upon phasing out setnetting for more targeted methods.
J. Flynn				✓	Requests an allocation of KIN 3 quota.

Other matters raised during consultation

993. One individual (J. Flynn) requested that the government allocate more quota to them to support their fishing operations. They stated that TACC increases alone will only benefit a minority of individuals and leave others at a disadvantage. FNZ notes the government does not own quota in KIN 3 and that the trade of ACE among fishing industry participants occurs independently of FNZ.

994. The joint submitters request phasing out of setnets for more targeted fishing methods. FNZ notes that setnetting is currently the only effective fishing method for targeting certain species such as moki and some elasmobranchs within the KIN 3 area.

KIN 3 deemed value rates

995. FNZ did not propose any deemed value rate changes for KIN 3 as part of this review. However, in recognition of the fact that deemed value and catch limit settings are interlinked (TACC changes can impact deemed values payments incurred), FNZ sought general feedback on the deemed value settings of KIN 3 during consultation.

996. Five submissions either commented or referred to the deemed value rates for KIN 3.

997. The SPCA expressed concern that deemed value payments could disincentivise fishers to accurately report and land all their catch.

998. One individual acknowledged the economic impact that high deemed value invoices would have on fishers, however, considered there should be an incentive to release kingfish that are likely to survive and to discourage targeting by commercial fishers.

999. The joint submitters recognised that high deemed value invoices will have an economic impact on individual fishers, however, considered there was still a need to incentivise the release of kingfish likely to survive and to discourage targeting by commercial fishers. The submission noted that if fishers wanted to avoid deemed value payments, they could transition to more selective fishing techniques.

1000. Both Seafood New Zealand and Sealord mentioned concern regarding high deemed value payments in KIN 3, as a consequence of over catch of the TACC. Seafood New Zealand submitted this is a problem across all kingfish stocks.

FNZ response

1001. The deemed value rates of KIN 3 were last reviewed in 2022 and the annual rate was reduced. The annual rate is now set above the average ACE price, and below the average port price (see Figure 2 below).

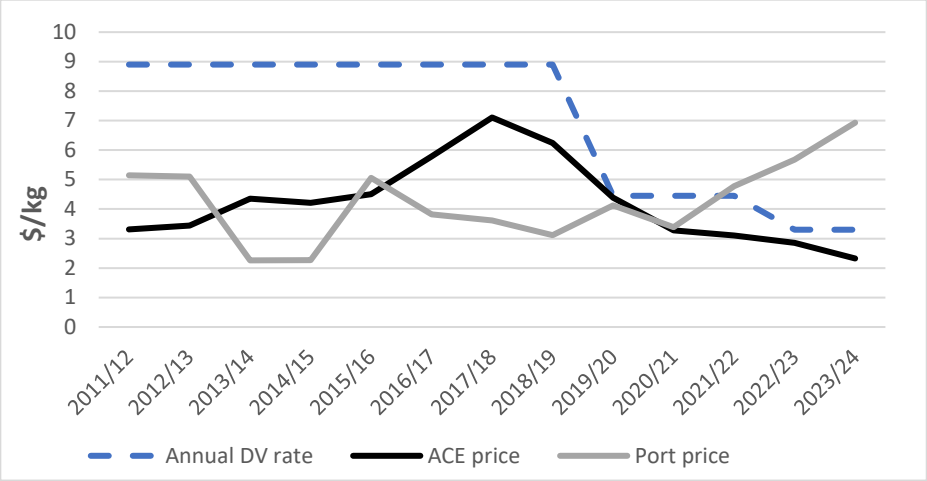


Figure 2: Summary of average port price and ACE price, and annual deemed value rates for KIN 3 since 2011/12.

1002. FNZ remains of the view that the current KIN 3 deemed value rates are appropriate, and consistent with section 75(2)(a) of the Act, in that they provide sufficient incentives for fishers to balance their catch with ACE. As shown in Figure 2, the annual deemed value rate is set above the average ACE price, which should incentivise the majority of fishers to balance catch against ACE, and it is set below the port price (landed value) which should incentivise accurate catch reporting. FNZ is also satisfied that these deemed value rates are consistent with maintaining kingfish as a bycatch fishery.

1003. While FNZ is not recommending deemed value rate changes for KIN 3 for the upcoming fishing year, we propose that the deemed value rates of kingfish stocks (including KIN 3) are discussed at the next meeting of the Commercial Catch Balancing Forum, which is scheduled to be held in November 2024.

1004. In the interim, FNZ is recommending a TACC increase for KIN 3, which would increase the amount of ACE available in the market. This is expected to help to alleviate some of the catch balancing issues resulting from high kingfish abundance in this area. If an increase is implemented, it will cause subsequent changes in the ACE market, which may result in the need for the deemed value rates to be re-evaluated in the future.

Part 3: Assessment against relevant legal provisions

Overview

1005. You are being asked to make a decision under section 13 of the Act, to set the TAC for KIN 3. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

1006. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

1007. On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in '*Part 4: Supporting information*'.
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 13 of the Act

1008. Table 4 below outlines FNZ's assessment of the proposed options for KIN 3 against section 13(2A) of the Act. This assessment has been informed by the best available information discussed in *'Information on biology, interdependence, and environmental factors'* within *'Part 4: Supporting Information'*.

Table 4: Assessment under section 13(2A) of the Act for KIN 3.

Section 13(2A)	1009. The best available information on the status of KIN 3 comes from catch and CPUE data (Figures 3-5), which indicate rapidly increasing abundance. However, the biomass of KIN 3 cannot be reliably estimated in relation to B_{MSY}, the level that would produce *MSY*, using this information, and as such, section 13(2A) applies when varying the TAC for this stock. Under this section, you must set a TAC 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 support *MSY*, while having regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. 1010. FNZ considers that all the options proposed for KIN 3 would not be inconsistent with the objective of maintaining or moving the stock towards or above a level that supports *MSY*. The options adjust the TAC, TACC and allowances to cover existing catch, and the stock appears to be becoming more abundant.
Harvest Strategy Standard (HSS) See 'The Harvest Strategy Standard' in Chapter 1: '*Legal overview*' for more information.	1011. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} - compatible reference points. 1012. 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 KIN 3. 1013. 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 KIN 3 biomass sits in relation to the default targets (including the soft or hard limit) set out by the HSS. FNZ considers, however, that given the apparent large increase in kingfish abundance in KIN 3, the proposed options are unlikely to result in the stock moving below the HSS default limits.
Section 13(2A)(b)	1014. FNZ considers that the proposed increases to the TAC of KIN 3 could have some effect on their associated predator and prey species, however, any effects are likely to be small given the small size of the KIN 3 fishery and magnitude of the proposed

Interdependence of stocks	changes. Specific impacts for other species are uncertain, and their extent cannot be determined due to lack of information on their interactions with other species.
Section 13(2A)(b) Biological characteristics of the stock	1015. Kingfish are fast growing and relatively early to mature. These characteristics mean kingfish is regarded as a moderately productive species. They can therefore be expected to have a moderate level of resilience to fishing pressure.
Section 13(2A)(b) Environmental conditions	1016. FNZ is not aware of any environmental conditions that may be negatively affecting the stock or their resilience to fishing pressure. Increases in average sea surface temperature around New Zealand may have made southern regions (including KIN 3) more habitable for kingfish. If this continues in future it may lead to further increases in the abundance of kingfish in KIN 3.
Section 13(3) Factors to have regard to in considering the way and rate the stock is moved towards or above B_{MSY}	1017. Section 13(3) is not considered relevant to the TAC decisions for KIN 3 because the options only aim to maintain the stock at or above B_{MSY}. They are not intended to move the stock to a certain level in a certain way or rate (noting that forward projections are also not available to help FNZ determine what way and rate these options would move the stock in relation to B_{MSY}).

Kaitiakitanga

1018. 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.

1019. Haku (kingfish) is not listed as a taonga species in the Te Waka a Māui me Ōna Toka Forum Plan.

1020. Tangata whenua as individuals and as members of Kāi Tahu and the Te Waka a Māui me Ōna Toka Fisheries Forum have not raised concerns in relation to this fishery.

1021. FNZ considers that the proposed management options are in keeping with the management objectives in the Te Waka a Māui me Ōna Toka Fisheries Forum Plan which generally relate to active engagement with iwi and the maintenance of and access to healthy and sustainable fisheries. The relevant management objectives are:

- 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.

1022. Develop environmentally responsible, productive, sustainable, and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for South Island iwi.

Mātaitai reserves and other customary management tools

1023. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

1024. The mātaitai reserves, area closures, fishing method restrictions, and prohibitions that apply in KIN 3 are listed in Table 5 below.

Table 5: Mātaitai reserves and other customary management tools that apply to KIN 3.

Customary area	Management type
Horomamae Kahutara Kaihuka Koukourārata Lyttleton Harbour/ Whakaraupo Mangamaunu Moeraki Motupohue Oaro Ōpihi Ōpihi Extension Oreti Otakou	**Mātaitai reserve** Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.
Te Taumanu o Te Waka a Māui Oaro-Haumuri Akaroa Harbour East Otago	**Taiāpure** All types of fishing are permitted within a taiāpure. The management committee can recommend regulations to manage commercial, recreational, and customary fishing.

1025. As haku in this increasing level of abundance is a new factor in the wider southern marine ecosystem, an increase to the KIN 3 TAC is unlikely to have any detrimental impact on customary management areas.

Assessment of the proposals against section 9 of the Act

1026. Table 6 below outlines FNZ's assessment of the proposed options for KIN 3 against the environmental principles in section 9 of the Act which you must take into account when considering the KIN 3 TAC. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under *'Information on environmental impacts'* within *'Part 4: Supporting information'*.

Table 6: Assessment under section 9 of the Act for KIN 3.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	1027. The trawl and setnet fisheries that catch kingfish in KIN 3 interact with seabirds, marine mammals, and are associated with fish and invertebrate bycatch. However, because KIN 3 is taken as incidental, non-target bycatch, any decision to change the TAC under Options 2 or 3 is unlikely to result in a change in fishing effort and consequent risk to protected species (seabirds, marine mammals, protected fish and invertebrates). 1028. Because KIN 3 is a bycatch stock, FNZ considers it unlikely that there will be an increase in attributable interactions with associated and dependent species (in the fisheries in which KIN 3 is caught) as a result of a decision to change the TAC for KIN 3.
Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	1029. While KIN 3 is taken as non-target bycatch, there is an existing likelihood of adverse effects from current fishing levels in associated fisheries where KIN 3 is taken as bycatch; however, trawling in this fishery is also typically confined to areas that have been consistently fished over time (rather than areas of relatively undisturbed biodiversity). 1030. FNZ considers that the TAC changes proposed are unlikely to significantly increase bottom trawl effort or the overall trawl footprint within KIN 3. However, FNZ will continue to monitor changes in these fisheries (including trawl footprints) that occur as a result of this review. 1031. As the proposed TAC changes are to only allow commercial fishers to manage their increased kingfish bycatch, FNZ considers an increase in fishing effort is unlikely under Options 2 and 3.
Habitat of particular significance for fisheries management should be protected - Section 9(c) of the Act	1032. The majority (55%) of KIN 3 commercial catch is by setnet. The impacts of set netting on benthic habitats are not well studied, although sensitive biogenic habitat (such as the Otago shelf bryozoan beds and Hay Paddock tubeworms) can be damaged by lead weights used to keep the bottom of the net on or very close to the seafloor.

	1033. Because approximately 23% of KIN 3 is by bottom trawling, there is an existing risk of adverse effects from current fishing levels, noting that kingfish are not the target species for this trawling. 1034. As the proposed TAC changes are to only allow commercial fishers to manage their increased kingfish bycatch, FNZ considers an increase in fishing effort is unlikely under Options 2 and 3 (assuming that TACC and CPUE are stable for target species fisheries). As a result, it is unlikely the proposed changes will lead to increased risk of adverse effects to potential habitat that is particularly significant for fisheries management within the area encompassed by the KIN 3 QMA (Table 9). 1035. However, there is a risk of adverse effects on a potential habitat of particular significance for fisheries management at the 'Hay Paddock' from the current level of trawl effort for the fisheries in which kingfish area caught as bycatch. Best available information indicates the 'Hay Paddock', which is a potential nursery for juvenile tarakihi, appears to be diminishing in areal extent as a consequence of disturbance from bottom trawling (FNZ - Plenary, 2024).

Assessment of the proposals against section 11 of the Act

1036. Table 7 below outlines FNZ's assessment of the proposed options for KIN 3 against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TAC.

Table 7: Assessment under section 11 of the Act for KIN 3.

You must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	1037. "Effect" is defined widely in the Act. The direct effects of fishing on kingfish need to be considered, as well as the indirect effects of fishing on associated stocks and species, and the surrounding ecosystem. 1038. Information relevant to the direct effects of fishing on KIN 3 are described throughout this paper, particularly in Part 1 under '*Rationale for review*', '*Options and analysis*' and '*fishery characteristics and settings*'. The effects of the fishing for associated stocks and species, and the wider ecosystem, are summarised above in Table 4 and 6, and detailed further in Part 4 under '*Information on biology, interdependence, and environmental factors*' and '*information on environmental impacts*'. 1039. These effects of fishing on KIN 3, associated species, and the environment, could be influenced by changes in the TAC of KIN 3, and you should take this into account in your decision. However, FNZ considers that there are unlikely to be significant effects due to the TAC changes proposed as part of this review, given that they are of a low magnitude, and noting that KIN 3 is not commercially targeted. The proposed TAC changes are also intended to only allow commercial fishers to manage their increased kingfish bycatch, so FNZ considers an increase in fishing effort is unlikely to be enabled under Options 2 and 3. Accordingly, the proposed options are also unlikely to significantly increase the overall trawl footprint within KIN 3. However, FNZ will continue to monitor any changes in these fisheries (including trawl footprints) that occur following your TAC decision. 1040. While not specifically related to the TAC setting of KIN 3, there is an existing likelihood of adverse effects from current fishing levels in the associated fisheries where KIN 3 is taken as bycatch; however, trawling in this fishery is also typically confined to areas that have been consistently fished over time (rather than areas of relatively undisturbed biodiversity). 1041. The impacts of setnetting on benthic habitats are not well studied, there is an existing likelihood of adverse effects from current fishing levels in associated fisheries that it is taken as bycatch and sensitive biogenic habitat can be damaged by lead weights used to keep the bottom of the net on or very close to the seafloor. However, as noted above, an increase in commercial fishing effort is not expected under the proposed options. 1042. In respect to recreational fishing, it is expected catch will increase with continued kingfish range expansion (more fish coming into the stock) rather than recreational

	fishers increasing their effort. Therefore, as the recreational daily limit in respect to KIN 3 is not being modified, it is unlikely that the proposed increase to the recreational allowance will lead to an increase in recreational fishing effort. Fisheries New Zealand will continue to monitor recreational fishing in this fishery.
Existing controls that apply to the stock or area – section 11(1)(b)	1043. Recreational (under the Fisheries (Amateur Fishing) Regulations 2013): There is currently a daily limit of three kingfish per fisher within the combined daily limit of 30. However, if caught in conjunction with hāpuku, there is a combined daily limit of five. The recreational MLS is 75 cm. 1044. Ulva Island – Te Wharawhara Marine Reserve and the Pikomamaku (Womens Island) mātaitai are closed to fishing. 1045. Setnet prohibitions at Slope Point to Sandhill Point and Te Waewae Bay between Old Man Rock, west of Garden Bay and Sandhill Point. 1046. Commercial controls that apply to the fisheries in which KIN 3 is caught can be found in the Fisheries (South-East Area Commercial Fishing) Regulations 1986 and the Fisheries (Southland and Sub-Antarctic Areas Commercial Fishing) Regulations 1986. These include headline height, mesh size, and other gear restrictions that relate to trawling and setnetting. 1047. Under section 72A of the Act, commercial fishers are permitted to return live legal-size kingfish in accordance with the Fisheries (Landing and Discard Exceptions) Notice if the fish is likely to survive on return and the return takes place as soon as practicable. This does not apply to fish caught by setnet. 1048. All commercial fishers are required to return kingfish below the commercial MLS of 65 cm, dead or alive, irrespective of capture method.
The natural variability of the stock – section 11(1)(c)	1049. Kingfish are a moderately productive and fast-growing species, and there has been a sustained increase in abundance of KIN 3 over the last decade. The abundance and range of kingfish appears to be extending further south, potentially because of environment changes including increasing ocean temperatures.
Fisheries plans, and conservation and fisheries services – section 11(2A)	1050. Within the National Inshore Finfish Fisheries Plan KIN 3 is a Group 3 stock, which means it is managed to provide for lower levels of use, with lower levels of information to monitor stock status. Stocks are monitored against trends in catch over time, and any other relevant information. FNZ considers Options 2 and 3 provide for the unavoidable bycatch of KIN 3, rather than providing for targeting by commercial fishers. **Fisheries and conservation services:** 1051. Fisheries and conservation services of significance have been described throughout this paper where relevant. 1052. Fisheries services of relevance to KIN 3 include the research used to monitor abundance (CPUE analysis, see Figures 3 and 4 in *Part 4: Supporting information*) and the tools used to enforce compliance with management controls in these fisheries. 1053. Compliance is supported by observer and on-board camera monitoring in commercial fisheries. The observer and camera coverage relevant to KIN 3 is described in Table 8 under '*Information principles: section 10 of the Act*'. 1054. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species. 1055. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and	1056. There are three regional councils that have coastlines within the boundaries of KIN 3: Canterbury, Otago, and Southland. 1057. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems,

documents - section 11(2)	and habitats. 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 KIN 3. 1058. FNZ has reviewed the documents and the provisions that might be considered relevant. A summary of these can be found in Addendum 1. FNZ considers the options in this paper are all consistent with the objectives of these relevant plans.
Non-mandatory relevant considerations	
Other plans and strategies	1059. FNZ considers that the sustainability measures proposed for KIN 3 are generally consistent with relevant objectives of Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy). This includes 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 sustainably.

Information principles: section 10 of the Act

1060. The best available information relevant to KIN 3 is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. Table 8 below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in that information.

Table 8: Best available information and key areas of uncertainty for KIN 3.

Best available information	Key areas of uncertainty, unreliability, or inadequacy
1061. Results from the 2022/23 National Panel Survey for Recreational Fishing (Heinemann and Gray, *in prep*), combined with amateur charter vessel data and section 111 recreational catch records, shows a catch of just under 4 tonnes.	1062. There is considerable uncertainty in the National Panel Survey estimate for KIN 3 due to the large area encompassed by the KIN 3 QMA and relatively low number of KIN 3 recreational fishers.
1063. Key information used to inform the options in this paper includes the Fisheries Assessment Plenary, May 2024, other publications in the references section, and catch/landings data held by FNZ.	1064. There is uncertainty about the origin of kingfish caught within KIN 3. It is unknown whether spawning is occurring within KIN 3. 1065. There is uncertainty as to where the current KIN 3 biomass sits in relation to B_{MSY} and the default targets (including the soft or hard limit) set out by the HSS. 1066. It is unknown to what degree kingfish caught and released were accurately recorded. 1067. On-board cameras are now operating on the majority of vessels that catch KIN 3, providing improved monitoring and more confidence in the accuracy of catch reporting. However, over the last five fishing years, the average observer coverage was 6.2% of events that caught kingfish in KIN 3.[97]
1068. Available information on environmental impacts, including potential effects of fishing on significant habitats, is outlined below in Part 4 '*supporting information'.* The Fisheries Assessment Plenary and Aquatic Environment and Biodiversity Annual Review (**AEBAR**) chapters are key resources which support this information. In relation to potentially important habitats (such as the 'Hay Haddock' described above), information has been sourced from a variety of different reports which are summarised in Table 9.	1069. The long-term effect of repeated trawling on the size, quality, and biodiversity of habitats, including those considered to be potential habitats of particular significance for fisheries management such as the 'Hay Paddock' site are uncertain.

[97] 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.

Additional figures

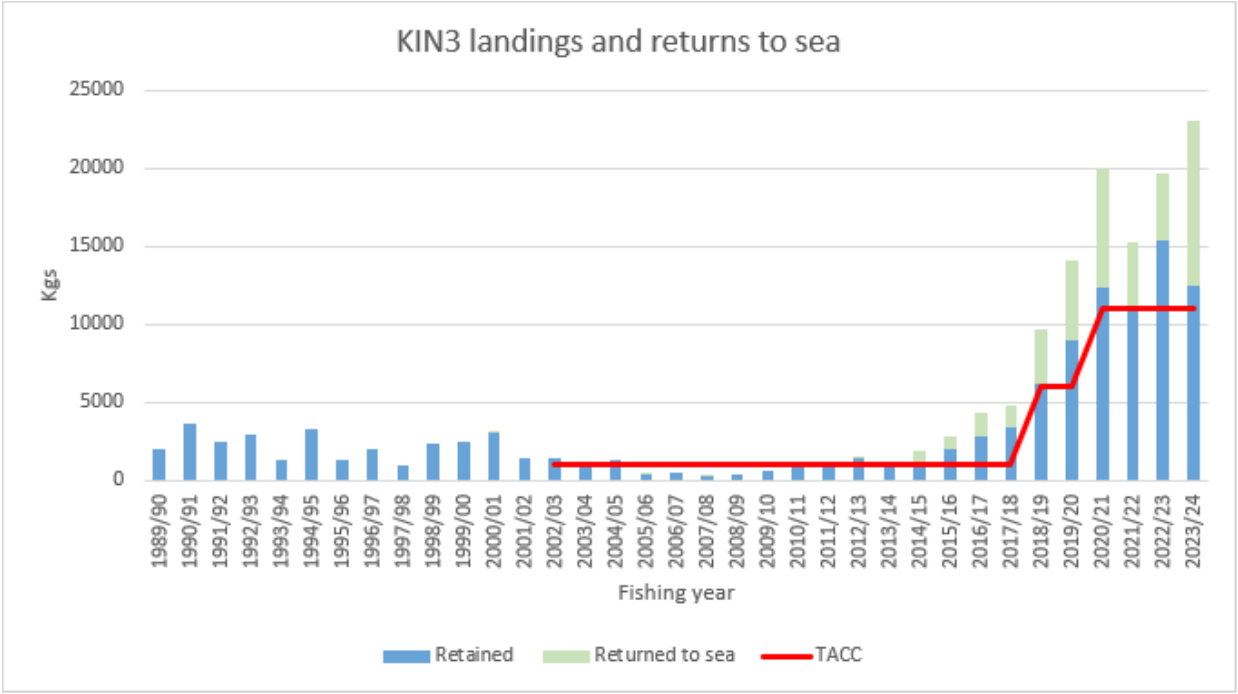


Figure 3: Landings and commercial catch limits for KIN 3 (2023/24 is to April only). Commercial catch has increased over the last decade despite fishing effort by the coastal setnet fleet decreasing over this time period.

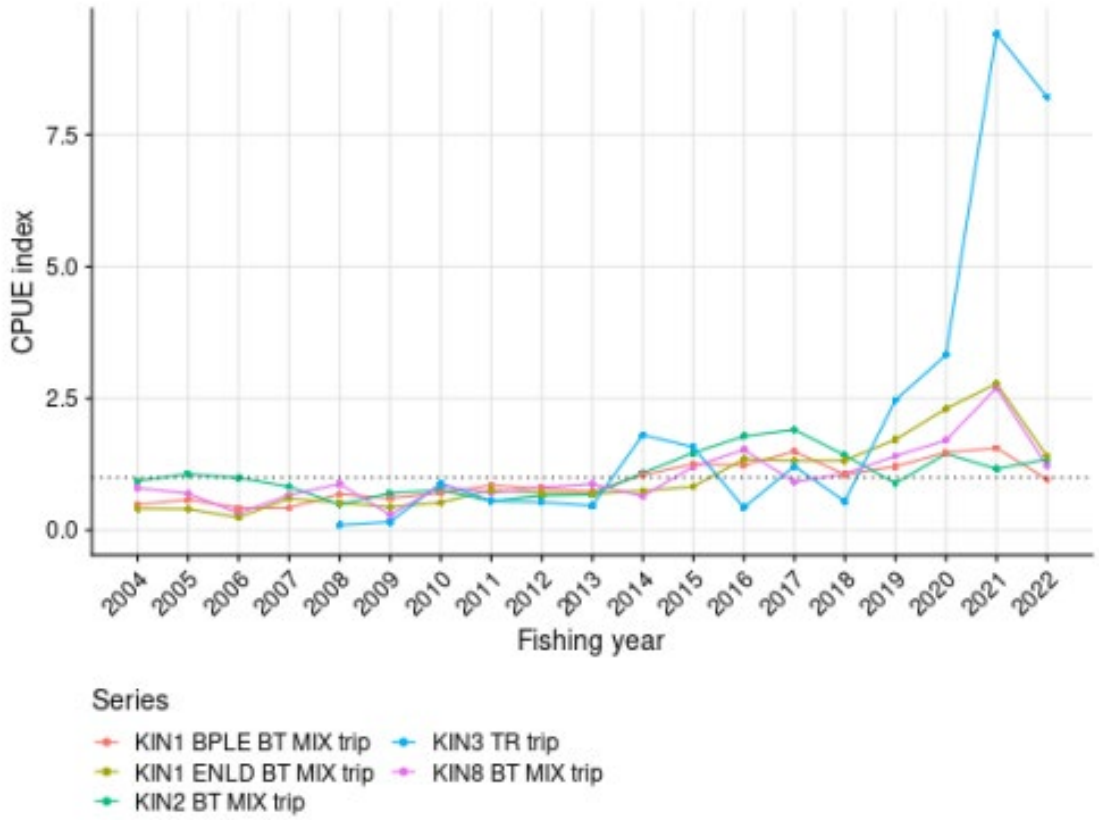


Figure 4: CPUE indices for bottom trawl fisheries (combined bottom and midwater fishing in KIN 3) illustrating the substantial increase in KIN 3 abundance from 2018 to 2021 (Middleton *et al* 2023, *in prep*).

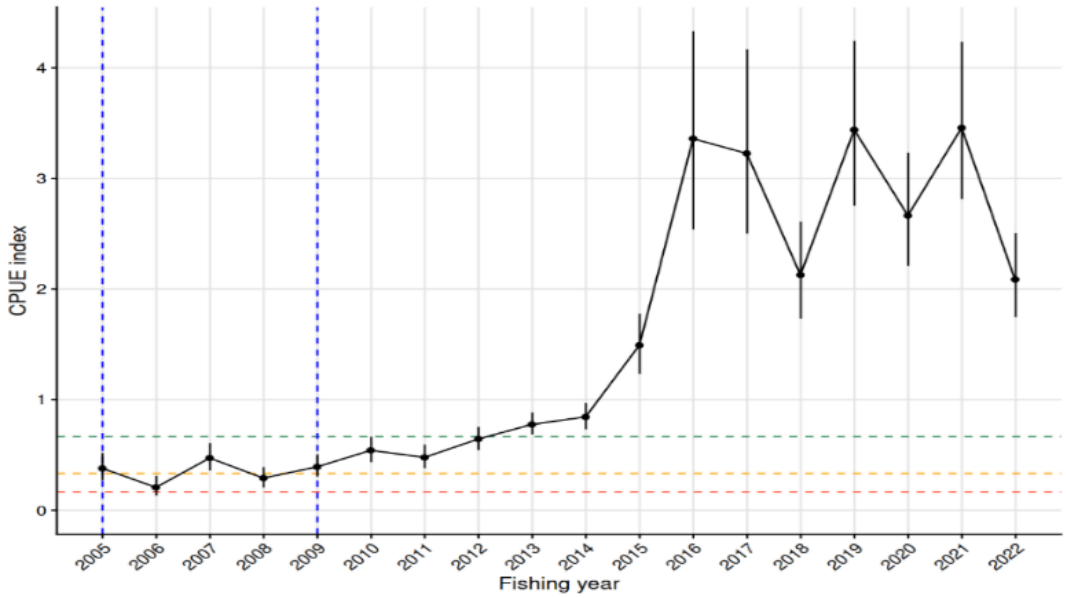


Figure 5: Standardised catch per unit effort (CPUE) index for KIN 7 and KIN 8 from midwater trawling targeting jack mackerel (observer tow-level index), relative to the agreed reference points, defined by the period indicated between dashed blue vertical lines. The green, orange, and red dashed lines represent the interim target, soft limit, and hard limit, respectively. (Middleton *et al* 2023)

Information on biology, interdependence, and environmental factors

1070. This information supports FNZ's assessment of the proposals against section 13 of the Act in *'Part 3:* Assessment *against relevant legal provisions*'. Information in this section was derived from the kingfish chapter of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

1071. Kingfish have only recently extended their range into southern waters so their role in the ecosystem within KIN 3 is unlikely to be fully established. The preferred prey species in southern waters are unknown but some fished southern species will likely be vulnerable to kingfish as a new predator.

Biological characteristics

1072. Kingfish are large predatory fish that can exceed 1.5 metres in length. They typically occur in schools varying from tens to hundreds of individuals. Kingfish tend to be semi-pelagic and mainly occur in open coastal waters but are wide-ranging and can also be found in shallow enclosed bays or areas of sandy bottoms.

1073. Kingfish is a fast-growing species that reaches sexual maturity around five to six years of age.

Environmental conditions affecting the stock

1074. Increases in average sea surface temperature around New Zealand have likely made southern regions more habitable for kingfish, with both commercial and recreational fishers reporting increasing kingfish catches from as far south as Stewart Island and the Snares Shelf.

Information on environmental impacts

1075. This information supports FNZ's assessment of the proposals against section 9 of the Act in *'Part 3: Assessment against relevant legal provisions*'.

Protected species

Seabirds

1076. Over the past five fishing years (2018/19 - 2022/23) an average of 20 seabirds have been reported as caught annually by setnet vessels that catch kingfish in KIN 3.

1077. Species reported caught were shags (unidentified, pied, spotted and Otago and Foveaux), petrels, prions and shearwaters (unidentified, cape and white-chinned petrels, and sooty shearwater) and penguins (yellow-eyed and crested).

1078. Over the past five fishing years (2018/19 - 2022/23) an average of 285 seabirds have been reported as caught annually by trawl vessels that catch kingfish in KIN 3.

1079. Species reported caught were albatrosses (unidentified, Buller's and Pacific, white-capped, Chatham, Campbell, light-mantled sooty, black-browed, royal, wandering, grey-headed and Salvin's), petrels, prions, or shearwaters (unidentified and black, grey, storm, Westland and white-chinned petrel, and fairy prions, and flesh-footed, sooty, fluttering, and short-tailed shearwaters) and a crested penguin and pied shag.[98]

1080. Management of seabird interactions in New Zealand commercial fisheries is guided by the National Plan of Action Seabirds, with mandatory mitigation measures under the Seabird Scaring Devices Circular and recommended measures under the Trawl Mitigation Standards. FNZ, the Department of Conservation, and industry also work to ensure vessels have and follow a vessel-specific Protected Species Risk Management Plan (PSRMP). A PSRMP specifies measures that should be followed on board each vessel to reduce risk of incidental seabird captures. While there is no legal requirement that fishers have a PSRMP, more than 95% of full-time inshore trawl vessels have and follow one.[99]

1081. The 2022 updated spatially explicit fisheries risk assessment for New Zealand marine mammal populations identified the three species most impacted by fishing as Maui dolphin, New Zealand fur seal and Hector's dolphin. In general, trawl fisheries have been assessed as posing a substantially lesser risk to dolphins and other marine mammals than commercial set-net fisheries. Risks to Hector's dolphins are managed under various trawl and set restrictions, as well as the Hector's and Māui Dolphin Threat Management Plan and Hector's Dolphin Bycatch Reduction Plan.

1082. The management of protected fish interactions within New Zealand's commercial fisheries is guided by the NPOA Sharks (2013).

Mammals

1083. Over the past five fishing years (2028/19 – 2022/23) an average of 14 marine mammals have been reported as caught annually by setnet vessels that have had a bycatch of kingfish in KIN 3.

1084. Species that have been reported caught over this period are New Zealand fur seals, unidentified seals or sealions, dusky dolphins and Hector's dolphins.

1085. Over the past five fishing years (2018/19 – 2022/23) an average of 31 marine mammals have been reported as caught annually by trawl vessels that have had a bycatch of kingfish in KIN 3.

1086. Species that have been reported caught are New Zealand fur seals, New Zealand sea lions, Hector's dolphins, Dusky dolphins, a bottlenose dolphin, and unidentified seal or sealion and an unidentified dolphin or toothed whale.

Fish and invertebrate bycatch

1087. Three white pointer sharks have been reported by setnet vessels that catch kingfish in KIN 3 over the past five fishing years (2018/19 – 2022/23).

1088. Over the past five fishing years (2018/19 – 2022/23) an average of 6 protected fish have been reported as caught annually by trawl vessels that catch kingfish in KIN 3. Species reported are white pointer sharks and basking sharks.

1089. White pointer sharks are classed as 'Threatened Nationally Endangered' and basking sharks are classed as 'Threatened – Nationally Vulnerable' under the New Zealand Threat Classification System. The management of protected fish interactions within New Zealand's commercial fisheries is guided by the NPOA Sharks (2013).

Biological diversity of the environment

1090. Kingfish are large predatory fish which have only recently appeared in Southern waters. It is not known which species kingfish are predating in southern waters and what the implications for biological diversity may be. Fishers have expressed concern for blue cod as a prey species.

[98] The 2023 update to the risk assessment for New Zealand seabirds identified Southern Buller's albatross as the most at-risk seabird with respect to commercial fishing impacts, followed by four taxa in the high risk category: Salvin's albatross, New Zealand white-capped albatross, black petrel and Westland petrel.

[99] Department of Conservation Liaison Programme Annual Report, 2022-23 Fishing Year (in press).

1091. Bottom trawling can damage the marine environment; particularly where trawling occurs on biogenic habitats. Research has characterised both New Zealand's benthic environment and the level of benthic impact from fisheries activity (MacGibbon & Mules 2023, AEBR 316).

1092. To what extent set netting impacts the benthic habitat is not well studied. However, there is an existing likelihood of adverse effects from current fishing levels in associated fisheries that it is taken as bycatch and sensitive biogenic habitat can be damaged by lead weights used to keep the bottom of the net on or very close to the seafloor. However, an increase in fishing effort is not expected under the proposed options.

Habitat of particular significance for fisheries management

1093. Potential habitats of particular significance for fisheries management in KIN 3 can be found in Table 9 below.

1094. There are other potential habitats of particular significance for fisheries management present within the QMA but those areas do not overlap with the area fished for the species for which you are making decisions:

- Subtidal rocky reefs at Waipapa, Rakautara, Omihi, and Oaro for pāua spawning aggregations;
- Orange roughy spawning aggregations; and
- Intertidal sand beach (Oreti) for juvenile toheroa.

Table 9: Potential habitat of particular significance for fisheries management relevant to KIN 3.

The Hay Paddock, Canterbury Bight, and Pegasus Bay (tarakihi)
Attributes of habitat • The 'Hay Paddock', an area off Oamaru named for the tube worms and sponges which characterise the area. **Reasons for particular significance** • Potentially a nursery for juvenile fish, including tarakihi (Vooren, 1975; Anderson, 2019). Increased availability of habitat and food to many fisheries resources. Tarakihi is a species undergoing stock rebuilding. Ensuring the areal extent and ecological function of this site is likely to support productivity of national tarakihi fisheries given the mobility of tarakihi (McKenzie et al., 2021). **Risks/Threats** • The Hay Paddock appears to be diminishing in areal extent as a consequence of disturbance from bottom trawling (FNZ Plenary, 2024). Damaging or removing structures created by worm tubes and sponges has potential to adversely affect the productivity of fish stocks, including tarakihi. **Existing protection measures** • Trawling by vessels over 46 m long is prohibited. **Evidence** • Vooren, 1975; Anderson, 2019; Jones et al., 2016; Jones et al., 2018; McKenzie et al., 2021

Blueskin Bay (possibly historical - 1956) and the Canterbury Bight (elephantfish)
Attributes of habitat • The habitat is characterised by a combination of location, sediment type, and water depth; elephantfish choose sand or mud bottoms in very shallow waters (FNZ Plenary, 2024). **Reasons for particular significance** • Areas with a high level of egg laying with predictable use by elephantfish during summer (October – February) and egg presence for a further 5 – 8 months (FNZ Plenary, 2024). Ensuring the areal extent and ecological function of this site is likely to support productivity of elephantfish. **Risks/Threats** • Disturbance and resuspended sediment from bottom contact fishing, sedimentation, anchoring, and introduction of invasive species that change the nature of the substrate **Existing protection measures** • Trawling by vessels over 46 m long is prohibited. Voluntary closures are agreed in the Canterbury Bight, but fishing data shows not all fishers adhere to the agreement. **Evidence** • Fisheries New Zealand 2024; Hurst et al., 2000; and Morrison et al., 2014.

Biogenic reef on Otago shelf in 60 – 120 m water depth and in parts of Foveaux Strait (blue cod)

Attributes of habitat

- Bryozoan thickets with associated emergent epifauna (sponges, kaeo) on Otago shelf (Batson and Probert, 2000) (Jiang and Carbines, 2002).

Reasons for particular significance

- Small blue cod use this habitat for food and shelter. It is uncertain whether or not these sites meet a nursery definition. Juvenile blue cod differs from that of adults and have been shown to grow faster on areas of biogenic reef in Foveaux Strait than on other habitats nearby (Jiang and Carbines, 2002).

Risks/Threats

- Disturbance and resuspended sediment from bottom contact fishing. The effects of changing climate on these habitats are not fully understood, but increased rainfall on land leading to increased sedimentation at sea, as well as warming oceans, has potential to be detrimental to some bryozoans.

Existing protection measures

- Trawling by vessels over 46 m long is prohibited. New protections proposed under the South East Marine Protected (**SEMP**) Network (South-East Marine Protection Forum, 2018) would protect the Otago shelf bryozoan thickets, if progressed.

Evidence

- Anderson, et al., 2019; Batson and Probert, 2000; Jiang and Carbines, 2002; Jones et al., 2018; Morrison et al., 2014; South-East Marine Protection Forum, 2018.

Live and dead oysters with emergent epifauna in Foveaux Strait

Attributes of habitat

- Shells of molluscs, particularly convex shells and especially oyster shells are key habitat (Michael, 2019). The nature of an association with biogenic habitats is presently unclear but a link between oysters and biogenic habitats has been noted (Cranfield et al., 1999; Michael, 2019).

Reasons for particular significance

- The Bluff Oyster fishery is largely self-sustaining due to the majority of larvae of the target species, (*Ostrea chilensis)*, having a very short larval phase (Cranfield and Michael, 1989). Spat survival is highest just above the sediment (Michael, 2019), a habitat provided by convex shells.

Risks/Threats

- Mobile sediments reduce spat survival and buries adults (Street et al., 1973; Michael, 2019). Storms are common and water is relatively shallow meaning sediment movement is frequent. Changing oceanographic conditions including increased storm frequency and changing temperatures (Bodecker et al., 2022). Mining, bottom contact fishing and other activities that would alter geological features or contribute to mobilising sediments. Oyster fishers are recorded as working the edges of biogenic habitats (Michael, 2019). Oyster dredging is recorded as catching mostly small volumes of emergent epifauna in 20 – 25 % of commercial tows (Michael, 2019).

Existing protection measures

- Trawling by vessels over 46 m long is prohibited. Oysters are managed through the quota management system which regulates the level of fishing.

Evidence

- Bodeker et al., 2022; Cranfield and Michael, 1989; Cranfield et al., 1999; Michael, 2019; Street et al., 1973.

1095. Increased catches and CPUE in the last five years indicate a rapidly increasing abundance of kingfish within the KIN 3 fishery, which is likely to be a range extension from healthy kingfish stocks (KIN 7 and KIN 8) further north.

1096. In the October 2022/23 fishing year, landings of KIN 3 were 144% of the TACC. In the current fishing year to the end of July, 18.6 tonnes have been landed, which is higher than the current TACC.

1097. Considering KIN 3 is taken as non-target bycatch, any decision to change the TAC under Options 2 or 3 is unlikely to result in a change in fishing effort and consequent increased environmental impact.

1098. It is expected continued kingfish range expansion will increase their availability to recreational fishers. The proposed increase to the recreational allowance takes this into account.

1099. FNZ has identified a potential risk of adverse effect on the potential habitat of particular significance for fisheries management at the 'Hay Paddock' from the current level of trawl effort for the target fisheries in which KIN 3 are caught as bycatch. FNZ will conduct further work to understand the effect of bottom trawling on the 'Hay Paddock' and its role as nursery habitat, and whether that effect is adverse. If an adverse effect of fishing is identified, FNZ will develop options to avoid, remedy or mitigate those adverse effects, taking into account that habitat of particular significance for fisheries management should be protected.

1100. Under section 13(2A) you must set a TAC 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 support *MSY*, while having regard to the interdependence of stocks, the biological characteristics of the stocks, and any environmental conditions affecting the stocks. FNZ deems that all options proposed satisfy your obligations under the Act.

1101. FNZ considers that an increase to the TAC is appropriate in this overcaught bycatch fishery, with Option 3 as FNZ's preferred option. However, either deciding to allow a smaller increase to the TAC, or maintaining the current TAC, is available to you should you wish to take a more precautionary approach in your decision.

Decision for KIN 3

Option 1

Agree to retain the KIN 3 TAC at 23 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 4 tonnes;
ii. Retain the allowance for recreational fishing interests at 6 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 2 tonnes;
iv. Retain the KIN 3 TACC at 11 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the KIN 3 TAC at 33 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 4 tonnes;
ii. Increase the allowance for recreational fishing interests from 6 to 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 2 to 3 tonnes;
iv. Increase the KIN 3 TACC from 11 to 16 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the KIN 3 TAC at 37.5 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 4 tonnes;
ii. Increase the allowance for recreational fishing interests from 6 to 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 2 to 3.5 tonnes;
iv. Increase the KIN 3 TACC from 11 to 20 tonnes.

Agreed / Agreed as Amended / Not Agreed

AND

Note FNZ will conduct further work to understand the effect of bottom trawling on the 'Hay Paddock' and its role as nursery habitat and discuss the potential for further measures to mitigate any effects with industry.

Noted

Hon Shane Jones

Minister for Oceans and Fisheries

16 / 09 / 2024

Chapter 8: Leatherjacket / Kōkiri, Hiriri (LEA 3) – East Coast South Island, Southland, Sub-Antarctic

Part 1: Overview

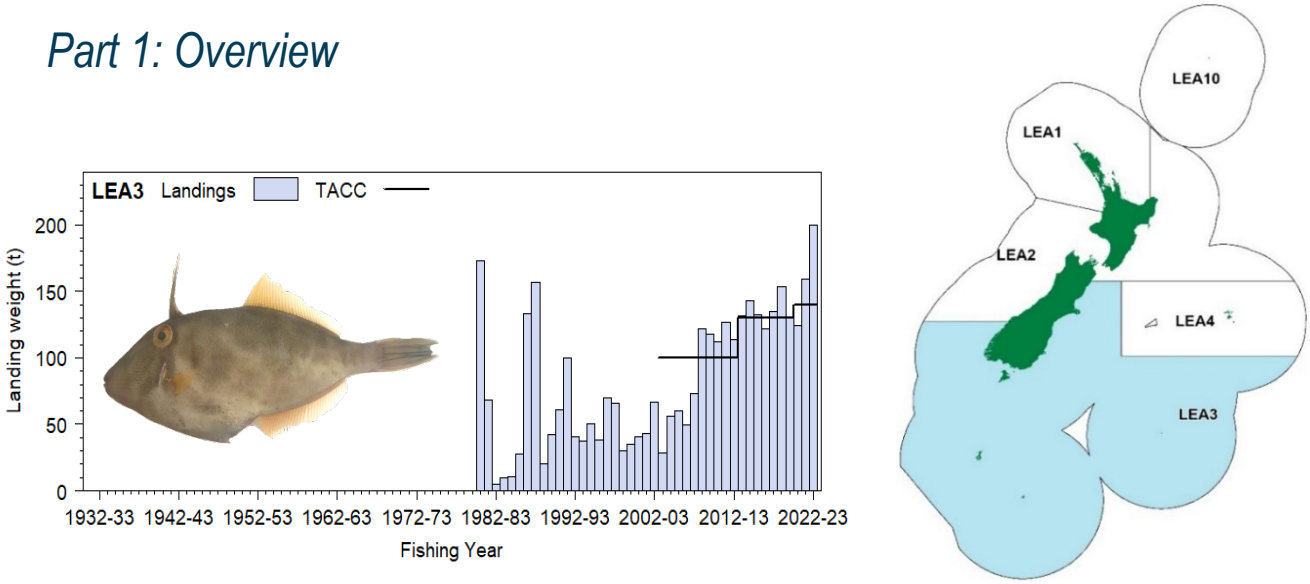


Figure 1: Quota Management Area (QMA) and Total Allowable Commercial Catch (TACC) for leatherjacket / kōkiri, hiriri (*Meuschenia scaber*), with LEA 3 highlighted.

Rationale for review

1102. The most recent catch per unit effort (**CPUE**) assessment for LEA 3 was completed in 2013. It indicated that leatherjacket abundance was increasing in the area at that time. The stock was subsequently reviewed in 2013 and the TACC was increased from 100 to 130 tonnes and deemed values were reduced. It was reviewed again in 2020, and the TACC was increased to 140 tonnes.

1103. While there has been no commercial targeting of leatherjacket in the last three years, bycatch of LEA 3 has increased significantly, with landings of 200 tonnes in the last fishing year (143% of the TACC). In the current fishing year, 140% of the LEA 3 TACC was caught by end of June. Commercial landings and the South-East inshore trawl survey indicate leatherjacket abundance is at least stable and was not affected by the 2020 TACC increase (Figure 2).

1104. LEA 3 is a low-information stock (stocks without adequate assessment of stock status (Holmes et al., 2022)); however, the best available information from commercial landings and the 2022 East Coast South Island inshore trawl survey (Beentjes et al., in press) suggests there is a utilisation opportunity for this fishery and an increase in TAC is likely to be sustainable.

1105. On-board cameras went live in October 2023 on the majority of vessels (trawlers) that catch LEA 3, providing improved monitoring and more confidence in the accuracy of catch reporting by fishers.

1106. Overall, this information suggests a utilisation opportunity may be available, and FNZ has consulted on options to increase the TAC and TACC of LEA 3 in line with this (Table 1).

1107. FNZ is now seeking your decision to set the TAC of LEA 3 under section 13(2A) of the Fisheries Act 1996 (**the Act**). Your decision will take effect from the beginning of the next fishing year on 1 October 2024.

Proposed options and FNZ's recommendations

Table 1: Proposed management options (in tonnes) for LEA 3 from 1 October 2024. FNZ's preferred option is highlighted in orange.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 (*Status quo*)	164	140	1	2	21
Option 2	194 (↑ 30)	170 (↑ 30)	1	2	21
Option 3	224 (↑ 60)	200 (↑ 60)	1	2	21

1108. Seven submissions were received in relation to the review of LEA 3, from the commercial fishing industry (two submissions), eNGOs (one submission), and members of the public. With the exception of submissions from industry which asked for an even larger increase in TACC than the options provided, other submissions covered general concerns around impacts of fishing and fisheries management.

1109. The feedback from submissions has been characterised further under the '*Analysis of options'* below. More detail, including matters raised by submitters, is provided further below under Part 2 '*Submissions*'.

1110. Based on our analysis of these options and incorporating the feedback received, as well as our assessment of the options against legal provisions (see Part 3), FNZ is recommending Option 3, to increase the TAC of LEA 3 from 164 to 224 tonnes. Rationale for this recommendation is set out at the end of this chapter, with FNZ's conclusions under Part 5 '*Conclusions and recommendations*'.

Analysis of options

1111. The options proposed for LEA 3 are analysed below with an outline of the key risks and benefits, as well as feedback received during consultation. Additional information and rationale to support current and proposed settings within the TAC can be found below in Table 2 under '*Fishery characteristics and settings*'.

Option 1 – retain current settings (*status quo*)

Benefits	1112. This option is the most cautious with respect to ensuring sustainability. It takes into account the limitations in the available information, including that the most recent CPUE assessment was in 2013, and that the reasons for the apparent increase in abundance of LEA 3 are not clearly understood. It would also provide more time to fully realise the impact of the last TAC increase in 2020.
Risks	1113. As LEA 3 is caught as unavoidable bycatch, catch of target stocks may be constrained as fishers seek to avoid catching LEA 3 (or are required to continue paying deemed values). This option does not reflect verifiable catch information and fishery-independent trawl survey data, which suggest a relatively stable biomass at current catch levels of LEA 3 since 2009. Given the economics of the fishery, FNZ considers it likely that reported landings, rather than catch, may have increased with the introduction of on-board cameras
Feedback received	1114. This option was supported by the Royal New Zealand Society for the Prevention of Cruelty to Animals (**SPCA**) and two individual submitters as the most cautious, given the uncertainties regarding a lack of stock assessment, the environmental effects of trawling, and the changing climate in this area at this time.

Option 2 – 18% TAC increase

Benefits	1115. This increase would provide ACE to cover some of the increase in bycatch of LEA 3 since the last TAC increase in 2020 and support the economic viability of east coast South Island fisheries. FNZ considers the TAC increase under this option presents a low risk to sustainability given there is currently no targeting of this stock, and the amount of LEA 3 caught as bycatch is increasing.
Risks	1116. Because this TAC increase is more moderate, there is a risk that catch may remain higher than the TAC and fishers will continue to pay deemed values for a portion of their bycatch of LEA 3. This option may not fully provide for the utilisation of this stock, which has increased in abundance over the last 16 years.
Feedback received	1117. One individual supported this option but did not provide specific rationale.

Option 3 – 37% TAC increase (FNZ's preferred option)

Benefits	1118. This option seeks to match the TAC of LEA 3 more closely to recent catch levels, supporting the economic viability of east coast South Island fisheries. 1119. Recent trawl survey estimates indicate stable stock abundance since 2009, and increasing landings suggest higher LEA 3 abundance. This option better provides for the utilisation opportunity that exists for this stock. Catches of LEA 3 are unlikely to significantly increase as

	this option aligns to recent bycatch levels (assuming that target fisheries in which leatherjackets are caught are stable in terms of TACC and CPUE).
Risks	1120. Because a TACC increase under this option means there would be additional ACE available for fishers, there is a risk that fishers will have less incentive to avoid leatherjackets than if they are required to pay deemed values. This could result in an increase in LEA 3 bycatch. 1121. Option 3 is a less cautious approach given the apparent increase in LEA 3 abundance is not well understood. However, the rollout of on-board cameras in October 2023 on the majority of vessels that catch LEA provides improved monitoring and gives more confidence in the accuracy of catch reporting.
Feedback received	1122. No feedback was received specific to this option.

Other options considered or supported by submitters

Larger TACC increase

1123. One submission representing east coast commercial fishers (United Fisheries Ltd, KPF Investments Ltd, Trawler Fishing Ltd, Pegasus Fishing Ltd) did not support any of the proposed options. Instead, they suggested a TACC of 235 tonnes (a 95-tonne increase) stating that they have paid deemed values on 39 tonnes of LEA 3 in the last year.

1124. A similar view was submitted by Southern Inshore Fisheries, who suggested a TACC of 250 tonnes.

1125. FNZ's options align with recent leatherjacket bycatch. These requested increases significantly exceed the management options consulted on and are difficult to justify given the information on stock status. FNZ will monitor the effects of any change to the TAC and discuss the potential for further review of LEA 3 with fishing industry representatives.

Who will be affected by the proposed changes?

1126. Leatherjackets in LEA 3 are primarily caught as bycatch by the commercial inshore bottom trawl fleet targeting elephantfish, flatfish, and red gurnard. Based on the last three fishing years, in LEA 3 there have been on average 33 quota owners (of which 20% is Settlement quota), providing ACE to 45 permit holders (7% of all permit holders), landing leatherjacket to 13 licensed fish receivers (LFRs) (7% of all LFRs).

1127. Over the last three fishing years, there were between 52 and 61 vessels landing leatherjacket in LEA 3, of which none reported targeting leatherjacket.

1128. FNZ is not aware of any commercial or customary interest from tangata whenua, or any recreational interest in this stock.

Input and participation of tangata whenua

1129. Kāi Tahu is the iwi with rohe moana overlapping the LEA 3 area and is represented via Te Waka a Māui me Ōna Toka Iwi Forum. FNZ circulated a summary of the stocks proposed for review in this round (including LEA 3) to the chair and members of Te Waka a Māui me Ōna Toka Iwi Forum in March 2024. FNZ invited feedback and offered to provide more detailed information for any stocks upon request.

1130. Te Waka a Māui me Ōna Toka Iwi Forum met with FNZ staff in July 2024 to discuss reviews in this sustainability round but did not express concerns specific to this fishery or indicate their position on the options proposed.

Fishery characteristics and settings

Table 2: Fishery characteristics and settings for LEA 3.

Commercial (TACC)
1131. Leatherjackets in LEA 3 are caught as a bycatch of the flatfish, red gurnard, and elephantfish trawl fisheries. There has been no reported targeting of LEA 3 in the previous three years.

1132. LEA 3 was reviewed in 2013 and 2020 with the TACC increasing from 100 to 130 and then to 140 tonnes. As an unavoidable, low-value bycatch of the inshore trawl fishery, approximately 25% of catch is mealed, returning $0.18/kg. With ACE costs for the 2022/23 fishing year averaging $0.23/kg (low $0.10/kg and high $0.58/kg), this portion of the catch costs fishers to land. The port price for 2022/23 was $0.88/kg. The current deemed value rates for LEA 3 are an interim rate of $0.40/kg and an annual rate of $0.45/kg with standard ramping (differential rates).

Customary Māori

1133. There are no reports of LEA 3 take under customary authorisations. FNZ did not receive any feedback from iwi engagement or consultation. It is assumed any customary needs are met under recreational limits. FNZ considers that the current customary allowance of 1 tonne is likely appropriate to cover current use.

Recreational

1134. Recreational interest in leatherjackets in LEA 3 is thought to be low. Leatherjacket is included within the combined daily limit of 30 per fisher per day. Results from the 2022/23 National Panel Survey of Marine Recreational Fishers (Heinemann and Gray, *in prep*), combined with estimates of Amateur Charter Vessel harvest and recreational take under section 111 of the Act (recreational harvest taken by commercial fishers) estimated total recreational take in 2022/23 to be 40 kg. FNZ therefore considers the current recreational allowance of two tonnes to appropriately allow for recreational harvest.

Other sources of mortality caused by fishing

1135. This allowance is intended to provide for unrecorded mortality of fish associated with fishing, including incidental mortality from fishing methods or illegal fishing. The level of illegal/misreported catch in LEA 3 is not quantified. The Minister of Fisheries in 2018 decided that for inshore trawl-caught stocks this allowance should be set at an amount that equates to around 10% of the TACC, unless there is evidence to suggest otherwise. Under the current settings, the other sources of mortality allowance is equivalent to 15% of the TACC.

1136. Options 2 and 3 include setting the other mortality allowance at a level equivalent to approximately 12% of the TACC for Option 2 and approximately 10% of the TACC for Option 3. The introduction of onboard cameras across most vessels that catch LEA 3 means that there will be increased verification of fisher reporting and reduced uncertainty in the estimate of other sources of mortality caused by fishing. FNZ considers the current allowance for all other mortality caused by fishing is appropriate under all proposed options.

Deemed value rates

1137. FNZ did not propose any deemed value rate changes for LEA 3 as part of this review. However, in recognition of the fact that deemed value and catch limit settings are interlinked (TACC changes can impact deemed values), FNZ welcomed general feedback on the deemed value settings of LEA 3 during consultation.

1138. No submissions commented on the deemed value rates for LEA 3; however, submissions from industry did indicate a preference for increasing the TACC to provide for the increased landings of leatherjackets in recent years.

1139. The deemed value was lowered in 2013. FNZ remains of the view that deemed value changes are not needed for LEA 3 at this time. FNZ is satisfied that the current deemed value rates are consistent with section 75(2)(a) of the Act in that they provide sufficient incentive for fishers to balance their catch with ACE. However, FNZ acknowledges that if the TACC of LEA 3 changes as a result of this review, subsequent changes in ACE market may result in the need for the deemed value rates to be re-evaluated in the future.

Part 2: Submissions

1140. Seven submissions were received in relation to LEA 3, of which three were in favour of Option 1, one was in favour of Option 2, and none were in favour of Option 3. Of the three that supported Option 1, one person was affiliated with the SPCA, one person identified as a recreational fisher, and one did not identify an organisation or interest group. The person in favour of Option 2 didn't identify either an organisation or an interest. Two submissions were received from industry representatives, both of which submitted in favour of an increase in the LEA 3 TACC well above the options provided. Table 3 summarises the submissions received.

1141. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options or alternatives for LEA 3, but commented generally about catch limits or other aspects of fisheries management. These general concerns are discussed within Appendix Two of B24-0483.

Table 3: Submissions received for LEA 3 during consultation.

Submitter	Option supported				Notes
	1	2	3	Other	
Organisations					
Environmental Defence Society (**EDS**)				✓	The submitter has concerns the review does not adequately address the impact of bottom trawling on sensitive habitat, and the effect of fishing on associated and dependent species. They suggest LEA is vulnerable to fishing pressure and that a cautious approach is needed.
Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA**)	✓				Option 1 is the most cautious approach and the submitter feels it is warranted given the uncertainties of stock assessment described in the consultation document and the other anthropogenic stressors such as warming ocean waters.
Southern Inshore Fisheries				✓	The submitters propose a TACC of 250 tonnes to allow for the increasing catch trend and to minimise the accrual of deemed values.
United Fisheries Ltd, KPF Investments Ltd, Trawler Fishing Ltd, Pegasus Fishing Ltd				✓	The submitters have paid deemed values on 39 tonnes of LEA 3 in the last year. They request a TACC of 235 tonnes.
Individuals					
C. Latour		✓			No specific rationale provided.
D. Nelson	✓				No specific rationale provided.
G. Ryder	✓				The submitter does not support allowing for bycatch from trawling and has concerns for the impact of fishing on protected species. Notes the proposed increase is based on limited information.

Part 3: Assessment against relevant legal provisions

Overview

1142. You are being asked to make a decision under section 13 of the Act, to set the TAC for LEA 3. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); and Section 10 (Information principles).

1143. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

1144. On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in '*Part 4: Supporting Information*'.
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 13 of the Act

1145. Table 4 below outlines FNZ's assessment of the proposed options for LEA 3 against section 13(2A) of the Act. This assessment has been informed by the best available information on the status of the stocks (discussed in Table 8, below), and the information discussed in '*Information on biology, interdependence, and environmental factors*' within '*Part 4: Supporting Information*'.

Table 4: Assessment under section 13(2A) of the Act for LEA 3.

Section 13(2A)	1146. The best available information on the status of LEA 3 comes from the landings data, the 2013 CPUE assessment which indicated increasing CPUE at that time, and the 2022 East Coast South Island trawl survey which indicated abundance was stable at existing catch levels. 1147. Because biomass of LEA 3 cannot be reliably estimated in relation to *MSY* using this information, section 13(2A) applies when varying the TAC for this stock. Under this section, you must set a TAC using the best available information and which 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*. In doing so, you must have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. 1148. FNZ's view is that all the options proposed for LEA 3 would not be inconsistent with the objective of maintaining the stock at (or above) a level of biomass that supports *MSY* (B_{MSY}). Forward projections are not available to determine precisely where the stock would be relative to B_{MSY} following the changes, however, the available information indicates abundance is increasing or at least stable at existing catch levels. 1149. While a lower TAC level could maintain the stock at a higher level relative to B_{MSY}, this may not be the case here as leatherjacket in LEA 3 are an unavoidable bycatch of targeting other species (i.e. they may still be taken, with deemed values paid).
Harvest Strategy Standard (HSS) See 'The Harvest Strategy Standard' in Chapter 1: *Legal overview* for more information.	1150. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} - compatible reference points. 1151. 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 LEA 3.

	1152. There are no established reference points or available estimates of B_{MSY}, so there is uncertainty regarding where the current LEA 3 biomass sits in relation to the default targets (including the soft or hard limit) set out by the HSS. 1153. FNZ considers, however, that the available information indicates abundance is increasing or at least stable and that the proposed options are unlikely to result in the stock moving below the HSS default limits.
Section 13(2A)(b) Interdependence of stocks	1154. FNZ considers that any increase in the catch of LEA 3 could have some effect on their associated predator (marine mammals and larger fish) and prey species (e.g. sponges and ascidians). If it does, then the specific impacts are uncertain and their extent cannot be quantified based on the information available.
Section 13(2A)(b) Biological characteristics of the stock	1155. Leatherjackets are considered a medium productivity species. They can therefore be expected to have a moderate level of resilience to increased fishing pressure.
Section 13(2A)(b) Environmental conditions	1156. FNZ is not aware of any specific environmental conditions affecting the stock which might impact its resilience to fishing pressure. Changes to oceanic temperatures may be influencing the distribution of leatherjackets, but this is uncertain.
Section 13(3) Factors to have regard to in considering the way and rate the stock is moved towards or above B_{MSY}	1157. Section 13(3) is not considered relevant to the TAC decisions for LEA 3 because, as a bycatch, the options only aim to maintain the stock at or above a level that supports *MSY*. They are not intended to move the stock to a certain level in a certain way or rate (noting that forward projections are also not available to help FNZ determine what way and rate these options would move the stock in relation to B_{MSY}).

Kaitiakitanga

1158. 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.

1159. Leatherjacket is not identified as a taonga species within the Te Waka a Māui me Ōna Toka Fisheries Forum Plan.

1160. Tangata whenua as individuals and as members of Kāi Tahu and the Te Waka a Māui me Ōna Toka Fisheries Forum have not raised concerns in relation to this fishery.

1161. FNZ considers that the proposed management options are in keeping with the management objectives in the Te Waka a Māui me Ōna Toka Fisheries Forum Plan which generally relate to active engagement with iwi and the maintenance of and access to healthy and sustainable fisheries. The relevant management objectives are:

- 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.

Mātaitai reserves and other customary management tools

1162. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

1163. The mātaitai reserves, area closures, fishing method restrictions, and prohibitions that apply in LEA 3 are listed in Table 5 below.

Table 5: Mātaitai reserves and other customary management tools that apply to LEA 3.

Customary area		Management type
Horomamae Kahutara Kaihuka Koukourārata Lyttleton Harbour/ Whakaraupo Mangamaunu Moeraki Motupohue Oaro Ōpihi Ōpihi Extension	Oreti Otakou Pikomamaku Puna-wai-Toriki (Hays Gap) Rapaki Bay Te Ahi Tarakihi Tuhawaiki Te Kaio Te Waha o te Marangai Te Whaka a Te Wera Tūtaeputaputa Waihao Waitarakao Waitutu	**Mātaitai reserve** Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.
Te Taumanu o Te Waka a Māui Oaro-Haumuri Akaroa Harbour East Otago		**Taiāpure** All types of fishing are permitted within a taiāpure. The management committee can recommend regulations to manage commercial, recreational, and customary fishing.

1164. Increasing the TAC as proposed under Options 2 and 3 should not directly affect the availability of leatherjackets in any of the customary areas listed below (Table 5), given trawling is prohibited in these areas and the catch of leatherjackets is not expected to increase significantly.

Assessment of the proposals against section 9 of the Act

1165. Table 6 below outlines FNZ's assessment of the proposed options for LEA 3 against the environmental principles in section 9 of the Act which you must take into account when considering the LEA 3 TAC. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under '*Information on environmental impacts*' within '*Part 4: Supporting information*'.

1166. The environmental impact of fishing for leatherjacket relates mainly to bottom trawling for flatfish, elephantfish, and gurnard, as leatherjacket is caught as bycatch in this fishery. This mixed fishery is not expected to expand in the immediate future, meaning fishing effort will be stable so long as CPUE is stable or increasing for target stocks.

1167. You must consider the spatial extent of trawling (the extent to which some areas are repeatedly trawled and the extent to which new areas are trawled) as having potential to have adverse effects, particularly on the seafloor. Exploration of new areas and repeated trawling of already-trawled areas are both likely to affect biodiversity, habitats of particular significance for fisheries management, and the productivity of fisheries resources. Information for you to consider with respect to those considerations is provided below.

Table 6: Assessment under section 9 of the Act for LEA 3.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	1168. LEA 3 is caught as bycatch, meaning that changing the TAC under Options 2 or 3 is unlikely to result in a change in fishing effort. However, this depends on the CPUE and TAC for target stocks remaining stable, as well as other factors such as fleet behaviour and the profitability of the relevant fishing operations, which cannot be accurately predicted. 1169. Because LEA 3 is a bycatch stock, FNZ considers it unlikely that there will be an increase in attributable interactions with associated and dependent species (in the fisheries in which LEA 3 is caught) as a result of a decision to change the TAC for LEA 3. 1170. Broader effects on invertebrates are considered in more detail in relation to habitats of particular significance for fisheries management below in this table.

Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	1171. There is an existing likelihood of adverse effects on biological diversity of the aquatic environment from current fishing levels; however, FNZ considers an increase in fishing effort is unlikely under Options 2 and 3, so long as the CPUE and TAC of target fisheries remain stable. 1172. Habitats created by other organisms take time to recover, so any increase in fishing effort, frequency, or footprint resulting from an increase in the TAC for this fishery or for the fisheries from which this leatherjacket is bycatch needs to be monitored. If there are risks of adverse effects, these should be mitigated. If the spatial distribution of trawling effort changes – that is – if new or different places are trawled, additional consideration of the effects of trawling on biodiversity will be necessary. FNZ will continue to monitor the bottom trawl footprint of fisheries associated with the bycatch of LEA 3.
Habitat of particular significance for fisheries management should be protected - Section 9(c) of the Act	1173. As described above, LEA 3 is a bycatch fishery meaning that increasing the TAC for LEA 3 under Options 2 and 3 is not likely to increase effects on potential habitats of particular significance to fisheries management unless there is a change in the TAC or CPUE of target fisheries. 1174. However, there is an existing risk of adverse effects on the potential habitat of particular significance for fisheries management at the 'Hay Paddock' from the current level of trawl effort for the fisheries in which leatherjacket are caught as bycatch. Best available information indicates the 'Hay Paddock, which is a potential nursery habitat for juvenile tarakihi, appears to be diminishing in areal extent as a consequence of disturbance from bottom trawling (FNZ - Plenary, 2024).

Assessment of the proposals against section 11 of the Act

1175. Table 7 below outlines FNZ's assessment of the proposed options for LEA 3 against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TAC of this stock.

Table 7: Assessment under section 11 of the Act for LEA 3.

You must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	1176. "Effect" is defined widely in the Act. The direct effects of fishing on leatherjacket need to be considered, as well as the indirect effects of this fishing for associated stocks and species, and the surrounding ecosystem. 1177. Information relevant to the direct effects of fishing on LEA 3 is described throughout this paper, particularly in Part 1 under 'Rationale for review', 'Options and analysis' and '*Fishery characteristics and settings*'. The effects of the fisheries in which LEA 3 is caught on associated stocks and species and the wider ecosystem are summarised above in Table 6 and detailed further in Part 4 under '*Information on biology, interdependence, and environmental factors'* and *'Information on environmental impacts'.* 1178. These effects of fishing on LEA 3, associated species, and the environment, could be influenced by changes in the TAC of LEA 3, and you should take this into account in your decision. However, FNZ considers that there are unlikely to be significant effects given that LEA 3 a bycatch stock and the TAC increases proposed are unlikely to result in changes to fishing effort. 1179. Leatherjacket are landed in fisheries targeting red cod, barracouta, flatfish, elephantfish, tarakihi, blue warehou, and red gurnard, but are most commonly caught in flatfish, red gurnard, and elephantfish target bottom trawl tows (FNZ - Plenary, 2024). Concerns have been raised about catch being taken in the 'Hay Paddock' (see Table 6 above). However, because it is caught as bycatch only, a TAC increase for LEA 3 is not expected to affect the quantity of any stock caught, or the level of trawl effort.

Existing controls that apply to the stock or area – section 11(1)(b)	1180. Leatherjacket is included within the combined recreational daily limit of 30 per fisher per day. 1181. Headline height, mesh size and other gear restrictions that relate to trawling and set netting in LEA 3 are set out in the Fisheries (Commercial Fishing) Regulations 1986 and the Fisheries (South-east Area Commercial Fishing) Regulations 1986 which provide some protections to marine birds and mammals. 1182. There are three marine reserves and two Marine Mammal Protection Areas in the LEA 3 area; however, they provide only partial protection to habitats that are affected by bottom trawling.
The natural variability of the stock – section 11(1)(c)	1183. Leatherjackets are moderately long-lived (10 –18 years) and are considered to be a medium productivity fish. In line with this, the catch and other information suggest a steady increase in abundance over the past decade, rather than a highly variable stock.
Fisheries plans, and conservation and fisheries services – section 11(2A)	**National Inshore Finfish Fisheries Plan:** 1184. The National Inshore Finfish Plan is relevant to management of LEA 3, which is a Group 2 stock under the plan. Group 2 recognises the need to manage for provision of moderate levels of use with moderate levels of information to monitor stock status. FNZ considers that the options proposed are consistent with this. 1185. FNZ considers that the proposed options for increasing the LEA 3 TAC are unlikely to impact any relevant services or fisheries plans. **Fisheries and conservation services:** 1186. Fisheries and conservation services of significance have been described throughout this paper where relevant. 1187. Relevant fisheries services include the research used to monitor abundance (see relevant trawl survey information in Figure 2) and the tools used to enforce compliance with management controls in the fishery. 1188. Compliance is supported by observer and on-board camera monitoring in commercial fisheries. The observer and camera coverage relevant to LEA 3 is described below in Part 4 under '*Protected species*'. 1189. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species. 1190. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	**Regional plans:** 1191. There are three regional councils that have coastlines within the boundaries of LEA 3: Canterbury, Otago, and Southland. 1192. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. 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 the documents and the provisions that might be considered relevant. A summary of these can be found in Addendum 1. FNZ considers the options in this paper are all consistent with the objectives of these relevant plans.
Non-mandatory relevant considerations	
Other plans and strategies	**Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy):** 1193. FNZ considers that the sustainability measures proposed for LEA 3 are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy. This includes 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 sustainably.

Information principles: section 10 of the Act

1194. The best available information relevant to LEA 3 is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. The table below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in that information.

Table 8: Best available information and key areas of uncertainty in this review of LEA 3.

Best available information	Key areas of uncertainty, unreliability, or inadequacy
1195. The Fisheries Assessment Plenary, May 2024, collates the best available data on this fishery, including CPUE data to 2013 and winter trawl survey data to 2021.	1196. LEA 3 is considered a low knowledge stock, meaning there is no stock assessment.
1197. Landings and TACC up to and including 2022/23 as shown in Figure 1.	1198. Reasons for the apparent increase in LEA 3 are not fully understood but may relate to changes in ocean temperatures. The full- and long-term effects of ocean temperature changes being experienced at present in the LEA 3 area are unknown.
1199. Available information on environmental impacts, including potential effects of fishing on significant habitats, is outlined below in Part 4 '*supporting information'.* The Fisheries Assessment Plenary and Aquatic Environment and Biodiversity Annual Review (**AEBAR**) chapters are key resources which support this information. In relation to potentially important habitats (such as the 'Hay Haddock' described above), information has been sourced from a variety of different reports which are summarised in Table 9.	1200. Best available information has been assessed to identify potential habitat of particular significance for fisheries management. The long-term effect of repeated trawling on the size, quality, and biodiversity of habitats, including those considered to be potential habitats of particular significance for fisheries management such as the 'Hay Paddock' site are uncertain.

Additional figures

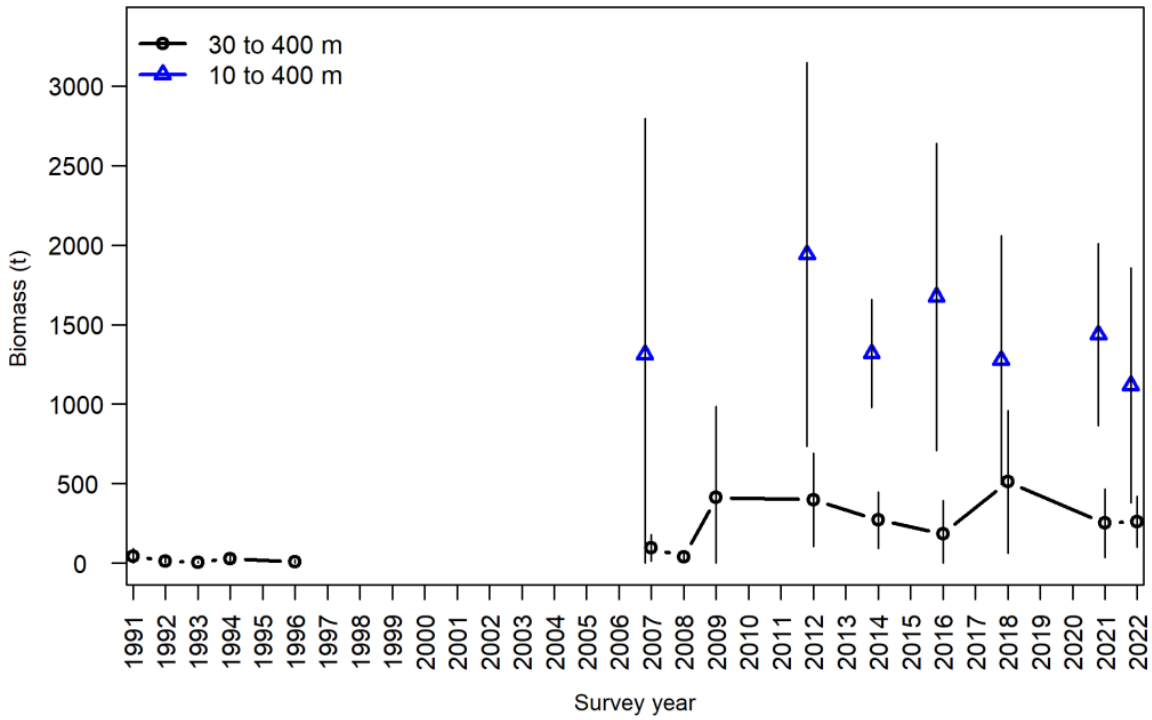


Figure 2: Leatherjacket total biomass for East Coast South Island (ECSI)inshore winter trawl surveys in core strata (30-400m), and core plus shallow strata (10-400m) in 2007, 2012, 2014, 2016, 2018, 2021 and 2022. Error bars are 2 standard deviations (Beentjes et al., in press).

Information on biology, interdependence, and environmental factors

1201. This information supports FNZ's assessment of the proposals against section 13 of the Act in '*Part 3: Assessment against relevant legal provisions*'. Information in this section was derived from the leatherjacket chapter of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

1202. Leatherjackets are known to be opportunistic feeders. In other parts of New Zealand, they have been observed to be omnivorous, feeding largely on sessile and encrusting organisms (e.g. sponges and ascidians) and on algae. They also have been seen to feed on jellyfish and eggs of other fish (Russell, 1983). As grazers of encrusting organisms, leatherjackets are likely to perform an important role creating settlement surfaces for encrusting organisms and seaweeds, meaning they have a role to play in maintaining biodiversity.

1203. Leatherjackets in LEA 3 are caught as a bycatch of other fisheries, mainly flatfish, elephantfish, and red gurnard, meaning that any changes in the TACC of those fisheries should be considered in relation to LEA 3 quota. Changes in CPUE for those stocks needs to be monitored, because it will affect the landings of LEA 3 and our understanding of leatherjacket abundance.

Biological characteristics

1204. Leatherjacket are found around coastal New Zealand to depths of 100 m and are usually associated with rocky reef areas and rough bottoms. They grow to between 25 and 40 cm, with a maximum age of 10 years for males and 18 years for females. Consequently, leatherjacket is considered a medium productivity species.

Environmental conditions affecting the stock

1205. FNZ is not aware of specific environmental conditions that need to be considered in deciding on an appropriate TAC for LEA 3. Changes to oceanic temperatures may be influencing the distribution of leatherjackets, for example through a southward range extension, but this is uncertain.

Information on environmental impacts

1206. This information supports FNZ's assessment of the proposals against section 9 of the Act in '*Part 3: Assessment against relevant legal provisions*'.

Protected species

1207. Information presented below is largely based on fisher-reported data that may not have been independently verified. Over the last five fishing years, observers were present for 307 events where leatherjackets were caught in LEA 3 (less than 2% of events that caught leatherjackets in LEA 3). Thus, independent verification of catch data has been low. However, FNZ notes that on-board cameras are now operating on the majority of vessels that catch LEA 3, providing improved monitoring and more confidence in the accuracy of catch reporting.

Seabirds

1208. Leatherjackets in LEA 3 are caught mainly as bycatch by the inshore bottom trawl fleet principally targeting elephantfish, flatfish, and red gurnard. Over the past five fishing years (2018/19 – 2022/23) an average of 13 seabirds have been reported as caught annually by bottom trawl vessels that catch leatherjackets in LEA 3.

1209. Species caught were albatrosses (Buller's and Pacific (Northern and Southern Buller's group), white-capped, southern royal, black-browed, Salvin's, grey-headed, and unidentified), petrels, prions, or shearwaters (fluttering and sooty shearwater and unidentified petrels) and shags (pied, spotted, and unidentified).

1210. The 2023 update to the risk assessment for New Zealand seabirds identified Southern Buller's albatross as the most at-risk seabird with respect to commercial fishing impacts, meaning that current captures across commercial fisheries in the New Zealand EEZ are higher than the population can sustain over the long term. Fisheries associated with the bycatch of LEA 3 have low reported bycatch of Southern Buller's albatross. However, historically there has been low observer coverage of the east coast South Island inshore trawl fleet, so the reported bycatch of Southern Buller's albatross, and seabirds generally, is uncertain.

1211. Management of seabird interactions in New Zealand commercial fisheries is guided by the National Plan of Action Seabirds, and statutory requirements around mitigation measures under the Seabird Scaring Devices Circular and Trawl Mitigation Standards. FNZ, DOC, and industry also work to ensure vessels follow a vessel-specific Protected Species Risk Management Plan (**PSRMP**). A PSRMP specifies measures that should be followed on board each vessel to reduce risk of incidental seabird captures. While there is no legal requirement that fishers have a PSRMP, more than 95% of full-time inshore trawl vessels have and follow one.[100]

1212. There are no regulatory measures to reduce seabird captures in the inshore bottom trawl fleet, instead mitigation standards are voluntary and included in PSRMPs. LEA bycaught in deepwater fisheries have regulatory mitigation measures in place around the use of bird scaring lines and fish waste management.

1213. Given that LEA 3 is primarily caught as bycatch, choosing Option 2 or 3 is unlikely to result in a change in fishing effort and consequent bycatch of seabirds. However, this depends on the CPUE and TAC for target stocks remaining stable, as well as other factors such fleet behaviour and the profitability of the relevant fishing operations, which cannot be accurately predicted.

Mammals

1214. Over the past five fishing years (2018/19 – 2022/23) an average of four marine mammals have been reported as being caught annually by bottom trawl vessels that catch leatherjacket as bycatch in LEA 3. Species that have been reported as caught over this period are New Zealand fur seals, Hector's dolphins, a bottlenose dolphin, an unidentified seal or sealion and an unidentified dolphin or toothed whale.

1215. The 2022 updated spatially explicit fisheries risk assessment for New Zealand marine mammal populations identified the three species most impacted by fishing as Māui dolphin, New Zealand fur seal, and Hector's dolphin. Updated estimates of estimated trawl captures are provided in an updated to the Spatial risk assessment of threats to Hector's and Māui dolphins (*Cephalorhynchus hectori*) in Local-scale spatial risk assessment of inshore commercial fisheries on Hector's dolphins.

[100] Department of Conservation Liaison Programme Annual Report, 2022-23 Fishing Year (In Press).

1216. Risks to Hector's dolphins which occur in LEA 3, are managed under various trawl and set net restrictions, as well as the Hector's and Māui Dolphin Threat Management Plan and Hector's Dolphin Bycatch Reduction Plan. In addition to area closures there are regulatory measures in place for area-based fishing-related mortality limits (FRMLs). This measure means you have power under the Fisheries Act 1996 to implement further measures to ensure a FRML is not exceeded. The risk assessments and plans are supported by monitoring of accurate reporting using cameras.

1217. Given that LEA 3 is primarily caught as bycatch, choosing Option 2 or 3 is unlikely to result in a change in fishing effort and consequent risk to marine mammals, provided the CPUE and TAC for target stocks remains stable.

Fish and invertebrate bycatch

1218. No protected fish interactions have been reported by bottom trawl vessels that catch leatherjacket in LEA 3 over the past five fishing years (2018/19 -2022/23).

1219. Non-fish protected species (corals, sponges, and bryozoans) have not been commonly recorded from the LEA 3 area, but there are three records of catches in the current fishing year of 1 – 49 kg of protected benthic organisms being caught. In most cases it is not expected that these species will survive trawling and relocation.

1220. Methods restrictions and spatial closures that protect invertebrate bycatch are limited in relation to the distribution of fishing for leatherjackets in LEA 3.

1221. For fish and invertebrates, the use of cameras, where available, will give greater confidence that catches are correctly reported.

1222. Given that LEA 3 is primarily caught as bycatch, choosing Option 2 or 3 is unlikely to result in a change in fishing effort and consequent risk to fish and protected invertebrates, provided the CPUE and TAC for target stocks remains stable.

1223. There are broader effects of catching invertebrates and these are considered in more detail in relation to habitats of particular significance for fisheries management, below.

Biological diversity of the environment

1224. Bottom trawling can directly impact on benthic habitats and biodiversity, particularly where trawling occurs outside of the existing trawl footprint and in areas of high biodiversity value. Research has characterised both New Zealand's benthic environment and the level of benthic impact from fishing activity, in the Aquatic Environment and Biodiversity Annual Review.

1225. Leatherjackets are associated with rough ground. Rocky reefs are unlikely to be trawled, but rough ground that can be trawled is usually characterised by structures that are created by sponges, tube worms, sea tulips (kaio), red algae (rhodoliths) and bryozoans. These structures create habitat for other organisms, which can be biodiverse.

1226. LEA 3 is a bycatch fishery, mainly from target fisheries for flatfish, elephantfish, and red gurnard. The biodiversity of what is caught during trawling in the target fisheries has not been quantified; however, it is known that, in general, such rough ground is sensitive to trawling (Kaiser et al 2006). Trawling removes and damages habitat-forming structures made by sponges and other animals, and the organisms that live on them (Rice (2006), Kaiser et al (2006), and Chapter 11 from Fisheries New Zealand (2021)). When this happens, the amount of habitat for many fisheries resources is reduced, which reduces the biodiversity of an area.

1227. Areas where bottom fishing measures including trawling are prohibited in the LEA 3 stock area are considered by some (for example by the South-East Marine Protection Forum, 2018) to be insufficient to protect the range of habitats needed to maintain biodiversity of the aquatic environment. As a result, Marine Reserves and Type 2 Marine Protected Areas proposed under the South-Eastern Marine Protection process would close key areas to bottom fishing methods and have potential to resolve some of these concerns.

1228. Whilst there is an existing likelihood of adverse effects from current fishing levels, FNZ considers an increase in fishing effort is unlikely under Options 2 and 3, so long as CPUE and the TAC of target fisheries remain constant.

1229. Habitats created by other organisms take time to recover, so that any increase in fishing effort, frequency, or footprint resulting from an increase in the TACC for this fishery or for the fisheries from which this leatherjacket is bycatch needs to be monitored. If there are risks of adverse effects, these should be avoided

or mitigated. If the spatial distribution of trawling effort changes – that is – if new or different places are trawled, additional consideration of the effects of trawling on biodiversity will be necessary. FNZ will continue to monitor the bottom trawl footprint of fisheries associated with the bycatch of LEA 3.

Habitat of particular significance for fisheries management

1230. Potential habitats of particular significance for fisheries management in LEA 3 can be found in Table 9, below.

1231. There are other potential habitats of particular significance for fisheries management present within the FMA but those areas do not overlap with the area fished for the species for which you are making decisions:

- Subtidal rocky reefs at Waipapa, Rakautara, Omihi, and Oaro for pāua spawning aggregations;
- Orange roughy spawning aggregations; and
- Intertidal sand beach (Oreti) for juvenile toheroa.

Table 9: Potential habitat of particular significance for fisheries management relevant to LEA 3.

The Hay Paddock, Canterbury Bight, and Pegasus Bay (tarakihi)
Attributes of habitat • The 'Hay Paddock', an area off Oamaru named for the tube worms and sponges which characterise the area, and areas in Canterbury Bight and Pegasus Bay. **Reasons for particular significance** • Nursery for juvenile fish, including tarakihi (Vooren, 1975; Anderson, 2019). Increased availability of habitat and food to many fisheries resources. Tarakihi is a species undergoing stock rebuilding. Ensuring the areal extent and ecological function of this site is likely to support productivity of national tarakihi fisheries given the mobility of tarakihi as they move from southern to central New Zealand (McKenzie et al., 2021). **Risks/Threats** • The Hay Paddock appears to be diminishing in areal extent as a consequence of disturbance from bottom trawling (FNZ Plenary, 2024). Damaging or removing structures created by worm tubes and sponges has potential to adversely affect the productivity of fish stocks, including tarakihi. **Existing protection measures** • Trawl restrictions: Trawling by vessels over 46 m long is prohibited - Fisheries (South-East Area Commercial Fishing) Regulations 1986: 4A. **Evidence** • Vooren (1975), Anderson (2019), Jones et al., (2016), Jones et al., (2018), McKenzie et al., (2021), FNZ Plenary (2024).

Blueskin Bay (possibly historical - 1956) and the Canterbury Bight (elephantfish)
Attributes of habitat • The habitat is characterised by a combination of location, sediment type, and water depth; elephantfish repeatedly choose particular locations characterised by sand or mud bottoms in very shallow waters (FNZ Plenary, 2024). **Reasons for particular significance** • Areas with a high level of egg laying with predictable use by elephantfish during summer (October – February) and egg presence for a further 5 – 8 months (FNZ Plenary, 2024). Ensuring the areal extent and ecological function of this site is likely to support productivity of elephantfish. **Risks/Threats** • Disturbance and resuspended sediment from bottom contact fishing, sedimentation, anchoring, and introduction of invasive species that change the nature of the substrate. **Existing protection measures** • Trawl restrictions: Trawling by vessels over 46 m long is prohibited - Fisheries (South-East Area Commercial Fishing) Regulations 1986: 4A. Voluntary closures are agreed in the Canterbury Bight, but fishing data shows not all fishers adhere to the agreement. **Evidence** • Fisheries New Zealand (2024), Hurst et al., (2000), and Morrison et al., (2014)

Biogenic reef on Otago shelf in 60 – 120 m water depth and in parts of Foveaux Strait (blue cod)

Attributes of habitat

- Bryozoan thickets with associated emergent epifauna (e.g., sponges, hydroids) on Otago shelf (Batson and Probert, 2000) and mixed invertebrates through parts of Foveaux Strait (Jiang and Carbines, 2002; Carbines and Cole 2009). Potentially significant habitat is patchy and distributed across the central and eastern strait, and in bays around the coast of Stewart Island/Rakiura.

Reasons for particular significance

- Small blue cod use Otago shelf habitat for food and shelter. It is uncertain whether these sites meet a nursery definition. Juvenile blue cod habitat differs from that of adults and juveniles can grow faster and in higher abundance on areas of biogenic reef in Foveaux Strait than on other habitats nearby (Jiang and Carbines, 2002).

Risks/Threats

- Disturbance of habitat structure and resuspended sediment from bottom contact fishing. The effects of changing climate on these habitats are not fully understood, but increased rainfall on land leading to increased sedimentation at sea, as well as warming oceans, has potential to be detrimental to some bryozoans.

Existing protection measures

- Trawl restrictions: Trawling by vessels over 46 m long is prohibited - Fisheries (South-East Area Commercial Fishing) Regulations 1986: 4A.

Evidence

- Anderson, et al., (2019), Batson and Probert (2000), Jiang and Carbines (2002), Carbines and Cole (2009), Jones et al., (2018), Morrison et al., (2014), South-East Marine Protection Forum (2018)

Live and dead oysters with emergent epifauna in Foveaux Strait

Attributes of habitat

- Shells of molluscs, particularly convex shells and especially oyster shells are key juvenile oyster habitat (Michael, 2019). The nature of an association with biogenic habitats is presently unclear but a link between oysters and biogenic habitats has been noted (Cranfield et al., 1999; Michael, 2019).

Reasons for particular significance

- The Bluff Oyster fishery is largely self-sustaining due to the majority of larvae of the target species, *Ostrea* chilensis, having a very short larval phase (Cranfield and Michael, 1989). Spat survival is highest just above the sediment (Michael, 2019) on the habitat provided by convex shells.

Risks/Threats

- Mobile sediments reduce spat survival and bury adults (Street et al., 1973; Michael, 2019). Storms are common and water is relatively shallow meaning sediment movement is frequent. Changing oceanographic conditions including increased storm frequency and changing temperatures (Bodecker et al., 2022). Mining, bottom contact fishing and other activities that would alter geological features or contribute to mobilising sediments. Oyster fishers are recorded as working the edges of biogenic habitats (Michael, 2019). Oyster dredging is recorded as catching mostly small volumes of emergent epifauna in 20 – 25 % of commercial tows (Michael, 2019).

Existing protection measures

- Trawl restrictions: Trawling by vessels over 46 m long is prohibited - Fisheries (South-East Area Commercial Fishing) Regulations 1986: 4A. Oysters are managed through the quota management system which regulates the level of fishing.

Evidence

- Bodeker et al., (2022), Cranfield and Michael (1989), Cranfield et al., (1999), Michael (2019), Street et al., (1973)

1232. Leatherjacket is a low-knowledge, medium productivity stock, which is mainly caught in association with flatfish, gurnard, and elephantfish by bottom trawling.

1233. CPUE data up to 2013 and trawl survey estimates to 2022 indicate a stable biomass in the LEA 3 area. Combined with a steady increase in landings to date, this indicates that catches have been sustainable and that there appears to be a utilisation opportunity which would support the economic viability of the east coast South Island fishery.

1234. You must set a TAC which is not inconsistent with the objective of maintaining the stock at or above a level that can produce *MSY*, while having regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. As long as fishing effort for target species remains stable (or decreases), FNZ considers the TAC increases proposed under Option 3 to be consistent with these requirements.

1235. While there are environmental impacts from the target trawl fisheries, as a bycatch of these, increasing the TAC for LEA 3 is unlikely to have any change to the level of the existing situation.

1236. FNZ has identified a potential risk of adverse effects on the potential habitat of particular significance for fisheries management at the 'Hay Paddock' from the current level of trawl effort for the fisheries in which leatherjacket are caught as bycatch. FNZ will conduct further work to understand the effect of bottom trawling on the 'Hay Paddock' and its role as nursery habitat, and whether that effect is adverse. If an adverse effect of fishing is identified, FNZ will develop options to avoid, remedy or mitigate those adverse effects, taking into account that habitat of particular significance for fisheries management should be protected.

Decision for LEA 3

Option 1

Agree to retain the LEA 3 TAC at 164 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 2 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 21 tonnes;
iv. Retain the LEA 3 TACC at 140 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the LEA 3 TAC at 194 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 2 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing from at 21 tonnes;
iv. Increase the LEA 3 TACC from 140 to 170 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the LEA 3 TAC at 224 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 2 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing from at 21 tonnes;
iv. Increase the LEA 3 TACC from 140 to 200 tonnes.

Agreed **Agreed as Amended / Not Agreed**

AND

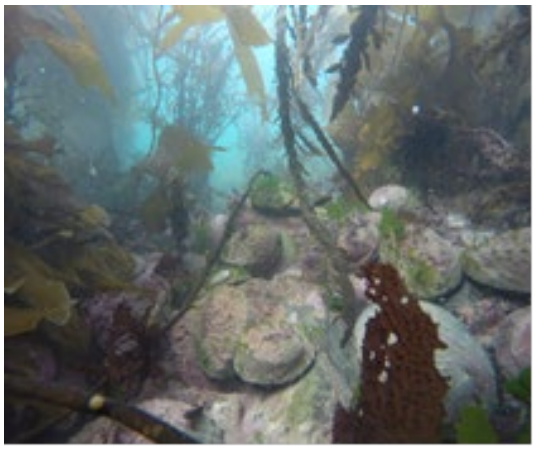
Note FNZ will conduct further work to understand the effect of bottom trawling on the 'Hay Paddock' and its role as nursery habitat and discuss the potential for further measures to mitigate any effects with industry.

Noted

Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Chapter 9: Pāua (PAU 3A) – Kaikōura

Part 1: Overview



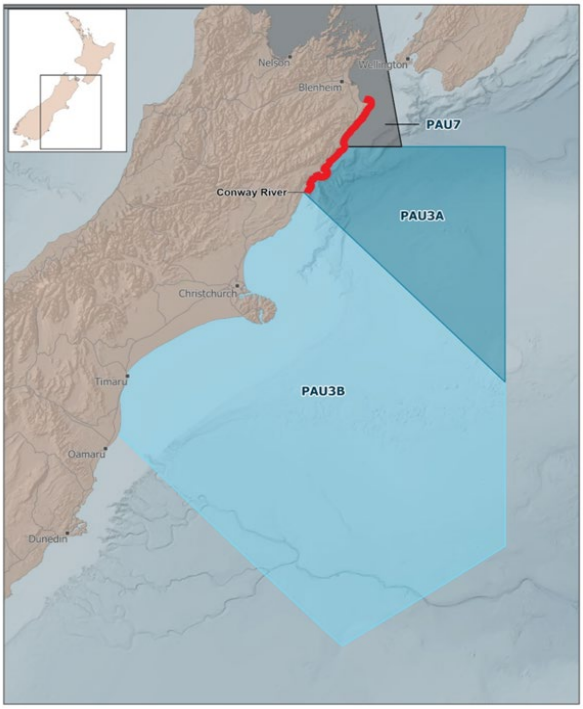


Figure 1: Map showing PAU 3A, PAU 3B, and PAU 7 Quota Management Area (QMA) boundaries for pāua (*Haliotis iris*), with PAU 3A highlighted. The wider Kaikōura pāua fishery (Marfells Beach to Conway River) shown in red.

Rationale for review

1237. When the Kaikōura fishery (PAU 3A) re-opened in December 2021 following the 2016 earthquakes the TAC, TACC and allowances were set at around 50% of estimated pre-earthquake catch levels. A stock assessment conducted in 2024 shows a high abundance of pāua after several years of fishing at this level, with spawning stock biomass (**SSB**) at or above the management target (see the Harvest Strategy Standard) and projected to increase under current catch levels (Figure 2).

1238. The stock assessment results suggesting a utilisation opportunity, and the PAU 3 Fisheries Plan[101] as well as feedback from iwi and stakeholders have been used as a basis to inform new TAC options for this stock (Table 1). Within these TAC options, increases to the TACC, the allowances for recreational fishing and other sources of mortality are proposed, with the option to maintain proportionality between the current TACC and allowance for recreational fishing (considered under the PAU 3 Fisheries Plan).

1239. The current recreational allowance is considered to have been based on unreliable recreational catch. The preferred approach is to set a higher allowance more reflective of recreational interest in the fishery using the information obtained from surveys of recreational catch in PAU 3A over the past three years (Holdsworth 2022, Holdsworth et al. 2023, Holdsworth et al. in prep).

1240. The recreational allowance will also influence recreational management settings such as daily limits, season length and further measures suggested by submitters including vehicle/vessel limits and catch monitoring across all sectors. We will provide advice on these management settings once a decision is made on the recreational allowance.

1241. During consultation, we sought feedback on a proposal to increase the minimum legal size (**MLS**) from 125 to 130 mm. We consider this would help maintain spawning stock biomass and address concerns regarding localised depletion of pāua in PAU 3A. We seek your decision on this proposal alongside any TAC increases.

1242. Adjustment to the TAC would be made under section 13(2)(a) of the Fisheries Act 1996 (the Act) and apply from 1 October 2024 (the beginning of the next fishing year). Adjustment to the MLS would be given effect through the Fisheries (Recreational Management Controls) Notice for the recreational sector. The commercial sector already implements a voluntary minimum harvest size of 130 mm and above in PAU 3A through the PAU 3 Fisheries Plan.

[101] The PAU 3 Fisheries Plan was approved by a previous minister for Oceans and Fisheries in April 2021 under section 11A of the Act (see Assessment of the proposals against section 11 of the Act below).

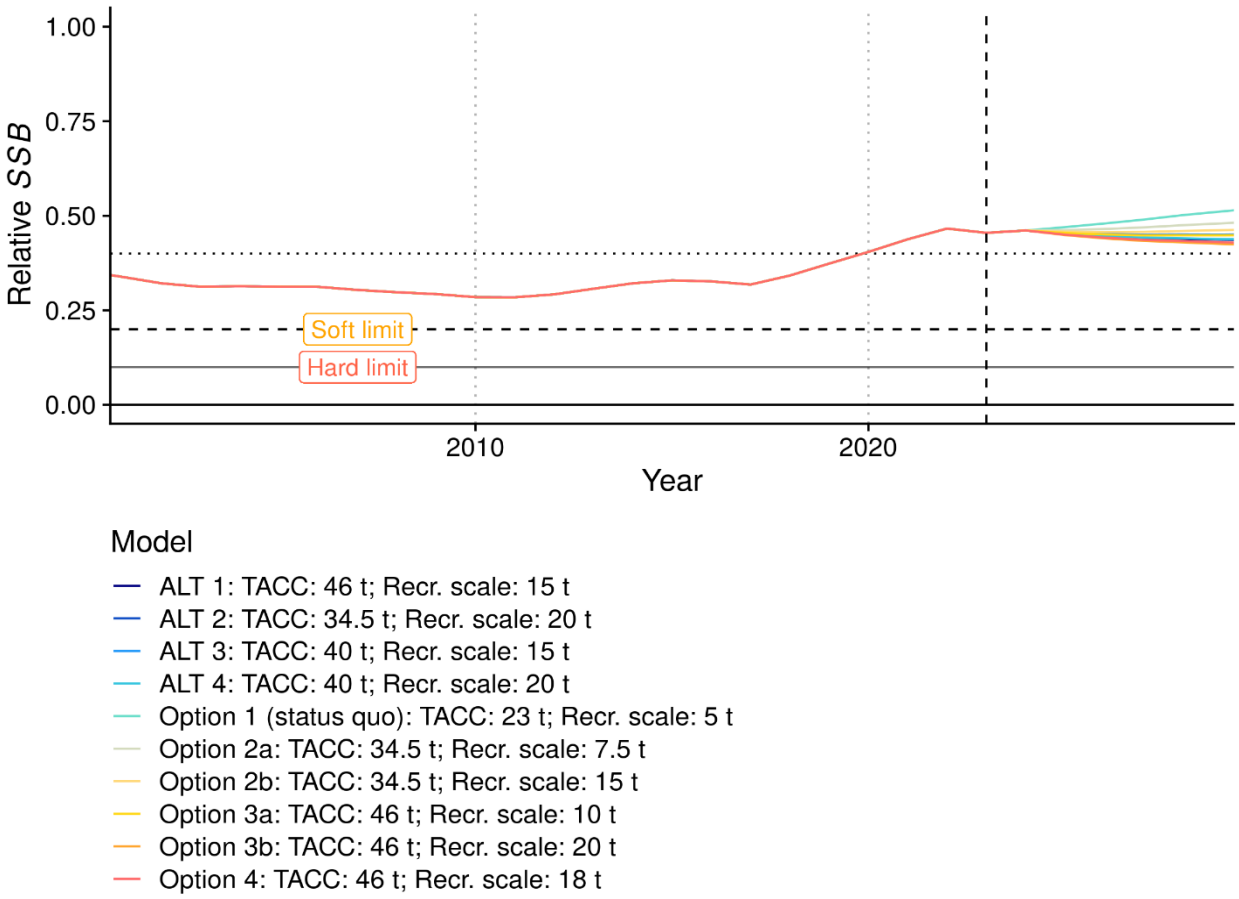


Figure 2: Simulated spawning stock biomass (SSB) trends for PAU 3A under each of the options proposed as well as several alternative combinations. The dashed vertical line shows the beginning of projections. Projections should be treated with caution due to uncertainties the further into the future they are. Recreational catch is assumed to remain at or below the allowance. Customary catch is assumed to remain at or below 7.5 tonnes. The dotted horizontal line shows the default management target which is 40% of the assumed unfished biomass and the soft and hard limits are 20% and 10% respectively (see Harvest Strategy Standard). All options are projected to maintain SSB above the target for at least the next five years.

Proposed options and FNZ's recommendations

1243. FNZ consulted on TAC options for PAU 3A ranging from maintaining the *status quo* up to an increase of 100% to the TACC, with options for a proportional increase in the recreational allowance, or a higher increase more consistent with recreational catch over the past two years (Table 1). Option 4 has been added post-consultation as an intermediate TAC option that provides a significant TACC increase and a recreational allowance that is higher than recent recreational catches.

Table 1: Proposed management options (in tonnes) for PAU 3A from 1 October 2024. FNZ's preferred option is highlighted in orange.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 (*Status quo*)	40.5	23	7.5	5	5
Option 2a	55.5 (↑ 15)	34.5 (↑ 11.5)	7.5	7.5 (↑2.5)	6 (↑ 1)
Option 2b	63 (↑ 22.5)	34.5 (↑ 11.5)	7.5	15 (↑10)	6 (↑ 1)
Option 3a	70.5 (↑ 30)	46 (↑ 23)	7.5	10 (↑ 5)	7 (↑ 2)
Option 3b	80.5 (↑ 40)	46 (↑ 23)	7.5	20 (↑ 15)	7 (↑ 2)
Option 4 (new)	78.5 (↑ 38)	46 (↑ 23)	7.5	18 (↑ 13)	7 (↑ 2)

1244. A total of 125 responses were received on these options during public consultation, comprising 23 written submissions from commercial and recreational fishing organisations and individuals, as well as a further 102 submissions from individuals via a form set up by the Kaikōura Boating & Recreational Sport Fishing Club Inc. (the Boating Club).

1245. There was little consensus from submitters on a preferred option. Commercial representatives and the Kaikōura Marine Guardians (the Guardians)[102] favoured the largest TACC increase and a recreational allowance of between 10 and 15 tonnes. Recreational representatives generally favoured a recreational allowance higher than the TACC. Te Rūnanga o Kaikōura and other submitters preferred more cautious options (e.g. from the *status quo* up to Option 2b), but with a recreational allowance more similar to the TACC.

1246. A submission from Korowai ō te tai o Marokura – Kaikōura Coastal Marine Guardians (Te Korowai) summarised a wide variety of community and recreational stakeholder views through an online survey. They were unable to reach a consensus on a preferred TAC option, with a large proportion of survey respondents favouring the *status quo* TAC but with greater recreational access to the fishery. Members of Te Korowai were split between this and Option 2b, with some members supporting Option 3a.

1247. The feedback from submissions has been characterised further under the 'Analysis of options' below. More detail, including other matters raised by submitters, is provided later in Part 2 '*Submissions*'.

1248. Based on the feedback received, as well as our assessment of the options against legal provisions (see Part 3), FNZ recommends you approve the new Option 4 which sets an intermediate TAC of 78.5 tonnes between Options 3a and 3b, with a TACC of 46 tonnes and a recreational allowance of 18 tonnes. This provides a significant (100%) increase in the TACC and an allowance for recreational fishing that is higher than estimated catch over the past two seasons (around 11-15 tonnes (Holdsworth et al. 2023, Holdsworth et al. in prep).

1249. Alternatively, the Guardians and the pāua industry recommend you approve the TACC of 46 tonnes proposed under Option 3 but with a recreational allowance of between 10 and 15 tonnes. While you could choose this option it does not take into account the large number of submissions (including from the Guardians themselves) seeking recreational access beyond last year's two-month winter season (which would not be feasible at an allowance of 15 tonnes or less).

1250. The higher TACC recommended under both Options 3 and 4 places weight on the effectiveness of the measures industry have in place under the PAU 3 Fisheries Plan such as the harvest control rule (HCR),[103] catch spreading and the voluntary minimum harvest size of 130+ mm. Ongoing careful management of recreational fishing will be required to avoid overfishing, particularly in accessible areas such as Omihi and we will provide advice on the recreational controls that will apply once a decision is made on the recreational allowance.

1251. Rationale for these recommendations is set out at the end of this chapter, with FNZ's conclusions under Part 5 '*Conclusions and recommendations*'.

Analysis of options

Option 1 – retain current settings (*status quo*)

Benefits	1252. Under the *status quo*, the current TAC, TACC, and other allowances are retained. Spawning stock biomass (***SSB***) is projected to continue to increase within the first five years (Figure 2) above the default management target of 40% B_0 as set out in the Harvest Strategy Standard. This option therefore represents a very cautious approach but takes into account the potential ongoing pāua habitat earthquake related impacts as well as any potential effects of climate change on pāua recruitment and habitat loss.
Risks	1253. Retaining the current TAC and TACC forgoes a utilisation opportunity for the commercial sector.

[102] Under section 7 of the Kaikōura (Te Tai o Marokura) Marine Management Act 2014, the Kaikōura Marine Guardians may advise Ministers and persons exercising statutory powers and performing statutory functions on any fisheries matter related to the marine and coastal environment within Te Whata Kai o Rakihouia i Te Tai o Marokura—Kaikōura Marine Area. Their recommendations are required to be taken into account.

[103] Harvest control rules, or 'management procedures' are pre-agreed guidelines that determine how much fishing can take place, based on indicators of the targeted stocks status, in this case data such as CPUE. Information about the HCR for PAU 3A is set out in Figure 3 below and in the May 2024 Fisheries Assessment Plenary.

	1254. The present recreational allowance of 5 tonnes was set using uncertain information that considerably underestimated recreational pāua catch (see Table 2: Fishery characteristics and settings for PAU 3A). It does not provide for recreational interest or reflect recreational catch, which is estimated to have been between 11 and 42 tonnes (Holdsworth 2022, Holdsworth et al. 2023) over the past three years (depending on the controls in place; see existing controls under section 11 considerations). Further recreational restrictions would be required to maintain recreational catch at the *status quo* allowance.
Feedback received	1255. There were two submissions supporting the *status quo* to take into account the long-term impacts of the 2016 earthquakes and future climate change impacts. Submitters wanted to see the population rebuild further as indicated by the stock model, before increasing the TAC. 1256. Additionally, although a submission from Te Korowai was unable to reach consensus on which proposed option to support, the results of their community survey indicated support for the *status quo* including from some Te Korowai members. However, many of the survey respondents preferred a *status quo* TACC, but with an increase to the recreational allowance to bring it on par or higher than the TACC. 1257. Some submitters including Te Rūnanga o Kaikōura supported a cautious approach, ranging from *status quo* to Option 2b. Te Rūnanga o Kaikōura also held the view that they were unable to determine whether commercial or recreational fishers have priority in this regard but acknowledged that you are able to make such decisions.

Options 2a and 2b – 37 to 56% TAC increase (50% TACC increase)

Benefits	1258. Increasing the TAC by 37-56% (depending on the recreational allowance) represents a modest increase. Projections indicate that under this option the SSB will remain above the management target, increasing under 2a and remaining at similar levels to present under 2b (Figure 2). This approach allows for an increase in utilisation while recognising the potential for ongoing pāua habitat changes and recruitment impacts in Kaikōura. 1259. It is a cautious approach that is consistent with the adaptive rebuild management approach set out in the PAU 3 Fisheries Plan (see '*Assessment of the proposals against section 11 of the Act*' in Part 3 of this chapter) and the precautionary approach taken when the fishery was first reopened. Modelled scenarios suggest this approach could lead to further increases in catches over time under industry's harvest control rule (supporting information, Figures 4 and 5), however, this is uncertain. A small increase is proposed for the allowance for other mortality to reflect higher utilisation. 1260. The 50% increase to the TACC under this option would bring commercial catch from the fishery to around 75% of pre-earthquake levels and provide an additional $307,000 annually (based on 2023/24 port price), along with wider economic benefits and associated export earnings. 1261. A recreational allowance under Option 2a of 7.5 tonnes maintains proportionality between the TACC and the recreational allowance, which is the approach considered under the PAU 3 Fisheries Plan. It would ensure that commercial catch (as guided by industry's HCR) is not impacted by recreational fishing. 1262. A recreational allowance of 15 tonnes under Option 2b aligns with recreational catch estimated by surveys over the past two seasons (around 11 – 15 tonnes). Modelling suggests little discernible impact on commercial catch (relative to Option 2a) from the additional 7.5 tonnes recreational catch under Option 2b (supporting information, Figures 4 and 5).
Risks	1263. The modest increases proposed mean that the benefits associated with higher utilisation of the pāua fishery (i.e., under Option 3) are forgone in the short term. 1264. The recreational allowance of 7.5 tonnes under Option 2a is significantly less than the catch estimated to have been taken by recreational fishers during the past two seasons and as with Option 1, would not provide for recreational interest in this shared fishery needing more restrictive recreational controls (i.e. a shorter season or lower limits) than the past two seasons. 1265. The recreational allowance of 15 tonnes under Option 2b would not maintain proportionality with the TACC increase (the approach considered under the PAU 3 Fisheries Plan) but, on the other hand, may still not be considered reflective of recreational fishing interest in the context

	of a 50% increase to the TACC. Similar recreational controls to those in place for the past two seasons may be required to manage recreational take to this allowance.
Feedback received	1266. There was no support for Option 2a, with most submitters including Te Rūnanga o Kaikōura, some Te Korowai members, and recreational interests believing that a higher recreational allowance of at least 15 tonnes is appropriate to provide reasonable access, noting that this would allow similar management settings to present. 1267. Option 2b somewhat aligns with the preferred approach of Te Rūnanga o Kaikōura and some recreational submitters. These submitters support a more even allocation between the TACC and allowance for recreational fishing. 1268. Fish Mainland along with some members of Te Korowai also supported Option 2b as a cautious increase in utilisation approach due to the potential for ongoing pāua habitat changes and recruitment impacts in Kaikōura. 1269. The commercial industry did not support Option 2b as they see the recreational sector disproportionally benefiting from the rebuild of the fishery since the earthquakes. They also considered it would reduce equity between sectors and erode incentives for the sustainability initiatives implemented by the industry. They also note that a proportional approach is required to be considered under the PAU 3 Fisheries Plan.

Options 3a and 3b – 74 to 99% TAC increase (100% TACC increase)

Benefits	1270. Increasing the TAC by 74-99% (depending on the recreational allowance) represents a more significant increase that would manage commercial catch at similar levels to those prior to the earthquakes. Projections indicate that relative SSB would remain above the management target (Figure 2) despite an initial decrease before stabilising above the target. Option 3b is projected to decline slightly closer to the target compared to 3a. 1271. A 100% increase to the TACC would provide additional economic benefits of around $615,000 annually (based on 2023/24 port price), along with wider economic benefits and associated export earnings. 1272. Implementation of a harvest control rule along with the high minimum harvest size of 130-135 mm and catch spreading arrangements implemented by industry under the PAU 3 Fisheries Plan (see Supporting Information, section 11 considerations) would reduce risks of stock decline or localised depletion under the higher level of catch. 1273. A 100% increase to the recreational allowance from 5 to 10 tonnes under Option 3a would maintain proportionality between the TACC and the recreational allowance, which is considered in the industry PAU 3 Fisheries Plan. 1274. The higher recreational allowance of 20 tonnes under Option 3b better reflects recreational interest in the fishery and likely future catches in the context of the controls available to manage recreational fishing of pāua in PAU 3A (e.g. daily limits, MLS and limited seasons). It may provide some scope for a longer season and adjustments to the recreational controls as requested by most recreational and some other submitters. There may be consequential economic benefits to Kaikoura from a longer recreational season (particularly if during a traditionally low period for tourists in winter). 1275. Option 3b is closer to average recreational catch over the past three seasons (approximately 22 tonnes) while noting that new recreational controls were introduced following the first season when 42 tonnes was estimated to have been taken (Holdsworth, 2022). Although recreational catch prior to the 2016 earthquakes is largely unknown and the fishery has changed since then, 20 tonnes may also be closer than the other options to pre-earthquake recreational catch levels (see recreational section below under 'settings within the TAC').
Risks	1276. The larger increases under this option are less cautious compared to Options 2a and 2b. Option 3b would move SSB further down towards the target (Figure 2) providing a reduced margin for potential pāua habitat change and recruitment impacts. Under this option a higher level of monitoring and management would be required to ensure ongoing sustainability (with associated costs).

	1277. Recreational catch would remain difficult to manage at the allowance proposed under Option 3a; likely requiring more restrictive recreational controls (i.e. a shorter season or lower limits) than the past two seasons. 1278. An increase to the recreational allowance to 20 tonnes would not be in proportion with a 100% increase to the TACC as set out in industry's PAU 3 Fisheries Plan. Modelling indicates (Figure 2) that Option 3b (if fully caught) could trigger commercial catch reductions through operation of industry's HCR (Figures 4 and 5).
Feedback received	1279. There were 7 submissions from the commercial pāua industry including PauaMAC3 (Pāua Management Area Council 3), the Pāua Industry Council and the four other PauaMACs, and the Guardians, that supported the TACC proposed under Option 3, but with a recreational allowance in the range of 10-15 tonnes. 1280. The proposed TACC increase was supported by these submitters due to the increased utilisation opportunities and potential for economic benefits and export earnings indicated by high pāua biomass shown in surveys and the 2024 stock assessment. They noted the modelling indicates this level of commercial harvest would not reduce the biomass of pāua down to the management target of 40%. They point to the initiatives such as catch spreading, the voluntary minimum harvest size implemented through the PAU 3 fisheries plan, and the adoption of the HCR as safeguards to support the largest proposed TACC increase. 1281. They also argue that this option is consistent with the adaptive rebuild approach as it was expected that the fishery would be reviewed more often and the TACC would have been increased to 46 tonnes already due to the fast rebuild of biomass, with this being the first review since the TAC was set in 2021. 1282. Option 3a was supported by two submissions from University of Canterbury scientists and several members of Te Korowai as part of their submission. They noted the sustainable initiatives implemented by the commercial industry under the PAU 3 Fisheries Plan while highlighting the risks of high recreational catch shown by their research (Gerrity and Schiel 2023, Schiel et al. 2023). 1283. Option 3b was supported by an individual submitter from the Guardians who recognised the utilisation opportunity for the industry but believed the recreational allowance should be higher to allow more reasonable access and closer to half of the TACC. 1284. The industry and Guardian's submissions support a recreational allowance in the range of 10-15 t, i.e. an intermediate recreational allowance between Option 3a and Option 3b. While this is not strictly proportional (as considered under the PAU 3 Fisheries Plan), they consider this to be appropriate due to the need to set a reasonable allowance and the uncertainty of the information used to establish the current allowance. However, this level of allowance was only supported if the TACC was increased to 46 tonnes, monitoring of recreational catch was continued and catch was constrained within the allowance. 1285. A recreational allowance higher than 15 tonnes (i.e., under Option 3b) was not supported by industry due to sustainability concerns, risk of localised depletion of spawning aggregations in easy to access areas and the impacts that this may cause to other sectors (i.e. through triggering reductions to commercial catch through operation of the HCR). They also see the recreational sector disproportionally benefiting from the rebuild of the fishery since the earthquakes, eroding incentives for the sustainability initiatives implemented by the industry. They also note that a proportional approach is required to be considered under the PAU 3 Fisheries Plan.

Option 4 – 94% TAC increase (100% TACC increase)

Benefits	1286. This has similar benefits to options 3a and 3b with a 100% increase to the TACC providing economic benefits of around $615,000 annually (based on 2023/24 port price), along with wider economic benefits and associated export earnings. 1287. Projections indicate that relative SSB would remain above the management target despite the significant increase to the TAC and TACC. 1288. With a recreational allowance of 18 tonnes that is higher than Option 3a, it is more reflective of the wide variety of submissions seeking recreational access beyond a two-month autumn/winter season. Based on recent recreational catches there would be scope under this

	allowance to consider small increases in recreational access such as a slightly longer season. There may be additional economic benefits to Kaikoura from a longer recreational season (particularly if during a traditionally low period for tourists in winter). 1289. The proposed TAC and recreational allowance under this option are below the 20 tonnes where projections indicate a reduction to the commercial catch may be triggered through operation of the industry HCR (Figures 4 and 5). 1290. This option is slightly closer to an equivalent proportion between the recreational allowance and the TACC as proposed by some submitters.
Risks	1291. An increase to the recreational allowance to 18 tonnes would not be in proportion with a 100% increase to the TACC as set out in industry's PAU 3 Fisheries Plan and preferred in industry and the Guardians submissions. 1292. While the TAC is lower than Option 3b it would still move SSB down closer to the target (Figure 2) providing a reduced margin for potential pāua habitat change and recruitment impacts. Therefore, a higher level of monitoring and management may be required in the medium term to ensure ongoing sustainability.
Feedback received	1293. Most submitters including Te Rūnanga o Kaikōura, some Te Korowai members, and recreational interests believed that a recreational allowance of more than 15 tonnes is appropriate to provide reasonable access. Many submitters want recreational access beyond a short winter season, which may require a higher recreational allowance. 1294. The Guardians and industry considered that an allowance of 10 to 15 tonnes would provide reasonable access to the sector. Concern was expressed regarding a recreational allowance of 20 tonnes or higher from some stakeholders due to the impact this may have on other sectors and the risks of localised depletion. 1295. Opinions differed on the relative allocation of the utilisation opportunity between the recreational allowance and the TACC. The Guardians and industry supporting a recreational allowance of close to one third of the TACC. Other submitters wanted a more even allocation such as under Option 2b, with the recreational allowance closer to half of the TACC. Option 4 represents an intermediate option between these different views.

Other options proposed by submitters

Status quo TACC with a recreational allowance ranging from 20-46 tonnes

1296. Some recreational submitters, including a submission from LegaSea, New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, New Zealand Underwater Association (collectively '***the joint submitters***'), suggested a cautious approach such as the *status quo* be retained for the TACC, but with a large increase to the recreational allowance, ranging from being equal to the TACC to much higher, up to 46 tonnes.

FNZ response

1297. A recreational allowance up to 46 tonnes significantly exceeds the options consulted on and may require further consultation to provide an opportunity for affected parties to make submissions. It may also be difficult to justify given it is not reflective of what recreational fishers are likely to catch in the context of the controls in place for the fishery. While these controls are subject to adjustment (and we have sought feedback on them during consultation), surveys carried out after the first season (when 42 tonnes were estimated to have been taken by recreational fishers) indicated localised depletion of pāua had occurred in many areas (Gerrity and Schiel, 2023).

1298. PAU 3A is an important shared fishery and retaining the current TACC would not provide any additional utilisation for the commercial sector, which would be inconsistent with the approach set out in the PAU 3 Fisheries Plan, as well as the recommendations of the Guardians.

1299. Data from the 2024 stock assessment also highlights the impact that recreational catch above 20 tonnes could have on other sectors, such as reductions in commercial catch through operation of the industry harvest control rule.

1300. Therefore, FNZ does not recommend this option.

Feedback received for recreational and other management controls

1301. As part of this TAC review, FNZ sought feedback on increasing the MLS to 130 mm. Additionally, it was noted that the recreational allowance will likely influence the recreational management controls imposed such as season length and recreational daily limits. A wide variety of feedback was received from submitters during consultation on the recreational management controls and is summarised below. Further consultation and advice will be provided on these controls once decisions have been made on the recreational allowance for PAU 3A.

1302. Twelve submitters supported an MLS increase to 130 mm including the Guardians, Fish Mainland, the commercial pāua industry, University of Canterbury scientists, and others. The MLS increase was also supported by Te Waka ā Maui me Ōna Toka Iwi Fisheries Forum. These submitters thought an MLS increase would reduce localised depletion, improve the reproductive potential of the pāua population and protect spawning aggregations. An MLS of 130 mm would provide pāua in the region with multiple years to contribute to spawning prior to recruitment to the fishery.

1303. Te Korowai supported retaining the current MLS (this option was preferred by 68% of participants in their survey) but thought the MLS should be increased over time (with consistency in pāua tools and an increased size across regions to ensure compliance and simplify management).

1304. There were six submissions supporting the current MLS of 125 mm including the joint submitters and the Kaikōura Boating Club, along with most of the subsequent 103 form submissions. These recreational organisations raised concerns that commercial fishers had opportunity to fish out an area prior to the recreational season. Retaining the recreational MLS at 125mm mitigates this risk, as commercial fishers do not fish below 130 mm. Nevertheless, we note that there would be relatively little impact on recreational catch from an MLS at 130 mm given the majority of pāua taken were well above 130 mm over the past two seasons (Holdsworth et al., 2023; Holdsworth et al., in prep).

1305. Twelve submitters supported retaining the current daily limit of three pāua per person, including the Guardians, Fish Mainland, and Te Korowai. The industry highlighted their preference for recreational management controls similar to those currently imposed to constrain catch within the allowance. Five submissions including from the joint submitters and the Kaikōura Boating Club with most of the subsequent 103 form submissions supported an increase to the daily limit to five pāua per person to be consistent with neighbouring regions and the higher daily limit pre-earthquake.

1306. There was considerable support for a longer season across most submissions including from recreational fishers, the New Zealand Sport Fishing Council and the Kaikōura Boating Club and 103 form submissions (8–10-month season), as well as Fish Mainland, the Guardians and Te Korowai. A longer season was seen as providing more regular access to the fishery with the present short winter season preventing beginners and locals from accessing the fishery due to the cold water, short days, and poor weather. A longer season was also considered to provide better parity, given commercial fishers have year-round access to the fishery. There was, however, a consensus that an open season during the busy summer holiday season should be avoided, noting the large recreational catch during the initial summer open season in 2021.

1307. Some submissions, including from the Guardians, supported a low recreational allowance of 10-15 tonnes, yet also supported a longer season. Season length is currently the most effective tool for managing the recreational catch within the allowance and the most recent estimate for a short two-month winter season was approximately 15 tonnes (Holdsworth et al., in prep). Therefore, opening the fishery for a longer season under a 15 tonnes allowance would be problematic.

1308. There was support for the present accumulation limit of 2 daily limits of pāua, and to impose a vehicle and vessel limit for recreational pāua fishers in Kaikōura, including from the boating club, joint submitters, the Guardians and Fish Mainland. Most submitters also supported obtaining better information on recreational catch, either through some form of self-reporting, or a register of fishers. These measures are discussed further in Part 2 under '*Other matters raised during consultation*'. With the exception of the accumulation limit, these measures cannot currently be imposed under existing controls.

Who will be affected by the proposed changes?

1309. The Kaikōura pāua fishery is an important shared fishery highly valued by Māori, recreational fishers, and the commercial fishing industry alike and the allocation of the increased utilisation opportunity will impact all sectors.

1310. Based on the last three fishing years, in PAU 3A there have been on average 42 quota owners (of which 7.4% is Settlement quota), providing ACE to 11 permit holders (2% of all permit holders across all fisheries nationwide), landing pāua to 7 LFRs (4% of all LFRs nationwide).

1311. On average over the last three fishing years, there were 12 vessels used by commercial divers operating in PAU 3A that were landing pāua to LFRs.

1312. An increase to the TACC of 50% or 100% would provide economic benefits of around $307,000 or $614,000 annually (based on 2023/24 port price) to quota owners, harvesters, processors and supporting industries in Kaikōura as well as associated export earnings for New Zealand.

1313. Te Korowai provided details from a survey run with the Kaikōura pāua fishing community that highlights the economic, social and cultural benefits that come from all sectors. Many visitors come to the area specifically to harvest pāua which can provide economic benefits to the community.

Input and participation of tangata whenua

1314. Te Waka a Māui me Ōna Toka is the Te Waipounamu Forum that represents iwi with an interest in PAU 3A. The proposal to review PAU 3A was provided to the forum during consultation who expressed their support for the views of the Guardians and local iwi, as well as the proposal to increase the MLS.

1315. FNZ also sought input from local iwi, Te Rūnanga o Kaikōura, during hui within the consultation period and a submission was provided. Te Rūnanga provided their views for a cautious approach to recognise the uncertainty around impacts of the earthquakes and potential for the effects of a changing climate. They also expressed their preference for a more even allocation of the TACC and recreational allowance as well as the development of new tools to manage recreational catch.

1316. The proposal to review the PAU 3A TAC and options was discussed with the Guardians prior to and during consultation. The Guardians had mixed views based on the affiliation of members, with some preferring a recreational allowance reflective of the shared interest in the fishery, while others were concerned about potential increased recreational catch.

1317. Te Korowai also provided a submission including a summary of views from those who identified as tangata whenua that whakapapa to Kaikōura.

1318. This input is further discussed throughout the ‘Analyses of options’, ‘Kaitiakitanga’ and ‘Conclusions and Recommendations’ sections.

Fishery characteristics and settings

Table 2: Fishery characteristics and settings for PAU 3A.

Commercial (TACC)
1319. Prior to October 2021, PAU 3A was part of the PAU 3 QMA, which was introduced into the QMS on 1 October 1986 with a TACC of 57 tonnes which later increased to 91.62 tonnes in 1995. Commercial catches predominantly came from the Kaikōura coastline and Motunau/Banks Peninsula. Annual commercial catches were generally evenly distributed between these two fishing areas with about 45 tonnes being caught from each area on average despite some variation between years. Black-foot pāua (*Haliotis iris*) make up most of the pāua catch, while yellow-foot pāua (*Haliotis australis*) are only occasionally caught in small numbers. All pāua is harvested by hand-gathering while free-diving from a boat or directly from shore. The use of underwater breathing apparatus (UBA) is prohibited in this fishery.
1320. Following the 2016 Kaikōura earthquakes, the Kaikōura coastline was closed to fishing to allow populations to recover from habitat impacts and the TACC for PAU 3 was lowered to 45.8 tonnes. The closure caused fishing effort to move onto the unaffected open Canterbury coastline (now PAU 3B).
1321. On 1 October 2021, the PAU 3 QMA was subdivided into two smaller QMAs— PAU 3A (Kaikōura) and PAU 3B (Canterbury)—in response to the changed nature of the fishery. At that time, a new TAC, TACC, and allowances were set to reflect the QMA subdivision, pre-earthquake catch levels, and the need to adopt a precautionary approach to enable the fishery to continue to rebuild while providing for utilisation opportunities. This was set in accordance with fine-scale management measures prescribed in the

approved PAU 3 and PAU 7[104] Fisheries Plans, with an adaptive rebuild management approach adopted (see Table 7 for a description of the management approach).

1322. The commercial fishery was initially reopened for a limited three-month period in December 2021 at a TACC of 23 t, which equated to approximately half the estimated commercial catch from the area prior to the earthquake. It was then reopened on a permanent basis in January 2023. This has been fully caught each year since the reopening and catch per unit effort (**CPUE**) is at very high levels (supporting information, Figure 7).

Customary Māori

1323. A Māori customary allowance of 15 tonnes was set in 2017 under the PAU 3 TAC. Customary take in this fishery is managed under the Fisheries (South Island Customary Fishing) Regulations 1999. Estimates of customary take before the 2016 earthquakes ranged from seven to 13 tonnes (based on tāngata tiaki authorisations). Customary take after 2016 initially declined given the immediate loss of significant pāua abundance along the Kaikōura coastline. An increase in customary take during 2019-20 occurred in response to feeding local communities during the COVID-19 event. A customary allowance of 7.5 tonnes was set under the PAU 3A TAC in 2021 and estimates of customary take have decreased to lower levels than this since then.

Recreational

1324. A recreational allowance of 8.5 tonnes was set in 2017 under the PAU 3 TAC. The recreational daily limit within PAU 3 was 10 pāua per person prior to the Kaikōura (Te Tai ō Marokura) Marine Management Act 2014, at which time it was reduced to six in the Kaikōura Marine Area (remaining at 10 for the rest of PAU 3). The 2011-12 and 2017-2018 National Panel Surveys of Marine Recreational Fishers (**NPS**) which estimated recreational take of 17 tonnes and nine tonnes for 2011-12 and 2017-2018 respectively (the lower estimate reflecting the closure of the Kaikōura coastline to fishing) were used as the basis for the allowance (Wynne Jones et al., 2014 & 2019). The recreational allowance for PAU 3 was set at 50% of the 2011-12 estimate of recreational take to reflect the closed area and subsequent displacement of fishing effort into the unaffected Canterbury areas, with the daily limit also being reduced to 5.

1325. A recreational allowance of five-tonne was set for PAU 3A in 2021 at approximately half of the 10.3 tonnes estimated from the NPS for the Kaikōura Marine Area. However, this information is highly uncertain (Fisheries Assessment Plenary, May 2024), as 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. Recent targeted surveys estimating recreational catch (Holdsworth, 2021 & 2022, and Holdsworth et al., 2023 & in prep) suggest high recreational interest. Catch prior to the earthquake is largely unknown but may have been much higher than this (anecdotally as high as 40 tonnes in some years with favourable conditions).

1326. The fishery was opened for a three-month period in December 2021 where a survey of recreational catch estimated around 42 tonnes was taken (Holdsworth, 2022), reflecting the high interest from the sector in the fishery. In 2023 the fishery was opened for a two-month winter season from 15 April to 15 June with a reduced daily limit of 3 pāua in the Kaikōura Marine Area, and a daily limit of 2 with an MLS of 135 mm in the Oaro-Haumuri Taiāpure. A further survey of recreational catch estimated take at 11.6 tonnes (Holdsworth et al. 2023). A two-month winter season (22 April to 21 June) has again been implemented in 2024 with preliminary results from a recreational survey suggesting catch may be slightly higher, but within a similar range to 2023 (Holdsworth et al., in prep).

Other sources of mortality caused by fishing

1327. An allowance of all other mortality caused by fishing of 10 tonnes was set in 2017 under the PAU 3 TAC, with the allowance set at 5 tonnes for PAU 3A in 2021 to reflect the approximately 50% reduction in the fishery.

1328. The 2014 stock assessment assumed an illegal take of about 15 tonnes for the PAU 3 fishery, but this was considered highly uncertain.

[104] The wider Kaikōura pāua fishery (Marfells Beach to Conway River) where management measures were implemented in response to earthquake impacts includes a small area of the PAU 7 QMA in the northern part of the wider Kaikōura pāua fishery. Therefore, the PAU 7 Fisheries Plan is also considered which has similar management strategies.

1329. Research suggests that incidental mortality associated with commercial fishing is low at about 0.3% of landed catch (Gerring et al., 2003). There is also some associated mortality in the recreational fishery, which is likely to occur at a higher rate than the estimate for the commercial fishery.

Deemed value rates

1330. FNZ did not propose any deemed value rate changes for PAU 3A as part of this review. However, in recognition of the fact that deemed value and catch limit settings are interlinked (TACC changes can impact deemed values), FNZ welcomed general feedback on the deemed value settings of PAU 3A during consultation.

1331. No submissions commented on the deemed value rates for PAU 3A.

1332. FNZ remains of the view that deemed value changes are not needed for PAU 3A at this time. FNZ is satisfied that the current deemed value rates are consistent with section 75(2)(a) of the Act in that they provide sufficient incentive for fishers to balance their catch with ACE. However, FNZ acknowledges that if the TACC of PAU 3A as changes as a result of this review, subsequent changes in ACE market may result in the need for the deemed value to be re-evaluated in the future.

Part 2: Submissions

1333. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options or alternatives for PAU 3A but commented generally about catch limits or other aspects of fisheries management. These general concerns are discussed within Appendix Two of B24-0483.

Table 3: Submissions received for PAU 3A during consultation.

Submitter	TAC					MLS		Daily Limit		Season Length		Notes
	Option supported					Option supported (mm)		Option supported		Option supported (Months)		
	1	2b	3a	3b	Other	125	130	3	5	1-3	8-10	
Organisations												
Fish Mainland		✓					✓	✓			✓	Fish Mainland supports the views of the Kaikōura Marine Guardians and Te Korowai, and are inclined toward Option 2b, which adequately responds to the uncertainty in the biomass estimates. Better management of the intertidal zone and stricter enforcement of the recreational allowance would mean additional management measures.
Kaikōura Boating & Recreational Sport Fishing Club Inc						✓			✓		✓	Penalties for infringement should be higher. Most places elsewhere in New Zealand have a daily limit and each side of Kaikōura area is 5. There were 103 form submissions set up by the boating club supporting their submission.
Kaikōura Marine Guardians					✓		✓	✓			✓	Support a TAC option similar to 3a, with a recreational allowance between 10-15 tonnes. The stock is still rebuilding. Recreational catch needs better monitoring, vessel/vehicle limit of 2 daily limits, adoption of commercial PAU 3A Fish Plan with HCR, customary catch needs to be reported better.
LegaSea New Zealand Sport Fishing Council New Zealand Angling & Casting Association New Zealand Underwater Association ('***The joint submitters***')					✓	✓			✓		✓	Increase recreational allowance to 46 t, Recreational daily limit from 3 to 5 per person within a 10-month season beginning 1 February each year; and retain the recreational minimum legal size for pāua at 125 mm.
Pāua Industry Council					✓		✓	✓		✓		PIC support the PauaMAC3 submission (alternative option and rationale).

Submitter	TAC					MLS		Daily Limit		Season Length		Notes
	Option supported					Option supported (mm)		Option supported		Option supported (Months)		
	1	2b	3a	3b	Other	125	130	3	5	1-3	8-10	
PauaMAC2					✓		✓	✓		✓		Endorse and support the submission of PauaMAC3 and PIC and the alternative option proposed (TAC of 70.5-75.5 tonnes).
PauaMAC3					✓		✓	✓		✓		PauaMAC3 support a TAC of 70.5-75.5 tonnes, a TACC of 46 tonnes, recreational allowance of 10-15 tonnes (catch should be monitored, and managed to the allowance, and any future catch adjustments should be proportional), a customary allowance of 7 tonnes, and an other mortality allowance of 7 tonnes, an MLS of 130 mm, and commercial harvest managed under the Fisheries Plan and PauaMAC AOP.
PauaMAC4					✓		✓	✓		✓		Endorse and support the submission of PauaMAC3 and PIC and the alternative option proposed (TAC of 70.5-75.5 tonnes).
PauaMAC5					✓		✓	✓		✓		Endorse PauaMAC3's submission and alternative option.
PauaMAC7					✓		✓	✓		✓		Endorse and support PauaMAC3's submission.
Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA**)	✓											Support Option 1 as the most cautious approach to fishery management, considering the long-term impacts of the Kaikōura earthquake and climate change.
Te Korowai ō te tai o Marokura – Kaikōura Coastal Marine Guardians					✓	✓		✓			✓	Results from their online survey of mostly recreational fishers indicate desire for an open season with restrictions over the summer peak, with stricter harvest limits of 3-4 pāua per person, *status quo* MLS but supported working towards increasing, daily vehicle limit of up to 2 daily limits, mandatory or voluntary reporting through an app. Suggest combining recreational and customary allowances. No consensus on TAC options, most surveyed supported Option 1, members of Te Korowai were split mostly between Option 1 and 2b, with a few supporting Option 3a.
Te Rūnanga o Kaikōura Inc					✓							Support a TAC ranging from *status quo* to a similar to Option 2b but suggest allocating recreational and commercial catch equally.
Individuals												
A. Lean					✓	✓		✓			✓	Submitter suggests 3 pāua daily limit, 125 mm MLS, 10-month open season vehicle limit of 2 daily limits, enforcing rules with no excuse policy.

Submitter	TAC					MLS		Daily Limit		Season Length		Notes
	Option supported					Option supported (mm)		Option supported		Option supported (Months)		
	1	2b	3a	3b	Other	125	130	3	5	1-3	8-10	
D. Braddock-Pajo					✓		✓	✓			✓	Submitter supports the TACC under Option 1 or 2. For recreational allowance, suggests similar to Option 3 - daily limit of 3, with full year open season (or closed 1 Feb-15 Dec). Supports MLS of 130mm.
D. Schiel			✓				✓					Support 3a on the proviso the recreational allowance is no more than 10 tonnes and it is monitored and enforced. Support a 130 mm MLS.
S. Gerrity			✓				✓					Supports Option 3a but constrain catch to that allowance or quantify harvest rates. Supports a 3-month season but working towards year-round season, with catch-reporting and a mechanism to close the recreational fishery once the allowance is met. Supports MLS increase and in situ assessments of pāua population.
G. Ryder	✓											Supports *status quo* due to concern that pāua are likely to be affected by future climate stressors and are vulnerable since the earthquakes.
K. Adair					✓	✓			✓		✓	Supports LegaSea submission.
L. Ramage					✓				✓			Supports daily limit of 5, accumulation limit of 15.
M. Currie					✓	✓			✓		✓	Supports LegaSea submission.
P. Ruawai					✓							Submitter does not support the proposals, and says the recreational limits are too high.
R. Craig				✓			✓	✓			✓	States recreational allowance should be half the TACC. Wants better recreational catch reporting or permit system, and a freezer limit and vehicle limit of 6.

Other matters raised during consultation

Other recreational measures: better monitoring, and accumulation limits

1334. There was support from most stakeholders for more reliable and timely information on recreational fishing data on Kaikōura pāua to support any increase in utilisation. There was a range of views on how best to obtain this information, including continuing the on-site surveys that have been used to monitor catch for the past three seasons, voluntary or mandatory reporting (for example, using the Fish Mainland App), or implementing some form of register for recreational fishers. Submitters considered this would provide more confidence in allowing increased recreational access through a longer season (favoured by many submitters). FNZ is exploring opportunities to improve information on recreational fishing and support voluntary reporting initiatives and is upgrading amateur charter vessel reporting to an electronic format. Wider mandatory reporting or registry systems are not, however, currently part of our work programme.

1335. Submitters also supported a vehicle and vessel group accumulation limit. There are several ongoing initiatives where FNZ is looking into similar group accumulation limit tools as part of the current work programme.

Part 3: Assessment against relevant legal provisions

Overview

1336. You are being asked to make a decision under section 13 of the Act, to set the TAC for PAU 3A. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

1337. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

1338. On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in Part 3 (Supporting information).
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 13 of the Act

1339. Table 4 below outlines FNZ's assessment of the proposed options for PAU 3A against section 13(2)(a) of the Act. This assessment has been informed by the best available information on the status of the stock (see Figures 2-6 and Part 1 '*rationale for review*'), and information discussed in Part 4 under and information discussed in Part 4 under *'Information on biology, interdependence, and environmental factors'*.

Table 4: Assessment under section 13(2)(a) of the Act for PAU 3A.

Section 13(2)(a)	1340. The biomass of PAU 3A can be reliably estimated in relation to B_{MSY} using the 2024 stock assessment. The assessment indicates that pāua biomass is above its B_{MSY} management target and projected to increase. 1341. As the biomass is above B_{MSY} and there is a desire to maintain the stock at or above this level, any change to the TAC of PAU 3A would be made under section 13(2)(a) of the Act, which requires you to set a TAC that will maintain the stock at or above a level that can produce *MSY*, while having regard to the interdependence of stocks. 1342. FNZ's view is that all the TAC options proposed for PAU 3A would be consistent with the objective of maintaining the stock above B_{MSY}. This is supported by the forward projections of the assessment model, which predict biomass will remain above B_{MSY} under all options proposed (Figure 2). The options which set the TAC at a lower level would maintain the stock at a higher level relative to B_{MSY} (the management target of 40% B_0) for at least the next five years (Figure 2).
Harvest Strategy Standard (HSS) See 'The Harvest Strategy Standard' in Chapter 1: Legal overview for more information.	1343. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} - compatible reference points. 1344. 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 PAU 3A. The current biomass (the spawning stock biomass, **SSB**) of PAU 3A is estimated to be above the target of 40% B_0. For PAU 3A this means that TAC increases would be sustainable for at least 5 years and would maintain the stock well above the soft and hard limits. This also means there is a high probability that the SSB will remain above the hard and soft limits.
Section 13(2)(a) Interdependence of stocks	1345. The harvesting method is highly selective, so FNZ considers any changes to fishing behaviour following the proposed TAC increases are unlikely to result in increased levels of bycatch of other species. There is a risk that a higher TAC increase may have negative effect on the ecosystem function that pāua serve through grazing on algae. However, the specific impacts of pāua harvest are uncertain, and their extent cannot be quantified based on the information available.

Kaitiakitanga

1346. 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.

1347. The Te Waka a Māui me Ōna Toka Forum identifies pāua as taonga species of significance in their fisheries plan and work relating to pāua management initiatives has been identified as a key priority in the forum's workplan. The relevant management objectives in the Forum Plan are:

- To create thriving customary non-commercial fisheries that support the cultural well-being of South Island iwi and their 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.

1348. FNZ considers that the proposed management options are in keeping with the management objectives in the Te Waka a Māui me Ōna Toka Fisheries Forum Plan which generally relate to active engagement with iwi and the maintenance of healthy and sustainable fisheries. The high recreational catch under Option 3b may meet these objectives to a lesser degree due to projections indicating the potential for impact on other sectors.

1349. Te Waka a Māui indicated support for the views of the Guardians and local iwi, as well as the proposal to increase the MLS during hui held within the consultation period.

1350. Te Rūnanga o Kaikōura provided their views on the proposals during the consultation period through an online hui and a written submission. They wanted to see a cautious approach that takes into account the uncertainties regarding earthquake and climate impacts on the stock and a more even allocation between the recreational allowance and the TACC. FNZ considers while Option 2b is the most suitable option to take this into account, analysis has been provided on the level of caution and proportional allocation under other options.

Mātaitai reserves and other customary management tools

1351. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

1352. The mātaitai reserves, area closures, fishing method restrictions, and prohibitions that apply in PAU 3A are listed in Table 5 below.

Table 5: Mātaitai reserves and other customary management tools that apply to PAU 3A.

Customary area	Management type
Te Waha o te Marangai Mangamaunu Oaro	**Mātaitai reserve** Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.
Te Taumanu o Te Waka a Māui Oaro-Haumuri	**Taiāpure** All types of fishing are permitted within a taiāpure. The management committee can recommend regulations to manage commercial, recreational, and customary fishing.

1353. Most of the customary management areas within PAU 3A are closed to commercial and recreational pāua fishing and will remain so under any proposed increases to the TAC. The exception to this is the Oaro-Haumuri Taiāpure, which is open to commercial and recreational fishing. It has a lower daily limit of 2 pāua per person and a higher MLS of 135 mm and is relatively isolated compared to most of the Kaikōura coast, which may reduce any impact from increased catch levels.

1354. Increased catch outside of these areas, especially by the recreational sector, may impact on the availability of pāua for customary fishers as the areas easily accessible to both recreational and customary fishers overlap in shallow areas. Studies indicate potentially high localised depletion of spawning stock under high

recreational catch levels (Gerrity and Schiel, 2023). Despite overlap in areas between non-commercial sectors, commercial fishers sometimes target different areas and have implemented catch spreading arrangements as well as a high MHS that may reduce the impact increased catch may have on customary pāua.

Assessment of the proposals against section 9 of the Act

1355. Table 6 below outlines FNZ's assessment of the proposed options for PAU 3A against the environmental principles in section 9 of the Act which you must take into account when considering the PAU 3A TAC. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under *'Information on environmental impacts'* within *'Part 4: Supporting Information'*.

1356. Increased fishing effort under the proposed TAC increases is unlikely to impact associated or dependent species, the biological diversity of the environment or habitats of particular significance for fisheries management due to the selective nature and low impact of pāua fishing.

Table 6: Assessment under section 9 of the Act for PAU 3A.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	1357. 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 (Fisheries New Zealand, 2022). There is no known bycatch of threatened, endangered, or protected species associated with the hand gathering of pāua, incidental bycatch is limited to epibiota attached to or within the shell.
Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	1358. The environmental impact of pāua harvesting is thought to be minimal as 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). While vessels anchoring have the potential to damage the reef, a large proportion of fishing along the Kaikōura coastline is directly from the beach, especially for the recreational and customary sectors. Only small numbers of vessels operate in the fishery, and they rarely anchor when diving is occurring. 1359. FNZ considers it unlikely that 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.
Habitat of particular significance for fisheries management should be protected - Section 9(c) of the Act	1360. Any changes under the options proposed here are unlikely to risk adverse effect on habitats of particular significance for fisheries management, given the selective nature of pāua fishing.

Assessment of the proposals against section 11 of the Act

1361. Table 7 below outlines the FNZ assessment of the proposed options for PAU 3A against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TAC of this stock.

Table 7: Assessment under section 11 of the Act for PAU 3A.

You must take into account:	
Effects of fishing on any stock and the aquatic environment	1362. "Effect" is defined widely in the Act. The broader effects of removing pāua from the Kaikōura pāua fishery on the ecosystem as well as the more direct effects of harvesting pāua need to be considered. 1363. Pāua fishing is highly localised in nature and restricted to the method of hand gathering only. Further information relevant to the direct effects of fishing

– section 11(1)(a)	on PAU 3A is described throughout this paper, particularly in Part 1 under '*Rationale for review*', '*Options and analysis*' and '*Fishery characteristics and settings*'. The effects of the PAU 3A fishery for associated stocks and species, and the wider ecosystem, are summarised above in Tables 4 and 6, and detailed further in Part 4 under '*Information on biology, interdependence, and environmental factors*' and '*Information on environmental impacts*'. 1364. The magnitude of these effects of fishing on PAU 3A, associated species, and the environment, will vary depending on the TAC setting for PAU 3A, with greater effects expected to occur under higher TAC settings. This is something you must take into account in your decision. 1365. While direct effects on other species and the environment are likely to be minimal even under a high TAC setting due to the selective fishing method used, as noted in Table 4, pāua serve an important ecosystem function through grazing on algae and increases to the TAC could potentially affect this function.
Existing controls that apply to the stock or area – section 11(1)(b)	1366. Recreational daily limits: From Marfells Beach to Conway River no person may take or possess more than three ordinary (blackfoot) pāua and three yellowfoot pāua per day. Within the Oaro-Haumuri Taiāpure no person may take or possess more than two ordinary pāua and two yellowfoot pāua per day. 1367. Accumulation limit: 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. 1368. Size restrictions: blackfoot and yellowfoot pāua from Marfells Beach to Conway River have an MLS of 125 mm and 80 mm, respectively for both the commercial and recreational sectors. Within the Oaro-Haumuri Taiāpure blackfoot pāua has an MLS of 135 mm for recreational fishers. 1369. 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. 1370. Prohibited method: pāua are targeted by hand-gathering across the fishery and the use of UBA is strictly prohibited for both commercial and recreational fishers. 1371. Seasonal restrictions: Recreational pāua fishing has been restricted to a specified open season in 2021-22, 2023, and 2024 in the Kaikōura Marine Area. 1372. Spatial closures: There are closed areas including the Hikurangi Marine Reserve and the Waiopuka (Wakatu Quay) Reef Area, as well as customary managed areas: taiāpure and mātaitai within PAU 3A that are closed to commercial and recreational pāua fishing other than the previously mentioned Oaro-Haumuri Taiāpure (See '*Mātaitai reserves and other customary management tools*').
The natural variability of the stock – section 11(1)(c)	1373. A variety of environmental factors influence settlement, growth, and recruitment of pāua, including wave exposure, food availability, water temperature and population density (Fisheries New Zealand, 2023). 1374. 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). 1375. Biomass of pāua along the wider Kaikōura coastline significantly decreased as a result of the 2016 earthquake (Neubauer, 2017). As a direct result of the five-year fishery closure, the biomass has substantially rebuilt to a level that can support fishing opportunities for all sectors (Fisheries New Zealand, 2023).

Fisheries plans, and conservation and fisheries services – section 11(2A)	**PAU 3 Fisheries Plan:** 1376. In April 2021 the PAU 3 Fisheries Plan for the commercial sector was approved by the Minister for Oceans and Fisheries under section 11A of the Act. The Plan was developed by PauaMAC3, representing commercial interests within the PAU 3 fishery, to manage commercial fishing under an 'adaptive rebuild programme'. This Plan recognises the distinct nature of the two sub-fisheries post-earthquakes, reflected by the recommendation to split into two sub QMAs (PAU 3-N, PAU 3A and PAU 3-S, PAU3B) that has now occurred. The plan now covers both of these QMAs PAU 3A and 3B. 1377. The Plan includes a commercial harvest strategy for the fishery under a range of measures, such as a conservative level of utilisation and catch spreading arrangements, larger minimum harvest size, harvest control rules, and fine scale catch reporting and monitoring. This approach is intended to enable responsive adjustments in commercial fishing during and between years. Section 11(2A) (b) of the Act states that before setting or varying any sustainability measure under this section or making any decision or recommendation under this Act to regulate or control fishing, you must take into account any relevant fisheries plan approved under this section. 1378. You may make a decision that is different to what is set out in this Plan, provided that in making the decision, its content is considered. The proposed management options presented here are consistent with the PAU 3 Fisheries Plan in adopting a cautious and adaptive approach to managing both stocks. 1379. While there are options presented that adopt the approach recommended by industry in the plan of maintaining proportional TACC increases with the base recreational allowance of 5 tonnes, some of the options presented (including FNZ's preferred option) do not. This is because FNZ does not consider the base recreational allowance of 5 tonnes that was set was based on accurate information regarding pre-earthquake recreational catch, and did not reflect recreational interest in the fishery. The likelihood that recreational catch was underestimated was noted in the Minister's decision at the time the recreational allowance was set, and that recreational surveys would be carried out to better establish the level of recreational interest. Based on these surveys and discussions with Kaikōura community it is likely that recreational catch was much higher. **Fisheries and conservation services:** 1380. Fisheries and conservation services of significance have been described throughout this paper where relevant. 1381. Fisheries services of relevance to PAU 3A include the research used to monitor abundance (see Figures 2-6) and the tools used to enforce compliance with management controls in the fishery. 1382. FNZ notes that the PAU 3A fishery has no observer or on-board camera coverage. However, Fisheries Compliance regularly monitors the area to ensure that management controls are being adhered to. 1383. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species. 1384. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	**Regional plans:** 1385. 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.

	1386. The provisions of these plans are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. FNZ has reviewed the documents and the provisions that might be considered relevant. A summary of these can be found in Addendum 1. 1387. FNZ considers that the management options presented here are in keeping with the objectives of these relevant regional plans, which generally relate to the maintenance of healthy and sustainable ecosystems to provide for the needs of current and future generations. 1388. FNZ 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. 1389. Environment Canterbury has responsibilities for the coastline within the PAU 3A QMA boundaries. Its Regional Coastal Environmental Plan manages coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats.
The Kaikōura (Te Tai o Marokura) Marine Management Act 2014	1390. The purpose of this Act includes recognising the local, national, and international importance of the coast and sea around Kaikōura as a consequence of its unique coastal and marine environment and distinctive biological diversity and cultural heritage. This Act aims to integrate and establish marine protection and fisheries measures in the Kaikōura marine environment. The options proposed in this paper have been discussed with the Kaikōura Marine Guardians before and during consultation, and the Guardians have provided recommendations which you must have regard to in terms of your decisions on PAU 3A.
Non-mandatory relevant considerations	
Other plans and strategies	Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy) 1391. FNZ considers that the sustainability measures proposed for PAU 3A are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy. This includes 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 sustainably.

Information principles: section 10 of the Act

1392. The best available information relevant to PAU 3A is presented throughout this paper, and uncertainties in the information have been highlighted where relevant.

1393. Key uncertainties relevant to this review include uncertainty concerning the setting of the recreational allowance as a reflection of past and current fishing effort, and the difficulty in predicting recreational catch given its dependence on weather, sea conditions, and other factors. There is also uncertainty regarding the extent to which environmental factors may affect pāua in future, particularly climate change associated threats such as marine heatwaves and ocean acidification (Cummings et al., 2021).

Table 8: Best available information and key areas of uncertainty for the present review of PAU 3A.

Best available information	Key areas of uncertainty, unreliability, or inadequacy
1394. The best available information on the status of PAU 3A (in relation to *MSY*) comes from full quantitative stock assessment using standardised CPUE and survey data. 1395. The results of this assessments are described in detail within the May 2024 Fisheries Assessment Plenary and have been summarised throughout this paper where relevant.	1397. The setting of the current recreational allowance for PAU 3A is highly uncertain as a reflection of past and current fishing effort, and the difficulty in predicting recreational catch given its dependence on weather, sea conditions, and other factors. 1398. There is uncertainty regarding the extent to which environmental factors may affect pāua in the future, ongoing earthquake impacts on pāua habitat, particularly climate change associated

1396. The best available information in regard to recreational and customary fishing for these stocks is presented in Table 3. Recreational catch information relies heavily on the results of on-site survey methods that estimate recreational catch during the open season (Holdsworth, 2022; Holdsworth et al. 2023; Holdsworth et al., in prep).	threats such as marine heatwaves and ocean acidification (Cummings et al., 2021).

Additional figures

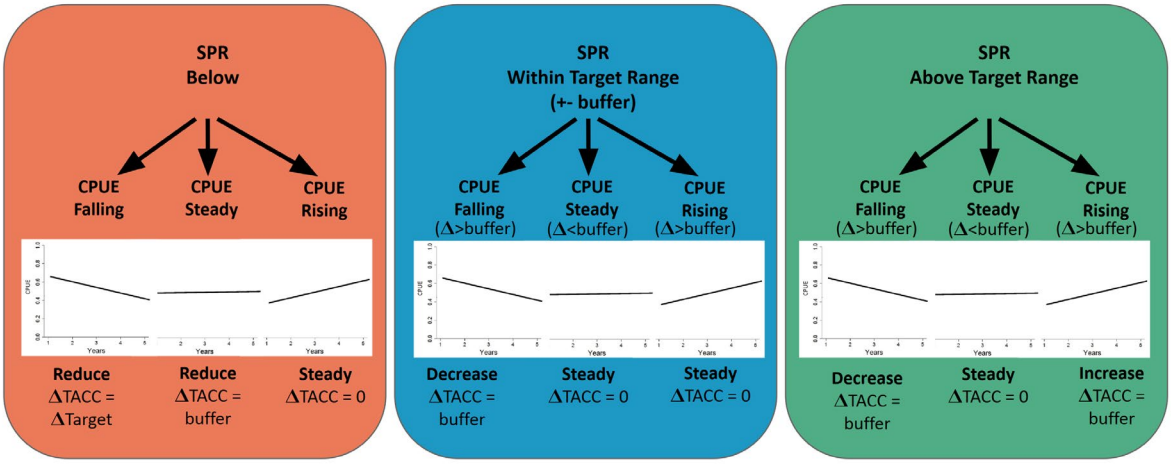


Figure 3: Spawning potential ratio (SPR) harvest control rule for pāua in PAU 3A. The SPR target is set and Total Allowable Commercial Catches (TACC) adjusted to move catch per unit of effort (CPUE) in the direction of the target SPR. New management procedures were developed on the basis of length-based estimators SPR (Hordyk et al., 2016) and CPUE. These rules set a spawning potential target, and use CPUE or survey indices to indicate the "direction of travel", adjusting catch to drive biomass towards the target SPR. The target SPR was set at 50% to reflect a precautionary target for pāua (Fisheries New Zealand, 2024).

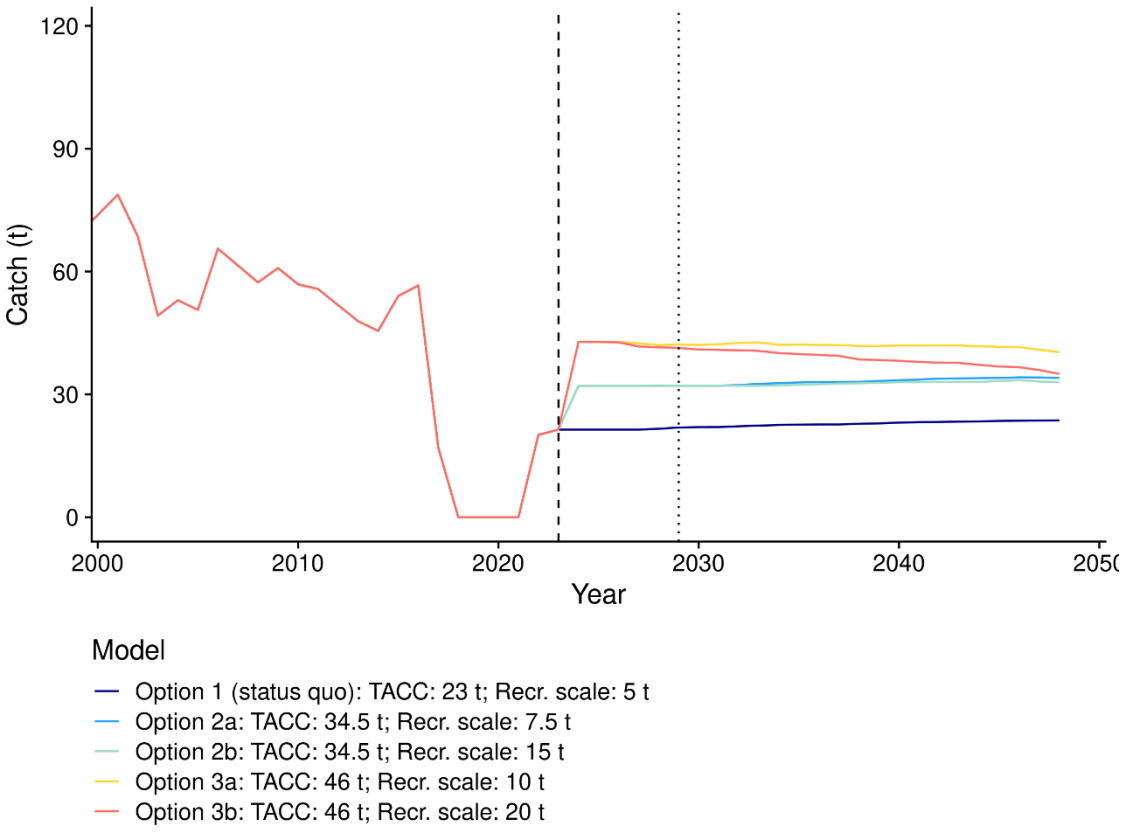


Figure 4: Simulated commercial catch in tonnes for PAU 3A under each proposed option of Total Allowable Commercial Catch (TACC) and Recreational Allowance. The dashed vertical line shows the beginning of projections. These assume that commercial catch will be adjusted according to relative pāua abundance using a harvest control rule (see Figure 3), and that recreational catch will also vary based on abundance. Customary catch is assumed to remain at or below 7.5 tonnes. The dotted vertical line shows the 5-year projections (projections should be treated with caution due to uncertainties the further into the future they are).

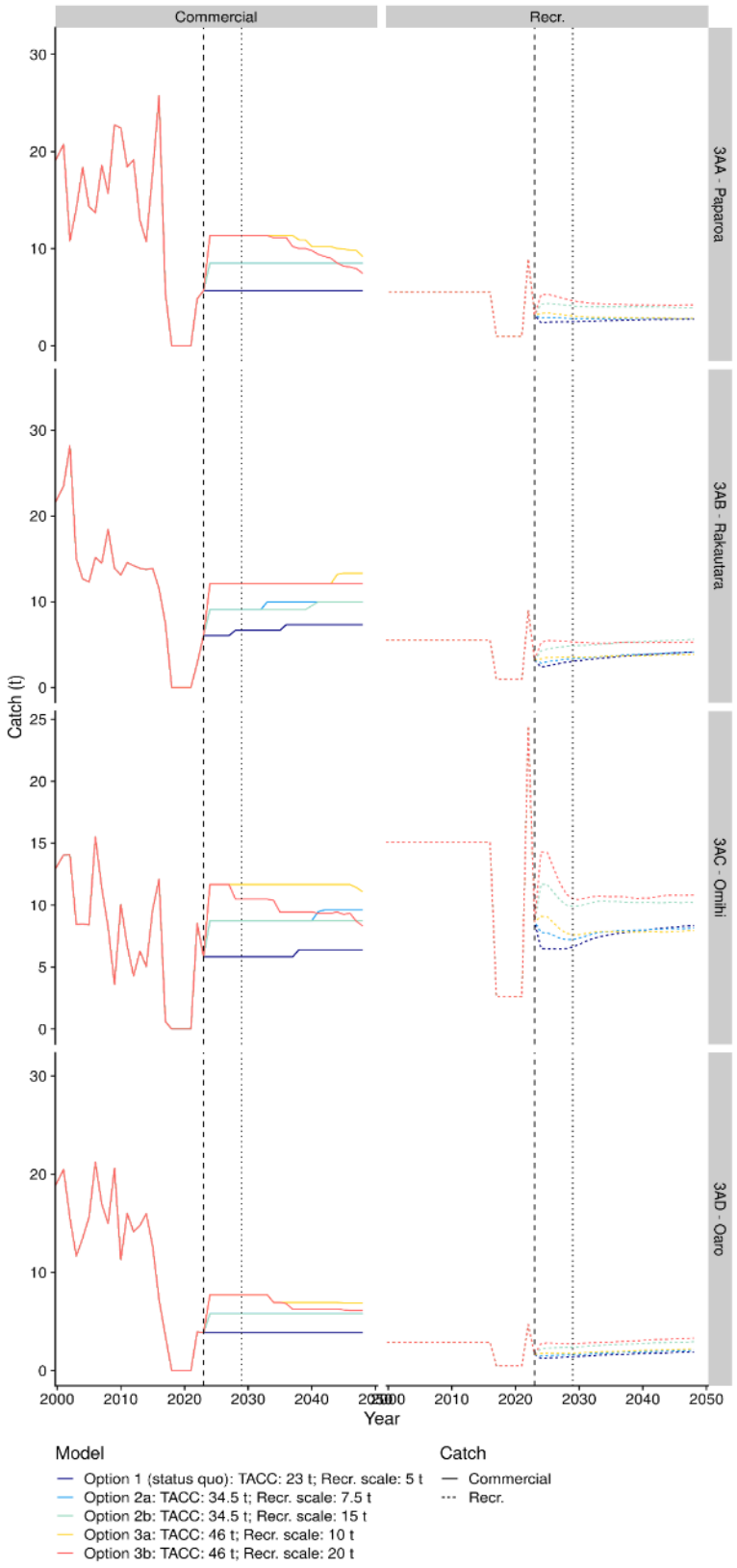


Figure 5: Simulated commercial and recreational catch in tonnes for sub areas of PAU 3A under each proposed option of Total Allowable Commercial Catch (TACC) and Recreational Allowance. The dashed vertical line shows the beginning of projections. These assume that commercial catch will be adjusted according to relative pāua abundance using a dynamic harvest control rule, and that recreational catch will also vary based on abundance. Customary catch is assumed to remain at or below 7.5 tonnes. The dotted vertical line shows the 5-year projections (projections should be treated with caution).

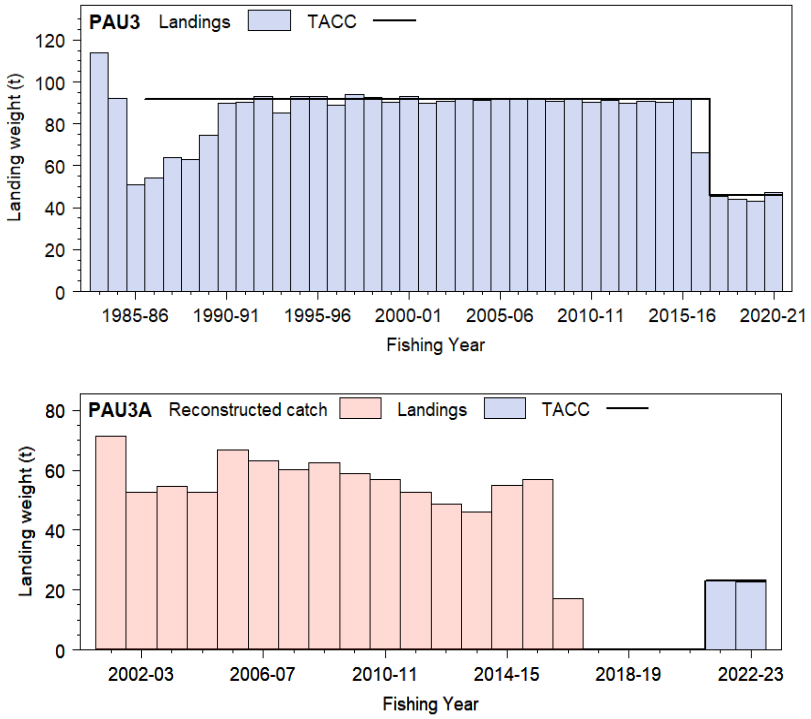


Figure 6: Reported commercial landings and TACC for PAU 3 (top) from 1983–84 to 2020–21 (last year before the QMA subdivision) and PAU 3A (bottom) from 2001–02 to 2021–22. The PAU 3A reconstructed landings between 2001–02 and 2020–21 correspond to the PAU 3 estimated catch for statistical areas 301 to 310 which correspond to PAU 3A QMA created in 2021–22. No catch from 2017–18 to 2020–21 reflects the fishery closure following the 2016 Kaikōura earthquake.

Information on biology, interdependence, and environmental factors

1399. This information supports FNZ's assessment of the proposals against section 13 of the Act in *'Part 2: Assessment against relevant legal provisions*'. Information in this section was derived from the pāua chapter of the Fisheries Assessment Plenary, May 2024, and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

1400. Pāua fishing by all sectors is restricted to hand-gathering only within the intertidal and shallow subtidal areas. Small pāua are eaten by a range of generalist predators, whereas larger pāua are more protected by their strong shells. There are no known predators that feed exclusively on pāua. Pāua play a key ecosystem role as grazers, preferentially feeding on drift algae, but can target attached algae at high densities where they may impact abundance. There is limited evidence that indicates some negative association between pāua and kina. However, there are no recognised interactions with pāua abundance and the distribution of other species.

1401. Further information about potential impacts on other species is discussed under '*Assessment of proposals against section 9 of the Act*'.

Biological characteristics

1402. Pāua inhabit reefs within intertidal and shallow subtidal coastal habitats. Recently settled juveniles are found in boulder and cobble habitats of 0-5 m depth, while adults are typically found in deeper waters of up to 7-10 m. This shellfish is relatively sedentary in nature and can form large, localised aggregations.

1403. Pāua are broadcast spawners and spawning is understood to occur annually. Habitat-related factors such as wave exposure, habitat structure, availability of food, and population density all influence the settlement, growth, and recruitment of pāua.

1404. Due to their sedentary nature, high levels of localised fishing pressure may make pāua susceptible to overfishing and depletion. Overfishing of a localised population can affect spawning success and may hinder overall productivity of the stock.

Environmental conditions affecting the stock

1405. In 2016, the Kaikōura earthquakes caused significant loss of pāua habitat resulting from coastal uplift along the coastline between the Clarence River and Conway River (Alestra et al., 2019 & 2020, and Schiel et al., 2021). This area was closed to commercial and recreational pāua fishing to protect the surviving pāua populations and associated habitats but has since been reopened to fishing following rebuilding biomass.

1406. Pāua are considered to be highly vulnerable to climate change associated threats (Cummings et al., 2021) including marine heatwaves and ocean acidification, as well as other habitat impacts such as sedimentation.

Information on environmental impacts

1407. This information supports FNZ's assessment of the proposals against section 9 of the Act in *'Part 2: Assessment against relevant legal provisions*'.

Protected species

1408. 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 (Fisheries New Zealand, 2022). There is no known bycatch of threatened, endangered, or protected species associated with the hand gathering of pāua, incidental bycatch is limited to epibiota attached to or within the shell.

Biological diversity of the environment

1409. The environmental impact of pāua harvesting is thought to be minimal as 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). While vessels anchoring have the potential to damage the reef, a large proportion of fishing along the Kaikōura coastline is directly from the beach, especially for recreational and customary sectors. Only small numbers of vessels operate in the fishery and they rarely anchor when diving is occurring.

1410. FNZ considers it unlikely that 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.

Habitat of particular significance for fisheries management

1411. While none have been formally identified for PAU 3A, emerging studies on pāua habitat after the 2016 earthquakes may contribute to the identification of potential habitats of particular significance such as subtidal rocky reefs in the area. Potential habitats of particular significance for fisheries management in PAU 3A can be found in Table 9 below. There are other potential habitats of particular significance present within the FMA, which do not overlap with the area fished for PAU 3A.

Table 9: Potential habitat of particular significance for fisheries management relevant to PAU 3A.

Subtidal rocky reefs
Attributes of habitat • Rocky crevice/boulder habitat associated with subtidal macroalgal reefs, high energy wave exposure / appropriate water movement for larval dispersal may contribute to successful reproduction and recruitment to the fishery, crustose coralline algae is a cue for settlement, and provides a food source for adults and juveniles, cryptic habitats for juveniles which have a direct connection to adult habitat. **Reason for particular significance** • Rocky crevices and boulders provide substrate for adults to aggregate and support localised recruitment, good source of food, given growth and recruitment success can be influenced by food availability **Risks/Threats** • Land-based effects, erosion, high turbidity, earthquakes, ocean warming and acidification **Existing protection measures** • 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** • Alestra et al., (2019), Alestra et al., (2020), Cornwall et al., (2014), Naylor et al., (2006)

Part 5: Conclusions and recommendations

1412. The Kaikōura pāua population has rebuilt following the impact of the 2016 earthquakes and subsequent closures. Ongoing monitoring has indicated a high biomass of pāua and potential further utilisation opportunities, with projections suggesting a TAC of up to approximately 80 tonnes will not reduce the SSB below the default management target.

1413. There were a wide range of views on the options proposed, with various levels of caution and perspectives on allocation within the TAC.

1414. Based on the feedback received it is recommended that the customary allowance of 7.5 tonnes be retained as it is considered to sufficiently provide for customary fishing interests.

1415. An allowance for recreational fishing of at least 15 tonnes and/or a longer recreational season (of around 8 to 10 months) was supported by the majority of submitters. There is uncertainty regarding the impact of recreational catch above 20 tonnes on the fishery and on other sectors, and risks of overfishing particularly in the most accessible areas. FNZ notes that the development of new tools to monitor and manage recreational catch was widely supported to provide stakeholders with greater confidence that increased access (for example a significantly longer season) by the sector would be sustainable.

1416. The proposed MLS increase was supported by many submitters, as a means to reduce risks of localised depletion of spawning biomass and localised overfishing. Most recreational organisations did not support this, however, there would be relatively little impact on recreational catch from an MLS at 130 mm given the majority of pāua taken were well above 130 mm over the past two seasons (Holdsworth et al. 2023, Holdsworth et al. in prep). FNZ recommends increasing the MLS for Blackfoot pāua in Marfells Beach to Conway River area to support proposed TAC increases.

1417. Many submitters supported a more equivalent TACC and recreational allowance. Additionally, more cautious TAC increases were favoured by some submitters due to ongoing earthquake impacts such as sedimentation, habitat and kelp loss, and future potential climate impacts. Best available information suggests that all TAC options proposed would be sustainable and would not reduce the SSB below the default management target. We note the TACC increase would also be supported by the initiatives implemented under the PAU 3 Fisheries Plan and the use of the industry HCR.

1418. Nevertheless, FNZ considers you could consider Option 2b as a cautious approach, which would increase the TACC by 100% and set a recreational allowance of 15 tonnes.

1419. You could also consider the option preferred by industry and the Guardians, which is the TACC proposed under Option 3a and 3b, but with a recreational allowance of (up to) 15 tonnes. This would be closer to the proportional approach considered under the PAU 3 Fisheries Plan but would not provide for any additional access by recreational fishers (for example, through a longer season).

1420. Option 3b with a higher recreational allowance of 20 tonnes would provide additional recreational access but is likely to be at the upper bounds of what can be taken without impacting on other sectors and exacerbating risks of localised overfishing.

1421. Overall, the new Option 4 is preferred by FNZ as an intermediate approach to provide for greater access for the recreational sector in conjunction with a significant increase to the TACC. It would set a recreational allowance that is intermediate (in terms of proportionality with the TACC) between that favoured by the Guardians and industry, and those seeking more equivalence between the TACC and the recreational allowance.

Decision for PAU 3A

Option 1 (*Status quo*)

Agree to retain the PAU 3A TAC at 40.5 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 7.5 tonnes;
ii. Retain the allowance for recreational fishing interests at 5 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 5 tonnes;
iv. Retain the PAU 3A TACC at 23 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2a

Agree to set the PAU 3A TAC at 55.5 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 7.5 tonnes;
ii. Increase the allowance for recreational fishing interests from 5 to 7.5 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 5 to 6 tonnes;
iv. Increase the PAU 3A TACC from 23 to 34.5 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2b

Agree to set the PAU 3A TAC at 63 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 7.5 tonnes;
ii. Increase the allowance for recreational fishing interests from 5 to 15 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 5 to 6 tonnes;
iv. Increase the PAU 3A TACC from 23 to 34.5 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3a

Agree to set the PAU 3A TAC at 70.5 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 7.5 tonnes;
ii. Increase the allowance for recreational fishing interests from 5 to 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 5 to 7 tonnes;
iv. Increase the PAU 3A TACC from 23 to 46 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3b

Agree to set the PAU 3A TAC at 80.5 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 7.5 tonnes;
ii. Increase the allowance for recreational fishing interests from 5 to 20 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 5 to 7 tonnes;
iv. Increase the PAU 3A TACC from 23 to 46 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 4 *(Fisheries New Zealand preferred option)*

Agree to set the PAU 3A TAC at 78.5 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 7.5 tonnes;
ii. Increase the allowance for recreational fishing interests from 5 to 18 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 5 to 7 tonnes;
iv. Increase the PAU 3A TACC from 23 to 46 tonnes.

Agreed / **Agreed as Amended / Not Agreed**

AND

Agree to increase the recreational minimum legal size from 125 mm to 130 mm for Pāua in the Marfells Beach to Conway River area by amending the Fisheries (Recreational Controls Notice) Notice.

(Fisheries New Zealand preferred option)

Agreed / **Not Agreed**

OR

Agree to retain the current minimum legal size at 125 mm for Pāua in the Marfells Beach to Conway River area.

Agreed / Not Agreed

Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Chapter 10: Snapper (SNA 2), Rig (SPO 2) – East Cape to south coast of Wellington, and **John dory (JDO 2)** – East Cape to Taranaki

Part 1: Overview

Snapper – *Pagrus auratus*, Tāmure, Kouarea

Rig – *Mustelus lenticulatus*, Pioke, Makō, Mango

John dory – *Zeus faber*, Kuparu

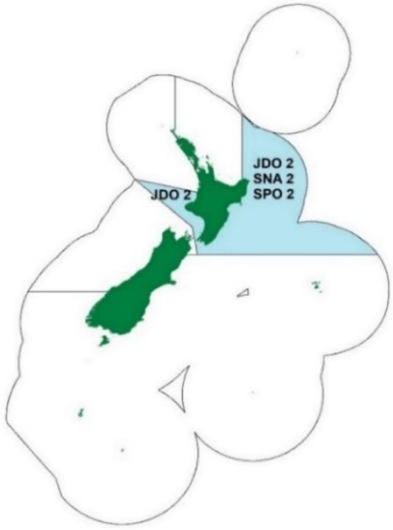


Figure 1: Quota Management Areas (QMAs) for snapper, rig, and John dory with SNA 2, SPO 2, and JDO 2 highlighted.

Rationale for review

1422. Partial quantitative stock assessments were carried out for snapper in SNA 2 and rig in SPO 2 earlier this year and presented through the May 2024 Fisheries Assessment Plenary. The southern part of SNA 2 (**SNA 2S** - includes snapper from Hawke Bay down to Wellington) and SPO 2 were determined as very likely to be at or above their respective management targets (>90% probability). Their abundance appears to have increased rapidly in recent years, as indicated by large increases in their catch per unit effort (**CPUE)** (Figure 2(b & c)).

1423. Reference points have not been established for the northern part of SNA 2 (**SNA 2N** - includes snapper from Cape Runaway down to the southern tip of Mahia) due to unresolved boundaries with the Bay of Plenty stock. However, CPUE is also high and increasing in SNA 2N and indicates that abundance has increased by at least 2-fold from the low period between 2010 and 2016 to 2023 (Figure 2(a)).

1424. Increased abundance of snapper in SNA 2 is also reflected in the recent National Panel Survey of Marine Recreational Fishers (**NPS**), which estimates recreational catch to be exceeding the current allowance.

1425. In line with the best available information suggesting high and increasing abundance of these stocks, FNZ is advising you on options to increase their Total Allowable Catches (**TACs**), allowances and Total Allowable Commercial Catches (**TACCs**) from the upcoming 1 October 2024 fishing year.

1426. There is some uncertainty regarding the impact of Cyclone Gabrielle on these stocks in 2023. Post-cyclone CPUE data suggests that abundance of the exploited portions of these stocks remains high and can support greater utilisation. However, FNZ acknowledges that some caution is warranted given the limited availability of post-cyclone data and because the extent of the cyclone's impact will not be fully apparent for another 4-5 years (see discussion under '*Environmental conditions affecting the stocks*' within '*Part 4: Supporting Information*'). In light of this, FNZ is only proposing options for moderate TAC increases (20-30%).

1427. John dory in the southeast part of JDO 2 was last assessed in 2023 and determined as unlikely (<40% probability) to be at or above its management target (Figure 2(d), Fisheries Assessment Plenary, May 2024). JDO 2 is caught as bycatch in the trawl fisheries which also catch SNA 2, SNA 8, and SPO 2 and there is a risk that increasing the TACs of those stocks could result in increased catch of JDO 2. Abundance appears to have been increasing in the southeast part of JDO 2 in the last decade (as indicated by increasing CPUE), so FNZ considers it unlikely that catches at current or recent levels would pose a sustainability risk. However, there could be some risk if the TACC of JDO 2, at approximately 200 tonnes above current catch levels, were fully utilised. In line with this, FNZ is advising you on options to set a TAC and allowances for JDO 2 and to decrease the TACC.

1428. FNZ is seeking your decisions to set the TACs of SNA 2 and JDO 2 under section 13(2A) of the Fisheries Act 1996 (**the Act**), and your decision to set the TAC of SPO 2 under section 13(2)(a) of the Act. Your decisions will take effect from the beginning of the next fishing year on 1 October 2024.

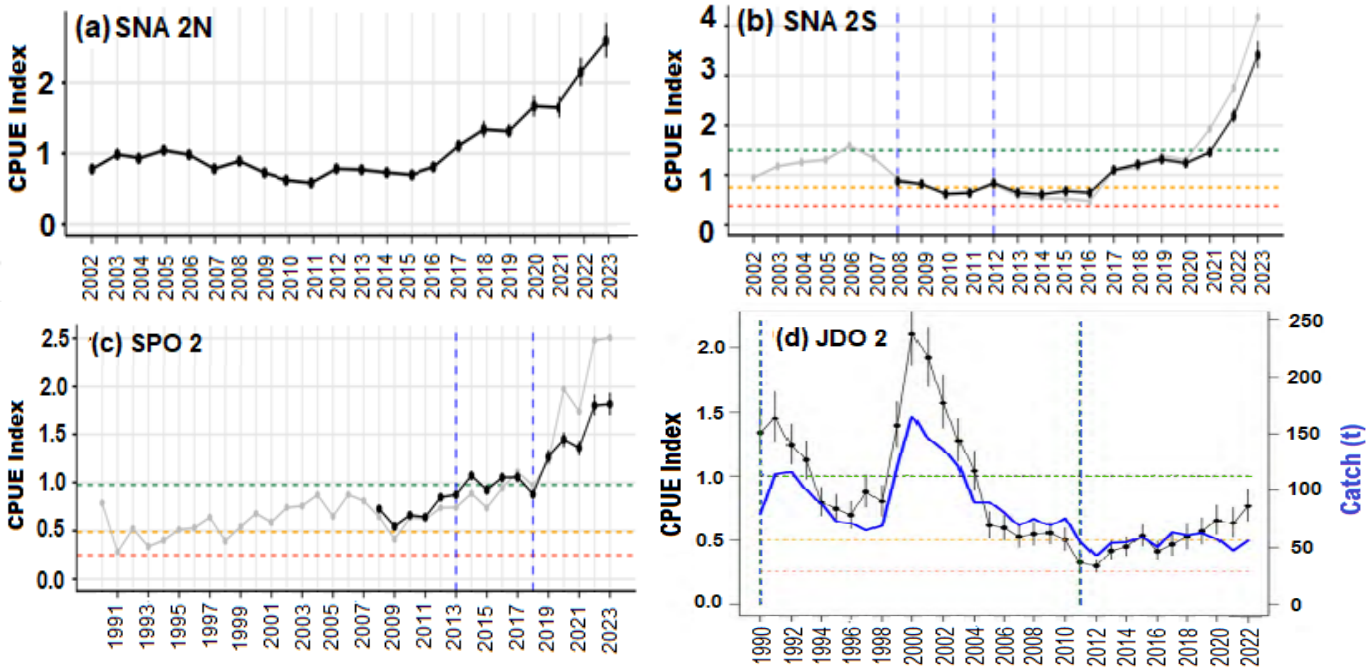


Figure 2: Commercial catch per unit effort (CPUE) indices (standardised) for (a) SNA 2 North (b) SNA 2 South (c) SPO 2, and (d) JDO 2 (southeast). Horizontal green dotted lines, yellow dotted lines, and red dotted lines represent management targets, soft limits, and hard limits, respectively. The vertical blue dotted lines encapsulate the reference periods (which the targets are based on). Note that the trends in Figures 2(a) and (b) are slightly lower than what was consulted on because the plenary made corrections to their CPUE after consultation.

Proposed options and FNZ's recommendations

Table 1: Proposed management options (in tonnes) for SNA 2, SPO 2, and JDO 2 from 1 October 2024. FNZ's preferred options are highlighted in orange.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
SNA 2	Option 1(*Status quo*)	450	315	14	90	31
	Option 2	540 (↑ 90)	367 (↑ 52)	14	122 (↑ 32)	37 (↑ 6)
	Option 3	585 (↑ 135)	409 (↑ 94)	14	122 (↑ 32)	40 (↑ 9)
	Option 4 (new)	482 (↑ 32)	315	14	122 (↑ 32)	31
SPO 2	Option 1 (*Status quo*)	146	119	5	10	12
	Option 2	175 (↑ 29)	145 (↑ 26)	5	10	15 (↑ 3)
	Option 3	190 (↑ 44)	159 (↑ 40)	5	10	16 (↑ 4)
JDO 2	*Current settings*	*N/A*	*269.5*	*N/A*	*N/A*	*N/A*
	Option 1	299.5	269.5	1	2	27
	Option 2	211	189 (↓ 80.5)	1	2	19
	Option 3	152	135 (↓ 134.5)	1	2	14
	Option 4 (new)	124	110 (↓ 159.5)	1	2	11

1429. A total of 18 submissions were received on the review of SNA 2, SPO 2, and JDO 2 during public consultation. There was mixed support across the options from the different interests that submitted. Commercial representatives generally support increasing the TACs of SNA 2 and SPO 2 by 30% (Option 3), but support retaining the TACC (Option 1) for JDO 2. In contrast, recreational fishing representatives, environmental groups, and most individuals recommend a cautious approach, with most supporting no TACC increase for SNA 2 and SPO 2, and either Option 3 or an even larger TACC reduction for JDO 2 (e.g. Option 4).

1430. The feedback from submissions on each of these stocks has been characterised further under *'Analysis of options'* below. More detail, including an analysis of other matters raised by submitters, is provided in Part 2 under *'Submissions'* and *'Other matters raised during consultation'*.

1431. Based on FNZ's analysis of these options, including consideration of the feedback received, and our assessment of the options against legal provisions (see Part 3), FNZ prefers Option 3 for all three stocks. The rationale for these recommendations is set out in Part 5 *'Conclusions and Recommendations'*.

Analysis of options

1432. The different options proposed for SNA 2, SPO 2, and JDO 2 are analysed below with an outline of the key risks and benefits for each option, as well as feedback received during consultation. Additional information and rationale to support current and proposed settings within the TACs can be found below in Table 3 under *'Fishery characteristics and settings'*.

Snapper (SNA 2) Options

Option 1 – retain current settings (*status quo*)

Benefits	1433. Of the options FNZ consulted on, this is the most cautious with respect to ensuring sustainability and resilience to potential cyclone impacts on recruitment. 1434. Abundance of snapper is currently high and likely to increase further under this option. This could benefit utilisation through increased catchability. This could also lead to reduced costs for non-commercial fishing. 1435. It appears likely that the age and size structure of snapper will continue to broaden in the northern part of the SNA 2 under current settings, as the last age frequency survey in 2022-23 indicates there is a strong 2019-year class entering the fishery. This option could therefore enable further broadening of the age and size structure of the snapper population, resulting in a greater quantity of bigger and older fish in the population. This could also provide benefits for non-commercial utilisation due to the desirability of catching larger fish. 1436. Retaining the current TACC could potentially result in lower fishing effort in some areas (due to snapper avoidance) and a higher cost to commercial fishers who must adjust their practices to further avoid snapper. This may lead to increased effort in other areas, though this is uncertain. FNZ considers that overall, it is unlikely that this option would significantly alter fisher behaviour, and it is unlikely it will lead to an increase in overall fishing effort. Therefore, it is considered extremely unlikely that this option will lead to any increase in impact on the aquatic environment or interdependent stocks.
Risks	1437. Retaining the current TAC would forgo the potential utilisation opportunity. 1438. The recreational allowance setting under this option does not fully account for recreational catch, which is estimated to be currently 35% above the allowance. An increase to the allowance would be required to ensure it adequately allows for existing harvest (or otherwise changes to recreational controls would be required to constrain harvest to the current allowance). 1439. Commercial fishers are making significant efforts to avoid catching snapper but are still having difficulty balancing catch with ACE due to the high abundance and wide distribution of snapper. Retaining the TACC will likely continue to constrain commercial utilisation. 1440. Retaining the current TACC may also prevent fishers from more efficiently targeting other species associated with snapper due to the low availability of SNA 2 ACE and likelihood of high deemed value penalties for snapper bycatch. This issue will be further exacerbated if snapper abundance continues to increase as anticipated (refer to paragraphs 1471-1473 below).
Feedback received	1441. This option is supported by the Environmental Law Initiative (**ELI**), the Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA**), and six individual submitters. 1442. ELI recommend that the TAC for SNA 2 should be retained at a minimum, or otherwise decreased, to avoid, remedy or mitigate the risk of kina barrens[105] (see response to this in Part 2 under *'other matters raised during consultation'*).

[105] 'Kina barrens', or '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 urchins.

	1443. The SPCA and individual submitters support maintaining the *status quo* for several reasons, including concerns about potential cyclone impacts, environmental impacts of trawling, animal welfare, and the potential that increasing the TAC may lead the fishery back to a more depleted state (see Part 2, Table 4).

Option 2 – 20% TAC increase

Benefits	1444. The recreational allowance under this option would fully account for the current level of recreational catch. This reflects that abundance of snapper is high, and that this higher level of recreational utilisation (122 tonnes annually) is sustainable. 1445. This option would support a small increase in commercial utilisation. A large portion of the utilisation benefit for the industry would be realised through higher profitability of landing target species, rather than through the increase in revenue from snapper. 1446. It is estimated that under this option, increased landings of snapper could provide approximately $700,000 more in revenue compared to the 2022/23 fishing year (this does not consider other costs, nor does it reflect profitability or what fishers will receive). It is based on a 2024 port price of $6.89/kg, which is higher than the 2023 port price of $5.37/kg (thus, revenue is likely to also increase under the *status quo*).
Risks	1447. Abundance appears to have increased rapidly in recent years and is anticipated to continue increasing. This increase may be too conservative and could unnecessarily constrain utilisation. 1448. There is uncertainty regarding longer term cyclone impacts on the stock (see Option 3 'Risks' below). This option is less likely to ensure resilience to any impacts compared to Option 1. 1449. While biomass is estimated to be high and increasing, a 20% TAC increase may lead to increased fishing effort. This could lead to an increase in environmental impacts (such as interactions with protected species) from the associated fisheries (see Part 3 - Table 11 for a summary of impacts to consider and Part 4 'Information on environmental impacts' for more information on current impacts). However, the level of increased effort is uncertain because catch rates of snapper have been increasing in line with abundance (so less effort is being required to catch more snapper). 1450. Forward projections are not available to accurately predict how biomass in SNA 2 might be affected following the implementation of TAC changes. However, the increased removals of snapper enabled by this option will likely lead to lower stock abundance compared with Option 1. 1451. Some ecosystem functions of larger snapper, such as predation of kina, may be diminished with increased fishing pressure enabled under this option (see 'Interdependence of stocks' sections in Part 3 and Part 4 for more analysis on this).
Feedback received	1452. There were no submissions or responses received in support of this option.

Option 3 – 30% TAC increase (FNZ preferred option)

Benefits	1453. The recreational allowance under this option would fully account for the current level of recreational catch (122 tonnes annually). This reflects that abundance of snapper is high, and that a higher level of recreational utilisation is sustainable. 1454. This option would support greater commercial utilisation. It is estimated that the increased landings of snapper could provide approximately $990,000 more in revenue compared to the 2022/23 fishing year. 1455. The larger TACC under this option would allow commercial fishers to better target other inshore species associated with snapper. This could enable greater efficiency and flexibility for operators, which could also lead to increased profitability. It may also better enable fishers to target gurnard in Hawke Bay, while avoiding tarakihi (this is currently difficult due to the high inshore abundance of snapper and lack of available SNA 2 ACE).
Risks	1456. As the highest increase proposed, this option is the least cautious with respect to sustainability and presents the highest risk of increased environmental impacts.

	1457. While abundance of snapper appears to be high and increasing, post-cyclone data is limited and there is uncertainty regarding potential long-term impacts from the cyclone on snapper recruitment. Any potential adverse effects from the cyclone on the snapper nursery area in Wairoa Hard (in Hawke Bay) will not be fully apparent for another 4-5 years (see further discussion on this within Table 7 and in Part 4 under 'Environmental conditions affecting the stocks'). This option is the least likely to ensure resilience to these potential impacts. 1458. This increase could lead to increased effort in the associated commercial trawl fisheries. While the level of increased effort is uncertain because catch rates of snapper have increased in line with abundance, environmental impacts (such as interactions with protected species) from these fisheries are expected to increase with increased effort (see Part 3 - Table 11 for a summary of impacts to consider and Part 4 'Information on environmental impacts' for more information on current impacts). 1459. Some ecosystem functions of larger snapper, such as predation of kina, may be diminished with increased fishing pressure enabled under this option (see 'Interdependence of stocks' sections in Part 3 and Part 4 for more analysis on this). This risk is greatest under Option 3 compared to the other options considered, as the greatest level of fishing pressure would be enabled.
Feedback received	1460. This option was supported by Seafood NZ and Gisborne Fisheries Ltd. (Table 4). 1461. The submissions underlined that the TACC has not been reviewed since 2002, but abundance has been rapidly increasing and the best available information supports that an increase in the TACC would be sustainable. 1462. Seafood NZ emphasised that the current settings are causing significant issues for commercial utilisation, as despite best efforts to actively avoid catch of snapper, operators are facing significant costs due to the high and widespread abundance of snapper. These challenges were also echoed by the commercial operators in the area (see Part 2 'Feedback from commercial operators in FMA 2'). 1463. Seafood NZ further suggest that the deemed value rates for SNA 2 are overly punitive. FNZ has responded to this matter in Part 2 under 'Other matters raised during consultation'.

SNA 2 options proposed by submitters

Option 4: Only increase the TAC and recreational allowance

1464. The New Zealand Sport Fishing Council, LegaSea, the New Zealand Underwater Association, and the New Zealand Angling & Casting Association (collectively **'the joint submitters'**), the Environmental Defence Society (**EDS**), and some individual submitters supported an alternative option that would increase the TAC and recreational allowance, but not the TACC or allowance for other mortality caused by fishing (as outlined below).

TAC	TACC	Allowances		
		Customary Māori	Recreational	All other mortality caused by fishing
482 (↑ 32)	315	14	122 (↑ 32)	31

1465. The benefits and risks of this option are similar to those outlined above for Option 1 (*status quo*). It is a generally cautious option with respect to ensuring sustainability and resilience to potential cyclone impacts and is unlikely to result in increased impacts on the aquatic environment or interdependent stocks. However, it is also likely to continue to constrain commercial utilisation of snapper and other species caught in the same area. Unlike Option 1, this option would have the benefit of fully accounting for the current level of recreational catch.

1466. As part of their rationale for supporting this option, the joint submitters suggest that increased catches of TAR 2 (tarakihi) would be inevitable if the TACC for SNA 2 is increased, and that this risk of overcatch is unacceptable given that TAR 2 is a vulnerable stock which is currently under a formal time-constrained rebuild plan.

1467. EDS in its support highlighted that while an increase to the recreational allowance to account for current recreational catch may be warranted, the TACC should not be increased because of the uncertainties regarding Cyclone Gabrielle impacts, and because it is unknown whether overfishing is occurring in the north part of SNA 2, and overfishing is as likely as not to be occurring in the south part of SNA 2.

FNZ response

1468. Within FNZ's discussion document, it was acknowledged that there could be a higher risk of increased tarakihi catch due to increased catches of snapper and rig, because they are caught in the same areas and fisheries. However, FNZ also noted that any risk to tarakihi sustainability is low given that commercial catches of TAR 2 are managed under that stock's TACC, and high deemed value penalties apply for exceeding it. Commercial fishers are therefore incentivised to adapt their behaviour in ways that allow them to catch more snapper and rig, while avoiding greater catches of tarakihi. For example, fishers could operate more in the inshore area around Hawke Bay where snapper is highly abundant, but where tarakihi is less abundant (tarakihi is caught offshore).

1469. Commercial operators have demonstrated a strong commitment to supporting the rebuild of east coast tarakihi. In addition to the regulatory controls in place for TAR 2, the industry follows a regional monitoring and management plan to support rebuilding the stock. This plan includes four voluntary trawl closed areas where juvenile tarakihi are abundant, which are monitored quarterly by FNZ. There has been strong adherence by the industry (99-100%) to these closed areas.

1470. While the risk for TAR 2 is considered low, it should be noted that FNZ will also continue to monitor catches of TAR 2 following any changes that may occur as a result of this review and will propose further management actions if needed to ensure continued sustainability.

1471. FNZ acknowledges the concerns raised by EDS in relation to uncertainties about cyclone impacts and overfishing. However, FNZ notes that these uncertainties were considered in the development of the SNA 2 options for consultation. The best available information suggests that biomass has significantly increased in both parts of SNA 2 in recent years, with an at least 2-fold increase for SNA 2N since 2016 (Figure 2(a)), and 3-fold increase in SNA 2S since 2016 (Figure 2(b)), yet FNZ consulted on a maximum TAC increase of 30%. This acknowledges that while higher increases may be supported based on the assessment alone, these other uncertainties warrant caution towards considering larger increases at this time.

1472. FNZ considers that a 30% TAC increase is unlikely to lead to overfishing in SNA 2 before the next planned assessment in 2026. This is because abundance of snapper is rapidly increasing in the area, and it is anticipated that the relative exploitation rate (level of fishing relative to the biomass of the stock) will be reduced in the next few years. While a fully quantitative stock assessment is not available for SNA 2 to allow accurate forward projections in stock biomass to demonstrate this, it can be reasonably anticipated given that:

    - The CPUE data shows a trend of rapidly increasing abundance in both the north and south parts of SNA 2 (Figure 2(a) & (b)).
    - There is evidence that productivity of snapper is increasing generally across New Zealand (likely due to environmental factors) (Fisheries Assessment Plenary, May 2024). This general increase has been reflected in the recent assessments of adjacent snapper stocks (SNA 1, SNA 7 & SNA 8) which all project large increases in biomass in the next few years.

1473. Moreover, FNZ is planning to commission a follow up partial quantitative assessment for SNA 2 within two years (refer to *'Assessment timing for SNA 2'* below). This will allow FNZ to monitor SNA 2 soon after any TAC changes to assess how the stock has responded to the changes.

FNZ's view of this option

1474. The TAC and allowances proposed under this alternative option are within the range consulted on, and you have discretion to decide on how the TAC should be allocated. This option is therefore open to you, should you decide that it would be appropriate and in line with your statutory obligations under the Act.

1475. FNZ is not recommending this alternative option. This is because based on the information available, FNZ believes that it would be sustainable for the TAC to be set at a higher level that also allows for greater commercial utilisation as well as setting the recreational allowance at a level that reflects recreational harvest. FNZ ultimately considers that other options would better provide for utilisation, while still ensuring sustainability in line with the purpose of the Act (see Part 5 '*Conclusions and recommendations'*).

Other suggestions

1476. One individual noted general concerns about increasing the commercial catch limit but did not specify a preferred option. Another individual suggested the TAC should be reduced, to 415 tonnes, with a lower TACC (280 tonnes), but did not provide a clear rationale for this. An individual who did not specify a preferred TAC option suggested that current biomass is too low, and that management should commit to increasing it by 2% annually.

Assessment timing for SNA 2

1477. FNZ is planning to commission an update to the partial quantitative assessment of SNA 2 in 2026. This will provide updated CPUE and characterisations to inform further management of SNA 2 and allow FNZ to assess how the stock responds following the TAC decision this year.

Rig (SPO 2) Options

Option 1 – retain current settings (*status quo*)

Benefits	1478. This option is the most cautious with respect to ensuring sustainability and resilience to potential cyclone impacts. 1479. It is unlikely that this option will alter fisher behaviour so it is considered extremely unlikely this will lead to an increase in fishing effort. Therefore, it is also considered extremely unlikely that this option will lead to an increased impact on aquatic environments or interdependent stocks (for information on current impacts see '*Interdependence of stocks'* and *'Information on environmental impacts'* within Part 4).
Risks	1480. Retaining the current TAC would forgo the potential utilisation opportunity. Abundance is high and may continue to increase further, which could lead to constraining commercial utilisation. 1481. A large portion of SPO 2 is caught as bycatch in commercial trawl and setnet fisheries and commercial fishers find it difficult to avoid catching rig while targeting other species. Retaining the TACC may prevent commercial fishers from more efficiently targeting other species associated with rig (e.g. red gurnard in the trawl fishery, and school shark in the setnet fishery) due to the risk of high deemed value penalties for rig bycatch. This issue would be further exacerbated if rig abundance continues to increase.
Feedback received	1482. This option was supported by the joint submitters, SPCA, and six individual submitters. These submissions generally favour the option because it is more precautionary in relation to sustainability and potential cyclone impacts and is less likely to lead to increased effort in the commercial trawl and setnet fisheries. 1483. These submissions raised general concerns about environmental impacts and animal welfare that might occur from commercial set netting and trawling if the TAC is increased. 1484. The joint submitters also raised issues with the historical management of the stock. While they recommend the *status quo*, they suggest that if the TACC is increased based on the limited information available, it should be a very modest increase of 3 tonnes (to 122 tonnes), and then reviewed again following the next assessment in 2026.

Option 2 – 20% TAC increase

Benefits	1485. This option would provide for a small increase in commercial utilisation of SPO 2. It is estimated that under this option, increased landings of rig could provide up to $290,000 more in revenue compared to the 2022/23 fishing year (based on the current port price of $5.33/kg). 1486. The TACC increase under this option may help to improve the efficiency and flexibility of commercial operators by allowing more bycatch of rig while targeting other species.
Risks	1487. This increase could unnecessarily constrain commercial utilisation if the apparent trend of increased abundance continues and more rig are landed as incidental bycatch. 1488. This increase would allow increased effort in the rig setnet target fishery and the trawl fisheries where rig is caught as bycatch. The extent to which effort would increase is uncertain as catch rates of rig have been increasing in line with abundance. But it is reasonable to expect that environmental impacts from the associated fisheries (such as protected species interactions) would increase with increased effort (see Part 3 - Table 11 for some key impacts to consider and Part 4 '*Information on environmental impacts*' for more information on current impacts from the fisheries).

	1489. There remain uncertainties regarding the impact of recent cyclones on the longer-term recruitment of rig. This option would provide less resilience to potential impacts on recruitment compared with Option 1.
Feedback received	1490. There was one individual submission received in support of this option. They did not provide rationale for their support.

Option 3 – 30% TAC increase (FNZ preferred option)

Benefits	1491. This option would provide for a moderate increase in commercial utilisation of SPO 2. It is estimated that under this option, increased landings of rig could provide up to $370,000 more in revenue compared to the 2022/23 fishing year (based on the current port price of $5.33/kg). 1492. If rig continues to increase in abundance, this option is less likely to constrain utilisation. 1493. The TACC increase under this option is larger and would allow commercial fishers to take more rig as bycatch while targeting other species. Thus, it is more likely to support improved efficiency and flexibility of commercial operators in the associated setnet and trawl fisheries.
Risks	1494. Of the options proposed, this is the least cautious with respect to sustainability. 1495. There remain uncertainties regarding the impact of recent cyclones on the longer-term recruitment of rig (see further discussion on this in Part 3 under '*Environmental conditions affecting the stocks*'). This option would allow higher removals of rig from the population and is therefore less likely to provide resilience to any impacts compared with Options 1 and 2. 1496. This increase would allow for increased fishing effort in the setnet and trawl fisheries that take rig. Environmental impacts in these fisheries are expected to increase with increased effort (see Part 3 - Table 11 for some key impacts to consider and Part 4 '*Information on environmental impacts*' for more information on current impacts from the fisheries). 1497. Sharks like rig can take a long time to recover if fishing mortality is rapidly increased (given their low fecundity and productivity).
Feedback received	1498. This option is supported by Seafood NZ and Gisborne Fisheries Ltd. (Table 4). 1499. These submissions consider it important to provide a substantive TACC increase given the high level of estimated rig biomass (1.7 times the agreed management target). Gisborne Fisheries Ltd. consider that FNZ overstated the increased risks to protected species that this option would present and highlighted observer data which shows relatively low rates of protected species interactions in the associated trawl and setnet fisheries since 2002-03. 1500. Seafood NZ supports continued regular monitoring to mitigate any potential risks that might arise from cyclone impacts on recruitment (see '*Assessment timing for SPO 2*' below).

SPO 2 options proposed by submitters

1501. Two individual submitters did not support any of the proposed options. One individual noted general concerns about increasing the commercial catch limit but did not specify a preferred option. Another individual suggested the TAC should be reduced to 139 tonnes, with a lower TACC (110 tonnes), but higher recreational allowance (12 tonnes). They did not provide a clear rationale for this preferred alternative.

Assessment timing for SPO 2

1502. Fisheries New Zealand has commissioned a research project for 2025 to update characterisations and CPUE for school shark stocks. This will be relevant for SPO 2, noting that approximately half of the setnet catch of the stock is taken when targeting school shark.

1503. There is also a project scheduled for 2026 to update characterisations and CPUE for rig stocks, including SPO 2. The outputs of this will provide FNZ with updated abundance information (including more post-cyclone data) to inform further management of SPO 2.

John dory (JDO 2) Options

Current settings (*status quo*) – 269.5 tonne TACC

1504. FNZ is not proposing the current settings as an option for consideration because the TAC and allowances have not yet been set, and under the Act you are required to set a TAC for each QMS stock.

Option 1 – Set TAC and allowances, retain current TACC

Benefits	1505. The current TACC allows for substantial commercial utilisation of the stock.
Risks	1506. The latest partial quantitative assessment for JDO 2 determined that the southeast North Island part of the stock (FMA 2) is likely to be below its management target and by proxy, below B_{MSY}.[106] There is a high risk that this option may not enable the stock as a whole to move towards or above B_{MSY}, which would be inconsistent with your requirement for setting the TAC under section 13(2A) of the Act (refer to Table 8 in Part 3 for further details). 1507. CPUE has been increasing under recent catch levels (since 2016), but it is unknown whether this would continue under higher catch levels. Thus, there is uncertainty regarding the sustainability of the TACC and higher levels of utilisation. 1508. CPUE data for JDO 2 is only available up to 2022. Thus, there is no post-cyclone data, and a moderate level of uncertainty regarding what impact Cyclone Gabrielle may have had on abundance of the southeast part of the stock. There is also uncertainty regarding what impacts the cyclone may have had for recruitment and habitat in the southeast part of JDO 2. This option would provide less resilience to potential cyclone impacts compared with lower TAC and TACC options.
Feedback received	1509. This option was supported by commercial industry representatives Seafood NZ, Gisborne Fisheries Ltd., and Egmont Seafoods Ltd. (Table 4). The submissions suggest that the TACC should be retained until better information is available to determine status of JDO 2. 1510. Seafood NZ highlighted a concern about reducing the TACC across JDO 2 when the assessment indicating a sustainability concern is based only on CPUE for the southeast part of the stock, while half of JDO 2 catch comes from the West Coast (FMA 8) where there is no assessment. It suggests that the TAC must be set carefully taking this into account. 1511. The submissions also raised questions about the accuracy of the assessment, as operators have suggested that catch of JDO 2 for the east coast of the North Island has been reduced by changes in fishing behaviour, with fishers avoiding certain fishing grounds where John dory is abundant, in efforts to avoid risks of paying deemed values for snapper, trevally, and tarakihi. *FNZ response* 1512. FNZ recognises that the sustainability concerns for JDO 2 are based on an assessment of only the southeast part of the stock. The 2024 Fisheries Assessment Plenary suggests there is evidence of a gap between the east and west coast components of JDO 2, so the sustainability concern for the east coast part of JDO 2 may not apply to the west coast part of the stock. In light of this, FNZ is open to further discussion on whether the quota management boundaries are appropriate for JDO 2. 1513. However, FNZ does not consider this to be valid rationale for retaining the current TACC. 1514. Currently the west and east coast parts of JDO 2 are managed as a combined quota management area. You have a legal obligation to set the TAC for this combined stock now based on the best information available to you, and as per section 10(d) of the Act, the absence of, or uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act. Your decision must also not be inconsistent with the objective of moving the stock towards or above B_{MSY}. 1515. FNZ considers there to be a significant risk that if the TACC of JDO 2 is not reduced, it could enable catches to occur at unsustainable levels in the eastern part of the stock, which may cause that part of stock to decline and move further below B_{MSY}. FNZ therefore does not recommend this option.

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

	1516. In relation to the concerns raised about the accuracy of CPUE for the east coast part of the stock, FNZ notes that changes in fishing behaviour (depth of fishing and area fished) are taken into account within the model for the standardised CPUE index. This index was accepted by the Inshore Finfish Working Group[107] to be a reliable indicator of abundance and is our best available information on stock status. As such, it is important that it is given due weight in your decision to set the TAC for JDO 2.

Option 2 – Set TAC and allowances, decrease TACC by 30%

Benefits	1517. The TACC would be reduced to 189 tonnes under this option. This would still allow an increase in commercial catches from current levels (up to 80 tonnes higher than the average commercial catch of JDO 2 for the last five years) (Figure 4). 1518. The lower TACC under this option would reduce the potential risk to sustainability (by limiting how much catch could increase). A reduction in the TACC also recognises that the stock as a whole may be below B_{MSY}. 1519. This option is more cautious than Option 1 with respect to potential cyclone impacts on the stock, but less cautious than the lower TAC and TACC options.
Risks	1520. There is a risk that this TACC reduction may not be large enough to ensure sustainability because it is uncertain whether the trend of increasing abundance for the southeast part of JDO 2 would continue if the TACC were fully utilised. This risk is much lower than under Option 1, but FNZ considers the risk to still be substantive (see Table 8 in Part 3). 1521. While the overall TACC of JDO 2 is significantly underutilised at present, there are some individual quota and ACE holders who are fully utilising or close to fully utilising ACE. The reduction in available ACE under this option is likely to materially increase costs for these fishers (as they would need to acquire more ACE to sustain current operations). 1522. This option would provide less assurance that the stock will be resilient to potential cyclone impacts compared with the lower TAC and TACC options.
Feedback received	1523. There was one individual submission received in support of this option. They did not provide a rationale for their support.

Option 3 – Set TAC and allowances, decrease TACC by 50% (FNZ preferred option)

Benefits	1524. Under this option the TACC would be reduced to 135 tonnes. This is 26 tonnes above average commercial catch for the last 5-year period, or 11 tonnes above average catches for the last 10-year period (Figure 4). This reduction would significantly limit how much JDO 2 catch could increase from recent levels, which would substantially reduce any potential sustainability risk. 1525. This reduction places more weight on the fact that the stock as a whole may be below B_{MSY}.
Risks	1526. The large reduction in available ACE under this option is likely to materially increase costs for fishers who are currently utilising most or all the ACE they hold. 1527. The commercial CPUE for the southeast North Island part of JDO 2 suggests abundance has been increasing toward B_{MSY} under recent catch levels. The TACC under this option will more significantly limit commercial utilisation. This will include limiting utilisation of JDO 2 on the West Coast North Island, where there is no assessment or indicative sustainability concern. 1528. The large TACC decrease under this option could lead to constraining commercial utilisation of other species caught in the same fisheries as JDO 2 (e.g. gurnard, snapper, and trevally) in the immediate future. This could reduce the efficiency and flexibility of commercial operators in the area. This may become more of an issue if the catch limits of SNA 2, SPO 2, SNA 8, and/or JMA 7 (West Coast jack mackerel stock) are increased from the upcoming fishing year, as is recommended by FNZ (see Chapters 3 and 12).

[107] The Inshore Finfish Working Group is one of a many of Science Working Groups which oversee the peer review processes and production of the Plenary reports. They are chaired by FNZ scientists, and include participation by research providers, independent experts (often contracted by FNZ), fisheries managers and experts representing iwi and various stakeholders (for example, commercial, recreational, and environmental NGOs).

Feedback received	1529. One individual submitted in support of this option. They highlighted the need for a cautious approach to setting the TAC and TACC given the uncertainties in stock status and cyclone impacts, and concerns that higher catch limits might result in overexploitation. 1530. Several other submissions also supported a generally cautious approach for setting the TAC, but either supported a larger TACC reduction, or did not specify a preference for any of the proposed options. These submissions are discussed below.

JDO 2 options proposed by submitters

Option 4: Set the TAC lower and decrease the TACC by 59%

1531. The joint submitters proposed an alternative option to set the TAC lower and apply a larger reduction in the TACC from 269.5 to 110 tonnes (as outlined below). The TACC under this option aligns with the average level of commercial catch for the last 5-year period.

TAC	TACC	Allowances		
		Customary Māori	Recreational	All other mortality caused by fishing
124	110 (↓ 159.5)	1	2	11

1532. Other submitters, including EDS and three individuals also supported setting the TAC and TACC lower.

1533. The benefits and risks of this alternative option are like those outlined above for Option 3. This option sets the TACC lower, so is more cautious with respect to ensuring sustainability and resilience to potential cyclone impacts, but it is also more likely to constrain commercial utilisation.

1534. The submitters' main reason for supporting this larger TACC reduction is that Option 3 would allow for a 26-tonne increase in commercial catch levels from the average of the last 5 years, and the submitters believe this is unlikely to reduce commercial fishing effort and/or landings in a way that will enable the southeast part of the stock to move towards B_{MSY}. They also argue that the proposals do not meet your statutory obligation to ensure sustainability because TACC increases proposed for other stocks as part of this sustainability round (SNA 2, SPO 2, and SNA 8) may lead to an increase in bycatch of John dory.

FNZ response

1535. FNZ recognises that a larger reduction in the TACC will do more to reduce any potential sustainability risk. As acknowledged above, the proposed options carry different levels of risk in relation to the likelihood that JDO 2 will be maintained or moved toward B_{MSY}. Options 1 and 2 carry a much higher risk because those options would allow commercial catch levels to increase significantly.

1536. However, while the southeast portion of JDO 2 is currently estimated to be below B_{MSY}, FNZ emphasises that, according to the best available information, JDO 2 is not declining. The partial quantitative assessment shows that biomass is on an increasing trend toward B_{MSY} and has increased significantly since 2016 (Figure 2(d)). FNZ considers that a 26-tonne increase in commercial catch from recent levels (as would be enabled under Option 3), is unlikely to prevent the southeast part of the stock from increasing toward B_{MSY}.

1537. Moreover, any sustainability risk posed by this increase would be mitigated by the high productivity of the species and plan for follow-up monitoring. FNZ is planning for the next partial quantitative assessment for JDO 2 to be carried out in 2026 (refer to *'Assessment timing for JDO 2'* below). This will allow FNZ to monitor how the stock responds to TACC changes and consider taking further management actions in 2026 if information suggests a change in the trend of abundance.

1538. In relation to the concern that catches might increase to unsustainable levels due to TACC changes for other associated stocks, FNZ acknowledges that levels of JDO 2 bycatch could increase but is proposing that the TACC is reduced to limit this to a sustainable level. There are also special deemed value rates in place for JDO 2 that will incentivise commercial fishers to avoid exceeding this level.

FNZ's view of this option

1539. The TAC, allowances and TACC proposed under this alternative option are close to Option 3 and within the general range of what was consulted on. This option is open for you to consider, should you decide that a lower TAC and TACC would be more appropriate for JDO 2 based on the information presented.

1540. While FNZ is not opposed to this option, we ultimately prefer Option 3. This is because FNZ considers that Option 3 will sufficiently constrain commercial catches to ensure they remain sustainable, but with a less negative impact for potential utilisation (see Part 5 '*Conclusions and recommendations'*).

Other suggestions

1541. The SPCA expressed support for the most conservative TAC option due to uncertainties regarding cyclone impacts, anthropogenic stressors (such as warming waters), and concerns regarding animal welfare and environmental damage caused by current commercial fishing methods. Three other individuals noted general concerns about the catch limit proposals but did not specify a preferred option. One individual also suggested an even lower TAC than the joint submitters' alternative option, proposing for the TAC to be set at 132 tonnes, with higher recreational and other mortality allowances (3 and 27 tonnes, respectively), and a larger TACC reduction to 100 tonnes. They did not provide a clear rationale for this preferred alternative.

Assessment timing for JDO 2

1542. FNZ is planning to commission an update to the partial quantitative assessment of JDO 2 in 2026 (alongside SNA 2). This will provide an updated CPUE and characterisation to inform further management of JDO 2 and will allow FNZ to assess how the stock responds following the TAC decision this year.

Who will be affected by the proposed changes?

1543. Commercial interests in these stocks include quota owners, vessel owner-operators and contract fishers in the catching sector, Licensed Fish Receivers (LFRs) (see Table 2 below) and retailers and exporters. The interests of these groups are represented through organisations such as Seafood NZ (Inshore Council), The New Zealand Federation of Commercial Fishermen, and other local fisher's associations.

Table 2: Summary of quota owners, % settlement quota, permit holders, vessels landing the stock, and Licensed Fish Receivers (LFRs) involved with SNA 2, SPO 2, and JDO 2.

Stock	No. Quota owners	% of quota that is Settlement quota	No. permit holders landing the stock	No. vessels landing the stock	No. LFRs landed to
SNA 2	35	8.8%	26	33	19
SPO 2	33	9.6%	31	38	22
JDO 2	51	10.0%	44	54	26

1544. There are recreational interests in all three stocks, with particular interest in snapper (mostly in the southern part of SNA 2 around Hawke Bay). These interests are represented by a range of individuals, groups such as the New Zealand Sport Fishing Council, and various local fishing clubs and associations.

1545. Tangata whenua have both commercial and customary interests in these stocks. The Ngā Hapū O Ngāti Porou Fisheries Forum (East Cape), Mai Paritu tae atu ki Turakirae Iwi Fisheries Forum (East Coast from Paritu to Turakirae) and Rangitaane (North Island) Iwi represent iwi with interests in SPO 2, SNA 2, and the eastern portion of JDO 2 (**FMA 2**)– see Figure 1). The Te Tai Hauāuru Iwi Fisheries Forum and Nga Hapu o Te Uru o Tainui Iwi Fisheries Forum (West Coast of Waikato) represent iwi with interests in the western portion of JDO 2 (**FMA 8**) – see Figure 1).

Input and participation of tangata whenua

1546. FNZ circulated a summary of the stocks proposed for review in this round (including SNA 2, SPO 2, and JDO 2) to the Chairs of the relevant Iwi Fisheries Forums identified above. FNZ invited feedback from the forums and offered to provide more detailed information for any stocks upon request.

1547. To date no specific feedback on these three stocks has been received, nor further information requested.

Fishery characteristics and settings

Table 3: Fishery characteristics and settings for SNA 2, SPO 2, and JDO 2.

Commercial (TACC)
SNA 2
1548. Snapper in SNA 2 is predominantly caught by commercial fishers as bycatch whilst bottom trawling for gurnard and tarakihi, followed by a snapper-trawl target fishery (Figure 7). Over the last decade virtually all (approximately 99%) commercial landings were trawl caught (Figure 5).
1549. The TACC has remained at 315 tonnes since 2002. Over the last decade, annual landings of the stock (as reported from monthly harvest returns) have averaged 334 tonnes (see Figure 4).
SPO 2
1550. Historically most rig caught commercially in SPO 2 was harvested by trawl. Over the past decade approximately two-thirds of landings were trawl caught, and approximately a quarter of landings were set net caught (Figure 6). More recently, a greater portion of commercial catch has been taken in the setnet fishery (about 50% of catch in the last fishing year) (Figure 6).
1551. In the bottom trawl fishery, SPO 2 is predominantly caught as bycatch whilst targeting gurnard and tarakihi. In the setnet fishery, SPO 2 is mainly caught whilst targeting rig or school shark (Figure 8).
1552. The TACC has been fully utilised or close to fully utilised for the past few decades (see Figure 4). It was last reviewed in 2020 and increased from 108 to 119 tonnes. Since that change (excluding 2020 which was significantly affected by COVID), landings of SPO 2 have averaged 125 tonnes. It should be noted that while this was above the TACC, total ACE was not overcaught because additional ACE was available through carry-forward provisions under the Act.
JDO 2
1553. John dory in JDO 2 is predominantly caught by commercial fishers as bycatch whilst bottom trawling for gurnard and tarakihi. Over the last decade virtually all (~ 99%) landings were trawl caught.
1554. The TACC has remained at 269.5 tonnes since it was first set in 1986. Over the last decade, annual landings of the stock have averaged 124 tonnes (Figure 4). Landings have gradually declined since 2019, and in the most recent complete fishing year (2022/23), 90 tonnes were landed (approximately a third of the TACC).
Customary Māori
1555. Customary catch for SNA 2, SPO 2, and JDO 2 is provided for by the Fisheries (Kaimoana Customary Fishing) Regulations 1998, and regulations 50-52 of the Fisheries (Amateur Fishing) Regulations 2013.
1556. In the last five years, FNZ estimates that approximately 1,820 kg of SNA 2, 320 kg of SPO 2, and 40 kg of JDO 2 has been authorised for take under customary regulations (all in FMA 2). These estimates are highly uncertain and likely to be underestimates. This is because many authorisations issued are under regulation 50 of the Fisheries (Amateur Fishing) Regulations 2013, where catches are not required to be reported. Furthermore, there is further uncertainty in these estimates because the reports use different units of measurement (bags, bins, buckets, individual fish counts) and FNZ has used nominal weights to obtain total estimates.
1557. The customary allowance for **SNA 2** is currently set at 14 tonnes. FNZ considers this is likely to provide for customary interests in SNA 2 and does not have evidence to suggest a need for change.
1558. The customary allowance for **SPO 2** is currently set at 5 tonnes. This was last reviewed and retained in 2020. FNZ considers this likely to adequately provide for customary interests in SPO 2 and does not have evidence to suggest a need for change.
1559. Currently there is no customary allowance set for **JDO 2**. As there appears to be limited customary interest in JDO 2, FNZ is proposing that the allowance be set at nominal level of one tonne under all options.
1560. FNZ did not receive any feedback through engagement with Iwi or through public consultation, to suggest that the customary allowances for these stocks should be set at a different level.

Recreational

1561. Recreational controls used to manage harvest of SNA 2, SPO 2, and JDO 2 are summarised in Table 12 under 'Assessment of stock proposals against section 11 of the Act – Existing controls that apply to the stock or area – section 11 (1)(b)'.

1562. The table below provides the best available information on recent recreational harvest levels in SNA 2, SPO 2, and JDO 2. The combined harvest estimates sum data from the 2022/23 National Panel Survey of Marine Recreational Fishers (**NPS**) (Heinemann & Gray 2024, in prep.), estimates of Amateur Charter Vessel harvest and recreational take under section 111 of the Act (recreational harvest taken by commercial fishers).

Stock	NPS Harvest (tonnes)	Coefficient of Variation (± tonnes)	Amateur Charter Vessel Harvest (tonnes)	Harvest from s 111 (tonnes)	Combined harvest (tonnes)	Current recreational allowance
SNA 2	116.4	± 29.1	4.43	1.05	**121.88**	90
SPO 2	2.43	± 1.6	-	0.03	**2.46**	10
JDO 2	1.41	± 0.8	0.02	0.18	**1.61**	N/A

1563. Recreational harvest of **SNA 2** has increased over the last decade, likely due to increased abundance/availability. Most of the recreational catch (about two thirds in 2023) comes from the southern portion of SNA 2 which includes Hawke Bay. The estimated recreational harvest in 2023 exceeds the current recreational allowance (and Option 1) but is within the recreational allowance proposed under Options 2-4 (122 tonnes).

1564. The recent estimated harvest for **SPO 2** is within the current recreational allowance of 10 tonnes. FNZ considers this likely to adequately provide for recreational interests in SPO 2 and is therefore not proposing any change.

1565. There is currently no recreational allowance set for **JDO 2**. FNZ is proposing that the allowance be set at a level of 2 tonnes under all options. This would provide for slightly higher than the level of estimated harvest in 2022/23 (1.61 tonnes).

Other sources of mortality caused by fishing

1566. The allowance for other sources of mortality caused by fishing is intended to provide for unrecorded mortality of fish associated with fishing, including incidental mortality from fishing methods or illegal fishing. This is naturally difficult to quantify when considering the range of contributing sources and as a result there is uncertainty in the estimates used to set this allowance.

1567. For inshore trawl fisheries with low observer and/or camera coverage, there is generally more uncertainty. Noting this uncertainty, the previous Minister of Fisheries in 2018 decided that the allowance should be set at an amount that equates to around 10% of the TACC for inshore trawl caught stocks, unless there is evidence to suggest a different level would be more appropriate.

1568. SNA 2 and JDO 2 are virtually all trawl-caught and SPO 2 is caught about equally by trawl and setnet. These fisheries all have negligible observer coverage (<5% based on event-level data) and currently have limited on-board camera coverage. As there is no new information to suggest that a different level would be appropriate, FNZ is proposing that the allowances for other mortality for SPO 2, SNA 2, and JDO 2 be set at levels that equate to approximately 10% of the respective TACCs (under all options).

1569. FNZ notes that on-board cameras are scheduled to be rolled out on trawl vessels in the East Coast North Island later this year, and on setnet vessels in the East Coast North Island in early 2025. This should help to provide more certainty and better inform these settings in the future.

Part 2: Submissions

1570. In total, 18 submissions were received on the review of SNA 2, SPO 2, and JDO 2. Seven were from representative organisations, and 11 from individuals. The submissions and their supported TAC options are summarised below in Table 4. A number of matters beyond the scope of the proposed TAC changes were raised in submissions. These matters have been summarised and responded to below under *'Other matters raised during consultation'.*

1571. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options or alternatives for SNA 2, SPO 2, or JDO 2, but commented generally about catch limits or other aspects of fisheries management. These general concerns are discussed within Appendix Two of B24-0483.

Table 4: Submissions and responses received in relation to the TAC proposals for SNA 2 (snapper), SPO 2 (rig), and JDO 2 (John dory) during consultation.

Submitter	SNA 2 (snapper)				SPO 2 (rig)				JDO 2 (John dory)				Notes
	Option supported				Option supported				Option supported				
	1	2	3	Other	1	2	3	Other	1	2	3	Other	
Organisations													
Egmont Seafoods Ltd.									✓				Suggests that the TACC should be retained until more accurate information is available to determine status of the stock.
Environmental Defence Society (**EDS**)				✓								✓	Considers increased recreational allowance may be appropriate for SNA 2 but does not support a TACC increase. Supports a more significant TACC reduction for JDO 2.
Environmental Law Initiative (**ELI**)	✓			✓									Recommend that, at a minimum, the TAC for SNA 2 is retained, or decreased in order to avoid, remedy or mitigate the risk of kina barren formation.
Gisborne Fisheries Ltd.			✓				✓		✓				Supports Option 3 for both SNA 2 and SPO 2. Does not support a TACC reduction for JDO 2: considers that CPUE is likely to underestimate JDO 2 abundance due to fishers' inability to fish in shallow waters where they are abundant.
LegaSea New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, and the New Zealand Underwater Association (**'*The joint submitters*'**)				✓	✓							✓	Recommends precautionary decisions. For SNA 2, supports increase in recreational allowance but not an increase to the TACC. Supports retaining the *status quo* in SPO 2, and a more significant TACC reduction in JDO 2.
Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA**)	✓				✓							✓	Supports conservative options for all three stocks, mainly due to concerns about environmental and animal welfare impacts from the trawl and setnet fisheries.
Seafood New Zealand			✓				✓		✓				Supports Option 3 for both SNA 2 and SPO 2. Does not support a TACC reduction for JDO 2 due to concerns that the assessment is based only on the eastern part of the stock, which represents only half of the total catch.

Submitter	SNA 2 (snapper)				SPO 2 (rig)				JDO 2 (John dory)				Notes
	Option supported				Option supported				Option supported				
	1	2	3	Other	1	2	3	Other	1	2	3	Other	
Individuals													
A. Fulford	✓												Believes SNA 2 fishery is in a good state, is concerned a TAC increase will lead to degrading the fishery back to an overfished state.
B. Rigby	✓				✓							✓	Concerned about cyclone impacts. Believes it would be better to wait until cameras are installed on all vessels before increasing the TACCs of SNA 2 & SPO 2.
B. Price				✓									Advocates for managing SNA 2 to a higher target (suggests committing to increase biomass by 2% annually).
C. Latour				✓				✓				✓	Supports TAC reductions for SNA 2 & SPO 2 and setting the TAC for JDO 2 lower than Option 3. Suggests higher recreational allocation for SNA 2 & SPO 2.
D. Nelson	✓					✓				✓			Rationale not provided.
G. Ryder	✓				✓						✓		Advocates cautious approach given cyclone effects and limited information. Suggests more allocation of the SNA 2 TAC to recreational due to use of less harmful methods.
K. Adair				✓	✓			✓				✓	Supports LegaSea submission.
L. Mitchell	✓				✓							✓	Does not support increasing catch limits. Concerned about overfishing impacts on kina. Advocates for banning trawling, less exporting and creating more marine sanctuaries.
M. Currie				✓	✓			✓				✓	Supports LegaSea submission.
P. Urlich				✓				✓				✓	Generally concerned about the proposed changes for SNA 2, SPO 2, and JDO 2.
S. de Schot	✓				✓								Objects to increasing the TAC of SNA 2 or SPO 2. Also opposes the use of trawling.

Feedback from commercial operators in FMA 2

1572. During consultation, FNZ representatives attended an Area 2 committee meeting[108] to discuss the proposed SNA 2, SPO 2, and JDO 2 changes with commercial operators in FMA 2. Table 5 below summarises feedback from operators in relation to the TAC proposals and their general on-the-water observations in FMA 2. Seafood NZ and Gisborne Fisheries Ltd., who each had representatives attend the committee meeting, also provided written submissions. These are summarised above in Table 4. Moana NZ and several individual commercial operators who attended the meeting did not provide individual written submissions; but support the submissions of Seafood NZ and Gisborne Fisheries Ltd.

Table 5: Summary of feedback raised by commercial operators in FMA 2 during consultation.

Stock	Comments / feedback
SNA 2	• Fishers are avoiding SNA 2 due to its high abundance and low ACE availability but are finding it difficult because it is a choke species[109] that significantly limits how and where they can fish. They are paying significant costs in deemed values due to their inability to avoid the stock and consider that a small increase in the TACC is not likely to resolve this issue. • They note the industry is paying significant costs to support monitoring and management and are concerned that recreational fishers want to share in the increased abundance, but not the responsibility of monitoring the sectors' catch. • Fishers queried why deemed values were not reviewed in the proposed changes and would support a decrease in ramping given increasing biomass (see FNZ's response to this below under *'SNA 2 deemed value rates')*.
SPO 2	• The fishers support a larger TACC increase and suggest that small incremental increases for stocks in the area are putting unnecessary constraints on utilisation. They support an increase that reflects the substantial increase in stock biomass.
JDO 2	• The operators expressed opposition to any TACC cut for JDO 2, stating that declining catches are unlikely to be the result of low abundance or sustainability concerns, but rather changes in fishing dynamics and behaviour. They noted difficulties with catching John dory in shallower areas due to the high risk of catching choke species like snapper. • They are concerned that if the TACC is reduced at the same time as snapper TACC increases, fishers will be unnecessarily punished by deemed value penalties in both FMA 2 and FMA 8, when a sustainability concern is not supported by their on-water experience.
General comments	• The fishers indicated they had seen a big improvement in fishing since the cyclone and were able to fish in more areas (but were still avoiding some areas in Hawke Bay, particularly after rain fall events). • They are still seeing lots of sediment inputs following heavy rain but are not seeing a lot of sediment in nets, which was an issue in 2023 following the cyclone. • Operators are observing higher abundance of trevally and tarakihi in FMA 2. Similarly to snapper and rig, they are concerned about the limited availability of ACE for trevally not appropriately reflecting its increased biomass and consequently limited targeting of other species. They would support its review coinciding with snapper in FMA 2 in future to alleviate some of that concern. A Committee member also raised a concern about the deemed value rates for TRE 2, stating that the current deemed value rate is disincentivising their efforts to improve the value (and reduce waste) obtained from trevally.

[108] This committee provides a forum for industry representatives and operators (including reps from Seafood NZ, Moana NZ and Gisborne Fisheries Ltd) to discuss fisheries matters within Fisheries Management Area 2 (FMA 2).
[109] In a mixed fishery, a choke species is a stock whose available quota is exhausted while other stocks still have quota available to the fisher. In this instance it restricts the fisher's ability to continue to fish for stocks where quota is still available.

Other matters raised during consultation

Risk of increasing SNA 2 TAC for recruitment and kina barrens

1573. ELI in its submission argues that FNZ is focussing on utilisation rather than sustainability by consulting on a limited range of catch limit options and not considering whether a lower level of utilisation would better achieve the purpose of the Act. ELI suggests that, given the uncertainties outlined in relation to current biomass levels, cyclone impacts on recruitment, and the likelihood of fishing activity resulting in kina barren formation, a cautious approach should be taken in setting the TAC. ELI recommends that, at a minimum, the TAC should be retained or decreased to avoid, remedy, or mitigate the risk of kina barren formation.

FNZ response

1574. FNZ disagrees with the assertion that the options focus on utilisation over sustainability. FNZ is proposing options which range from no change to a 30% TAC increase for SNA 2, which we consider meet the purpose of the Act by allowing for utilisation while ensuring sustainability. Lower TAC and TACC options were not proposed for consultation because FNZ considers this would not be consistent with the purpose of the Act, given the best available information shows that snapper abundance is high and rapidly increasing.

1575. FNZ acknowledges there are uncertainties in the partial quantitative assessment for SNA 2, and in relation to cyclone impacts on recruitment and risks of kina barren formation. These were highlighted in the discussion document and FNZ has provided more information on these factors and their uncertainties for you to consider throughout this document.

1576. However, these uncertainties do not suggest TAC increases would be unsustainable or contrary to the purpose and principles of the Act. As noted above in FNZ's response under '*Option 4: Only increase the TAC and recreational allowance',* these factors and uncertainties were considered in the development of the SNA 2 options that were consulted on. While the best available information suggests that biomass of snapper has significantly increased in SNA 2 (at least 2-fold increase for SNA 2N and 3-fold increase for SNA 2S since 2016) and it is anticipated that abundance will increase further (refer to paragraphs 1471-1473), the proposed TAC increases proposed by FNZ are small relative to the suggested biomass increase, in acknowledgment that these uncertainties warrant some caution.

1577. FNZ agrees that there is a need to avoid, remedy, or mitigate the risk of kina barren formation. Setting the TAC and TACC at a lower level would be more precautionary in relation to this risk, and if you choose to retain the current settings you would be placing more weight on this risk. However, FNZ reiterates that biomass of snapper has increased substantially over the last decade and appears likely to continue increasing. Importantly, the assessment indicates that this increase is occurring broadly across SNA 2, with standardised CPUE showing an increasing trend across all the key statistical areas where snapper is caught. While forward projections are not available to determine precisely how a 20% or 30% TAC increase might affect overall biomass of snapper in SNA 2, or the overall age and size distribution, the information available suggests that biomass is likely to remain at a high level and that the size distribution of snapper has been broadening under current catch levels (with more big fish entering the population). These factors would limit the risk of kina barren formation.

SNA 2 deemed value rates

1578. FNZ did not propose any changes to the deemed value rates of SNA 2, SPO 2, or JDO 2 during consultation, but welcomed general feedback on the deemed value settings.

1579. Seafood NZ and other commercial interests submitted in relation to the deemed value settings for SNA 2, suggesting that the current rates do not adequately reflect the sustainability status and economic factors associated with the stock. Seafood NZ considers that the current rates are overly punitive and supports the removal or softening of the differential rates that apply for higher levels of excess catch.

FNZ response

1580. The deemed value rates of SNA 2 were last reviewed in 2022 and both the annual and differential rates were reduced from 2022 to better align with stock status and the rates of adjacent snapper stocks. The annual rate is now set slightly above the ACE price and below the port price of SNA 2 (see Figure 3 below).[110]

[110] Annual deemed value rates are generally set above the average ACE price to incentivise the majority of fishers to balance catch against ACE, and below the port price (landed value) to incentivise accurate catch reporting.

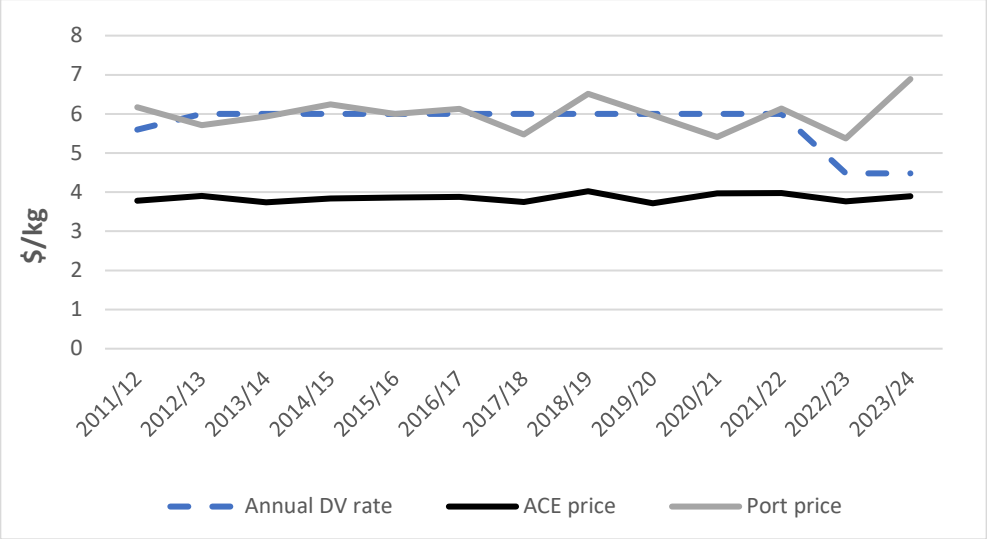


Figure 3: Summary of port price, average annual ACE transfer price, and annual deemed value rate information for SNA 2 since 2011/12.

1581. Based on this, FNZ is satisfied that the annual rate is consistent with section 75(2)(a) of the Act, in that it provides sufficient incentives for fishers to balance their catch with ACE.

1582. In relation to the suggestion that differential rates should be softened or removed, FNZ acknowledges that there is no sustainability concern for the stock and is recommending a TACC increase for the stock in line with this. However, FNZ is concerned that lower differential rates may not provide strong enough incentives for fishers to avoid higher levels of catch in excess of the TACC. FNZ therefore still holds the view that the current deemed value rates remain appropriate for SNA 2 but is open to discussing the settings further with Seafood NZ and fishers in the commercial catch balancing forum later this year.

1583. FNZ recognises that if the TACC is changed as a result of this review, subsequent changes in the ACE market may also result in the need for these deemed value rates to be re-evaluated in the future.

Consideration of other measures, transition to more selective fishing methods

1584. There was also a general theme across submissions from recreational and environment interests that FNZ should more seriously consider implementing restrictions on certain commercial fishing methods, such as trawling, which can damage the marine environment. These general concerns are discussed within Appendix Two of B24-0483.

Part 3: Assessment against relevant legal provisions

Overview

1585. You are being asked to make decisions to set the TACs for SNA 2, SPO 2, and JDO 2 under section 13 of the Act. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

1586. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

1587. On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in Part 3 (Supporting information).
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 13 of the Act

1588. Table 6 below outlines FNZ's assessment of the proposed TAC options for SPO 2 against section 13(2)(a) of the Act, and Tables 7 and 8 outline FNZ's assessment of the proposed TAC options for SNA 2 and JDO 2 against section 13(2A) of the Act, respectively. These assessments have been informed by the best available information on the status of the stocks (summarised in Part 1 under '*rationale for review*'), and information discussed in Part 4 under *'Information on biology, interdependence, and environmental factors'*.

Table 6: Assessment of SPO 2 TAC changes under section 13(2)(a) of the Act.

Section 13(2)(a)	1589. The partial quantitative assessment for SPO 2 indicates that its biomass is above a level that supports *MSY* (B_{MSY}) and increasing. Because it is estimated to be above B_{MSY} and there is a desire to maintain the stock at or above this level, any change to its TAC would be made under section 13(2)(a) of the Act. Under this provision of the Act, you must set a TAC using the best available information that is consistent with the objective of maintaining the stock at or above B_{MSY}, while also having regard to the interdependence of stocks. 1590. FNZ's view is that the TAC options proposed for SPO 2 (Options 1, 2, and 3) would all be consistent with the objective of maintaining the stock at or above B_{MSY}. This is because it is estimated to be above B_{MSY} with rapidly increasing abundance (based on CPUE trends), and FNZ is proposing up to a maximum of a 30% TAC increase, which is thought to be moderate compared to the level of increased abundance suggested by the assessment (see Figure 2(c)). 1591. FNZ acknowledges that forward projections are not available to determine precisely where SPO 2 would be relative to B_{MSY} following changes to the TAC. It is logical that the lower the TAC is set, the more likely the stock is to be maintained at a higher level relative to B_{MSY}.
Harvest Strategy Standard (HSS) See 'The Harvest Strategy Standard' in Chapter 1 'Legal overview' for more information.	1592. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} -compatible reference points. 1593. SPO 2 is currently assessed as being above its B_{MSY} -compatible proxy target and very unlikely (<10% probability) to be below the soft and hard limit (see Figure 2(c) for visual reference). On this basis, FNZ considers the proposed TAC increases to be consistent with the HSS.
Section 13(2)(a)	1594. FNZ considers that the proposed increases to the TAC of SPO 2 could have some effect on associated prey species if effort in the associated fisheries increases.

Interdependence of stocks	However, rig is known to be a generalist predator. Any specific impacts for other species are uncertain, and the extent of these potential impacts cannot be quantified based on available information. 1595. Based on the magnitude of the proposed options, and that rig abundance appears to be increasing at current levels of fishing, FNZ does not anticipate any adverse impacts for other stocks due to interdependencies with rig.

Table 7: Assessment of SNA 2 TAC changes under section 13(2A) of the Act.

Section 13(2A)	1596. Biomass can be reliably estimated in relation to *MSY* for the southern part of SNA 2 (SNA 2S), but not for the northern part of SNA 2 (SNA 2N), because SNA 2N does not have accepted reference points. 1597. As overall B_{MSY} cannot be reliably estimated using the best available information, section 13(2A) applies when varying the TAC of SNA 2. Under this section, you must set a TAC using best available information, and which is not inconsistent with the objective of maintaining the stock at or above B_{MSY}, while having regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. 1598. FNZ's view is that none of the TAC options proposed for SNA 2 would be inconsistent with the objective of maintaining SNA 2 above B_{MSY}. This is based on the southern part of the stock being above B_{MSY} and increasing, and the northern part of the stock showing high and rapidly increasing abundance (as noted above, a more than 3-fold increase since 2016). FNZ is only proposing up to a maximum of a 30% TAC increase, which is thought to be moderate compared to the level of snapper abundance suggested by the partial quantitative assessment and CPUE trends (refer to Figures 2(a) and 2(b)). 1599. FNZ acknowledges that information is currently not available to determine where the SNA 2 stock as a whole is relative to B_{MSY}, and projections are not available to determine where it would be relative to B_{MSY} following changes to the TAC. It is logical that the lower the TAC is set, the more likely the stock is to be maintained at a higher level relative to B_{MSY}.
Harvest Strategy Standard (HSS) See '*The Harvest Strategy Standard' under* Chapter 1 '*Legal Overview'* for more information.	1600. The southern part of SNA 2 (SNA 2S) is assessed to be above its B_{MSY}-compatible proxy target and very unlikely (<10% probability) to be below the default soft or hard limits specified under the HSS (see Figure 2(b) for visual reference). 1601. For the northern part of SNA 2 (SNA 2N) there is limited relevance in the context of reference points specified under the HSS because a B_{MSY}-compatible proxy target has not been determined. However, the Plenary concluded, based on the large increase in the accepted index of abundance, that the stock is very unlikely (<10% probability) to be below its soft limit. 1602. On this basis, FNZ considers the proposed TAC increases for SNA 2 to be consistent with the HSS.
Section 13(2A)(b) Interdependence of stocks	1603. There is evidence from northeastern New Zealand that reduced abundance of kina predators (such as large snapper) can contribute to the formation of low biodiversity 'kina barren' areas. There is also some anecdotal and unpublished evidence suggesting the occurrence of kina barrens within SNA 2, in the Gisborne and Wellington regions (see further information on this in Part 4). 1604. The extent to which changes in abundance of snapper may affect the formation of kina barrens in SNA 2 is unknown, and the biomass of snapper required to meaningfully fulfil this ecological role (in preventing kina barrens) is also unknown. 1605. There are further uncertainties in the risk of reducing the abundance of snapper because of recent cyclones, especially the potential impacts of sediment and debris on shallow coastal habitats, and the absence of macroalgae at shallow depths in recent surveys from Gisborne and Hawke's Bay (Leduc et al, 2024). Though how macroalgae loss from cyclones may interact with risk of kina barren formation in the region is unknown.

	1606. The cyclone likely also affected the abundance of other key predators in the ecosystem, including rock lobster (another key predator of kina), which has declined in abundance in Gisborne in recent years (Starr, 2024), necessitating catch limit reductions for the stock. In addition to this, the increased sedimentation from the cyclone and resulting loss of macroalgae in some areas, combined with the effects of fishing, may have a cumulatively higher impact on the recovery of fish populations (including snapper). 1607. Based on the limited information available, the overall risk of kina barren formation cannot be accurately quantified in relation to the proposed TAC changes for SNA 2. However, while uncertain, you are required to consider this risk in your decision on the TAC.[111] 1608. It is likely that a higher abundance of snapper will increase the certainty that their ecological role is fulfilled, in the sense that higher levels of abundance would mean higher levels of predation of snapper on kina. 1609. More removals of snapper would be enabled under Options 2 and 3, which would result in a lower stock abundance compared with Option 1. Logically, this means the risk of kina barren formation would be higher under Options 2 and 3, with the highest risk under Option 3 since it would enable the highest level of fishing. However, the difference in this risk cannot be quantified and FNZ notes that the risk of kina barren formation is unlikely to vary proportionally with changes in snapper abundance. There is reasonable evidence of ecological tipping points at which kina barren formation occurs (but the biomass of snapper required to reach this tipping point is unknown). 1610. Forward projections are not available to predict precisely how the level of biomass in SNA 2 might be affected following the implementation of the TAC changes proposed. However, FNZ notes that biomass in SNA 2 has increased significantly over the past decade, broadly across the SNA 2 area, and is anticipated to increase further with snapper productivity generally increasing around New Zealand. The age and size structure of the snapper in the northern part of SNA 2 has also been broadening in the past decade or so. This broadening has likely increased effective predation, noting that larger snapper can consume larger kina. 1611. While abundance of snapper has significantly increased in SNA 2 (more than 2-fold increase for SNA 2N and 3-fold increase for SNA 2S since 2016), FNZ has proposed relatively smaller TAC increases under Options 2 (20%) and 3 (30%) in comparison. FNZ did not consult on larger increases, acknowledging that there are uncertainties that warrant caution, including risks to kina barren formation. 1612. FNZ notes that you may set the TAC and TACC of SNA 2 at a lower level to be even more precautionary in relation to the risk of kina barren formation.
Section 13(2A)(b) Biological characteristics of the stock	1613. The low productivity and low natural mortality of snapper can be considered offset by their early maturity and high fecundity, and recent assessments indicating that snapper stocks may be currently experiencing a period of higher productivity with strong recruitment. They can therefore be expected to have a moderate level of resilience to increased fishing pressure.
Section 13(2A)(b) Environmental conditions	1614. Cyclone Gabrielle caused sedimentation in nearshore habitats in FMA 2 which has likely impacted juvenile and birthing habitat of snapper (particularly the Wairoa Hard). The full extent of these impacts and flow on effects for recruitment will not be fully understood until 4-5 years' time. This warrants some caution in relation to setting the TAC for SNA 2. 1615. The 2023 CPUE data (including limited post-cyclone data) suggests that abundance of the exploitable snapper population is currently still very high and has continued to increase in recent years (Figure 2). The magnitude of the recent CPUE increases (more than 3-fold increase for SNA 2S and 2-fold increase for SNA 2N since 2016) provides FNZ confidence that the TAC of SNA 2 can be sustainably increased.

[111] High Court judicial review of CRA 1 - *The Environmental Law Initiative v Minister for Oceans and Fisheries* [2022] NZHC 2969 [11 November 2022].

	However, to acknowledge the need for caution in response to potential cyclone impacts on recruitment, FNZ is only proposing options for up to a moderate increase (30% TAC increase) at this time.
Section 13(3) Factors to have regard to in considering the way and rate the stock is moved towards or above B_{MSY}	1616. Section 13(3) is not considered relevant to the TAC decision for SNA 2 because the options only aim to maintain the stock at or above *MSY*. They are not intended to move the stock to a certain level in a certain way or rate.

Table 8: Assessment of JDO 2 TAC changes under section 13(2A) of the Act.

Section 13(2A)	1617. Biomass can be estimated relative to *MSY* for the southeast North Island part of JDO 2, but not for the west coast North Island part of JDO 2. Moreover, the most recent estimate for southeast North Island JDO 2 is not very reliable due to the lack of post-cyclone data for the stock. 1618. Because B_{MSY} cannot be reliably estimated for the stock (as a whole) using the best available information, section 13(2A) applies when setting or varying the TAC. Under this section, you must set a TAC using best available information which is not inconsistent with the objective of maintaining the stock at or above B_{MSY}, or moving the stock towards or above B_{MSY}, while having regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. 1619. Although biomass for JDO 2 cannot be reliably estimated in relation to B_{MSY}, the southeast North Island part of the stock was recently assessed to be below B_{MSY}, and this was prior to any impacts from Cyclone Gabrielle. Based on this FNZ is concerned that the stock may be below B_{MSY}. 1620. FNZ's view is that Options 3 and 4 for JDO 2 (setting the TAC 50% or 59% lower, respectively) would not be inconsistent with the objective of moving the stock toward or above B_{MSY}. Both options would reduce catch limits to levels that would substantially reduce the risk of catches occurring at a level that might lead to a reduction in biomass for the southeast part of JDO 2 (away from B_{MSY}). 1621. For Options 1 and 2, which propose to retain the current TACC (Option 1) or reduce the TACC by 30% (Option 2), there is a significant risk that if the TACC were fully utilised, commercial catches of JDO 2 might reach a level that results in biomass falling further below B_{MSY}. This risk would be markedly higher under Option 1. Based on these risks, FNZ's view is that Option 1 is likely to be inconsistent with your requirement for setting the TAC under section 13(2A), and Option 2 may also be inconsistent with section 13(2A). However, we note that you have discretion to make your own assessment of this risk, and your own assessment of the consistency of these options with section 13(2A).
Harvest Strategy Standard (HSS) See '*The Harvest Strategy Standard*' under Chapter 1 '*Legal Overview*' for more information.	1622. The last assessment in 2023 indicated that the southeast part of JDO 2 was unlikely (<40% probability) to be above its interim B_{MSY} proxy target. However, it was also unlikely (<40% probability) to be below the soft limit, and very unlikely (<10% probability) to be below the hard limit. There is more uncertainty surrounding this status for JDO 2 because it was last assessed prior to impacts of Cyclone Gabrielle. CPUE estimates indicate that JDO 2 fluctuated around the soft limit over much of the past decade but has shown an increasing trend toward the target in recent years (see Figure 2(d)). 1623. The proposed reductions to the TACC of JDO 2 are consistent with the HSS, in that they aim to allow the southeast part of the stock to rebuild toward the B_{MSY} proxy target.
Section 13(2A)(b)	1624. Fishing effort is unlikely to change based on the proposed TAC settings for JDO 2 because recent catch levels for JDO 2 would not be constrained under any of the proposed settings. Based on this, FNZ considers it unlikely that TAC changes would

Interdependence of stocks	impact associated predator and prey interactions and does not anticipate that they would adversely impact any other stocks due to interdependencies with John dory. 1625. However, it is worth noting that if the southeast part of JDO 2 declines further below target, a low level of biomass could have effects on associated predator and prey species. The impacts would be less likely to occur under options to reduce the TACC, because a lower TACC setting will provide more certainty that John dory abundance will continue increasing toward the management target.
Section 13(2A)(b) Biological characteristics of the stock	1626. Due to their higher productivity, John dory are expected to be generally more resilient to changes in fishing pressure and less susceptible to overfishing.
Section 13(2A)(b) Environmental conditions	1627. Cyclone Gabrielle caused sedimentation in nearshore habitats in FMA 2 which has likely impacted juvenile and birthing habitat of snapper and John dory (particularly in areas like Wairoa Hard). The full extent of these impacts and flow on effects for recruitment will not be fully understood until 4-5 years' time. This warrants some caution in relation to setting the TAC for JDO 2 1628. There is no post-cyclone CPUE data for the southeast part of JDO 2 and overall, there is a high level of uncertainty regarding what impact the cyclone may have had for the stock and its future recruitment. Thus, a higher level of caution is warranted in setting the TAC for JDO 2, and FNZ considers that TACC reductions would be appropriate to mitigate risks.
Section 13(3) Factors to have regard to in considering the way and rate the stock is moved towards or above B_{MSY}	1629. Section 13(3) is considered relevant to the proposed TAC changes for JDO 2 because FNZ is concerned that the stock as whole may be below B_{MSY}, and the proposed options aim to move the stock toward or above B_{MSY}. Forward projections are not available to help FNZ determine what way and rate these options would move the stock in relation to B_{MSY}. However, a lower TAC (and larger reduction to the TACC) would provide more certainty that JDO 2 will move towards or above B_{MSY} than a higher TAC. 1630. In considering the way and rate at which the stock is moved, you must have regard to relevant social, cultural, and economic factors. Information on these factors can be found in Part 1 under 'John dory (JDO 2) Options' and 'Who will be affected by the proposed changes?'. 1631. In general, the TACC reduction under Options 2, 3, or 4 would have a negative financial effect on those involved in the commercial fishery, with disproportionate impacts on permit holders who are currently fully or close to fully utilising their JDO 2 ACE. However, in the long-term the commercial fishery and its stakeholders would also benefit from a higher biomass level if the stock were enabled to increase as a result of the TACC reduction. None of the TAC options are expected to negatively impact customary and recreational fishers, given that the allowances for customary and recreational fishing would provide for existing levels of harvest under all options.

Kaitiakitanga

1632. 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.

1633. As noted above under '*input and participation*' the Ngā Hapū O Ngāti Porou (East Cape) and Mai Paritu tae atu ki Turakirae (East Coast from Paritu to Turakirae) Iwi Fisheries Forums, and Rangitaane (North Island) Iwi represent iwi with interests in SPO 2, SNA 2, and the eastern part of JDO 2. The Te Tai Hauāuru (Taranaki to Titahi Bay) and Nga Hapū o Te Uru o Tainui (West Coast of Waikato) Forums represent iwi with interests in the western part of JDO 2.

1634. Eight out of nine hapu Fisheries Plans have been developed for Ngā Hapū O Ngāti Porou and the Fisheries Plan for Mai Paritu tae atu ki Turakirae is currently being developed. The Te Tai Hauāuru and Nga Hapū o Te Uru o Tainui Forums, and Rangitaane (North Island) Iwi all have plans which contain objectives relevant to

the management of fisheries in their rohe. In Table 9 below, FNZ has summarised the objectives specified within these plans.

Table 9: Summary of management objectives from Iwi Fisheries Forum and Iwi fisheries plans, which are relevant to the reviews of SNA 2, SPO 2, and JDO 2.

Iwi Fisheries Plan	Relevant Management Objectives contained in plan
Relevant to the review of SPO 2, SNA 2, and the eastern part of JDO 2 (Fisheries Management Area 2)	
Rangitaane (North Island) Iwi Fisheries Plan	• Mana and rangatiratanga over Rangitaane (North Island) Fisheries is restored, preserved and protected for future generations. • Collaborative iwi partnerships in fisheries and environmental resource management are realised. • Rangitaane (North Island) have sufficient capacity to meet their individual and collective responsibilities as tiaki tangata/kaitiaki in partnership with others. • Our customary non-commercial fisheries are healthy, sustainable and support the cultural wellbeing of nga iwi o Rangitaane (North Island). • Our commercial fisheries are sustainable and support the economic wellbeing of Rangitaane (North Island) hapu and whanau.
Relevant to the western part of JDO 2 (Fisheries Management Area 8)	
Ngā Hapu o Te Uru o Tainui Forum Regional Customary Fisheries Management Plan	• Outcome Area 1: Ngaa Hapuu o Te Uru kaitiaki are able to participate in and influence fisheries decision-making. • Outcome Area 2: Relationships and partnerships with key stakeholders, managers and agencies are established and maintained. • The forum generally considers all fish and shellfish species to be taonga (treasures). John dory is also listed in the plan as an important taonga species.
Te Tai Hauāuru Iwi Forum Fisheries Plan	• Our customary non-commercial fisheries are healthy, sustainable and supports the cultural wellbeing of Te Tai Hauāuru Iwi. • Our commercial fisheries are sustainable and support the economic wellbeing of Te Tai Hauāuru Iwi. • Mana and rangatiratanga over our fisheries is restored, preserved and protected for future generations. • Iwi collaborate in fisheries and environmental resource management to achieve iwi driven objectives.

1635. FNZ considers that the proposed management options for SNA 2, SPO 2, and JDO 2 are in keeping with the objectives of the plans summarised above, which generally relate to opportunities for active engagement with iwi and the maintenance of healthy and sustainable fisheries. None of the Forums or Iwi directly provided feedback on the options proposed for these stocks.

Mātaitai reserves and other customary management tools

1636. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the Gazette under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

1637. The mātaitai reserves, area closures, fishing method restrictions, and prohibitions that apply in SNA 2, SPO 2, and JDO 2 are listed in Table 10 below.

1638. It is not anticipated that the proposed TAC increases for SNA 2 and SPO 2 would negatively impact the availability of these species in these areas, given their increasing abundance and the distribution of commercial fishing effort outside of these areas.

Table 10: Mātaitai reserves and other customary management tools that apply to SNA 2, SPO 2, and JDO 2.

Management type	FMA 2: East Cape, Gisborne, Wairarapa, east coast of Wellington	FMA 8: Taranaki, west coast of Wellington
	  	
Mātaitai reserves Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.	Te Kopa o Rongokānapa Hakihea Horokaka Toka Tamure Te Hoe Moremore (a) & (b)	Marokopa
Taiāpure All types of fishing are permitted within a taiāpure. The management committee can recommend regulations to manage commercial, recreational, and customary fishing.	Porangahau Palliser Bay	N/A
Temporary closures Section 186A temporary closures are used to restrict or prohibit fishing of any species of fish, aquatic life or seaweed or the use of any fishing method.	Tangoiro/Waihirere closure - shellfish or fin fish Motuoroi closure area - shellfish or fin fish Moremore Temporary Closure – all fisheries resources Waimārama Temporary Closure - blackfoot pāua	Western Taranaki - shellfish (except rock lobster), conger eels, seaweed (excluding beach cast seaweed) and anemones

Assessment of the proposals against section 9 of the Act

1639. Table 11 below outlines FNZ's assessment of the proposed options for SNA 2, SPO 2, and JDO 2 against the environmental principles in section 9 of the Act, which you must take into account when considering the TACs of these stocks. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under *'Information on environmental impacts'* within *'Part 4: Supporting Information'*.

Table 11: Matters relevant to the assessment of the SNA 2, SPO 2, and JDO 2 TAC proposals under section 9 of the Act.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	1640. The proposed options to increase the TACs for SNA 2 and SPO 2 may result in additional effort in the fisheries associated with these stocks (notably in the trawl fisheries targeting GUR 2 and SNA 2 and setnet fishery targeting SPO 2). This may lead to increases in interactions with protected species, and the other species caught in those fisheries. However, increases in interactions may also be somewhat limited by the high and increasing abundance of rig and snapper, due to less fishing effort being required to achieve increased catch of those species. 1641. Associated species most likely to be negatively affected by the TAC increases are mammals and seabirds which do not have a high conservation concern, such as fur seals, common dolphins, white-capped albatrosses, petrels, prions, and shearwaters. 1642. Based on the information on interactions summarised above, and the magnitude of the proposed TAC increases for SNA 2 and SPO 2, FNZ considers it unlikely that any of these proposed TAC options would threaten the long-term viability of any associated or dependent species.
Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	1643. The TAC increases proposed for SNA 2 and SPO 2 are unlikely to significantly increase bottom trawl effort or the overall trawl footprint in FMA 2 because they reflect increased fish abundance and CPUE. However, FNZ will continue to monitor changes in these trawl footprints that occur as a result of any changes. 1644. As noted above, snapper is a key demersal predator in northern New Zealand coastal marine ecosystems, and there is some risk that if SNA 2 is not managed at a level that maintains this function, it could contribute to the formation of kina barrens. This could have flow on negative impacts for biodiversity, given that barrens are associated with lower biological diversity. This is discussed in more depth in Table 7 above and below in Part 4 under '*Interdependence of stocks*'. The risk of negative impacts for biological diversity cannot be reliably quantified based on the limited information available.

	1645. FNZ considers the options presented to be relatively cautious in light of this uncertainty.
Habitat of particular significance for fisheries management should be protected - Section 9(c) of the Act	1646. While the proposals to increase the TACs for SNA 2 and SPO 2 may result in additional effort in their associated fisheries (particularly the GUR 2, SNA 2, and SPO 2 target fisheries), FNZ considers that these increases are unlikely to result in a risk of adverse effects on potential habitat of particular significance for fisheries management. Fishing is either restricted or generally does not occur in those areas (Table 15 summarises existing protection measures which apply in these areas). 1647. It is also worth noting that the risk to those habitats from increasing SPO 2 catch would be low since any increase in effort is likely to be applied in the setnet fishery which does not significantly impact the benthic environment. 1648. Some of the proposals to increase the TACCs for stocks in this sustainability round may lead to increased fishing effort in FMA 8 (in particular for SNA 8) and could lead to increased fishing effort (and increased risk of adverse effects) at Patea Shoals, which is within the JDO 2 area. 1649. Given the importance of this habitat, FNZ has commenced discussions with key stakeholders and is considering options (including regulated or nonregulated area closures to trawling) to manage the risk of adverse effects of fishing at this site to support the ongoing function of this area in maintaining productive fisheries and ecosystems.

Assessment of the proposals against section 11 of the Act

1650. Table 12 below outlines FNZ's assessment of the proposed options for SNA 2, SPO 2, and JDO 2 against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TACs of these stocks.

Table 12: Assessment under section 11 of the Act for SNA 2, SPO 2 and JDO 2.

You must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	1651. "*Effect*" is defined widely in the Act.[112] The direct effects of fishing for snapper, rig, and John dory need to be considered, as well as the indirect effects of this fishing for the surrounding ecosystem. 1652. Information relevant to the direct effects of fishing on these stocks is described throughout this paper, particularly within Part 1 in Figure 2, and under '*Options and analysis*' and *'fishery characteristics and settings'*. Some effects of fishing on other stocks caught in the same fishery are described under *'Options and analysis',* with more detailed analysis below in Part 4 under '*Stock complex information'*. The effects of fishing of these stocks on interdependent species and the aquatic environment are considered above in Tables 6, 7, 8, and 10, with more supporting detail and background analysis provided below in Part 4, under '*Interdependence of stocks'* and *'Information on environmental impacts'.* 1653. The magnitude of these effects of fishing on these stocks, their associated species, and the environment, will vary depending on the TAC settings – particularly of SPO 2, which is targeted, and SNA 2, for which limited ACE is constraining commercial operations. FNZ considers that the proposed TAC options for these three stocks appropriately balance the utilisation opportunities that exist against these potential effects. Greater effects may occur under higher TAC settings for these stocks, and this is something you must take into account in your decisions.

[112] 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.

<table>
<tr><td rowspan="2">Existing controls that apply to the stock or area – section 11(1)(b)</td><td colspan="3">Commercial:
Spatial gear restrictions (under Fisheries (Central Area Commercial Fishing) Regulations 1986):
– Several areas within Hawke Bay closed to both trawl and Danish seine fishing.
– Prohibition of paired trawling along the North Island East Coast.
– Prohibition of Danish seining around the lower North Island.
– Trawl and set net restrictions along the North Island West Coast (relevant for JDO 2).</td></tr>
<tr><td>SNA 2 (snapper):
Recreational:
- Minimum legal size: 27 cm
– Maximum daily limit per person: 10 snapper within the combined daily limit of 20 fish
– Minimum net mesh size: 100 mm
Commercial:
– MLS of 25 cm fork length.
– Minimum net mesh size of 100 mm</td><td>SPO 2 (rig):
Recreational:
– Combined daily limit per person: 20 fish including rig
– Minimum net mesh size: 150 mm
Commercial:
– Minimum net mesh size of 150 mm</td><td>JDO 2 (John dory):
Recreational:
– Combined daily limit per person: 20 fish including John dory
– Minimum set net mesh size: 100 mm</td></tr>
<tr><td>The natural variability of the stock – section 11(1)(c)</td><td colspan="3">SNA 2 (snapper):
1654. Snapper is a generally low productivity species with accordingly low natural variability, which generally warrants some caution when considering a large TAC increase. However, recruitment success can also vary significantly, potentially in response to environmental conditions such as water temperature. Recent assessments also indicate that snapper around the north island is experiencing higher productivity compared to historically. This aligns with the observed CPUE trends in SNA 2 showing rapid increases in abundance in recent years.
SPO 2 (rig):
1655. Rig are generally considered to have low fecundity and a low level of natural variability. Like other sharks, this can make rig susceptible to overfishing, so some caution is warranted when considering a large TAC increase. Should fishing mortality in SPO 2 exceed the MSY threshold, this could lead to depletion. However, FNZ notes this risk is currently low given that the stock is assessed to be above B_{MSY} and abundance appears to be increasing, while the relative exploitation rate is decreasing.
JDO 2 (John dory):
1656. John dory are a high productivity stock with higher natural variability compared to snapper and rig. Their abundance can increase rapidly under favourable conditions, and in many cases TACs are set high to account for high natural variability. However, for JDO 2 there is a need to set the TAC cautiously because the southeast part of JDO 2 is assessed to be below B_{MSY}.</td></tr>
<tr><td>Fisheries plans, and conservation and fisheries services – section 11(2A)</td><td colspan="3">National Inshore Finfish Fisheries Plan:
1657. The National Inshore Finfish Plan, approved under section 11(2A), is relevant to management of snapper, rig, and John dory. All three stocks are in Group 2 of the plan, which recognises the need to manage the stocks to provide for moderate levels of use with moderate levels of information to monitor stock status (e.g. partial quantitative assessments). FNZ considers that the options proposed for all three stocks are consistent with this.
Fisheries and conservation services:
1658. Fisheries and conservation services of significance have been described throughout this paper where relevant.
1659. Fisheries services of relevance to these stocks include the research used to monitor their abundance (the partial quantitative assessments based on CPUE data) and the tools used to enforce compliance with management controls in these fisheries.</td></tr>
</table>

	1660. Compliance is supported by observer and on-board camera monitoring in commercial fisheries. The observer and camera coverage relevant to SNA 2, SPO 2, and JDO 2 is described in Table 3 (Part 1) under the heading '*Other sources of mortality caused by fishing*'. 1661. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species. 1662. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	1663. There are four regional councils and one unitary authority that have coastlines within the boundaries of FMA 2 (which covers all three stocks): Greater Wellington, Manawatu-Wanganui, Hawke's Bay, Gisborne, and Bay of Plenty. There are three regional councils have coastlines within the boundaries of FMA 8 (relevant to part of JDO 2): Waikato, Taranaki, and Greater Wellington. 1664. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. 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 these stocks. FNZ has reviewed the documents and the provisions that might be considered relevant. A summary of these can be found in Addendum 1. FNZ considers the options in this paper are all consistent with the objectives of these relevant plans.
Non-mandatory relevant considerations	
Other plans and strategies	Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy) 1665. FNZ considers that the changes proposed for SNA 2, SPO 2 and JDO 2 are generally consistent with this 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 sustainably. NPOA sharks (SPO 2) 1666. FNZ considers the options proposed for SPO 2 are consistent with this plan, including Objective 1.4. which specifies that mortality of sharks from fishing should be at or below a level that allows for the maintenance at, or recovery to, a favourable stock status.

Information principles: section 10 of the Act

1667. The best available information relevant to management of the SNA 2, SPO 2, and JDO 2 stocks is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. Table 13 below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in that information.

Table 13: Best available information and key areas of uncertainty for the present reviews of SNA 2, SPO 2, and JDO 2.

Best available information	Key areas of uncertainty, unreliability or inadequacy
1668. The best available information on the status of all three of these stocks (in relation to *MSY*) comes from partial quantitative stock assessments using standardised CPUE. The assessments for SNA 2 and SPO 2 were conducted in 2024, based on data up to the 2023 October fishing year. The assessment for JDO 2 was conducted in 2023, based on data up to the 2022 October fishing year.	1673. The partial quantitative assessments for these stocks do not provide forward projections of future biomass estimates (relative to *MSY*). For SNA 2 and JDO 2, it is also uncertain what the current levels of biomass are in relation to B_{MSY} for the stocks as a whole. For SNA 2, this is because there are no reference points for the northern part of SNA 2 (due to uncertainties in the relationship between SNA 2 and the SNA 1 Bay of Plenty stock). For JDO 2, this is because the assessment is based only on

Best available information	Key areas of uncertainty, unreliability or inadequacy
1669. The results of all these assessments are described in detail within the May 2024 Fisheries Assessment Plenary and have been summarised throughout this paper where relevant (in particular, in '*rationale for review*' and Figure 2). The relationship between stocks within each species are also described within the plenary. Further details of the genetic relationships between snapper stocks are provided by Oosting (2021). 1670. The best available information in regard to recreational and customary fishing for these stocks is presented in Table 3. Recreational catch information relies heavily on the results of the 2022/23 National Panel Survey of Marine Recreational Fishers (**NPS**). 1671. The best available information on the impacts of Cyclone Gabrielle for these stocks was largely derived from the New Zealand Aquatic Environment and Biodiversity Report No. 326, *'Cyclone impacts on fisheries'* (Leduc et al., 2024). 1672. New Zealand Aquatic Environment and Biodiversity Chapter 13 '*Trophic and ecosystem-level effects'*, and Report No. 324, *'Fishery-induced trophic cascades and sea urchin barrens in New Zealand: a review and discussion for management'* (Doheny et al., 2023), provide information on the role of fishing in the occurrence of kina barrens in New Zealand.	data for the southeast part of the stock, and because the CPUE series has not been updated to include any post-Cyclone Gabrielle data. 1674. There is very little information to inform the extent to which the proposed TAC changes might impact other species because of interdependencies. This is because there is little to no information available on the strength of interrelationships between these and other species. 1675. There is very little research on kina barrens within SNA 2 and on factors contributing to their formation. Large snapper are known to consume kina, but the relative influence of snapper on kina is unknown, and it is uncertain how the proposed TAC changes might impact levels of snapper predation on kina. 1676. The effects of Cyclone Gabrielle on recruitment and habitat are uncertain for all three stocks. The extent of impacts on recruitment will not be fully apparent for another 4-5 years. It is also unknown what impacts the cyclone may have had on other species, which could lead to flow on effects on SNA 2, SPO 2 or JDO 2 (due to changes in trophic interactions). 1677. There are uncertainties in the reliability of the information presented on environmental interactions occurring in the fisheries. The information is largely based on fisher-reported data that may not have been independently verified, noting that over the last five fishing years average observer coverage for these stocks has been negligible (< 5%).[113] 1678. On-board cameras have been live on trawl vessels less than or equal to 32 metres in overall length fishing in the western part of JDO 2 since August 2023. They are also scheduled to be rolled out on trawl vessels in the East Coast North Island later this year, and on setnet vessels in the East Coast North Island in early 2025. This should help to provide more certainty in this data in the future.

[113] 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.

Additional figures

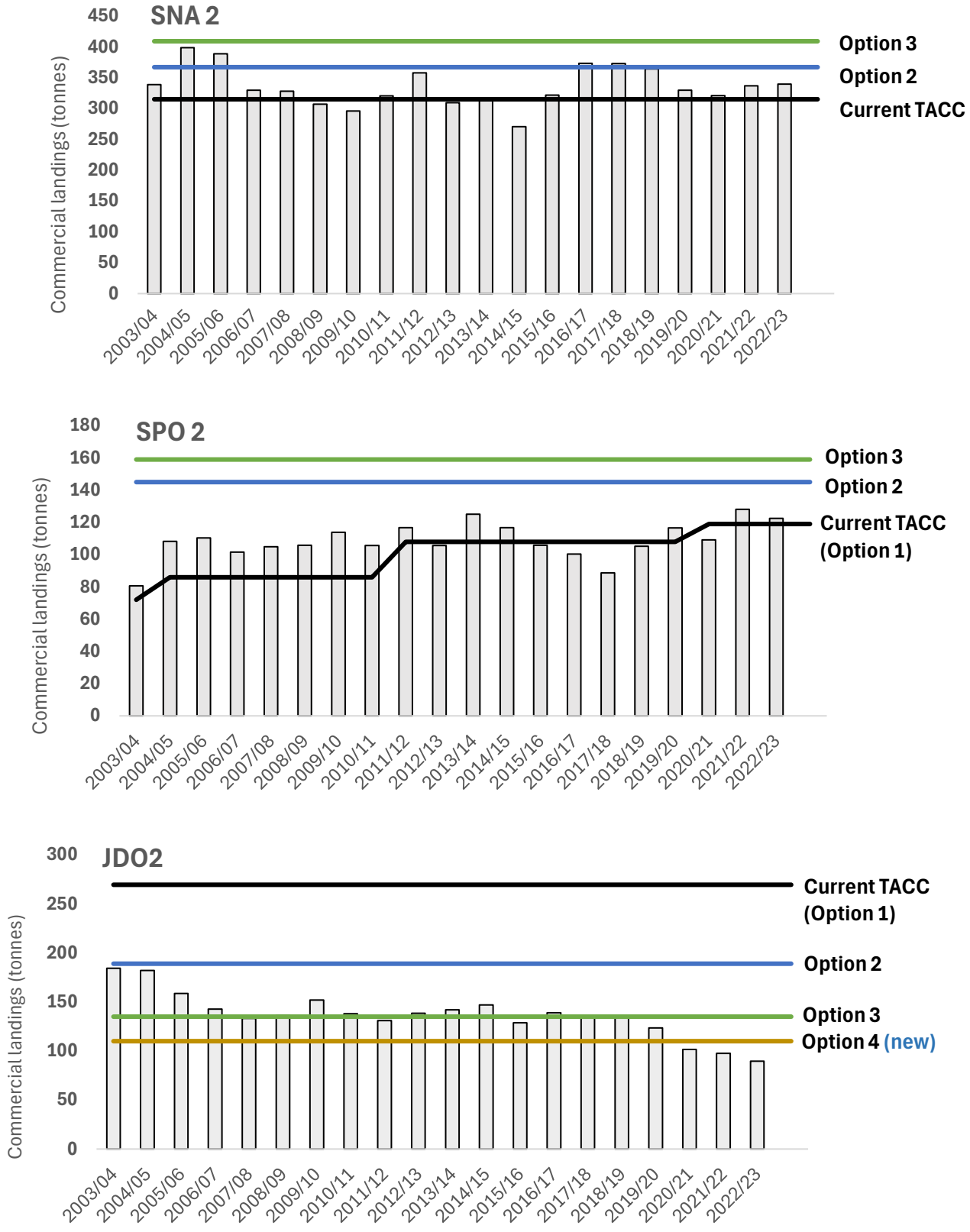


Figure 4: Commercial landing histories (in tonnes) since the 2003/04 fishing year for SNA 2, SPO 2, and JDO 2, with the proposed management options for each stock overlaid (proposed TACC levels).

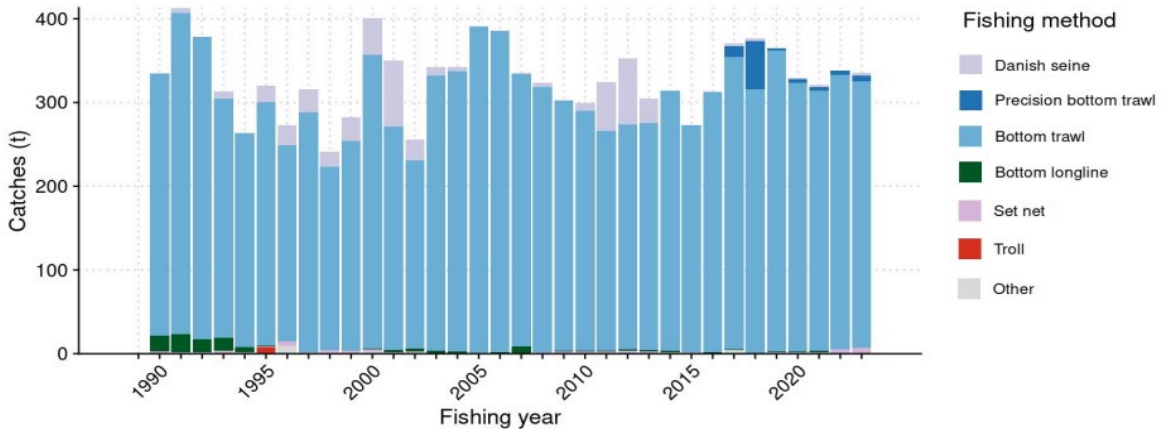


Figure 5: SNA 2 characterisation of commercial fishing by method and fishing year (Middleton 2024, FAR in prep.).

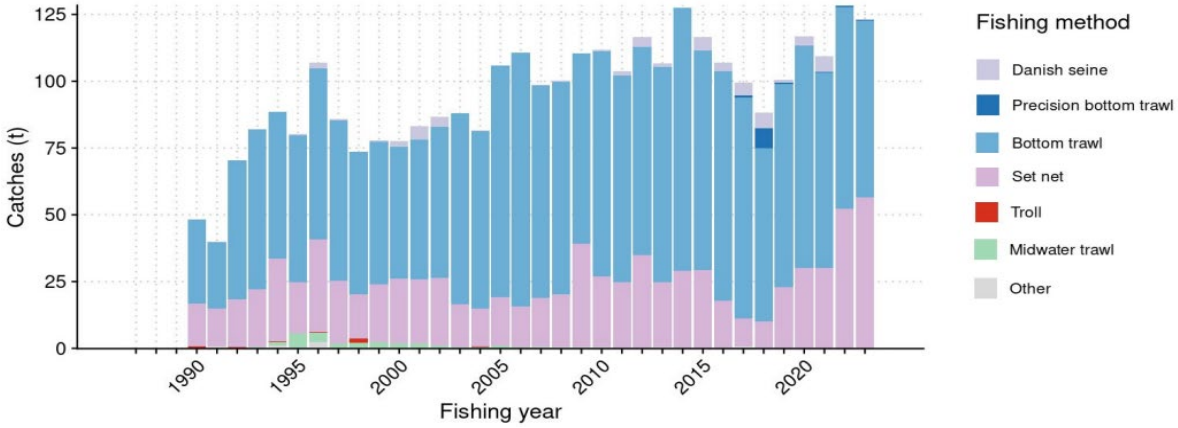


Figure 6: SPO 2 characterisation of commercial fishing by method and fishing year (Middleton and Starr 2024, FAR in prep.).

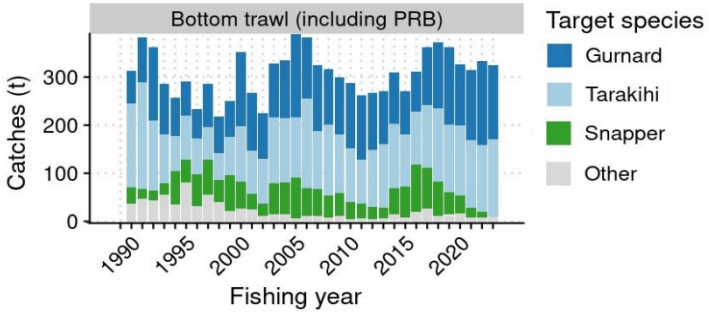


Figure 7: Snapper landings by target species and fishing year, in the SNA 2 bottom trawl fishery (Middleton 2024, FAR in prep.).

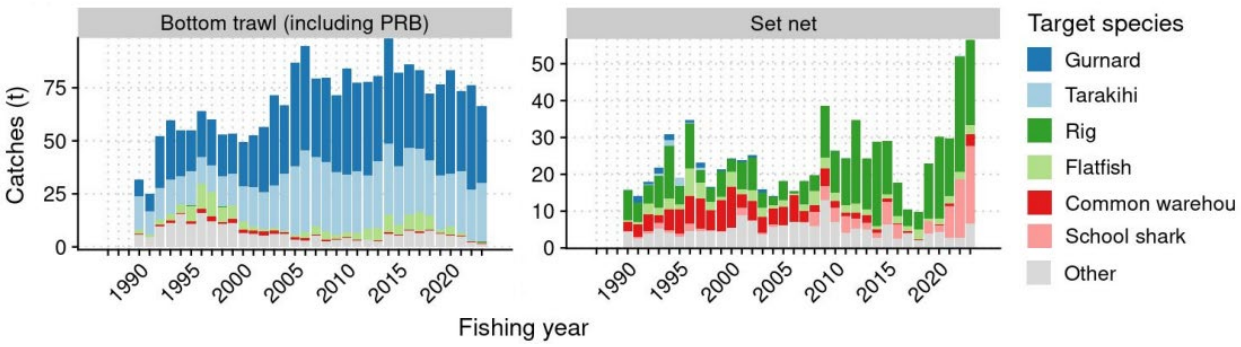


Figure 8: Rig landings by target species and fishing year, in the SPO 2 bottom trawl and setnet fisheries (Middleton and Starr 2024, FAR in prep.).

Stock complex information

1679. The National Inshore Finfish Fisheries Plan (**Finfish Plan**) sets out five focus areas for inshore finfish stocks to progress an ecosystem-based fisheries management approach. One of the key focus areas is integrated multi-stock management, which involves identifying and managing stocks that are commonly caught together. FNZ has combined the reviews of SNA 2, SPO 2, and JDO 2 within this advice because they are commonly caught together within the Fisheries Management Area 2 (**FMA 2** - Central East) mixed trawl fishery complex.

1680. There is no new information to support a review of catch settings of other stocks in the complex, but potential impacts of the proposed options on these other stocks are considered below.

Table 14: Key links between the stocks being reviewed and others in the FMA 2 inshore mixed trawl complex.

Snapper (SNA 2)	Rig (SPO 2)	John dory (JDO 2)
Snapper is primarily caught in trawl fisheries around East Cape (SNA 2N) and in Hawke Bay (SNA 2S), targeting tarakihi (TAR 2), red gurnard (GUR 2), and to a lesser extent, snapper (SNA 2), and trevally (TRE 2). The portion of SNA 2 caught while targeting snapper has reduced in recent years (Figure 6). Fishers are reporting increased abundance of snapper across FMA 2. This is consistent with CPUE which appears to have increased broadly across the key statistical areas in FMA 2 and has increased in all the main target fisheries.	Rig is primarily caught around Gisborne and in Hawke Bay, taken as bycatch in bottom trawl fisheries targeting tarakihi (TAR 2), red gurnard (GUR 2) and flatfish (FLA 2), while the set net fisheries target rig (SPO 2), school shark (SCH 2), and to a lesser extent flatfish (FLA 2), blue warehou (WAR 2), and blue moki (MOK 1) (see Figure 7). Similar to SNA 2, CPUE for SPO 2 has been increasing broadly across these areas and fisheries.	John dory is taken off the east coast (Gisborne and Hawke Bay) by bottom trawl primarily targeting tarakihi (TAR 2) and red gurnard (GUR 2). JDO 2 is also part of the FMA 8 (Central West) mixed trawl fishery complex. On the west coast (mainly in North Taranaki Bight and Cook Strait) JDO 2 is caught as bycatch in trawl fisheries targeting red gurnard (GUR 8), tarakihi (TAR 8), snapper (SNA 8), and jack mackerel (JMA 7). Over recent years there has been a decline in effort and catch for JDO 2, primarily from the Taranaki Bight area on the west coast.

1681. Of these linked stocks, there are no sustainability concerns associated with GUR 2, TRE 2, SNA 8, or JMA 7. For GUR 2, an updated CPUE and characterisation was recently completed in 2024 and biomass of the stock was estimated to be at or above its target (40-60% probability), with overfishing unlikely (<40% probability) to be occurring. TRE 2 is considered to be part of the TRE 1 Bay of Plenty sub-stock, and a recent (2022) assessment concluded that the stock was likely to be above its target. The SNA 8 and JMA 7 stocks are both above their respective management targets and proposed for potential TAC and TACC increases as part of this sustainability round (refer to chapters 3 and 12).

1682. TAR 2 is part of the East Coast tarakihi stock, which is currently subject to a time-constrained rebuild plan and a close monitoring regime due to low abundance (currently below the biomass soft limit). Any increase to the TACs of SNA 2 and/or SPO 2 could in theory lead to an increase in tarakihi catch given that they are caught together. However, catch of TAR 2 is managed under its own TACC, which was recently reduced in 2022 to support its rebuild. The TAR 2 TACC is already fully utilised and there are high deemed value penalties for over catch, which will discourage catch in excess of the TACC.

1683. Due to the limited ACE available for TAR 2, an increase to SNA 2 could potentially lead to tarakihi becoming a choke species. However, it should be noted that in the southern area (SNA 2S) snapper is mainly caught inshore around Hawke Bay, while tarakihi is caught offshore. A possible result of this could be that an increase in the TACC for snapper leads to more fishing effort in SNA 2S (Hawke Bay) where tarakihi is less likely to be a choke species.

1684. It is also possible that a large reduction in the TACC of JDO 2 could lead to John dory becoming a choke species in some areas (e.g. in SNA 8). However, FNZ considers the risk to be low given that it has been significantly under caught in recent years and catch of JDO 2 remained low (and even declined further) following the previous increase to the TACC of SNA 8 (from 2021).

1685. The statuses of other linked stocks in the relevant fishery complexes (FLA 2, WAR 2, MOK 1, GUR 1, & TAR 8) are unknown. These fisheries are generally smaller and less likely to be affected by changes to SNA 2, SPO 2, or JDO 2, compared with the main target species identified above (GUR 2 and TAR 2).

1686. FNZ will continue to monitor these associated stocks following any changes to SNA 2, SPO 2, and/or JDO 2 and further actions will be considered if needed to ensure sustainably.

Information on biology, interdependence, and environmental factors

1687. This information supports FNZ's assessment of the proposals against section 13 of the Act in *'Part 2: Assessment against relevant legal provisions*'. Information in this section was derived from the snapper, rig, and John dory chapters of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

Snapper (SNA 2)

1688. Snapper are generalist predators that feed opportunistically on a range of benthic invertebrates and fish. They a occupy a wide range of habitats, including rocky reefs and areas of sand and mud seafloor, and are found down to depths of 200 m (but are most abundant in 15 – 100 m). Consequently, snapper are likely to have significant dietary overlaps with many other carnivorous inshore species such as red gurnard, John dory, rig, blue cod and flatfish. There is very little information on natural predators of snapper (Parsons et al., 2014).

1689. When setting a TAC for snapper stocks in some regions of New Zealand, it is important to consider the role that snapper play in shaping the ecology of rocky reefs through their consumption of kina (sea urchin; *Evechinus chloroticus*). Predation by snapper and other species such as rock lobster can reduce kina abundance and alter kina behaviour thereby reducing the prevalence of kina barrens (Doheny et al., 2023).

1690. The majority of literature on the causes of kina barrens focuses on reefs in northeastern New Zealand where fishing effects on top predators of kina are considered a primary factor (Doheny et al. 2023). Much of the available information describing the relationship between fishing and kina barrens comes from Hauraki Gulf/Northland (SNA 1). Due to the similarity of the habitat and the ecological role of snapper as predators, it is reasonable to assume that the findings from this area are also broadly relevant to SNA 2.

1691. FNZ is not aware of any published literature on the role of fishing in the development of kina barrens or the distribution of kina barrens in SNA 2. This does not imply that the relationship does not exist just that research has yet to be published in this area. Data from a modelling study of the Te Tapuwae o Rongokako Marine Reserve (16 km north of Gisborne) indicates that there are areas of reef in SNA 2 covered in only coralline turf or crustose coralline algae and lacking in macroalgae, which the authors of the study classified as 'urchin barrens' (Pinkerton et al., 2008). However, they attributed their occurrence to silt deposition or sand scour (rather than predation effects).

1692. A Sustainable Seas project, '*Huataukina o hapū e! Prosperous moana; prosperous people*' in its proposal noted that kina barrens were increasingly problematic in the Gisborne Region. There have also been anecdotal reports of kina barrens from divers in parts of Wellington Harbour, with a citizen science project underway to monitor and restore kelp forests in the area (Miller and Peat 2023). The findings of these projects are yet to be published.

1693. The extent of kina barrens and relative importance of contributing factors appears to vary regionally across New Zealand, although research is limited outside of northeastern New Zealand.

1694. Based on the available information (summarised above), a potential consequence of increasing the TAC of SNA 2 is that it could contribute to reduced abundance of snapper in some areas, and this could in turn reduce predation on kina and increase the risk of local kina barren formation, or expansion of any existing barrens. The overall level of snapper 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 the certainty they will maintain this role.

1695. FNZ notes that SNA 2 does not have a fully quantitative stock assessment to allow forward projections of biomass under certain TAC options. However, snapper biomass is estimated to currently be at a very high level, relative to the past few decades, and is anticipated to increase further. Notably, this increasing biomass appears to be occurring broadly across SNA 2, with CPUE increasing across all the key statistical areas in the region (the areas where most snapper fishing occurs).

1696. Data on historical abundance of snapper in this area is poor, so there is uncertainty as to where the current biomass level is relative to unfished levels when the ecosystem was less impacted (and barrens were less prevalent based on historical information on kelp cover in northeastern NZ). Historical data on the level of fishing is also uncertain, but it is estimated that during the 1960's and 1970's about 600-800 tonnes of SNA 2 was landed annually (FNZ - Plenary, 2024). In this review, FNZ is recommending that the TACC of SNA 2 is set at 409 tonnes, which would limit fishing of SNA 2 well below those historical levels.

1697. The overall level of risk (of trophic cascades) cannot be quantified based on the limited information available. This includes the risk of changes in snapper abundance contributing to expansion of any existing kina barrens, as well as the risk of contributing to the formation of any new barrens.

1698. The risk of kina barren formation is unlikely to vary proportionally with changes in snapper abundance. There is reasonable evidence of ecological tipping points at which urchin barren formation occurs, however the biomass of snapper required to reach this tipping point is unknown.

1699. Large snapper are thought to play an important role in the mitigation of kina barren formation as they are capable of consuming large kina. Age frequency data from SNA 2N suggests that the age distribution of snapper has broadened over the last decade or so, meaning there is now a higher proportion of older (and therefore larger) fish in SNA 2N. This suggests that effective predation of large kina by snapper has likely increased in the last decade, at least in the northern part of the QMA (Gisborne, East Cape). The age and size structure would likely continue to broaden under current settings (at least in the northern part of SNA 2), as the last age frequency survey in 2022-23 indicates there is a strong 2019-year class entering the fishery. This is more uncertain for the southern part of SNA 2 given the lack of available data on age and size distribution.

1700. There is some uncertainty of how much TAC changes for SNA 2 would impact their size and age distribution, and what size and age distribution of snapper would be required to prevent kina barren formation.

1701. There are further uncertainties in the risk of reducing the abundance of snapper due to the effects of recent cyclones, especially the potential impacts of sediment and debris on shallow coastal habitats, and the absence of macroalgae at shallow depths in recent surveys from Gisborne and Hawke's Bay (Leduc et al, 2024). How macroalgae loss from cyclones may interact with risk of kina barren formation in the region is also unknown.

1702. The cyclone will likely have affected the abundance of other key predators in the ecosystem, including rock lobster (another key predator of kina). The increased sedimentation and resulting loss of macroalgae in some areas, combined with the effects of fishing, may have a cumulatively higher impact on the recovery of fish populations (including snapper).

1703. These factors are not considered within the partial quantitative assessment for snapper, which is a single species assessment model.

Rig (SPO 2)

1704. Rig is a generalist predator and feeds on a wide variety of benthic invertebrates, especially brachyuran and pagurid crustaceans, echiurans and molluscs. There is limited information regarding predators of rig, and regarding potential interdependence with other stocks.

1705. FNZ considers that the proposed increases to the TAC of SPO 2 could have some effect on associated prey species if effort in the associated fisheries increases, however, the specific impacts are uncertain, and their extent cannot be quantified based on the information available.

John dory (JDO 2)

1706. There is limited information regarding important predators and prey of John dory, and regarding potential interdependence with other stocks. Adult John dory feed on a variety of fishes, particularly baitfish such as anchovies and pilchards (Godfriaux, 1970; Russell, 1983).

1707. The proposed TAC settings (and TACC reductions) for JDO 2 are unlikely to impact levels of fishing effort (given that current catch levels would not be constrained), and as such it is unlikely that the changes would impact their associated predator and prey interactions.

Biological characteristics

Snapper (SNA 2)

1708. Snapper is generally considered to be a low productivity species. They are long-lived (may live up to 60 years or more), grow up to 105 cm total length, and have a very low natural mortality. These characteristics are offset to some degree by their relatively young age of maturity (3 to 7 years) and high fecundity, being serial broadcast spawners.

1709. Snapper are demersal fish (live close to the sea floor) found down to water depths of about 200 m, but are most abundant in 15-60 m.

1710. Recent assessments for adjacent snapper stocks (SNA 1, 7, and 8) suggest that snapper in northern New Zealand may be currently experiencing a period of higher productivity with strong recruitment.

Rig (SPO 2)

1711. Rig is an elasmobranch and has generally low productivity. They are thought to live up to 20 years, and reach maturity at 4-8 years, or 85-100 cm length. The number of young produced increases exponentially with the length of the mother and ranges from 2 to 37 individuals (with a mean of ~11). These characteristics can make them more vulnerable to overfishing compared with higher productivity species.

1712. Rig make extensive coastal migrations, with one tagged female moving at least 1160 km. Young are generally born in shallow coastal waters, especially in harbours and estuaries, and are presumed to later move into deeper water.

John dory (JDO 2)

1713. John dory has a relatively high productivity compared to snapper or rig. They have a short generation time (living up to 12 years). Both males and females grow rapidly initially, reaching 12 to 18 cm (standard length) after the first year. Females grow faster and reach a greater maximum length, maturing at a size of 29 to 35 cm. They have high fecundity and are serial broadcast spawners.

1714. John dory are common in inshore coastal waters of northern New Zealand to depths of 50 m.

Environmental conditions affecting the stocks

Cyclone Gabrielle

1715. In February 2023, Cyclone Gabrielle caused damage across parts of the North Island, especially the Tairāwhiti/Gisborne and Hawke's Bay regions. The cyclone caused significant flooding and damage to the coastal environments in FMA 2, with significant inflows of freshwater, increased sedimentation, and input of land-based debris.

1716. Following the cyclone, 70 towed camera transects were conducted at 36 sites along the Hawke's Bay and Gisborne regions to assess the likelihood of sediment impacts to benthic ecosystems. Key observational evidence includes: (1) fresh muddy deposits and sediment smothering of benthos; (2) organisms in poor condition; and (3) absence of macroalgae at shallow depths (Leduc et al, 2024). Using these qualitative measures sediment impacts are highly likely to have occurred at 11 locations. For most of these locations, demonstrating a direct link to Cyclone Gabrielle and drawing quantitative conclusions remains problematic without survey data prior to the event. The likely exception is Wairoa Hard,[114] where comparison of pre- and post-cyclone data from imagery shows that while kelp, other macroalgae, and sponges were present before the cyclone they were almost entirely or completely absent after the cyclone. Whether this loss of biogenic habitat has led to reductions in associated fish populations is unclear; however, turbidity levels in the wake of the cyclone are likely to have been sufficiently elevated to cause direct deleterious impacts on fish in the area.

1717. Several other areas (Cape Kidnappers, inshore reefs off Poverty Bay, Anaura Bay, Waipiro Bay, Whakariki Point, and Waikori Bluff (Gisborne)) were also assessed as having a high likelihood of sediment impacts, while others showed no indication of being strongly impacted by sediment. Collectively, these observations suggest a range of benthic disturbance from river plumes that affected parts of the Gisborne coastline differently. Leduc et al. (2024) noted that most if not all of the locations impacted by sediments are naturally exposed to high turbidity conditions and periods of deposition. However, the scale of Cyclone Gabrielle will likely have exacerbated suspended sediment loads in the region through an abundance of sediment supply.

1718. The sedimentation in nearshore habitats likely impacted inshore stocks (including SNA 2, SPO 2, and JDO 2) directly as well as juvenile and birthing habitat. For SNA 2 and SPO 2, recent CPUE estimates for the exploited populations are high and show a continued increase from pre-cyclone estimates. This suggests that direct impacts of the cyclone on SNA 2 and SPO 2 adult populations may have been limited. Catch rates in 2023 were observed higher in certain offshore areas, suggesting that adult fish may have moved into deeper waters.

1719. The impact of the cyclone on adult populations in JDO 2 is unknown as there is no JDO 2 post-cyclone CPUE data.

1720. The longer-term impacts of the cyclone for SNA 2, SPO 2, and JDO 2 are uncertain. Nursery habitats for all of these species are in shallower waters which likely suffered more from sedimentation and debris impacts, and there is a known nursery area for snapper and other finfish in Wairoa Hard (in Hawke Bay), which as

[114] The Wairoa Hard (named for its coarse cobble substrate) is an area of near-shore marine habitat between the Moeangiangi and Wairoa Rivers that goes out to a 30 m depth. It provides a nursery ground for juvenile fish including snapper (Morrison et al. 2014). According to the Hawke's Bay Regional Council, it also provides a nursery for John dory, trevally, hammerhead, and bronze whaler sharks. The area has been closed to commercial take of finfish for many years.

described above, was significantly impacted by the cyclone. Any impacts on the juvenile populations of SNA 2, SPO 2, and JDO 2 due to the cyclone, and the flow on effects on stock recruitment, would not be fully apparent for another 4-5 years when those fish are expected to be recruited into the fisheries as adults.

Information on environmental impacts

1721. This information supports FNZ's assessment of the proposals against section 9 of the Act in *'Part 2: Assessment against relevant legal provisions*'.

Protected species

Seabirds

Mixed FMA 2 bottom trawl fishery (SNA 2, SPO 2 and JDO 2) + western portion of JDO 2 bottom trawl fishery

1722. Over the past five fishing years (2018/19 - 2022/23) an average of 5 seabirds have been reported as caught annually by bottom trawl vessels that catch snapper, rig, and John dory in FMA 2 and an average of 1 seabird has been caught annually by bottom trawl vessels that catch John dory in FMA 8.

1723. Species reported caught were albatrosses (unidentified, Buller's and Pacific, white-capped and Chatham), petrels, prions, or shearwaters (unidentified, black, common diving, grey and Antarctic petrel and Flesh-footed, sooty and Buller's shearwater) and a black-backed gull.

1724. Management of seabird interactions in New Zealand commercial fisheries is guided by the National Plan of Action Seabirds, with mandatory mitigation measures under the Seabird Scaring Devices Circular and recommended measures under the Trawl Mitigation Standards. FNZ, DoC, and industry also work to ensure vessels have and follow a vessel-specific Protected Species Risk Management Plan (**PSRMP**). A PSRMP specifies measures that should be followed on board each vessel to reduce risk of incidental seabird captures. While there is no legal requirement that fishers have a PSRMP, more than 95% of full-time inshore trawl vessels have and follow one.

Setnet fishery (SPO 2)

1725. No seabird interactions have been reported in the FMA 2 rig set net fishery over the past five fishing years (2018/19 – 2022/23).

1726. There are no mandatory seabird mitigation measures in place for set net fishers. However, size of mesh, the maximum length of time the net can remain in the water (soak time), the maximum length of set net, and where set net use is prohibited or restricted are set out in the Fisheries (Commercial Fishing) Regulations 2001. Recommended seabird mitigation measures for set net vessels are set out in the Set Net Mitigation Standards and light mitigation measures relevant to set net vessels are set out in the Mitigation Standards to Reduce Light-Induced Vessel Strikes of Seabirds with New Zealand Commercial Fishing Vessels. Set net vessels are also encouraged to have and follow a PSRMP. More than 70% of full-time set net vessels >7m in length have a PSRMP and follow one. These vessels take most of the volume of rig caught in SPO 2 (>90%).

Mammals

Mixed FMA 2 bottom trawl fishery (SNA 2, SPO 2 and JDO 2) + western portion of JDO 2 bottom trawl fishery

1727. Over the past five fishing years (2018/19 – 2022/23) an average of 2 marine mammals have been reported as caught annually by bottom trawl vessels that catch snapper, rig, and John dory in FMA 2.

1728. Species that have been reported caught over this period are New Zealand fur seals, common dolphins, and a spectacled porpoise.

1729. There have been no marine mammal interactions reported or observed in the western JDO 2 bottom trawl fishery (FMA 8) over the past five fishing years (2018/19 – 2022/23).

1730. The 2022 updated spatially explicit fisheries risk assessment for New Zealand marine mammal populations identified the three species most impacted by fishing as Maui dolphin, New Zealand fur seal and Hector's dolphin. In general, trawl fisheries have been assessed as posing a substantially lesser risk to dolphins than commercial set-net fisheries.

1731. The Hector's and Maui dolphin Threat Management Plan guides management approaches for addressing both non-fishing and fishing related impacts on Hector's and Maui dolphins. To date, with regard to bottom trawl fisheries that catch snapper, rig and/or John dory, there have been no reported interactions with Hector's or Maui dolphins in FMA 2 and 8. The risk to dolphins from trawling around the east and west

coasts of the North Island is considered to be low (see Roberts and Webber 2023), and largely managed under the current trawl restrictions.

Setnet fishery (SPO 2)

1732. No marine mammal interactions have been reported or observed in the SPO 2 setnet fishery over the past five fishing years (2028/19 -2022/23).

1733. The risk to dolphins from set netting around the east coast of the North Island is considered low (see Roberts and Webber 2023) and largely managed under current set net restrictions and prohibitions.

Fish and invertebrate bycatch

Mixed FMA 2 bottom trawl fishery (SNA 2, SPO 2 and JDO 2) + western portion of JDO 2 bottom trawl fishery

1734. Protected fish species occasionally interact with bottom trawl fisheries that catch snapper, rig, and John dory in FMA 2 and John dory in FMA 8. One white pointer shark and one smalltooth sand tiger shark has been reported by trawl fishers in FMA 2 and FMA 8 over the past five fishing years (2018/19 – 2022/23).

1735. White pointer sharks are classed as 'Threatened – Nationally Endangered' and smalltooth sand tiger sharks are classed as 'At Risk – Naturally Uncommon' under the New Zealand Threat Classification System. The management of protected fish interactions within New Zealand's commercial fisheries is guided by the NPOA Sharks (2013).

1736. Invertebrate species, including corals, sponges and bryozoans, are also occasionally taken as bycatch in bottom trawl fisheries that catch snapper, rig and John dory in FMA 2, but more so in FMA 8 (the western area of JDO 2).

1737. Fisher reported data over the past five fishing years (2018/19 -2022/23) indicates that an average of 10.1 kgs of invertebrate species (mainly corals, with smaller quantities of bryozoans and sponges) are caught annually by bottom trawl vessels that catch John dory in FMA 8 and an average of less than 1 kg is caught in FMA 2 by bottom trawl vessels that catch snapper, rig and John dory in FMA 2.

Setnet fishery (SPO 2)

1738. Over the past five fishing years (2018/19 – 2022/23) one white pointer shark has been reported as caught by set net fishers in FMA 2.

Biological diversity of the environment

1739. Snapper, rig, and John dory in FMA 2 are primarily caught in bottom trawl fisheries targeting tarakihi and gurnard. John dory is also caught in bottom trawl fisheries targeting snapper, tarakihi and gurnard in FMA 8 (although the majority of JDO 2 catch is from FMA 2).

1740. Bottom trawling can damage the marine environment; particularly where trawling occurs on biogenic habitats. Research has characterised both New Zealand's benthic environment and the level of benthic impact from fisheries activity (MacGibbon & Mules 2023, AEBR 316).

1741. In 2021, the gurnard and tarakihi target fisheries in FMA 2 had estimated trawl footprints of 1,676.8 km^2 and 2,546 km^2, respectively. These footprints equate to 5% and 8% of the total inshore trawl footprint and 39% and 60% of the total inshore FMA 2 trawl footprint for 2021, respectively.

1742. SNA 2, JDO 2, and SPO 2 target fisheries have much smaller footprints of 71 km^2, 48.6 km^2 and 0 km^2, respectively, which all equate to less than 1 % of the total estimated inshore trawl footprint.

1743. The trawl footprint in 2021 for gurnard, and snapper target fisheries in FMA 8 was estimated to be 1,017.3 km^2 and 256.7 km^2, respectively. There is no trawl footprint estimate for the tarakihi target fishery in FMA 8. These footprints equate to 3% and <1% of the total inshore trawl footprint and 17% and 4% of the combined FMA 8 and 9 inshore footprint for 2021, respectively.

1744. Trawling in FMA 2 has been mostly confined to areas that have been consistently fished over time. There are also several areas within the shallower inshore waters in FMA 2 and 8 that are closed to trawling. Specifically, in FMA 2:

- Several areas within Hawke Bay closed to both trawl and Danish seine fishing.
- There is a prohibition of paired trawling along the North Island East Coast.
- The Cook Strait Cable Protection Zone prohibits most fishing methods in this area.

1745. In FMA 8:

- There are trawl and set net restrictions along the North Island West Coast.
- Restricted areas around Taranaki, to protect petroleum installations, prohibits fishing in these areas.

1746. There are also several marine reserves in both FMA's (covering approximately 9,000 ha in total) that are closed to fishing and provide protection from benthic impact fishing methods.

1747. As discussed above under '*Interdependence of stocks'* snapper is an important predator, and there is some risk that if SNA 2 is not managed at a level that maintains this function, it could contribute to the formation of kina barrens, which would result in flow on impacts for biodiversity. However, it is unknown what threshold of change for SNA 2 might impact biological diversity, and to what extent, based on the limited information available.

Habitats of particular significance for fisheries management

1748. Patea Shoals, off the South Taranaki Bight, is considered a potential nursery and spawning ground for finfish, including John dory, and as noted above under *'Environmental conditions affecting the stocks'*, the Wairoa Hard area has been identified as having important habitat for juveniles of snapper and other finfish in FMA 2. These and other habitats that may potentially be significant for SNA 2, SPO 2 and JDO 2 are discussed in Table 15 below.

1749. FNZ is aware of a project proposed for the upcoming year (led by Seafood NZ) which will aim to help confirm spawning grounds for snapper in SNA 2. The results of this may further inform habitats of particular significance for SNA 2 in the near future.

Table 15: Potential habitats of particular significance for fisheries management relevant to SNA 2, SPO 2 and JDO 2.

Habitat of particular significance	Attributes of habitat	Reasons for particular significance	Risks/Threats	Existing protection measures	Evidence
Wairoa Hard – Hawke Bay	Nearshore mixed habitat comprising coarse sediments, occasional patches of cobbles and rocky outcrops and extensive areas of kelp	Important nursery ground for a variety of pelagic and benthic fish species, including snapper. Potentially important spawning ground for some fish species including snapper and John dory. Recognised as an area with significant conservation value in the coastal ecosystem in 1995.	Climate change can induce extreme weather events (such as Cyclone Gabrielle), destroying or modifying inshore biogenic habitats. Mobile bottom-contact fishing methods, such as bottom trawling, can impact biogenic habitats and may account for the lack of any large, robust colonies at Patea Shoals. However, the frequency of disturbance in individual areas seems sufficiently low to maintain reasonable biodiversity and moderate colony sizes. Wairoa has been closed to the taking of finfish and recreational set netting since 1981 so impacts from mobile-bottom contact fishing methods are no longer considered a risk to this habitat. Inputs of pollutants and sediments from land-based sources: • High nutrient load can lead to eutrophication. • Sedimentation can smother biogenic habitats. Resuspension of sediments by bottom contact fishing or subtidal sand or mineral mining. Some habitat types, e.g. bryozoan thickets, are characterised by slow growth and can decades to recover. Those biogenic habitats that are susceptible to breakage and dislodgement are likely to be heavily impacted by ongoing fishing activities, with extensive areas already showing signs of damage and loss (e.g. bryozoan thickets off Patea Shoals). Adverse effects from non-indigenous/invasive species such as the Asian date mussel.	Several areas within the shallower inshore waters are closed to specific fishing methods, including the Wairoa Hard, and may provide some protection to potential nursery habitat. Specifically in FMA 2: • Take of finfish from Wairoa Hard is prohibited under regulation. • Several areas within Hawke Bay closed to both trawl and Danish seine fishing. • Prohibition of paired trawling along the North Island East Coast. • Prohibition of Danish seining around the lower North Island. • Cook Strait Cable Protection Zone prohibits most fishing methods in this area. In FMA 8: • Trawl and set net restrictions along the North Island West Coast. • Prohibition of Danish seining around the lower North Island. • Restricted areas around Taranaki, to protect petroleum installations, prohibits fishing in these areas. The National Policy Statement on Freshwater Management and the National Environmental Standards for Freshwater, which came into effect on 3 September 2020, should lead to improved water quality in shallow harbours and estuaries and other shallower inshore waters. FNZ engages with the RMA coastal planning processes to support marine management decisions to manage land-based impacts on habitat of particular significance for fisheries management.	Morrison et al. (2014) Fisheries New Zealand (2024) Hawke's Bay Regional Council (2020) Walsh et al. (2012)
Clive Hard – Hawke Bay	Nearshore mixed habitat comprising gravel, small boulders, and kelp, surrounded by sandy mud and muddy substrates	Important nursery ground and potentially important spawning ground for some fish species, including snapper.			Haggitt and Wade (2016) Jones et al. (2016)
Pauatahanui Inlet, Porirua Harbour, Wellington Harbour and Poverty Bay	Shallow sand and mud flats with freshwater component	Nursery ground for rig			Morrison et al. (2014)
Bays along the Coast to Cape Turnagain and north of Kāpiti Island	Not well defined	Potential nursey grounds for John dory.			Morrison et al. (2014) Dunn and Jones (2013)
Patea Shoals – South Taranaki Bight	Mixed biogenic habitat – rippled sands, sand-wave bed forms, low-lying rocky outcrops, wormfields, bivalve rubble and bryozoan rubble.	Supports diverse benthic and suspension feeding assemblages and is a known nursery ground for some finfish species. Patea shoals may also be a spawning ground for some finfish species, including John dory.			Morrison et al. (2014) Morrison et al. (2022) Beaumont, Anderson and MacDiarmid (2015) Anderson et al. (2019) Hurst et al. (2000)

1750. The best available information indicates that snapper and rig are increasing in abundance across the lower east coast North Island, having already seen a substantial increase since 2016. In line with this, FNZ is recommending that you agree to Option 3 for both SNA 2 and SPO 2, which will increase their TACs by 30% to provide for higher utilisation. For SPO 2, this will provide for a moderate increase in commercial utilisation, and for SNA 2, it will provide for moderately higher recreational and commercial utilisation.

1751. These options were supported by commercial interests but opposed by recreational and environmental interests. Opposing submissions raised concerns about potential cyclone impacts on future recruitment, and the uncertainty as to what impacts increased trawling and setnetting might have for the stocks and their surrounding ecosystem. For SNA 2, this also includes a concern that the increase in TAC may result in reduced predation of kina, which could increase the risk of kina barren formation in some areas.

1752. FNZ acknowledges these concerns, and notes that these uncertainties were given due consideration within the development of the TAC options proposed for consultation. While these recommended 30% TAC increases were the largest increases consulted on, FNZ considers these recommended options to be cautious relative to the level of increased biomass suggested by the partial quantitative assessments for SNA 2 and SPO 2. FNZ also considers both increases to be consistent with the goal of ensuring sustainability.

1753. The best available information suggests there is a sustainability risk for John dory in the southeast North Island (FMA 2). A 2023 assessment indicated that the eastern part of JDO 2 has been increasing in abundance under recent catch levels. However, the TACC of JDO 2 is significantly underutilised, and while it appears to be increasing, this part of the stock was estimated to be below its management target in 2023.

1754. In response to this information, FNZ consulted on options to set the TAC of JDO 2 and reduce its TACC to mitigate any sustainability risk that might occur if the TACC were fully utilised. A range of different views were raised in relation to these options. Commercial interests expressed opposition to any TACC reduction, asserting that utilisation should not be constrained across the entire stock when there is only an identified concern for the southeast part of the stock, and suggested that it would be better to wait for more information before making any TACC changes. Other interests, including recreational and environmental groups, generally supported larger TACC reductions than those consulted on, with concerns that the reductions consulted on might not be enough to ensure sustainability.

1755. FNZ appreciates these submissions and acknowledges that there may be a need to explore other measures, such as changes in the quota management area boundaries, to enable finer-scale management of JDO 2 in the future. In the meantime, you have an obligation to set the TAC for JDO 2 now based on the best information available to you, and this decision must also not be inconsistent with the objective of moving the stock to a level at or above B_{MSY}.

1756. FNZ is recommending that you agree to Option 3 for JDO 2, which would set the TAC at 152 tonnes and reduce the TACC by 50%. This reduction will significantly limit the level of commercial catch that could occur within JDO 2, which will help ensure that catches of JDO 2 remain within sustainable limits until the stock is next assessed.

1757. Updated assessments for SPO 2, SNA 2, and JDO 2 are planned for 2026. These updates are planned to provide FNZ with timely information to support further management of all three of these stocks and will allow FNZ to closely monitor how the stocks respond to these recommended TAC changes.

Patea Shoals

1758. FNZ considers that it would be appropriate for spatial measures to be used at Patea Shoals to better protect this potential habitat of particular significance for fisheries management from trawl disturbance. FNZ considers it is appropriate to explore these measures and will continue discussions with stakeholders and tangata whenua to further develop management options for this area.

Decision for SNA 2

Option 1

Agree to retain the SNA 2 TAC at 450 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 14 tonnes;
ii. Retain the allowance for recreational fishing interests at 90 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 31 tonnes;
iv. Retain the SNA 2 TACC at 315 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SNA 2 TAC at 540 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 14 tonnes;
ii. Increase the allowance for recreational fishing interests from 90 to 122 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 31 to 37 tonnes;
iv. Increase the SNA 2 TACC from 315 to 367 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(FNZ's preferred option)*

Agree to set the SNA 2 TAC at 585 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 14 tonnes;
ii. Increase the allowance for recreational fishing interests from 90 to 122 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 31 to 40 tonnes;
iv. Increase the SNA 2 TACC from 315 to 409 tonnes.

Agreed / **Agreed as Amended / Not Agreed**

OR

Option 4

Agree to set the SNA 2 TAC at 482 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 14 tonnes;
ii. Increase the allowance for recreational fishing interests from 90 to 122 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 31 tonnes;
iv. Retain the SNA 2 TACC at 315 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Decision for SPO 2

Option 1

Agree to retain the SPO 2 TAC at 146 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 12 tonnes;
iv. Retain the SPO 2 TACC at 119 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SPO 2 TAC at 175 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 12 to 15 tonnes;
iv. Increase the SPO 2 TACC from 119 to 145 tonnes.

Agreed / Agreed as Amended / Not Agreed

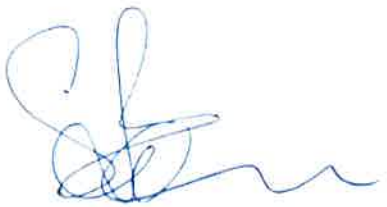
OR

Option 3 *(FNZ's preferred option)*

Agree to set the SPO 2 TAC at 190 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 12 to 16 tonnes;
iv. Increase the SPO 2 TACC from 119 to 159 tonnes.

Agreed / **Agreed as Amended / Not Agreed**



Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Decision for JDO 2

1760. Options 1 and 2 for JDO 2 have been presented below for your consideration. However, FNZ considers there to be a significant risk under these options that commercial catches could increase to a level that may result in JDO 2 biomass declining to a level further below B_{MSY}. On this basis, FNZ considers that these options may be inconsistent with your requirements for setting the TAC under section 13(2A). We therefore do not recommend these options, and strongly advise against Option 1, which carries a more significant risk. We note that you have discretion to make your own assessment of these risks, and of the consistency of these two options with section 13(2A).

Option 1

Agree to set the JDO 2 TAC at 299.5 tonnes and, within the TAC, to:

i. Set the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Set the allowance for recreational fishing interests at 2 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 27 tonnes;
iv. Retain the JDO 2 TACC at 269.5 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the JDO 2 TAC at 211 tonnes and, within the TAC, to:

i. Set the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Set the allowance for recreational fishing interests at 2 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 19 tonnes;
iv. Decrease the JDO 2 TACC from 269.5 to 189 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(FNZ's preferred option)*

Agree to set the JDO 2 TAC at 152 tonnes and, within the TAC, to:

i. Set the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Set the allowance for recreational fishing interests at 2 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 14 tonnes;
iv. Decrease the JDO 2 TACC from 269.5 to 135 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 4

Agree to set the JDO 2 TAC at 124 tonnes and, within the TAC, to:

i. Set the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Set the allowance for recreational fishing interests at 2 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 11 tonnes;
iv. Decrease the JDO 2 TACC from 269.5 to 110 tonnes.

Agreed / Agreed as Amended / Not Agreed

AND

Note FNZ will conduct further work, including engaging with tangata whenua, industry, and other stakeholders, to develop options for mitigating fishing related impacts to Patea Shoals.

Noted

Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Chapter 11: Snapper, Flatfish, & Elephantfish (SNA 7, FLA 7, & ELE 7) – Top of the South and West Coast South Island

Part 1: Overview

Flatfish / pātiki
(*multiple species, with sand flounder pictured*)

Snapper / tāmure
(*Pagrus auratus*)

Elephantfish / makorepe
(Callorhinchus milii)

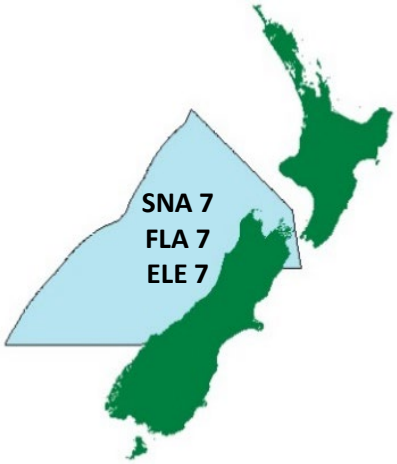


Figure 1: Quota Management Areas (QMAs) for SNA 7, FLA 7,[115] and ELE 7.

Rationale for review

1761. Since 2019 FNZ has reviewed catch limits for stocks taken in the FMA 7 mixed inshore trawl fishery[116] together, to progress integrated management of mixed fisheries. For this round, TAC changes for SNA 7, FLA 7, and ELE 7 are being considered in the context of the wider stock complex.

1762. SNA 7 is being reviewed due to results of a new stock assessment showing increasing biomass and substantial room for additional utilisation within the management target. The stock supports an important shared fishery and has seen growing abundance over the last decade following a rebuild from low levels due to historical overfishing. This has been shown in regular assessments and reflected in incremental TAC increases since 2016.

1763. FLA 7 is under review for multiple reasons. The current TACC (set high upon QMS introduction to allow for naturally high variability in abundance) has never been fully caught and a TAC and allowances have not been set. The last CPUE analysis in 2020 found sand flounder, brill, and turbot to be around their targets but New Zealand sole (**NZ sole**) likely below target. Since this time, catches of all species have declined significantly.

1764. ELE 7 is being reviewed based on new catch-per-unit-effort (**CPUE**) analysis showing that relative biomass has been maintained above the management target, during a period in which catches have regularly exceeded the TACC. The stock is predominantly taken as trawl bycatch, but also by some customary and recreational fishers.

1765. In line with new information, FNZ has consulted on options to increase the TACs of SNA 7 and ELE 7, and to reduce the TAC of FLA 7 (Table 1). FNZ is now seeking your decisions to set the TACs of SNA 7 and ELE 7 under section 13(2)(a) of the Fisheries Act 1996 **(the Act)**, and your decision to set the TAC of FLA 7 under section 13(2A). Your decisions will take effect from the beginning of the next fishing year on 1 October 2024.

Proposed options and FNZ's recommendations

Table 1: Proposed options (in tonnes) for SNA 7, FLA 7, and ELE 7 from 1 October 2024. FNZ's preferred options in orange.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
SNA 7	Option 1 (*Status quo*)	768	450	30	250	38
	Option 1b (new)	1,116 (↑ 348)	720 (↑ 270)	60 (↑ 30)	275 (↑ 25)	61 (↑ 23)
	Option 2	1,311 (↑ 543)	900 (↑ 450)	60 (↑ 30)	275 (↑ 25)	76 (↑ 38)
	Option 3	1,445 (↑ 677)	1,000 (↑ 550)	60 (↑ 30)	300 (↑ 50)	85 (↑ 47)

[115] Sand flounder (*Rhombosolea plebeian*), yellowbelly flounder (*R. leporine*), black flounder (*R. retiarii)*, greenback flounder (*R. tapirine)*, lemon sole (*Pelotretis flavilatus)*, New Zealand sole (*Peltorhamphus novaezeelandiae)*, brill (*Colistium guntheri)*, and turbot (*C. nudipinnis*).
[116] As defined in the National Inshore Finfish Fisheries Plan (**the Finfish Plan**).

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
FLA 7	*Current settings*	N/A	2,065.6	N/A	N/A	N/A
	Option 1	2,228.6	2,065.6	30	30	103
	Option 2	1,110	1,000 (↓1,065.6)	30	30	50
	Option 3	584	524 (↓1,541.6)	10	10	40
ELE 7	Option 1 (*Status quo)*	127	102	5	10	10
	Option 2	149 (↑ 22)	122 (↑ 20)	5	10	12 (↑ 2)
	Option 3	160 (↑ 33)	132 (↑ 30)	5	10	13 (↑ 3)

1766. Thirty submissions were received on these options during consultation, from 10 organisations and 20 individuals. Feedback is characterised under '*Analysis of options*' in this Part, and in detail in Table 3 of Part 2.

1767. Most submissions related to the proposed SNA 7 TACC increases under Options 2 and 3. Before consultation, FNZ facilitated a multisector workshop comprising local iwi, industry, and recreational stakeholders to discuss options for SNA 7. Participants in the final meeting, as well as Southern Inshore, Te Waka a Māui me Ōna Toka Iwi Fisheries Forum (**TWAM Forum**), and one individual submitter supported Option 2, as a balance of recognising increased abundance, enabling commercial access, and providing for non-commercial interests.

1768. However, the Environmental Defence Society (**EDS**), Marlborough District Council (**MDC**), Fish Mainland, and the majority of individual submitters supported the *status quo*, concerned about impacts of fishing on other species, kina barrens, or the benthos. A number of others, including LegaSea, New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, and New Zealand Underwater Association (collectively '***the joint submitters***'), called for a more cautious increase alongside commercial restrictions.

1769. Submissions on FLA 7 were mixed, with Southern Inshore calling for any TACC reductions to wait until research is available to update stock status, estimate a sustainable take, and understand non-fishery impacts such as sedimentation. Other submitters felt the more cautious TAC under Option 3 is needed to ensure sustainability (EDS, SPCA, and TWAM Forum), or preferred an even greater TACC reduction closer to current catch levels (the joint submitters and United Fisheries).

1770. Most submissions on ELE 7 supported the *status quo*, noting concerns that a TACC increase may correspond to greater environmental impacts associated with trawling. Industry representatives were supportive of Option 3 or called for larger TACC increases to provide for additional utilisation rather than balancing of current catch.

1771. Some stakeholders also requested a review of the recreational daily limit for snapper in the Marlborough Sounds Area (**MSA**; part of SNA 7), supporting an increase from three to six fish. FNZ requested input on this matter during consultation and received eight responses, with Marlborough Recreational Fishers Association (**MRFA**), the joint submitters, and two individuals supporting an increase to six fish per person; and MDC and two individual submitters opposing an increase. FNZ is not proposing to progress a change at this time (which would require formal consultation), due to the prevailing understanding of stock separation from the rest of SNA 7 and limited information on local abundance

FNZ recommendations (Rationale is set out in more detail in *Part 5*)

1772. To take into account the concerns raised during consultation around uncertain potential impacts on the benthos, protected species, and finfish bycatch under SNA 7 Options 2 and 3, FNZ has introduced a smaller, staged TACC increase approach under Option 1b for your consideration. This would enable a modest utilisation opportunity while limiting the risk of any significant environmental impacts associated with a large increase in fishing effort. If progressed, FNZ considers it aligns well with Option 2 for FLA 7 and Option 3 for ELE 7.

1773. However, best available information on stock status for SNA 7 suggests higher levels of utilisation can be sustainably realised over the next five years. FNZ considers that the risks raised by submitters can be actively monitored and mitigated, through continued engagement and reporting to the multisector SNA 7 workshop in 2025, and more conservative TACCs for FLA 7 and ELE 7 under Option 3 and Option 2, respectively. Based on analysis of best available information and submissions, and assessment against relevant legal provisions, FNZ recommends Option 2 for SNA 7, Option 3 for FLA 7, and Option 2 for ELE 7.

Analysis of options

1774. The options proposed for SNA 7, FLA 7, and ELE 7 are analysed below with an outline of the key risks and benefits for each option, as well as feedback received during consultation. Additional information and rationale

to support current and proposed settings within the TACs can be found below in this part under *'Fishery characteristics and settings'*.

Snapper – SNA 7

Option 1 – retain current settings (*status quo*)

Benefits	1775. This is the most cautious option with respect to ensuring sustainability, with fishing mortality declining well below the exploitation rate target (currently less than half). Because limited ACE would constrain fishing effort, bycatch interactions and benthic impacts would likely decrease. 1776. It would provide the greatest certainty of supporting the ecosystem function of snapper in kina predation (see Part 2 '*Other matters'* and Parts 3 and 4 '*Interdependence of stocks*'). 1777. Social and economic benefits are most apparent for non-commercial fishers, as higher biomass and a broader size structure may lead to greater participation, fishing success, and spending. 1778. Because this option is highly cautious, it allows the most room for uncertainty around the exact strength of recent year classes driving increasing biomass, addressed through further trawl survey monitoring. Given the longevity of snapper, any unrealised yield would not be foregone. 1779. The current recreational, customary, and other mortality allowances would remain, based on information suggesting they adequately account for current harvest levels. The other mortality allowance would remain at approximately 8.5% of the TACC.
Risks	1780. This option is not well aligned with the utilisation aspect of the purpose of the Act, given that increased utilisation is clearly shown to be sustainable on a single-stock basis by projections. 1781. Rapidly increasing abundance along with a lack of ACE to balance unavoidable bycatch would threaten the fleet's viability. It could lead to negative socio-economic outcomes, especially for small operators paying deemed values (over $400,000 in 2022/23). Without methods to selectively target other key species (e.g. gurnard and John dory), fishery access would reduce. 1782. As well as positive ecosystem services, implications of managing a generalist predator to a much higher level of abundance than other inshore species are unclear. This could potentially include outcompeting other species for food and increased predation.
Feedback received	1783. This option was supported by most submitters, including MDC, Fish Mainland, MRFA, EDS, SPCA, and 13 individuals. Rationale included perceived excessiveness of Options 2 and 3 given historical overfishing, concerns about maintaining predation of kina to prevent barrens, and advocacy for a precautionary approach. Others stressed the economic value of recreational fishing, or that FNZ should incentivise more selective methods through a constrained TACC.

Option 1b – TAC ↑ 45%, TACC ↑ 60%, customary ↑ 100%, and recreational ↑ 10% (new)

Benefits	1784. This option was introduced to acknowledge feedback on uncertain potential benthic, protected species and vulnerable finfish bycatch impacts. It represents a more conservative approach, with another review possible in the near future based on monitoring of fleet and catch trends. It also allows for further monitoring to build certainty in the strength of recent year classes. 1785. It provides for commercial fishers to balance potential levels of snapper bycatch (70 tonnes overcaught in 2022/23), maintain fishery access, and realise a modest utilisation opportunity. 1786. The customary allowance would be increased substantially in recognition of Te Tauihu iwi advice that there is a desire for increased harvest through customary permits and pātaka kai. The recreational allowance would also be increased moderately, on the basis that strong recent year classes maturing will drive up average weight and increase the popularity of fishing. The other sources of mortality allowance would be increased to remain at 8.5% of the TACC.
Risks	1787. This option does not fully reflect the scale of additional utilisation that is possible within the management target or the projected increasing biomass over the next five years. 1788. Immediate economic benefits from increased commercial landings are not as great as under Options 2 and 3. However, this may be balanced by more stability in port prices. 1789. There is still a risk of increased associated bycatch, protected species captures, and benthic impacts, but it is significantly less than under Options 2 and 3.
Feedback received	1790. Relevant feedback is presented below under '*SNA 7 options proposed by submitters*'.

Option 2 – TAC ↑ 71%, TACC, customary ↑ 100%, and recreational ↑ 10%

Benefits	1791. This option reflects the scale of increased abundance indicated by the model, the future growth in biomass and potential bycatch, and concessions made to rebuild the fishery. 1792. Potential socio-economic benefits from increased commercial landings, domestic sales, exports, and employment are substantial. The landed value of an additional 450 tonnes of balanced catch could be $2.25 million.[117] Benefits for other sectors would be less obvious, but abundance is still projected to increase over the next five years. 1793. While a substantial increase, it is still conservative in relation to the management target and could be supported by further monitoring to build certainty in increasing abundance. 1794. A significant increase may make more ACE available to fishers employing other methods, such as a bottom longline snapper fishery, to serve markets which demand a higher price. 1795. The customary allowance would be increased substantially and the recreational allowance moderately, on the same grounds as Option 1b. The other mortality allowance would again be increased to remain at 8.5% of the TACC.
Risks	1796. The TACC increase would effectively remove the constraining nature of snapper as a 'choke' species,[118] with associated impacts difficult to predict with certainty, being dependent on fleet response. It could enable increased efficiency through gear reconfiguration but also increased effort with an increase in bycatch, protected species, and benthic impacts (see Parts 3 and 4). 1797. Given snapper bycatch constrains Tasman Bay effort, fishing pressure on sand flounder could increase, requiring monitoring and potential mitigation. 1798. A significant increase in TACC and landings might drive a decrease in price paid to fishers, but equivalently, a decrease in the cost/price of securing ACE to balance catch. 1799. Some ecosystem functions of larger snapper, such as predation of kina, could be diminished with increased fishing pressure, but overall snapper abundance is projected to increase.
Feedback received	1800. This option was supported by TWAM Forum, the multisector workshop, Southern Inshore/ Seafood NZ, and one individual submitter. Southern Inshore considered that the TACC increase, while relatively conservative given model projections, is suitable in the immediate term. TWAM

[117] Based on a 2023/24 port price average of $4.96 per kilogram of unprocessed (green) fish.
[118] A species for which available quota is exhausted long before quotas are exhausted for other species in a mixed fishery (Zimmermann et al. 2015).

	Forum supported this option to reflect increased abundance but noted some concerns around kina barrens. Several were supportive on the understanding that a monitoring framework was established to track and respond to any potential fleet changes or environmental impacts.

Option 3 – TAC ↑88%, TACC ↑122%, customary ↑100%, and recreational ↑20%

Benefits	1801. This option provides a significant immediate utilisation opportunity to commercial fishers, with a potential landed value of an additional 550 tonnes in balanced catch of $2.73 million. It is still clearly supported by projections on a single-stock sustainability basis over the next five years. 1802. The customary allowance would again be increased substantially on the same basis as under Options 1b and 2, but the recreational allowance would be increased more substantially, placing greater weight on the positive projections, and providing for any increase in recreational activity. The other sources of mortality allowance would again be increased to remain at 8.5% of the TACC.
Risks	1803. This option relies most heavily on recent year classes increasing biomass. While there is clear evidence that these year classes are strong, some uncertainty remains as to their exact size. 1804. The uncertainty around fleet response, potential environmental impacts associated with changes in trawling activity, and stability in port prices is greatest under this option, as it provides the largest utilisation opportunity beyond allowing for balancing of current or foreseeable bycatch. 1805. The risk of decreased ecosystem function of larger snapper (i.e. kina predation) is greatest under Option 3 as the highest level of fishing pressure would be enabled.
Feedback received	1806. This option was supported by Te Ohu Kaimoana, Sealord, and two individual submitters, largely on the basis that it is backed by the stock assessment, would provide relief to the inshore fleet in FMA 7, and move closer towards reflecting levels of snapper abundance and sustainable yield.

SNA 7 options proposed by submitters

More conservative SNA 7 increase – TACC ↑10-35%

1807. A number of submitters proposed more conservative TACC increases or staged increases over multiple years. These submissions were based on concerns around the uncertainty of impacts of any changes in fishing effort on other finfish (tarakihi, gurnard, red cod, sand flounder, and NZ sole), protected species, and the benthos.

Submitter	TAC	TACC	Customary Māori allowance	Recreational allowance	Allowance for all other mortality caused by fishing
The joint submitters	898.5	562.5 (↑112.5)	30	250	56(↑18)
G. Lines		600 (↑150)			
D. McMillan		495 - 517.5 (↑10-15% annually)			

1808. The joint submitters supported a conservative TACC increase alongside trawl exclusions from fishing in Tasman/ Golden Bay nursery habitats, measures to avoid tarakihi bycatch, a programme to monitor commercial GUR 7 and FLA 7 catches, an other mortality allowance of 10%, and a subsequent SNA 7 review within the next three years. Others called for limits on SNA 7 catch taken from Tasman/ Golden Bay to avoid localised depletion or sector conflict, or incremental annual increases to mitigate uncertainty in fleet response.

1809. To recognise these submissions but also the clear utilisation opportunity available, FNZ has included new Option 1b, with a more cautious TACC increase of 270 tonnes (60%) and a potential for a further review following monitoring of fleet response and catches. The joint submitters' concerns around an increased SNA 7 TACC impacting tarakihi would best be addressed by reviewing the TAR 7 TACC based on the results of the scheduled 2026 assessment, given it is largely a target fishery. More information on these concerns can be found in Tables 4 and 5 of Part 3 '*Assessment against relevant legal provisions, and Part 4 ('Stock complex)*'.

Marlborough Sounds recreational daily limit for snapper

1810. The daily limit for snapper is currently 10 per person across the majority of SNA 7, but three within the Marlborough Sounds Area (**MSA**). The lower limit in the MSA has been a key issue for MRFA since the 1990's, with members of the view that a reduction to three fish at the time unfairly restricted recreational access and needs to be revisited in light of increased abundance in SNA 7.

1811. Feedback on this issue was previously sought during the October 2022 SNA 7 review, with the Minister at the time ultimately deciding to retain the limit of three fish. FNZ advised him that Marlborough Sounds snapper are thought to comprise a separate stock, based on tagging study results showing limited mixing between Tasman/ Golden Bay and the Sounds (Drummond & Mace, 1984), and that information on abundance trends in the Sounds is limited. In making this decision, the Minister committed to monitor fishery trends in the area.

1812. Because of the current review of SNA 7 TAC settings, FNZ considered it timely to again review new information and seek views on the state of the Sounds snapper fishery and current recreational controls. New 2022/23 National Panel Survey of Recreational Fishers (**NPS**) results indicate that recreational catches in the Sounds increased from 2011/12 to 2017/18 and changed little in 2022/23, comprising about 15% of the SNA 7 recreational harvest (Heinemann & Gray, in prep.). Annual ramp surveys from Waikawa show no trend in the harvest index, noting snapper is more commonly caught in Pelorus Sound (Maggs *et al.*, in prep.).

1813. Early insights from the Tindale Trust's recreational tagging do not show any migration between Tasman Bay and the Sounds. However, numbers tagged are low and analysis of recaptures is ongoing. Given the stock separation understanding and that no commercial snapper fishery exists within the Sounds, assessment results (largely driven by trawl survey and commercial catch data) should not be generalised to the area.

1814. Eight submissions directly commented on this issue, with MDC and two individuals opposing an increased daily limit, and the joint submitters, MRFA, and three individuals supporting an increase to six snapper per person. Those who supported an increase were of the view that tagging data used to inform the stock separation understanding is inaccessible or dubious. Those who opposed an increase commented on concerns about documented kina barrens in the Sounds, the potential impacts on other vulnerable stocks taken in the area such as blue cod, and a view that three large snapper is adequate for fishing for a feed, not the freezer.

1815. FNZ is not proposing to progress any further work to progress a daily limit change at this time (noting no options were consulted on), as no new information was received during consultation to demonstrate that the understanding of stock separation is incorrect or that fishing success in the Sounds has increased at a similar rate to the rest of SNA 7. However, proposed steps to improve information in this area are outlined in Part 5.

Flatfish – FLA 7

Option 1 – Introduce a TAC and allowances and retain the current TACC

Benefits	1816. This option allows commercial fishers the most room to take advantage of natural variability in abundance. It recognises that flatfish are identified as highly variable under Schedule 2 of the Act, that reasons for declining catches are unclear with the exception of NZ sole, which was assessed as likely overfished in 2020, and that this CPUE analysis is now five years old (to 2018/19). 1817. It also recognises the importance of flatfish to non-commercial fishers, setting higher recreational and customary allowances than Option 3 to provide significant room for any future harvests.
Risks	1818. The current TACC may be inconsistent with the objective of maintaining the stock at or above B_{MSY}, as it was intentionally set high in 1986 to allow for natural variability but has never been near fully caught. Even under the 2020 CPUE assessment preceding declining catches, fishing the current TACC could be reasonably expected to take exploitation to above the overfishing thresholds. 1819. It is poorly aligned with the principle of caution in the face of uncertainty or recognising NZ sole's status in relation to the B_{MSY} proxy. FNZ considers there is high risk and advises against this option. 1820. Information to assess whether the proposed recreational and customary allowances will be exceeded in future is limited. However, available information from recreational harvest estimates, Iwi Fisheries Forums, and reported disposals volumes suggests that this would be highly unlikely.
Feedback received	1821. This option was supported by Southern Inshore/ Seafood NZ and an individual submitter. Southern Inshore noted previous interest in a TACC reduction on cost recovery levy grounds rather than evidence of a sustainability concern. They propose waiting for an assessment to inform TACC settings and better understand and address non-fishing impacts such as sedimentation.

Option 2 – Introduce a TAC, allowances, and TACC ↓52%

Benefits	1822. This option reduces the TACC to a level which has appeared to be consistent with B_{MSY} historically, while still providing substantial room to take advantage of natural variability. 1823. It recognises the importance of flatfish to non-commercial fishers, by setting the same recreational and customary allowances as in Option 1 to provide significant room for potential future harvests.

Risks	1824. While it is more precautionary than Option 1, it still unlikely to reduce fishing pressure for NZ sole, which was assessed as likely overfished in 2020. Addressing this issue, likely requires consideration of more tailored approaches such as QMA division by species or region. 1825. As under Option 1, information to assess whether the allowances will be exceeded is limited.
Feedback received	1826. This option was supported by Fish Mainland and two individual submitters. M. Hardyment (a commercial flatfish seiner) supported this option, citing the relative lack of information, the effects of sedimentation after large flood events (i.e. Cyclone Gabrielle), predation of NZ sole by gurnard, competition for food sources from snapper, and larger trawlers fishing inshore.

Option 3 – Introduce a TAC, more conservative allowances, and TACC ↓75% (10-year average)

Benefits	1827. Reduces the TACC to a level which in the past has appeared to be consistent with B_{MSY} in the late 2010's and at the time of the last assessment (2020). 1828. Sets recreational and customary allowances that reflect available information on catch levels and the significant cuts from historical peaks of utilisation being made to ensure sustainability. 1829. The other mortality allowance equates to 7.6% of the TACC, rather than around 5%, recognising that in a more constrained fishery a higher proportion of mortality may be unintended bycatch.
Risks	1830. There is a risk that setting the TACC this low could create a choke species out of a highly variable stock. In-season TACC increases can be made under section 13(7) of the Act, but consultation timeframes and a lack of fisheries-independent data or ongoing CPUE analysis make this difficult. 1831. While this is the largest TACC reduction, it is unlikely in itself to reduce NZ sole fishing pressure.
Feedback received	1832. This option was supported by Environmental Defence Society (**EDS**) and one individual submitter, based on uncertainty around B_{MSY}, the need for a precautionary approach, and the stock status of NZ sole. EDS felt it still provided adequate room for increased catch in periods of high abundance.

FLA 7 options proposed by submitters

Larger FLA 7 TAC reductions

Submitter	TAC	TACC	Customary Māori allowance	Recreational allowance	Allowance for all other mortality caused by fishing
The joint submitters	427	370 (↓1,695)	10	10	37
United Fisheries	Current catches (undefined)				
G. Ryder	Less than 524				

1833. United Fisheries, the joint submitters, and one individual proposed larger TACC reductions for FLA 7 given concerns about decreasing catches, land-based sedimentation, and the stock status for NZ sole.

1834. FNZ acknowledges this rationale but notes declining catches have not been demonstrated in CPUE analysis to be linked to overfishing, except in the case of NZ sole in 2020. As a reduced TACC is unlikely to address species-specific concerns, this would be best addressed with more targeted measures or QMA division. Also, without regular monitoring there is a risk of inability to respond to fluctuations in naturally variable abundance through in-season TAC reviews, with wider fishery access implications.

Elephantfish – ELE 7

Option 1 – Maintain current settings (*status quo*)

Benefits	1835. This option provides the highest degree of certainty of achieving the National Plan of Action for Sharks goal to maintain the biodiversity and long-term viability of QMS shark species. 1836. It may also indirectly lead to decreased benthic impacts and fishing pressure on NZ sole, through constraining and reducing trawl effort in shallower West Coast waters. 1837. It could lead to increased catchability of elephantfish for recreational and customary fishers.

Risks	1838. This option does not align well with best available information suggesting that there is an opportunity to increase utilisation sustainably. CPUE analysis indicates that the stock is currently above target and has been maintained above the target with catches above the current TACC. 1839. This option would increasingly constrain commercial access to other species in years of higher elephantfish catch. In 2022/23, almost $60,000 of deemed values were incurred.
Feedback received	1840. Fish Mainland, the joint submitters, SPCA, and four individual submitters supported this option, based on concerns around impacts on other mixed trawl species, a perception that increased catch is being used to justify increased catch settings, and preference for a precautionary approach.

Option 2 – TAC ↑17%, TACC ↑20%

Benefits	1841. This option recognises increased relative abundance by setting the TACC slightly above average landings whilst CPUE has been above target (116.5 tonnes from 2019/20 to 22/23). 1842. It allows fishers to balance more non-target ELE 7 catch in years of increased catch, with little risk of incentivising target fishing. The landed value of 20 tonnes of balanced catch is around $40,000. 1843. It maintains customary and recreational allowances at levels which allow substantial room for harvest, based on available information. The other mortality allowance would increase to remain at approximately 10% of the TACC, recognising the species' vulnerability at various life stages. 1844. It maintains customary and recreational allowances at levels which allow substantial room for potential increased harvest. Maintains the allowance for other mortality at 10% of the TACC, in recognition of the vulnerability of elephantfish at various life stages to fishing.
Risks	1845. There is some risk of an increased TACC driving additional effort, benthic impacts, and NZ sole bycatch. However, this is considered unlikely as it allows for balancing of current levels of catch.
Feedback received	1846. Two individuals supported this option, noting an increase in elephantfish abundance but concerns around the benthic impacts of a potential increase in trawling effort.

Option 3 – TAC ↑26%, TACC ↑29%

Benefits	1847. This option sets the TACC around the highest level of catch while CPUE has been above target (131 tonnes in 2021/22), to allow for ongoing balancing of recent levels of non-target catch. The value of 30 tonnes of balanced catch could be $60,000. 1848. The customary and recreational allowances would be maintained, and the other sources of mortality allowance increased, according to the same rationale as Option 2.
Risks	1849. The more the TACC is increased, the greater the risk of increased NZ sole fishing pressure and wider environmental impacts. However, this is considered unlikely on the same basis as Option 2.
Feedback received	1850. One individual supported this option, attributing increased abundance to set net closures and reduction in the trawl fleet size over recent decades. They noted the value of ELE 7 to fish and chip shops on the West Coast, that a 30% increase is relatively conservative, and that concerns about other species would best be addressed by restricting larger (>16m) vessels from close inshore.

ELE 7 options proposed by submitters

Larger ELE 7 increase – TACC ↑80%

1851. Southern Inshore/ Seafood NZ advocated for a larger ELE 7 TACC increase of 78 tonnes to 180 tonnes, to allow for additional utilisation rather than balancing of current levels of catch under Options 2 and 3.

1852. FNZ notes that CPUE analysis found the stock to be likely (60%) at or above target but did not quantify the extent to which it is above it. Being a low productivity species vulnerable to the effects of fishing, subject to commitments under the NPOA Sharks, and with no data on population state (i.e. length/age frequencies), such a large increase entails a high degree of risk. Further, there are implications of significant increases in ELE 7 ACE on fishing effort in shallow coastal areas where NZ sole are commonly found and caught/targeted.

Who will be affected by the proposed changes?

1853. Tangata whenua have commercial and customary interests in these stocks. TWAM Forum and Te Tauihu Iwi Fisheries Forum represent iwi with a customary interest through rohe moana, including Ngāti Koata, Ngāti Tama, Ngāti Rārua, Ngāti Apa, Ngāti Toa, Ngāti Kuia, Te Atiawa, Rangitāne, and Ngāi Tahu.

1854. These stocks are also highly important to recreational interests, especially snapper and flounder species. New Zealand Sport Fishing Council, Fish Mainland, and local fishing clubs and associations represent these interests.

1855. Commercial interests in SNA 7, FLA 7, and ELE 7 include quota owners, fishers in the catching sector, Licensed Fish Receivers (**LFR**s), and retailers/ exporters. These interests are represented through organisations such as Southern Inshore/ Seafood NZ, NZ Federation of Commercial Fishermen, and local fisher associations.

Table 2: Summary of commercial characteristics of SNA 7, FLA 7, and ELE 7.

Stock	No. quota owners	% settlement quota	No. permit holders landing the stock	No. vessels landing the stock	No. LFRs landed to
SNA 7	37	8.3%	49	63	20
FLA 7	49	10.0%	38	47	16
ELE 7	31	10.0%	23	28	10

1856. In recognition of the shared importance of snapper and commitments made to collaborative management for shared stocks in the Finfish Plan, FNZ convened multisector workshops in Nelson in early 2024 to present assessment results and canvas management priorities for the SNA 7 stock. This approach has been taken in previous years and included commercial, recreational, and customary fishing representatives.

1857. All sectors shared observations of a highly abundant snapper fishery and agreed that it represented a positive example of collaboration to support the rebuild of the stock over the last decade. There was widespread agreement that future management needs to remain science-based, supported by ongoing monitoring, and seek to alleviate the significant financial pressures of snapper avoidance on inshore commercial fishers while maintaining recreational and customary access to a healthy fishery.

1858. Participants at the final meeting expressed in-principle support for Option 2, with the opportunity to provide individual feedback during consultation. They considered the increased catch settings to be:

- substantial enough to restore commercial access to other species given rapidly increasing biomass;
- reflective of recreational fishers' on-the-water observations and expectation that fishing participation will grow with increased success and abundance, despite recent NPS results; and
- supported by stock assessments results and relatively moderate given the estimated yield available.

1859. Participants also discussed stock complex considerations, potential fleet responses, recreational catch reporting, management targets (i.e. managing to higher abundance), spatial management tools, and habitat protections. Comments on these topics are noted throughout this paper where appropriate.

Input and participation of tangata whenua

1860. In March 2024, FNZ circulated and discussed a summary of the stocks proposed for review in this round (including FLA 7, SNA 7, and ELE 7) with the TWAM Forum. FNZ invited input on priority stocks for review, positions on these stocks, and sought iwi representation on multi-sector SNA 7 workshops. A representative was put forward to attend these workshops and provided input that Te Tauihu iwi:

- are generally supportive of a SNA 7 TACC increase given high abundance and commercial avoidance issues;
- consider that the customary allowance for SNA 7 should be around 20- 50% of the TAC in recognition of Treaty of Waitangi rights, provision to exercise kaitiakitanga, Te Tauihu entering the *Fisheries (South Island Customary Fishing) Regulation*s, and an increasing interest in providing for events or pātaka kai; and
- consider that a similar approach should be taken for FLA 7, as a key taonga and customary food source.

1861. FNZ engaged further with the TWAM Forum at a hui on 25 July, with support indicated for Option 3 for FLA 7 and Option 2 for SNA 7. However, concerns were noted by some around kina barrens in the Sounds.

Fishery characteristics and settings

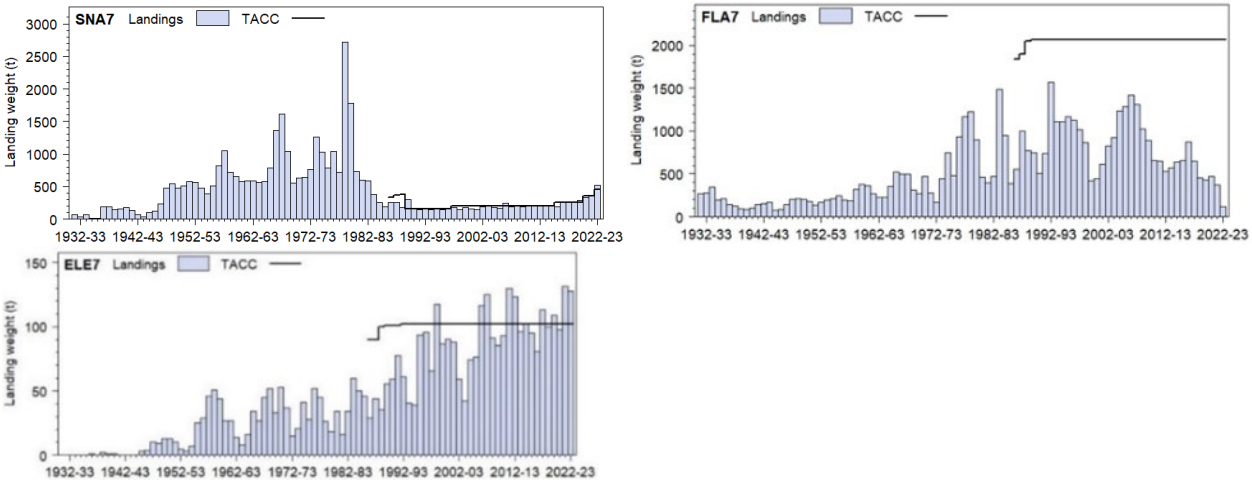


Figure 2: Reported commercial landings and TACC for SNA 7, FLA 7, and ELE 7.

Snapper – SNA 7

1862. SNA 7 is recognised as a shared fishery in the Finfish Plan, highly valued by tangata whenua, recreational, and commercial fishers. Most catch has historically come from Tasman/ Golden Bay between spring and autumn; however, recently catches have expanded down the West Coast and later into the fishing year (Langley, 2024).

1863. The stock entered the QMS in 1986, following intense commercial pair trawl and purse seine fishing pressure which reduced the stock to very low levels. The TACC was set well below those levels at 160 tonnes in 1989/90 and stayed relatively constant for 25 years. Stock assessments now retrospectively show the stock was below the hard limit for almost thirty years. A TAC and customary allowances were introduced in 1997, and the TACC is now 450 tonnes, increased over the last decade by 100 tonnes in 2022 and 2020, and 50 tonnes in 2016.

1864. Commercial catch is predominantly taken by trawl as part of a mixed bag when targeting gurnard, John dory, or sand flounder in Tasman/ Golden Bay. Notable amounts are also taken in the jack mackerel midwater trawl fishery and increasingly inshore on the West Coast, and in middle depth trawls in FMA 7.

1865. The customary allowance is currently 30 tonnes, following an increase from 20 tonnes in 2022. Current harvest levels are uncertain as reporting requirements differ by regions; however, records show 12 authorisations issued since 2013. This likely reflects varied reporting or that harvest can occur under recreational controls.

1866. Snapper has been a historically significant recreational target fishery, with increasing abundance over the past decade again making it the target of choice over spring, summer, and autumn months for most anglers in Tasman/ Golden Bay and in areas of Pelorus Sound. A winter fishery also occurs around D'Urville/ Stephens Island. The current recreational allowance is 250 tonnes, increased from 90 tonnes in 2016.

	2011/12	2017/18	2022/23
National Panel Survey	88 tonnes (CV= 0.17)	144 tonnes (CV=0.16)	130 tonnes (CV=0.14)
Reported Charter Catch[119]	0.4 tonnes	1 tonne	7.6 tonnes
Section 111	1.7 tonnes	13.4 tonnes	1.6 tonnes
Total	**90.3 tonnes**	**158.5 tonnes↑**	**139 tonnes↓**

1867. NPS results suggest catch increased markedly as the stock rebuilt in the 2010s but has not continued to increase in line with abundance since. However, anecdotal evidence from recreational fishers and multisector workshops has disputed this, suggesting that increased abundance has driven a noticeable increase in fishing popularity, due to accessibility of the fishery to all expertise levels. Some workshop participants advocated for mandatory recreational catch reporting to monitor harvest rates; however, others were strongly opposed.

1868. The current other mortality allowance is 38 tonnes or 8.5% of the TACC. Recent research suggests low to moderate survivability for trawl caught snapper, exacerbated by increased depth, duration, and catch size (McKenzie et al., 2024). Onboard cameras have improved confidence in the accuracy of fisher-reported discards, with less than 1% of catch returned, being under the minimum legal size (**MLS**). Gut hooking and increased depth has also been found to reduce survival rates for recreationally caught fish (Maggs et al., 2024).

[119] Reporting of snapper catches on charter vessels has only been mandatory since 2020, meaning comparison between years may be misleading.

Flatfish – FLA 7

1869. FLA 7 is a shared fishery, targeted by tangata whenua, recreational, and commercial fishers. The majority of catch is taken commercially by bottom trawling, but it is also highly significant for recreational fishers and tangata whenua given its accessibility through hand-spearing and netting (where permitted) in estuaries.

1870. It was introduced into the QMS in 1986, with TACC set high to allow for catch according to fluctuations in abundance. The TACC has not changed since early quota appeals increases, meaning a TAC and allowances were never set. It is notable as a Schedule 2 stock under the Act, for which in-season TACC increases can be (but haven't been) made to account for natural variability. The current TACC is 2,065 tonnes, with catches never having exceeded this but experienced distinct cycles with highs in the early 1990s, 2000s, and mid-2010s.

1871. Commercial fisheries exist for different species in different regions. The majority of catch from the last decade was NZ sole and sand flounder (Starr & Kendrick, 2022). In Tasman/Golden Bay, sand flounder is mainly taken by trawl with gurnard, snapper, and John dory; however, a small Danish seine target fishery also exists. On the West Coast, NZ sole, brill, and turbot are taken in target trawls, or as gurnard bycatch. A small set net fishery for greenback flounder occurs in inner Pelorus Sound and sand flounder is taken by trawl in Port Underwood and Cloudy Bay. Catches of all species have declined rapidly in recent years, to pre-QMS levels.

1872. Flounder species are a key traditional customary food source. Over the past ten fishing years, 21 customary permits have been recorded but the same caveats apply as for SNA 7 customary harvest information.

1873. Recreational fisheries for flounder species are widespread across coastal estuaries and inlets using include set netting, drag netting, and spearing (Heinemann & Gray, in prep.). The best available information on recreational harvest is the NPS but sample sizes are small, and uncertainty is high.

	2011/12	2017/18	2022/23
National Panel Survey	4.66 tonnes (CV= 0.37)	5.27 tonnes (CV= 0.43)	2.02 tonnes (CV= 0.42)
Section 111	127 kg	138 kg	283 kg

1874. There is currently no allowance set for other sources of mortality caused by fishing. Survivability of released sub-MLS trawl caught sand flounder is likely low and exacerbated by deeper and longer trawls (McKenzie et al., 2024). However, volumes of reported sub-MLS discards are low.

Elephantfish – ELE 7

1875. ELE 7 is largely a commercial trawl bycatch fishery; however, a modest amount is also targeted by recreational surfcasters and tangata whenua on West and East coast beaches. It was introduced into the QMS in 1986 and the TACC has stayed fairly constant since. A TAC and allowances were introduced in 2019.

1876. Most commercial catch is taken by trawl in shallower waters off the West Coast, when targeting gurnard, NZ sole, brill, and turbot. It is caught irregularly in large numbers of fish aggregating, often by sex. With setnet restrictions introduced in 2008, very little is now taken by this method. Catches have fluctuated in 10-year cycles and recently catch has regularly exceeded the TACC.

1877. The current customary allowance for ELE 7 is 5 tonnes and harvest levels are uncertain.

	2011/12	2017/18	2022/23
National Panel Survey	960 fish (CV= 0.97)	189 fish (CV=0.4)	380 fish (CV=0.62)
Section 111	10 kg	5 kg	13 kg

1878. The recreational allowance for ELE 7 is 10 tonnes. NPS harvest estimates are highly uncertain due to difficulties sampling the relatively small number of fishers who actively target the species. No estimate of average weight is available, so estimates are provided as a number of fish.

1879. The other sources of mortality caused by fishing is 10 tonnes, or approximately 10% of the TACC.

Part 2: Submissions

Table 3: Submissions received for SNA 7, FLA 7, and ELE 7 during consultation.

Submitter	SNA 7						FLA 7				ELE 7				Notes
	TAC Option				MSA limit		TAC Option				TAC Option				
	1	2	3	Other	3	↑	1	2	3	Other	1	2	3	Other	
Organisations															
Environmental Defence Society (**EDS**)	✓								✓						Considers SNA7 TACC increases inconsistent with the Act's purpose and environmental principles. Notes uncertainty around future abundance, impacts on kina barren predation, and trawling benthic and bycatch impacts. Suggests these have not been avoided, remedied or mitigated.
Fish Mainland	✓							✓			✓				Considers the primary reason for proposed SNA 7 and ELE 7 increase is bycatch, rather than increased abundance, and that SNA 7 is below the accepted biomass target.
LegaSea, New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, New Zealand Underwater Association '***The joint submitters***'				✓		✓				✓				✓	Concerns about timeframe for consultation and the effects of TACC increases on associated species such as tarakihi, gurnard, red cod, and flatfish. Proposes a precautionary SNA 7 TACC (25%), with trawl exclusions, tarakihi avoidance, another review within 3 years, and an other sources of mortality allowance of 10% of the TACC. Supports MSA snapper daily limit increase to 6, and eventually 10. Advocates for a move to more selective methods and proposes a larger FLA 7 TACC reduction to 5-year average catch and 10% other sources of mortality allowance.
Marlborough District Council (**MDC**)	✓				✓										Concerned that the proposed SNA 7 increases are excessive given previous TACC increases and the role of snapper in predating on kina, with documented barrens in the Marlborough Sounds. Supports retaining the current MSA snapper daily limit based on these concerns.
Marlborough Recreational Fishers Association (**MRFA**)	✓					✓									Concerned a SNA 7 TACC increase will increase trawl activity and be detrimental to habitats and bycatch. Suggests the MSA snapper daily limit be raised to 6, viewing the grounds for considering it a separate stock weak, and the 1994 reduction to unfairly target recreational fishers.
Society for the Prevention of Cruelty to Animals (**SPCA**)	✓								✓		✓				Believes the *status quo* for SNA 7 and ELE 7 will reduce the environmental and animal welfare impacts of fishing and ensure biodiversity (NPOA Sharks).
Sealord			✓												Believes SNA 7 Option 3 best recognises the expansion of snapper into warming southern waters. Notes the linkage with SNA 8 and that the jack mackerel fleet already avoids snapper but its abundance, low frozen value and high ACE prices affects the viability of the fishery.
Southern Inshore Fisheries Management / Seafood NZ		✓					✓							✓	Notes SNA 7 Option 3 is supported by projections but would prefer Option 2 with another review upon a new assessment. Does not anticipate increased targeting or effort, given range expansion and increased abundance. Proposes a SNA 7 deemed value annual rate reduction. Suggest TACC reductions may be warranted for cost recovery levy reasons, with declining catches not a sustainability concern in themselves. Propose to wait for a new assessment and information on non-fisheries effects (sedimentation) to set a more precise TAC. Supports a larger ELE 7 increase to enable additional utilisation rather than just balancing catch.
Te Ohu Kaimoana			✓												Considers SNA 7 Option 3 enables fishers to balance unavoidable bycatch sustainably and supports future Pātaka kai but would like to see rationale for the customary allowance of 60t.
United Fisheries, KPF Investments, Trawler Fishing, & Pegasus Fishing										✓					Notes declining catches and supports TACC reductions in line with current catches and research to understand national decline in FLA fisheries nationally.

Submitter	SNA 7						FLA 7				ELE 7				Notes
	TAC Option				MSA limit		TAC Option				TAC Option				
	1	2	3	Other	3	↑	1	2	3	Other	1	2	3	Other	
Individuals															
B. Higgs						✓									Supports increasing the MSA snapper daily limit to 6.
B. Minehan					✓										Supports retaining the MSA snapper daily limit and reducing the Tasman Bay limit to 3 fish also. Believes a vessel limit should be introduced.
B. Pritchard	✓								✓						Considers the SNA 7 assessment unconvincing and proposed increases excessive. Notes economic benefits of recreational fishing should be considered, environmental impacts of trawling and supports stricter commercial restrictions in popular areas (i.e. in <35m depth).
D. McMillan				✓											Suggests more conservative 10-15% SNA 7 TACC increases annually with monitoring, and that the recreational allowance is increased proportionately to the TACC and other allowances
D. Nelson	✓						✓					✓			No rationale provided.
H. Cropp			✓												Raised concerns that snapper is SNA 7 is acting as a choke species, with the TACC not reflecting levels of abundance and consequently affecting the viability of small operators.
K. Adair				✓		✓				✓	✓				Supports the LegaSea position.
M. Currie				✓		✓				✓	✓				Supports the LegaSea position.
M. Hardyment			✓					✓					✓		Believes a bigger TACC increase for SNA 7 will help make smaller commercial operations viable and raises concerns about food chain impacts of high snapper abundance. Attributes declining catches of FLA 7 to sedimentation, setnet closures, large trawl vessels, and food competition and predation. Considers ELE 7 abundance is high and even a 30% increase is conservative.
P. Green	✓							✓				✓			Concerned about potential benthic impacts and bycatch from trawling under SNA 7 TACC increases. Proposes a 4nm no-trawl zone. Has observed a decline in FLA 7 and increase in ELE 7.
R. Adams	✓														Opposes SNA 7 TACC increases, to incentivise trawlers to innovate or move to more selective methods, maintain improved access to land-based fishing, and prevent kina barrens.
T. Orman	✓					✓									Supports increasing the MSA snapper daily limit to 6, viewing the 1994 reduction as unfair.
W. Hill	✓														Opposes a commercial increase given historical overfishing and view that fish are a public good.
G. Ryder	✓									✓	✓				Does not support increased SNA 7 TAC given uncertain future climate changes or enabling trawling due to environmental impacts. Suggests FLA 7 needs research and a larger TACC cut.
C. Latour				✓						✓	✓				Believes SNA 7 is at a low level requiring a TACC cut by 50 tonnes. Supports a larger FLA 7 TACC cut.
G. Lines				✓											Supports a more moderate 150 tonne TACC increase which must be taken outside of Tasman Bay. Concerned around uncertainty with effects on other species and fleet response.
C. Griffin	✓														Concerned SNA 7 TAC increases will increase trawl bycatch and reduce predation on kina barrens.
E. Jorgensen		✓			✓										Supports Option 2 for SNA 7 with FNZ commitment to a monitoring framework. Opposes a MSA snapper daily limit increase due to separate stock understanding, concerns around recreational information, kina barrens and vulnerable species (i.e. blue cod), and view that 3 fish is sufficient.
T. Robinson	✓								✓						Considers SNA 7 and FLA 7 have not rebounded enough. Bycatch can be managed in other ways.
K. Fenwick	✓														Opposes commercial increases, given historical overfishing.

Other matters raised during consultation

Kina barrens

1880. MDC, EDS, several individuals and a member of the TWAM Forum raised concerns about the impacts of increased exploitation of snapper on their role in predating on kina and preventing trophic cascades resulting in kina barrens, particularly in the Sounds. More information on this topic is presented in Parts 3 and 4 '*interdependence of stocks*.

1881. FNZ notes that only 1-5% of SNA 7 reported catch has been taken in statistical area 017 annually between 2018/19 and 2022/23, an area that encompasses all waters from Stephens Island through Cook Strait to Cape Campbell. Within this area, less than 1% was taken within the internal waters of the Sounds, by flatfish set nets. Proposals to increase the TACC for SNA 7 are highly unlikely to lead to significantly increased commercial fishing pressure on snapper within this area, due to current trawl and set net restrictions and prohibitions (outlined in Part 4).

1882. Around 10 tonnes of reported catch were taken last year in the extreme outer Sounds, Cook Strait, Port Underwood, and (predominantly) Cloudy Clifford Bay. A substantial TACC increase could increase fishing pressure in these areas, but FNZ notes that snapper target fishing activity or substantially increased fishing effort is unlikely in these areas given the irregularity and unexpected nature of snapper catches. For other parts of SNA 7, abundance of snapper is projected to increase under all options over the next five years.

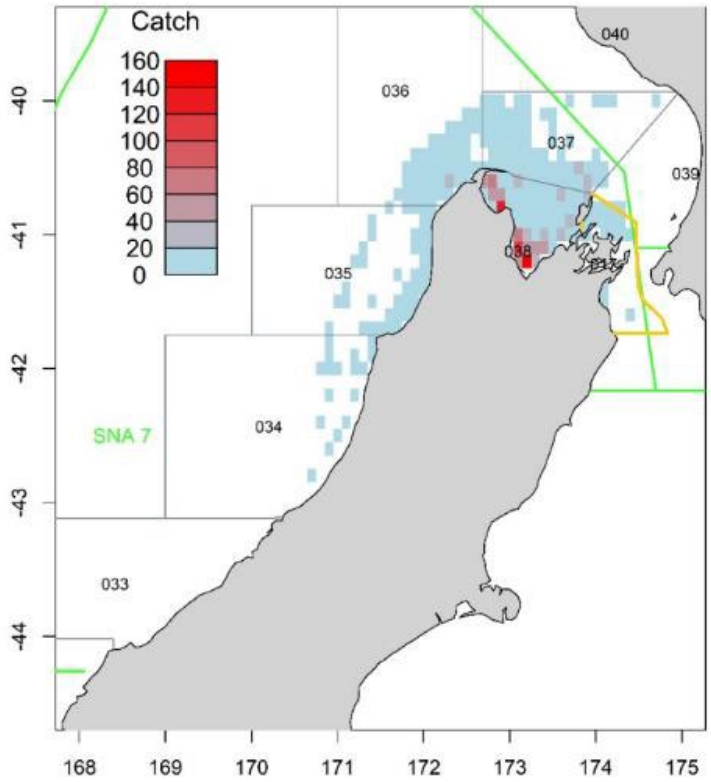


Figure 3: SNA 7 trawl catches (tonnes) from 2007/08 to 2022/23 (Langley, 2024), with statistical area 017 boundary in yellow.

Environmental impacts of trawling

1883. Many submitters commented on benthic disturbance, sediment resuspension, protected species interactions, and lack of selectivity when trawling, calling for no TACC increase, or an increase taken by other methods

1884. These general concerns are discussed within Appendix Two of B24-0483. FNZ also notes that methods for selective and economical catch of key target species such as gurnard and John dory in FMA 7 are not clearly available. Inshore bottom longlining in other areas such as FMA 1 most commonly targets and catches snapper (>80% of catch), with over 80% of catch in FMA 1 being snapper. Under current settings with a heavily constrained SNA 7 ACE market, uptake of this method is very unlikely to occur.

Deemed value rates

1885. FNZ did not propose any deemed value rate changes during consultation but welcomed general feedback on the current settings. Southern Inshore/ Seafood NZ submitted that the current settings for SNA 7 are overly punitive, inflating ACE prices, and not reflective of stock status or economic factors. With a potential TACC increase, they

contend ACE prices will fall, therefore seeking a reduction of the annual rate to midway between 2023/24 ACE ($3.42/kg) and port price averages ($4.96/kg), while maintaining alignment with SNA 8 (decreases also proposed).

1886. The deemed value rates of SNA 7 were last reviewed last year, resulting in a reduction in the basic annual deemed value rate from $6.00/kg to $5.20/kg. The differential rates were also changed to align with SNA 8 given the potential linkages in those stocks (similar biomass trajectories and shared fishery characteristics). As noted by the Southern Inshore / Seafood NZ submission, the annual deemed value rate for SNA 7 is well above the ACE price and slightly above the average port price (Figure 4).

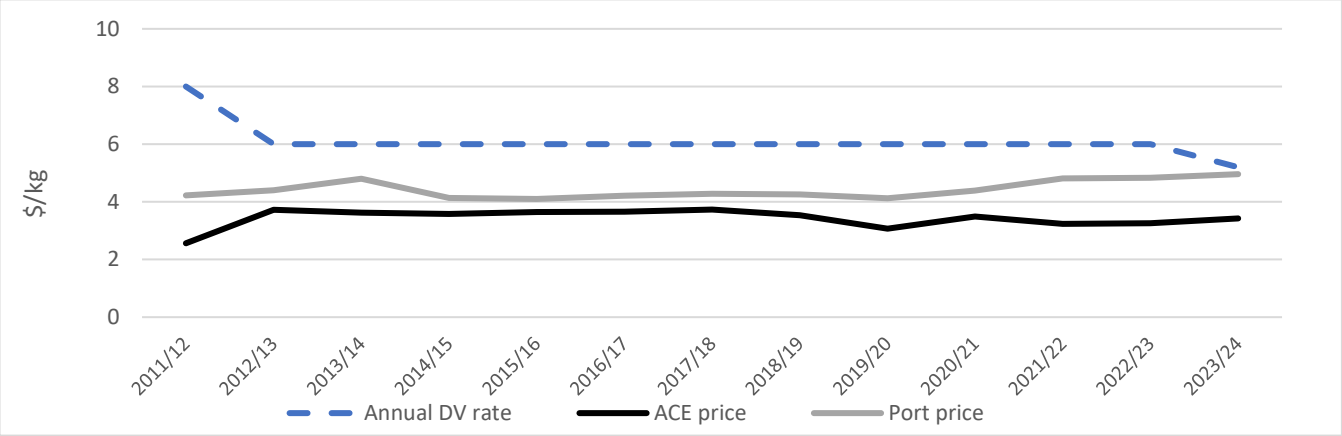


Figure 4: Summary of average port price and ACE price, and annual deemed value rates for SNA 7 since 2011/12.

1887. FNZ acknowledges that it could be appropriate to consider a lower annual deemed value rate for SNA 7 given that there is no sustainability concern for the stock, and the current annual deemed value rate is above the port price. Setting the annual deemed value rate below the port price can help to ensure there are greater incentives for accurate catch reporting (due to less negative costs for landing snapper without ACE).

1888. However, the TACC of SNA 7 is almost fully caught in the current fishing year and was exceeded by 15% last year. FNZ is concerned that a lower annual deemed value rate may not provide strong enough incentives for fishers to avoid higher levels of catch in excess of the TACC (which is something you may have regard to when setting deemed value rates under section 75(2)(b)(v) of the Act).

1889. Noting this concern, and the shared importance of the SNA 7 fishery, FNZ considers that any potential review to the deemed value rates of SNA 7 would require further analysis. Therefore, we are not proposing any changes at this time but will discuss this stock in the commercial catch balancing forum later this year.

1890. In the interim, FNZ is recommending a TACC increase for SNA 7, which would increase the amount of SNA 7 ACE available in the market and help to alleviate catch balancing issues resulting from high snapper abundance.

Part 3: Assessment against relevant legal provisions

Overview

1891. You are being asked to make a decision under section 13 of the Act, to set the TAC for SNA 7, FLA 7 and ELE 7. 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

1892. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

1893. On the following pages, FNZ has provided:

- a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in Part 3 (Supporting information).
- information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision under section 21(4).

Assessment of the proposals against section 13 of the Act

1894. Table 4 below outlines FNZ's assessment of the proposed options for SNA 7 and ELE 7 against section 13(2)(a) of the Act, and Table 5 below outlines FNZ's assessment of the proposed options for FLA 7 against section 13(2A). This assessment has been informed by the best available information on the status of the stocks (summarised in Part 1 and detailed in Part 4), and the information discussed in *'Information on biology, interdependence, and environmental factors'* within Part 4.

Table 4: Assessment under section 13(2)(a) of the Act for SNA 7 and ELE 7.

Section 13(2)(a)	1895. Stock status for SNA 7 and ELE 7 can be reliably estimated to be above a level which can produce *MSY*, through a 2024 SNA 7 stock assessment and ELE 7 CPUE analysis. Changes would be made under section 13(2)(a) of the Act, requiring you to set a TAC using best available information that is consistent with the objective of maintaining the stock at or above a level which can produce *MSY*, while also having regard to the interdependence of stocks. 1896. FNZ considers that all TAC options proposed would be consistent with this objective. For SNA 7, this view is clearly supported by the assessment forward projections (see Figures 10 & 11 in Part 4 '*Supporting information*'). For ELE 7, forward projections are not available but given that relative biomass is assessed to be above a level which can produce *MSY* with catches concurrently exceeding the TACC, FNZ considers it likely the proposed TAC options would maintain the stock at or above this level.
Harvest Strategy Standard (HSS) See '*The Harvest Strategy Standard*' in Chapter 1 '*Legal overview*' for more information.	1897. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} - compatible reference points. 1898. Information on SNA 7 reference points can be found in the Stock status section of Part 4. None of the options proposed are likely to bring fishing mortality to at or above the interim target of U_{SB40}%. Some recreational stakeholders have indicated a desire to manage snapper stocks at higher levels of abundance to recognise shared importance, such as 50% B_0. FNZ notes that under all of the proposed options, biomass is projected to increase and fishing mortality is very unlikely to reach or exceed the interim U_{SB40}% target (Figures 10 & 11 in Part 4 'Supporting information'), meaning this desire will be met in the short term and further discussions can occur. 1899. ELE 7 is managed to a target based on a historical average of CPUE indices from 2008-2018, which constitutes a B_{MSY} conceptual proxy. While projections cannot be made, FNZ considers the options proposed are unlikely to take the stock to below the target.

Section 13(2)(a) Interdependence of stocks	1900. Research by Wing et al. (2022) has found that sedimentation, marine heatwaves, and overharvest, decline, and truncation of size structures for rock lobster, blue cod, and snapper have cumulatively coincided with a wide-scale decline in brown macroalgae and proliferation of kina in Marlborough Sounds and Tasman Bay. Kina removal in some areas of Queen Charlotte Sound have also led to kelp regrowth. Snapper are known to be a key predator of kina but there is some uncertainty as to their relative contribution to predation these areas alongside other species (blue cod and rock lobster), or the biomass required to fulfil this ecosystem function. 1901. SNA 7 TAC increases will likely increase fishing pressure on snapper (currently well under the U_{SB40}% management target) which may affect predation on kina. FNZ notes that abundance of snapper in SNA 7 is projected to increase under all proposed options, which will still maintain fishing mortality well below U_{SB40}%. 1902. Inside the Sounds, which is considered a separate biological stock (see Part 4), very little commercial snapper catch is taken due to widespread method restrictions, and almost none is targeted catch. An increased TACC could lead to a marginal increase in fishing pressure on snapper in the external waters of the Sounds, where snapper is taken as irregular and unexpected bycatch. 1903. There may also be effects of reduced snapper predation for prey species such as scallops, paddle crabs, and other food sources which snapper competes with other demersal fish for. Potential *status quo* effects include increased food competition from managing a generalist predator to much higher abundance than other species. 1904. Impacts of the proposed ELE 7 TAC increases cannot be quantified precisely with available information. FNZ considers that they would have limited effects, as they are intended to allow only for balancing of current levels of catch. 1905. Increased fishing pressure could also act in combination with environmental factors and have stronger cumulative ecosystem effects than anticipated.

Table 5: Assessment under section 13(2A) of the Act for FLA 7.

Section 13(2A)	1906. Changes for FLA 7 would be made under section 13(2A), as it is not feasible to set a TAC which achieves *MSY* across all species (some with unknown status). You must • 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 • set a TAC using the best available information that is not inconsistent with the objective of maintaining FLA 7 at or above, or moving it towards or above, a level that can produce *MSY*, having regard to the interdependence of stocks and the biological characteristics and any environmental conditions affecting FLA 7. 1907. Option 1, which proposes to retain the current TACC, is considered highly likely to be inconsistent. FNZ considers that Options 2 and 3 are more consistent with the objective of maintaining or moving FLA 7 to a level that supports *MSY*.
Harvest Strategy Standard (HSS) See '*The Harvest Strategy Standard*' in Chapter 1 '*Legal overview*' for more information.	1908. The species within FLA 7 have separate management targets. For NZ sole, sand flounder, and turbot the B_{MSY} proxy is average CPUE from 1990/91 - 2018/19, and 2004/05 - 18/19 for brill. For other species, B_{MSY} cannot be reliably estimated. 1909. While there are different targets for these individual species, the proposed TAC changes will apply to the FLA 7 stock as a whole, and the TACC reductions proposed intend to reduce the risk of the stock declining below a level that produces *MSY.*
Section 13(2A)(b) Interdependence of stocks	1910. As the proposed options for FLA 7 would see a TACC reduction and introduction of a TAC and allowances, FNZ considers that they are unlikely to have any adverse effects on any interdependent stocks. Abundance of predator species may impact on FLA 7.
Section 13(2A)(b)	1911. Biological characteristics such as growth rates, distributions, age at maturity, longevity, and spawning behaviours vary significantly between individual species. Given differing levels of productivity, natural variability, and vulnerability to fishing pressure, FNZ considers some caution is warranted when setting a TAC for FLA 7.

Biological characteristics of the stock	
Section 13(2A)(b) Environmental conditions affecting the stock	1912. Environmental conditions, predominantly sedimentation in Tasman/ Golden Bay and potentially marine heatwaves, could be having an effect on flatfish distribution, abundance, and resilience to fishing pressure. Given the highly variable nature of many species, isolating and quantifying these impacts is difficult based on the information available. As we are proposing TAC decreases, risks that fishing may exacerbate these effects is reduced.
Section 13(3) Factors to have regard to in considering the way and rate the stock is moved towards or above B_{MSY}	1913. Section 13(3) is not considered relevant to the TAC decision for FLA 7 in this case. It is unclear what the overall status of the stock (as a whole) is in relation to B_{MSY} given the differing status for each species in the 2020 CPUE analysis. Forward projections are also not available to inform any analysis of way and rates of stock movement.

Kaitiakitanga

1914. 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 for stocks.

1915. The TWAM Forum has produced Te Waipounamu Iwi Forum Fisheries Plan, which outlines a vision, values and objectives to support and provide for the interests of South Island Iwi. Tāmure, pātiki, and makorepe are all identified as taonga species, and the following objectives are relevant to options proposed in this paper:

- To create thriving customary fisheries that support the cultural well-being of South Island iwi and whanau.
- South Island iwi are able to exercise kaitiakitanga.
- To develop environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for Iwi.
- To restore, maintain, and enhance the mauri and wairua of fisheries throughout the South Island.

1916. A Te Tau Ihu representative has also provided input on how some tangata whenua wish to exercise kaitiakitanga for these stocks (see Part 1 '*Who will be affected by the proposed changes?*'.

Mātaitai reserves and other customary management tools

1917. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve in that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

1918. The mātaitai reserves, area closures, fishing method restrictions, and prohibitions that apply to SNA 7, FLA 7, and ELE 7 are listed in Table 6 below.

Table 6: Mātaitai reserves and other customary management tools that apply to SNA 7, FLA 7, and ELE 7.

Customary area	Management type
Anatori, Kaihoka, Mikonui, Okarito Lagoon, Manakaiaua/ Hunts Beach, Mahitahi/ Bruce Bay, Paringa, Tauparikaka, Popotai Taumaka, Okuru/ Mussel Point, Ōkahu, Tauneke	**Mātaitai reserve** Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.
Whakapuaka/ Delaware Bay (no area-specific regulations)	**Taiāpure** All types of fishing are permitted within a taiāpure. The management committee can recommend regulations to manage commercial, recreational, or customary fishing.

Popotai Taumaka and Ōkahu (only restrictions on pāua)	**Temporary closures** Section 186A temporary closures are used to restrict or prohibit fishing of any species of fish, aquatic life or seaweed or the use of any method.

1919. FNZ does not consider the proposed options would impact on availability of kaimoana in these areas. Options for SNA 7 are projected to see an increase in abundance, FLA 7 options would reduce potential fishing pressure enabled under the TACC, and ELE 7 options would bring the TACC to a level which reflects recent catches. Considerations about maintaining the ecosystem function of snapper in predating on kina are relevant for areas such as Whakapuaka taiāpure in Tasman Bay (see Table 4 '*interdependence of stocks*').

Assessment of the proposals against section 9 of the Act

1920. Assessment of potential implications of the TAC proposals for SNA 7, FLA 7, and ELE 7 depends largely on how the fleet might respond to increased catch opportunities, based on behavioural and economic drivers (i.e. market demand, ACE and port prices, fuel and wage costs etc.). Most notably, under Options 2 and 3 for snapper, trawl effort is likely to increase as ACE becomes available for fishers to balance bycatch while maximising catches of other target stocks which are currently not fully caught (i.e. GUR 7, JDO 7, FLA 7).

1921. The scale of changes in trawl effort is difficult to predict; however, is considered extremely unlikely that it would increase proportionate to TACC increases under Options 1b, 2 or 3, for the following reasons;

- snapper caught to maintain current effort exceeded the TACC by 67 tonnes last year and will increase in line with biomass. Using the Option 2 biomass trajectory projections, this could be 658 tonnes by 2026;
- fishers can improve margins by reconfiguring gear to maximise efficiency, reduce fuel costs, or fish more productive grounds where snapper are also present; and
- a reduced fleet size, variable market demand, and TACCs for other species would constrain effort.

1922. FNZ has provided information below on historical levels of benthic impacts, fleet size, and trawl activity.

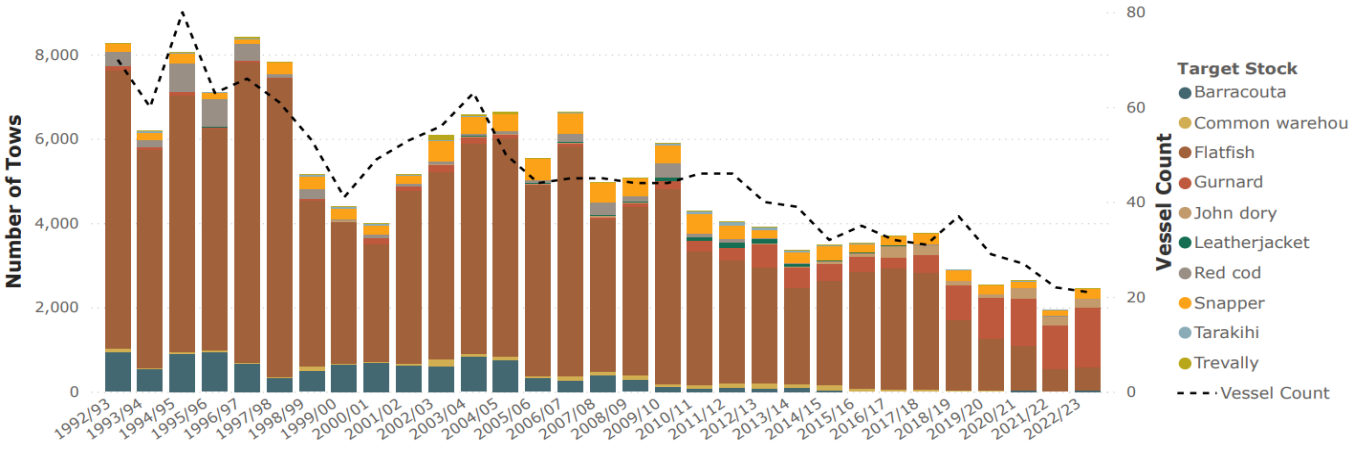


Figure 5: Trawl fleet size and reported tows by target and in Tasman/ Golden Bay (038) since 1992/93.

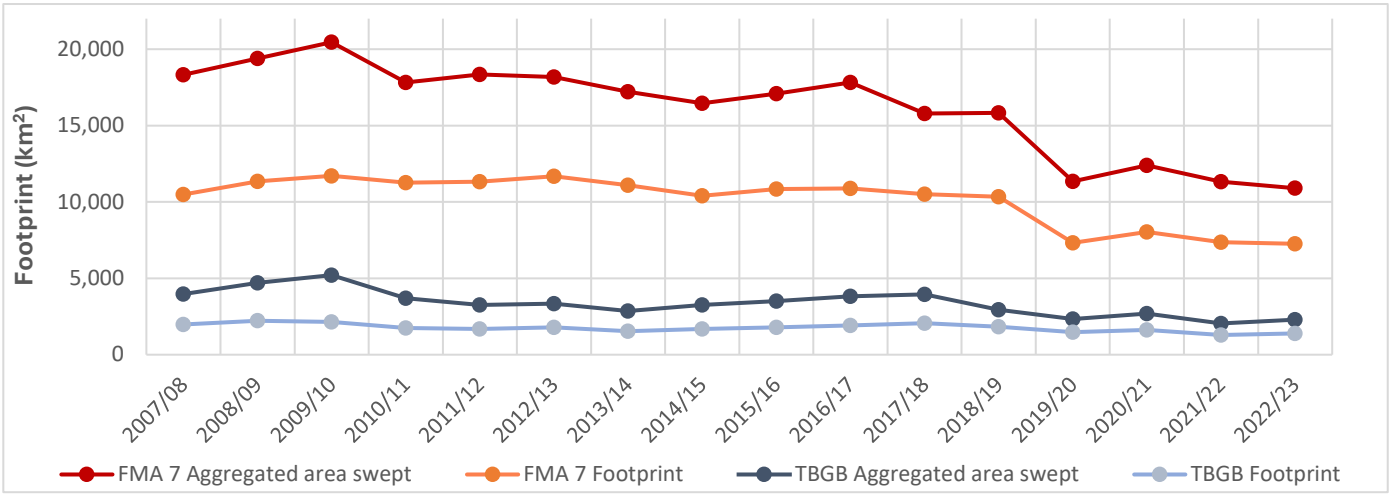


Figure 6: Inshore mixed trawl fishery area swept and footprint, in FMA 7 and Tasman/Golden Bay (TBGB) since 2007/08.

1923. Table 7 below outlines FNZ's assessment of the proposed TAC options against the environmental principles in section 9 of the Act, which you must take into account when considering the TACs of these stocks. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under *'Information on environmental impacts'* within *'Part 4: Supporting Information'*.

Table 7: Assessment under section 9 of the Act for SNA 7, FLA 7, and ELE 7.

Associated or dependent species should be maintained above a level that ensures their long-term viability- Section 9(a)	1924. Options 1b, 2, and 3 for SNA 7 may lead to increased protected species captures or vulnerable invertebrate and fish bycatch, with the greatest potential in Tasman/Golden Bay where snapper is a key 'choke' species constraining effort. However, increasing snapper abundance means that less effort is required to catch the same amount of fish. The fleet may respond by modifying trawl gear to improve catch efficiency rather than significantly increasing effort. 1925. Identifying associated species with overlapping habitats and potential to be impacted by an increase is complicated by a paucity of fisheries independent data on interactions in the regional inshore trawl fleet. Relevant species may include seabirds in *Procellaria* (i.e. Westland petrel and flesh-footed shearwater), *Thalassarche* (i.e. white-capped and Salvin's albatross), and common dolphins. Full camera coverage on trawl vessels < 32m on the North Coast is enabling ongoing expert identification of species and will provide confidence that interactions can be monitored and actively mitigated. 1926. FNZ considers it unlikely that any of the proposed TAC options would threaten the long-term viability of any associated or dependent species. The FLA 7 options propose TACC reductions which are unlikely to exacerbate impacts. Options 2 and 3 for ELE 7 could enable increased effort and impacts on the West Coast but are more likely to enable balancing of current catches and effort. SNA 7 options may lead to increased effort predominantly in Golden/Tasman Bay, where reported seabird and marine mammal interactions are relatively less common.
Biological diversity of the aquatic environment should be maintained - Section 9(b)	1927. The extent of benthic impacts as a result of the options for SNA 7, FLA 7 and ELE 7, particularly SNA 7, depend on fleet response; however, an increase in trawl intensity and footprint may occur as constraints on fishery access reduce. 1928. There is also a credible argument that constraining SNA 7 ACE under the *status quo* (Option 1) could lead to increased or higher than necessary bottom contact, as fishers continue to modify trawl gear and behaviours to reduce efficiency (CPUE) with the primary intention of avoiding snapper catch. 1929. Information on kina barrens and impacts on coastal reef biodiversity is in Table 4.

Habitat of particular significance for fisheries management should be protected - Section 9(c)	1930. Relevant potential habitats of particular significance to fisheries management (HPSFM) in FMA 7 are identified in Table 11 of Part 4. There are other potential sites present within the FMA (for orange roughy and pāua), but which do not overlap with the area fished for SNA 7, FLA 7, and ELE 7. Most sites, apart from Chetwode Banks, have regulatory measures in place that restrict fishing activity to some degree. 1931. Potential nursery habitats for snapper in inner Tasman/ Golden Bay have been identified through trawl surveys catching large amounts of juveniles but are not well defined geographically or in terms of key habitat attributes which support particular significance. There is extensive evidence of bryozoan beds off Separation Point (closed to bottom contact fishing) being important juvenile habitat for several inshore species, but recent monitoring has concluded that these areas have lost their functionality due to sedimentation (see Part 4). Trawling in Waimea Estuary and Nelson Haven is prohibited, but not in shallow nearshore areas which may also provide juvenile habitat. A voluntary seasonal trawl closure occurs in these areas to avoid juvenile snapper but due to its seasonal nature, impacts on any associated benthic features (which have not been documented) are not completely mitigated. Lack of information on this potential habitat makes analysis of vulnerability to fishing-related disturbance or necessary protections difficult. 1932. Juvenile blue cod habitat at Chetwode Banks is important for supporting blue cod productivity. It is one of the few known remaining areas of healthy bryozoan habitat in the Sounds region, which can support high levels of biodiversity in addition to their function as juvenile nurseries. There is a small amount of bottom contact fishing in this area, which could damage the habitat and functions it supports. This effort is not anticipated to increase under the proposed options; however, FNZ will continue to investigate the effects of bottom trawling on this habitat and necessary protections.

Assessment of the proposals against section 11 of the Act

1933. Table 8 below outlines the FNZ assessment of the proposed options for SNA 7, FLA7, and ELE 7 against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TACs of these stocks.

Table 8: Assessment under section 11 of the Act for SNA 7, FLA 7, and ELE 7.

You must take into account:	
Effects of fishing on any stock and the aquatic environment– section 11(1)(a)	1934. "*Effect*" is defined widely in the Act.[120] The direct effects of fishing for SNA 7, FLA 7, and ELE 7 need to be considered, as well as the indirect effects on the surrounding ecosystem. 1935. Information relevant to the direct effects of fishing on these stocks is described throughout this paper, particularly in Part 1 and within Part 4 under '*Status of the stocks'.* Effects of fishing on other stocks caught in the same fishery are described under *'Options and analysis',* with more detailed analysis below in Part 4 under '*Stock complex information*'. As these species are predominantly taken in the mixed trawl fishery, increases to the SNA 7 TACC may increase catches of common target and bycatch species within their respective TACCs. 1936. The effects of fishing for these stocks on interdependent species and the aquatic environment are considered above in Tables 4, 5, and 7, with more supporting detail provided in Part 4 '*Interdependence of stocks'* and *'Information on environmental impacts'.* 1937. The magnitude of these effects of fishing on these stocks, their associated species, and the environment, will vary depending on the TAC settings – particularly SNA 7. FNZ considers that the proposed TAC options for these three stocks appropriately balance the utilisation opportunities that exist against these potential effects. Greater effects may occur under higher TAC settings for these stocks, which you must take into account in your decision.

[120] Section 2(1) of the Act defines "effect" as 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.

Existing controls that apply to the stock or area – section 11(1)(b)	**Commercial** (under the *Fisheries (Challenger Area Commercial Fishing) Regulations 1986*) • Trawl prohibitions in Pelorus Sound, Waimea/ Nelson estuary, Separation Point, Hautai, and Greville Harbour. • A seasonal trawl prohibition in inner Golden Bay between 1 November and 30 April. • Maud Island, Cook Strait Cable Zone, and Double Cove closed areas and finfish restrictions in inner Queen Charlotte and Kenepuru Sounds, Croisilles, and Tennyson Inlet. • Low headline requirements in Cloudy/Clifford Bay and a Hector's dolphin fishing-related mortality limit of 10. • Set net prohibitions to 4 nm in Tasman/ Golden Bay and East Coast, and 2 nm on the West Coast (1 December – 28 February). • Minimum Legal Size (MLS) of 25 cm for snapper and 25cm for flatfish (23cm sand flounder). **Recreational** (under the *Fisheries (Amateur Fishing) Regulations 2013* and notices) • Set net prohibitions to 4nm in Tasman/ Golden Bay and East Coast, 2 nm on the West Coast, the inner Pelorus Sound, and seasonally (summer) in Kenepuru and Queen Charlotte Sounds. • No more than 25 hooks on a longline, one longline per person or two per vessel. • Maud Island, Double Cove, and Cook Strait Cable Zone areas closed to fishing. • 25cm MLS for snapper and 25 cm for flatfish (25 cm sand flounder). • Daily limit of 10 snapper (3 in the MSA) and combined daily limit of 20 finfish. • Maximum 60 m setnet length and 100 mm minimum mesh size for FLA 7 or 150 mm for ELE 7.
The natural variability of the stock – section 11(1)(c)	1938. Snapper is a low variability species, given low natural mortality, high longevity, its role in coastal ecosystems as dominant generalist predator, and broadcast spawning characteristics. 1939. Flatfish are highly variable, given high natural mortality and short lifespans for flounders. However, for brill, turbot, and NZ sole, variability is likely closer to moderate. 1940. Elephantfish are moderately variable. While they have low natural mortality, low fecundity means recruitment success may be highly dependent on environmental conditions.
Fisheries plans, and conservation and fisheries services – section 11(2A)	**National Inshore Finfish Fisheries Plan** 1941. SNA 7 is a Group 1 stock which recognises the need to manage it to provide for higher levels of use, with higher levels of information (fully quantitative stock assessment). It is also an identified shared fishery. FLA 7 and ELE 7 are Group 2 stocks, managed for moderate use with moderate levels of information (partial-quantitative stock assessments). FNZ considers that the options proposed for all three stocks are consistent with this. **Fisheries and conservation services:** 1942. Fisheries and conservation services of significance have been described throughout this paper where relevant. 1943. Fisheries services of relevance to these stocks include the research used to monitor their abundance (outlined in Part 4 under '*status of the stocks*') and the tools used to enforce compliance with management controls in these fisheries. 1944. Compliance is supported by observer and on-board camera monitoring in commercial fisheries. The observer and camera coverage relevant to the FMA 7 inshore mixed trawl fishery is described below in Part 4 under '*Protected species*'. 1945. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species. 1946. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and	• Marlborough Regional Policy Statement and proposed Marlborough Environment Plan • Nelson Draft Regional Policy Statement chapters 8 and 10. • Tasman Regional Policy Statement section 9. • West Coast Regional Policy Statement chapter 9 and Coastal Plan 5.1. • Canterbury Regional Policy Statement 8.2.4 and Environment Plan.

documents - section 11(2)	1947. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. 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, except for restrictions on bottom contact fishing in ecologically significant marine sites in the proposed Marlborough Environment Plan. There are no provisions specific to these stocks. FNZ has reviewed the documents and the provisions that might be considered relevant. A summary of these can be found in Addendum 1. FNZ considers the options in this paper are all consistent with the objectives of these relevant plans.
Non-mandatory relevant considerations	
Other plans and strategies	1948. **Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy -** FNZ considers that all options for these stocks are generally consistent with relevant objectives 10 (to ensure that ecosystems are protected, restored, resilient and connected), and 12 (to manage natural resources sustainably). The most relevant issue is the effect of snapper fishing pressure on trophic cascades and kina barrens (see '*interdependence of stocks'* in part 4 below). 1949. **NPOA Sharks -** FNZ considers the options proposed for ELE 7 are consistent with objective 1.4 (mortality from fishing should be at or below a level that allows for the maintenance at, or recovery to, a favourable stock status).
Other regulatory or voluntary measures	• Farewell Spit Nature Reserve and Long Island, Horoirangi, Westhaven, Kahurangi, Punakaiki, Waiau, Hautai and Tauparikāka Marine Reserves. • Voluntary trawl closures in inner Golden Bay, Farewell Spit, and Whakapuaka Taiāpure, and in inner Tasman Bay between 1 November and 30 April.

Information principles: section 10 of the Act

1950. The best available information relevant to these stocks is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. The table below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in that information.

Table 9: Best available information and key areas of uncertainty for SNA 7, FLA 7, ELE 7.

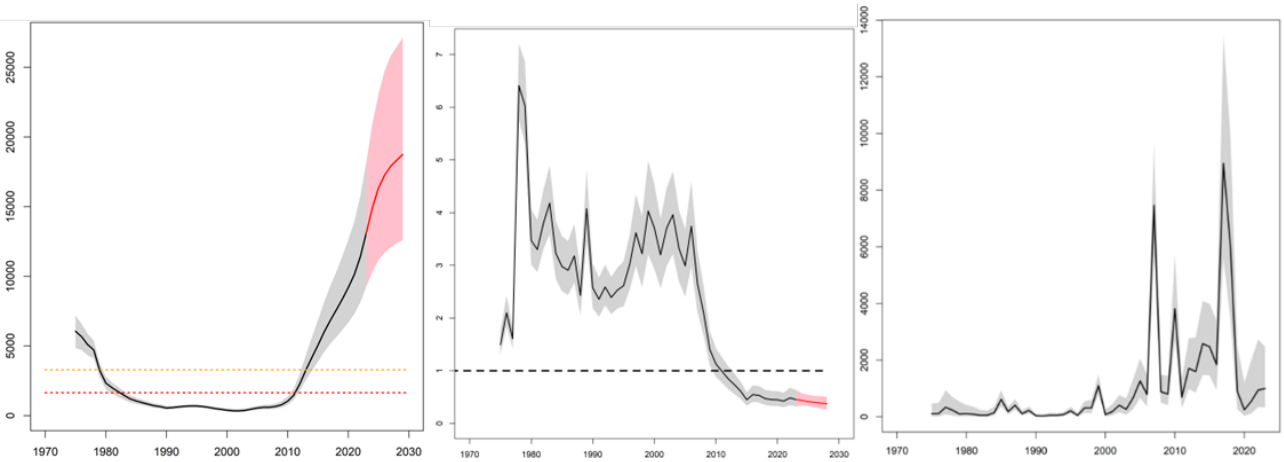
Stock	Best available information	Key areas of uncertainty, unreliability, or inadequacy
SNA 7	Results of the 2024 fully quantitative SNA 7 stock assessment. National Panel Survey of Recreational Fishers.	• The exact strength of recent year classes which are driving increasing biomass. • Future recruitment trends are unknown given the recent period of high productivity. They may be influenced by environmental conditions. • Due to shifting productivity, estimates of B_{MSY} or virgin biomass cannot be reliably made. An *MSY*-compatible proxy ($U_{SB40\%}$) is used. • The degree of connectivity with SNA 8 (also proposed for a TAC increase) is unquantified. Higher fishing pressure in southern SNA 8 could impact SNA 7. • Habitats of significance for juvenile snapper and their attributes have not been well defined in Tasman and Golden Bays. • Potential fleet response to a TACC increase, and associated benthic and associated species impacts, cannot be precisely predicted due to unknown future behavioural, market, and economic drivers. However, a range of responses and potential impacts have been assessed. • Biomass levels and population structures necessary to ensure ecosystem functions of kina predation are unknown.
FLA 7	Results of the 2020 partial quantitative stock assessment using CPUE.	• Stock status is relatively outdated for the species where it is known, given their high natural variability and short lifespan. Catches have

Stock	Best available information	Key areas of uncertainty, unreliability, or inadequacy
	Catch trends for non-assessed stocks. National Panel Survey of Recreational Fishers	dropped since, but it is unclear if this reflects decreased abundance without CPUE analysis. • Impacts of environmental conditions (predominantly sedimentation) have been widely speculated to be affecting this stock, but research in this area is limited. If it has decreased habitat functionality, carrying capacity and *MSY* has likely also decreased. • Stock status for lemon sole, greenback, yellowbelly, and black flounder, despite not representing a significant proportion of commercial catches, is unknown. • It is unclear exactly how TACC settings will direct fishing effort and influence pressure on individual flatfish species. • Information on customary and recreational catches is highly uncertain.
ELE 7	Results of the 2024 partial quantitative stock assessment using CPUE. National Panel Survey of Recreational Fishers	• The tendency of elephantfish to aggregate and migrate leads to variability in catchability, meaning very short-term CPUE trends may not reflect abundance. • The sex ratio of fish subject to fishing mortality, and the unfished population is unknown. • Information on customary and recreational catches is highly uncertain.

Status of the stocks

Snapper (SNA 7)

1951. SNA 7 was assessed in 2024 using an age-structured model, with a wide range of inputs including length/ age frequencies, catch histories, trawl survey biomass estimates, a tagging study, and commercial CPUE.



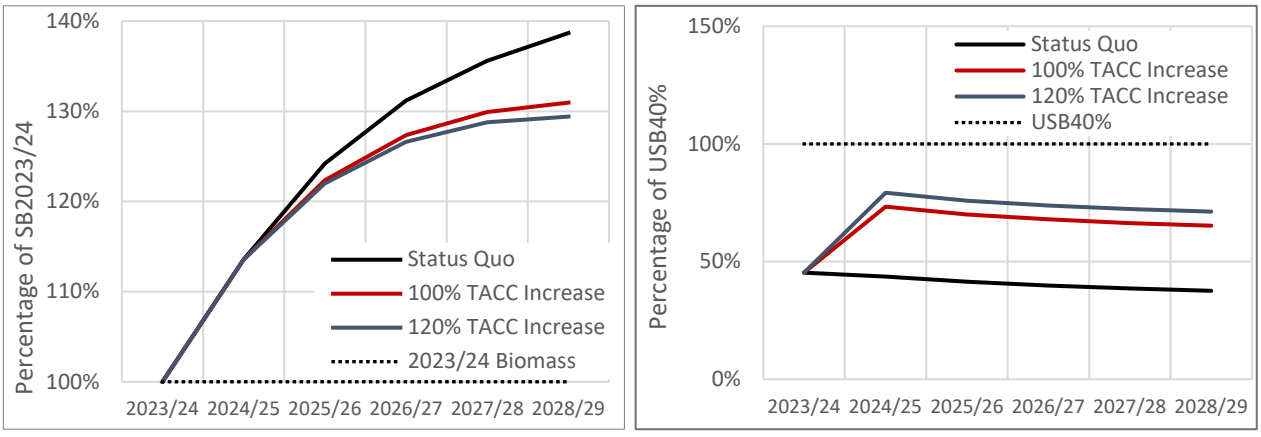
Figures 7, 8 & 9: Modelled spawning biomass (t) relative to soft and hard limits (left), exploitation rate relative to $U_{SB40\%}$ (centre), and recruitment in thousands of fish (right), with 95% confidence intervals and projections (Langley, 2024).

1952. Due to difficulties in estimating virgin biomass (B_0) with recent productivity shifts (increased but highly variable recruitment), the Inshore Finfish Working Group[121] concluded that the target should move to an exploitation rate ($U_{SB40\%}$ or 5% of vulnerable biomass), rather than the HSS default 40%B_0.

1953. The stock was determined to be:

- very likely to be at or below the interim management target ($U_{SB40\%}$); and
- exceptionally unlikely to be to be below the soft and hard limits (4x and 2x B_{1987}); with
- biomass projected to continue to increase under the *status quo*.

1954. The increase over the last decade was attributed to strong recruitment of distinct year-classes (Figure 9), monitored through trawl surveys and catch ageing. Results from the most recent 2023 trawl survey improve certainty in the strength of the 2017/18 cohorts which are driving optimistic projections as they mature and grow rapidly. However, recruitment since 2020 appears to have returned to lower levels (Langley, 2024).



Figures 10 & 11: Projected biomass (left) and fishing mortality relative to $U_{SB40\%}$ (right) under TACC scenarios.

1955. Given the positive outlook for the stock, projections were made for several increased catch scenarios. Assuming recreational catches would continue to increase proportionately with biomass and fully caught TACC increases from 50 to 120%, the projections suggest that even under the largest increase, biomass would continue increasing and fishing mortality would remain well below $U_{SB40\%}$ for the next five years.

[121] A Science Working Group which oversees the peer review process and production of the inshore finfish Plenary reports.

Flatfish (FLA 7)

1956. FLA 7 was last assessed in 2020 by CPUE analysis of the bottom trawl fishery through to the end of 2018/19. Sand flounder, brill, and turbot were found to be as likely as not at or above target; however, NZ sole was unlikely (<40%) at or above target with overfishing likely (>60%) to be occurring (Starr & Kendrick, 2022).

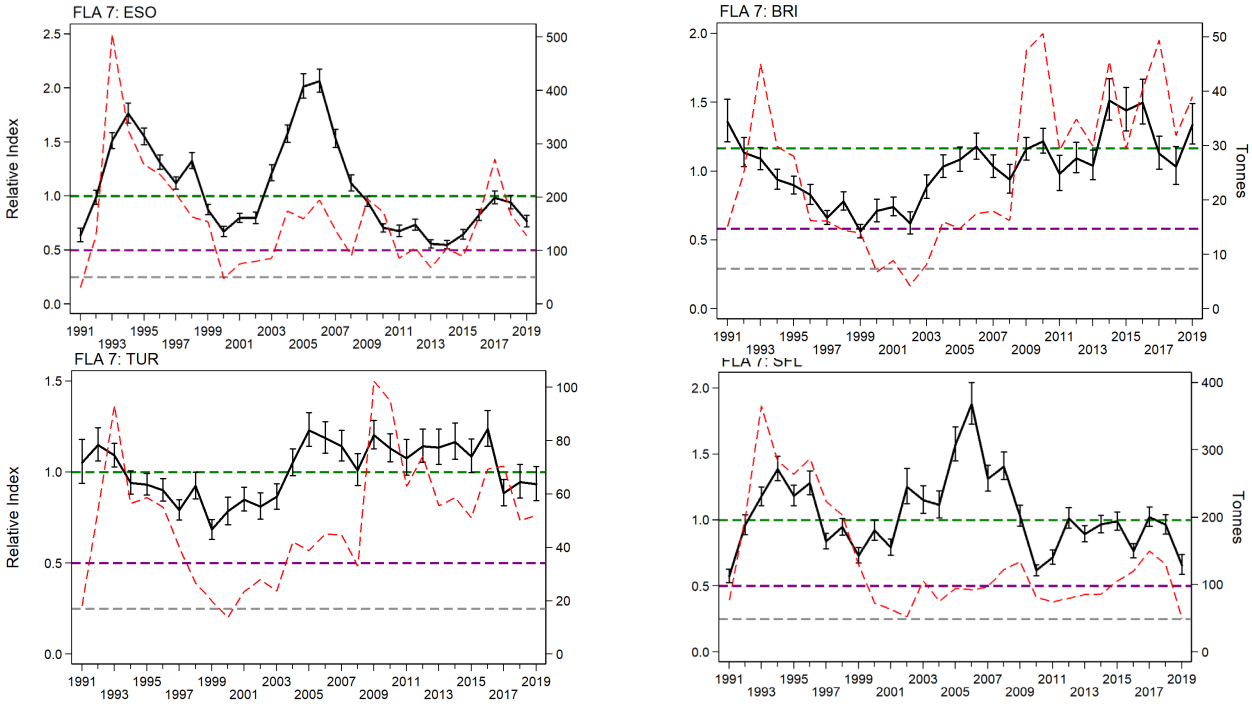


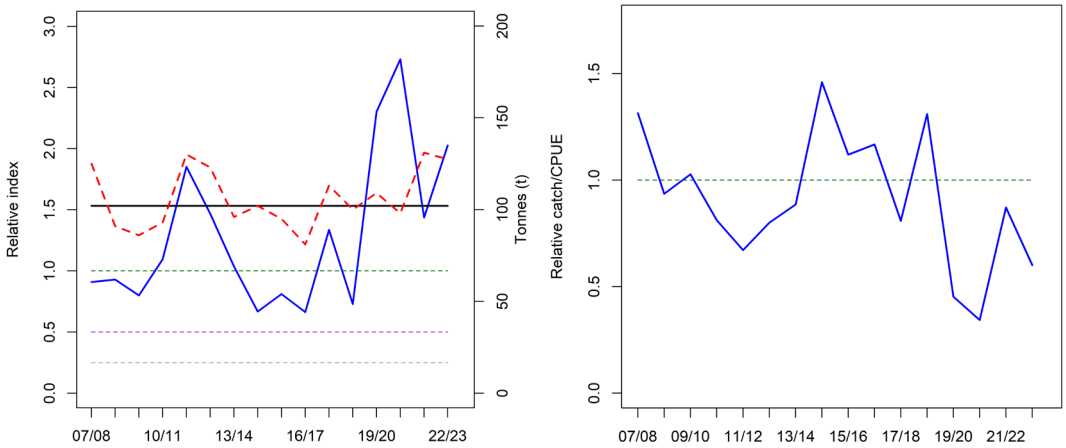
Figure 12: Bottom trawl CPUE indices for NZ sole (ESO), brill (BRI), sand flounder (SFL), and turbot (TUR). Plotted against catches (derived by catch-splitting), the management targets, and soft and hard limits.

1957. This analysis does not cover catches for the past five years and since this time, little new information has become available. Most species are short lived and subject to high variability in abundance, but substantial declines in catch for all species from 473 to 121 tonnes (from a recent peak of 873 tonnes in 2017/18 and historically up to 1,566t) have raised concerns. Several fishers have noted signs of decreased abundance and attributed this to the impacts of sedimentation and increased food competition.

Elephantfish (ELE 7)

1958. ELE 7 was assessed in 2024, using a tow-by-tow CPUE analysis of the West Coast South Island bottom trawl fishery to the 2022/23 fishing year (Fisheries Assessment Plenary, 2024). The stock was determined to be:

- likely (>60%) at or above the agreed B_{MSY} proxy target of mean 2008-2018 CPUE; and
- very unlikely to be below the soft or hard limits (½ and ¼ of the target, respectively); with
- biomass predicted to remain above the target level under the *status quo*.



Figures 13 & 14: ELE 7 bottom trawl CPUE series relative to the TACC, catch history, target, soft and hard limits (left), and fishing pressure relative to the overfishing threshold (right) (Fisheries Assessment Plenary, 2024).

Stock complex information

Table 10: Key links between the stocks being reviewed and others in the FMA 7 inshore mixed trawl stock complex.

Snapper (SNA 7)	Flatfish (FLA 7)	Elephantfish (ELE 7)
Traditionally caught in Tasman/ Golden Bay with gurnard, sand flounder, John dory, and rig. Fishers are reporting increasing snapper bycatch further down the West Coast, and with deeper water species such as barracouta, tarakihi, and school shark.	Sand flounder is mainly caught in Tasman/ Golden Bay with gurnard, John dory, rig, and snapper. Some is also taken in Cloudy Bay. NZ sole, brill, and turbot are caught on the West Coast with gurnard, red cod, and elephantfish.	The majority is caught on the West Coast alongside brill, turbot, NZ sole, and gurnard. A small amount is also taken in Cloudy/Clifford Bay.

1959. Of these stocks, last assessed status in the Fisheries Assessment Plenary (2024) is:

- virtually certain to be at or above target (>90% probability) for gurnard (GUR 7);
- about as likely as not at or above target (40-60%) for John dory (JDO7), rig (SPO 7) and school shark (SCH 7);
- unlikely at or above target (<40%) or worse for NZ sole and East Coast tarakihi;[122] and
- Unknown for red cod (RCO 7) and barracouta (BAR 7), and uncertain for West Coast tarakihi (TAR 7W).

1960. With a substantial increase in SNA 7 TACC under Options 2 and 3, catches of associated species could be expected to increase. GUR 7 and JDO 7 are not fully caught currently as fishers report that limited SNA 7 ACE is constraining their ability to fish for these species. Rig is fully caught and limited SPO 7 ACE would be expected to constrain an increase in catches. There are no known sustainability concerns for these species which might be exacerbated by increased fishing pressure.

1961. There are concerns around declining catches of sand flounder in Tasman/Golden Bay but causes for this are unclear. The 2024 SNA 7 assessment found a change in fishing to shallower depths generally corresponded to SNA 7 TACC increases since 2019/20. Significant reductions to the TACC for FLA 7, especially Option 3, would be expected to reduce the risk of a significant increase in fishing pressure on sand flounder with a SNA 7 increase. FNZ notes that sand flounder is identified as a highly variable species and is also prioritising research to better understand fishing and non-fishing effects on flatfish abundance.

1962. The joint submitters raised concerns around impacts of a SNA 7 TACC increase on red cod (for which stock status is unknown and catches have declined significantly), NZ sole (assessed to be likely below target, and tarakihi (with Tasman/Golden Bay noted to probably be a major nursery ground). Red cod is identified as a highly variable species and research has linked environmental drivers to decreasing catch rates. Results of the 2025 trawl survey will inform ongoing monitoring of this stock. FNZ considers there is little overlap with snapper and NZ sole catches, as snapper is largely taken as irregular and unexpected bycatch on much of the West Coast, meaning avoidance is not as significant a driver for fishing behaviours as in other areas. An increase in ELE 7 TACC could enable increased NZ sole catches, but at the levels being proposed, FNZ considers it unlikely to incentivise additional effort but rather balancing of catch.

1963. Results of a 2023 trawl survey suggest that the TAR 7W stock may be below target, but stock status is to be formally determined through a fully quantitative stock assessment for the entire West Coast stock in 2025. Over the last 5 years, the TACC of TAR 7 has been between 88-101% caught (97% in 2022/23). The TACC is expected to continue to constrain targeted fishing for tarakihi. Preliminary results of the fully quantitative assessment in 2025 will provide reliable data on fishing pressure levels and inform management settings. The TACC is considered the most effective tool to manage tarakihi effort and catches in a largely target fishery.

Information on biology, interdependence, and environmental factors

1964. This information supports FNZ's assessment of the proposals against section 13 of the Act in '*Part 3: Assessment against relevant legal provisions*'. Information in this section was derived from the snapper, flatfish, and elephantfish chapters of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

[122] Part of TAR 7, which includes a separate West Coast stock (TAR 7W) scheduled for an assessment with results due in 2026.

Biological characteristics

Snapper (SNA 7)

1965. Snapper are found in central and northern regions of New Zealand to depths of 200 m. It is one of the most abundant, dominant, and widely distributed inshore species from 15-100 m, occupying a range of habitats including rocky reefs and sandy/mud seafloor.

1966. It is considered to be a low productivity species, with a low level of natural mortality and long natural lifespan (up to 60 years or 105 cm). These characteristics are offset to some degree by a relatively young age of maturity (3 to 7 years) and high fecundity, being a serial broadcast spawner. Snapper in SNA 7 have the fastest growth rates and average size in New Zealand. Snapper are opportunistic predators, eating a wide range of crustaceans, worms, urchins, molluscs, and fish.

1967. There is likely a degree of mixing between SNA 7 and southern SNA 8, however the extent of this is unclear. Marlborough Sounds snapper are considered to constitute a separate stock from the rest of SNA 7. Research has shown a decline of genetic diversity of snapper in Tasman Bay following high levels of historical fishing pressure (Bernal-Ramírez et al., 2003).

Flatfish (FLA 7)

1968. Flatfish are generally shallow water species found in less than 50 m depth, with different biological traits for each of the eight species managed under this stock. Brill, turbot, and NZ sole are found on the West Coast, whereas sand flounder are more widely distributed in shallow waters, especially Tasman/ Golden Bay.

1969. Sand flounder is considered high productivity, being fast-growing, highly fecund, and short-lived, generally only surviving to 3 to 4 years of age due to high natural mortality. Brill and turbot have longer lifespans (up to 21 years). For other species, reproductive capacity and longevity is poorly understood. Diet varies by species, but includes crustaceans, molluscs, worms, and small fish.

1970. Many species migrate between depths seasonally for spawning, with juveniles occupying shallow bays and estuaries. Morphological analysis suggests sand flounder populations are localised and distinct.

Elephantfish (ELE 7)

1971. Elephantfish are found most plentifully around the South Island, particularly the East Coast. They migrate between coastal waters of up to 200 m depth to shallow sandy/mud areas for spawning in spring. It is likely that fish on the East Coast of ELE 7 are linked to ELE 3.

1972. The species is considered low productivity, being an elasmobranch with low fecundity and natural mortality, and average natural lifespan (>20 years). Distinct characteristics such as spawning aggregations, laying of egg cases in shallow areas, and incubation for at least 5-8 months make this species vulnerable to overfishing. Diet consists predominantly of molluscs but also crustaceans and fish, located using the snout.

Interdependence of stocks

Snapper (SNA 7)

1973. As opportunistic and generalist predators that occupy a wide range of habitats, snapper are likely to have significant dietary overlaps with many other carnivorous inshore species such as red gurnard, John dory, rig, blue cod and flatfish. Changes in snapper age structure or abundance (through fishing pressure) may affect these species. There is very little information on natural predators of snapper (Parsons et al., 2014).

1974. When setting a TAC for snapper stocks in some regions of New Zealand, it is important to consider the role that snapper play in shaping the ecology of rocky reefs through their consumption of kina (*Evechinus chloroticus*). Predation by snapper and other species such as rock lobster can reduce kina abundance and alter kina behaviour thereby reducing the prevalence of kina barrens (Doheny et al., 2023).

1975. Research by Wing et al. (2022) has found that sedimentation, marine heatwaves, and overharvest, decline, and truncation of size structures for rock lobster, blue cod, and snapper have cumulatively coincided with a wide-scale decline in brown macroalgae and proliferation of kina in Marlborough Sounds and Tasman Bay. There is little information on prevalence of kina and potential barrens in the rest of SNA 7.

Flatfish (FLA 7)

1976. There is little information on predator-prey relationships for flatfish, but they likely form part of the diet of a wide range of species. Left-eyed flounder species (not part of FLA 7 or commercially targeted) and lemon sole are a significant food source for Marlborough Sounds king shags (van der Reis & Jeffs, 2020).

Elephantfish (ELE 7)

1977. Elephantfish likely play an intermediate ecosystem role, linking primary consumers such as shellfish to larger predators such as sharks. Little is known about their specific predator species.

Environmental conditions affecting the stock

1978. There are widespread concerns about the impacts of sedimentation on demersal finfish in the nearshore coastal area, including snapper and flatfish species. This is especially pronounced for less mobile and generalised visual feeders such as flatfish. In FMA 7, research has found that fine sediment accumulation has degraded large areas of biogenic and estuarine habitats, such as the Separation Point bryozoan beds following Cyclone Gita, and areas of inner Pelorus Sound (Morrison et al., 2023).

1979. Climate change associated factors, such as changes in water temperatures and increased ocean acidification, are also likely to be affecting these species. Cummings et al., (2021) found snapper to be moderately vulnerable to likely changes, suggesting increased sea temperatures may cause southward range expansion, changes in the distribution of predators, competitors, and disease, and toxicity due to algal blooms. Tank experiments have suggested opposing effects of climate change on snapper, with warmer water and acidification reducing metabolic performance but increasing survival and growth rate (Parsons, et al., 2021).

1980. Warmer water appears to have corresponded with high recruitment observed in recent years (2007, 2017, and 2018) (Langley, 2024), with stock assessment results suggesting SNA 7 is experiencing a period of higher productivity. Commercial catches and trawl survey results also indicate range expansion is occurring down the West Coast. However, the relationship between water temperature and recruitment success is unlikely to be linear, with an upper limit to temperatures after which recruitment would be negatively impacted.

1981. For flatfish and elephantfish, water temperature effects are unclear but there is some suggestion that recent marine heatwaves have negatively impacted flatfish species. A significant decline in red cod catch has been linked to warmer water potentially impacting recruitment (Beentjes & Renwick, 2001). Importantly, anthropogenic impacts such as climate change, eutrophication from nutrient runoff, and resuspended sediment through bottom contact can compound each other as cumulative stressors.

Information on environmental impacts

Protected species

1982. Information presented below is based on fisher-reported data that may not have been independently verified. Average observer coverage since 2018/19 in the FMA 7 inshore mixed trawl fishery was negligible at 1.2%.[123] Set net vessels (≥8 m) and trawlers (<32 m) have operated onboard cameras since 31 October 2023 on the North, East, and South coasts of the South Island, which has substantially increased verification.

Seabirds

1983. In the past five years there have been 114 reported seabird interactions on bottom trawl vessels targeting species in the FMA 7 inshore mixed trawl fishery stock complex. Species reported included (by occurrence); unidentified albatrosses and petrels, prions and shearwaters, common diving petrel, black-backed gull, and Buller, Chatham, Salvin's, Wandering, Westland, and Campbell albatrosses. The majority of these interactions are from the West Coast and Cook Strait, when targeting deeper water species.

1984. Management of seabird interactions in commercial fisheries is guided by the NPOA Seabirds, with mitigation measures mandated under the Seabird Scaring Devices Circular and recommended in Trawl Mitigation Standards. FNZ, DOC, and industry also work to ensure vessels follow Risk Management Plans.

[123] This coverage is calculated based on fishing events (individual tows, sets or shots) in which stocks in the stock complex were recorded as caught and an observer was on board. This metric does not reflect the overall level of monitoring in the fishery.

Mammals

1985. In the past five years there have been 15 fisher-reported mammal interactions on bottom trawl vessels targeting FMA 7 inshore mixed trawl stocks. Species reported included (by occurrence); New Zealand fur seal, common dolphin, and Hector's dolphin. In general, trawl fisheries have been assessed as posing a lesser risk to dolphins than commercial set-net fisheries.

1986. Risks to Hector's dolphins are managed under trawl and set restrictions, the Hector's and Māui Dolphin Threat Management Plan, and the Hector's Dolphin Bycatch Reduction Plan including fishing-related mortality limits and escalating responses to captures on the east and south coasts of the South Island.

Fish and invertebrate bycatch

1987. Snapper, elephantfish, and flatfish, are all generally commercially caught as part of a mixed bag (see '*Stock complex information*'). The 2023 West Coast South Island trawl survey recorded 16 chondrichthyan and 60 teleost species caught (MacGibbon et al., 2024). During this survey, 50 benthic macroinvertebrate species were also taken as bycatch, including various sponges, prawn killer, starfish, squids, and sea cucumbers. The survey areas exclude many areas of foul ground and hard substrate (which some bryozoans prefer).

Biological diversity of the environment

1988. Bottom trawling can directly impact benthic habitats and biodiversity, particularly where it occurs outside of the existing footprint and in high biodiversity value areas. Research has characterised New Zealand's benthic environment and levels of fishing impacts, in the Aquatic Environment and Biodiversity Annual Review.

1989. Tasman/ Golden Bay has been intensively fished by trawling, dredging, and seining over the last century. Trawling and dredging are consistently identified as important factors in explaining the variance in Tasman Bay epifaunal and infaunal community structure and species diversity (Tuck, Hewitt, & Lundquist, 2017).

1990. The introduction of the QMS in 1986 significantly reduced fishing effort in the bays, while regulatory and non-regulatory controls have been introduced over time to protect areas of higher biodiversity such as Separation Point, a number of coastal estuaries, various marine reserves, and areas of the Marlborough Sounds. MDC has also identified a number of ecologically significant marine sites, some of which are protected from bottom contact fishing activity under the proposed Marlborough Environment Plan.

1991. Analysis of the trawl footprint between 2008 and 2021 showed the footprint from targeting of all inshore stocks in FMA 7 is relatively intense (regularly trawled) and has remained reasonably steady in total size with a slight decrease in 2019-2021 (MacGibbon & Mules, 2023).

Habitat of particular significance for fisheries management

1992. Potential habitats of particular significance for fisheries management that overlap with FMA 7 can be found in Table 11 below. There are other potential habitats of particular significance present within the FMA (orange roughy and pāua), but which do not overlap with the area fished for SNA 7, FLA 7, and ELE 7.

Table 11: Potential habitats of particular significance for fisheries management relevant to FMA 7.

Marlborough Sounds Sites, including Penzance Bay, Iwirua Point, and Kumutoto Bay in Queen Charlotte Sound, Fitzroy Bay to Savill Bay, Garnes Bay, and Grove Arm in Pelorus Sound, and Clifford Bay.
Attributes of habitat • Fine sand and broken shell in less than 25 m. **Reasons for particular significance** • Egg laying and spawning habitats for elephantfish. **Risks/Threats** • Disturbance and resuspended sediment from bottom-contact fishing, sedimentation from land-based practices or marine farming, marine dumping, anchoring and movement of invasive species that change the substrate. **Existing protection measures** • Trawling is prohibited in many areas of the Marlborough Sounds (see Table 8). **Evidence** • Hurst et al., (2000), Morrison et al., (2014), Davidson et al., (2015), Davidson et al., (2019)
Inner Golden and Tasman Bays
Attributes of habitat

- Not well defined.

Reasons for particular significance

- Juvenile habitats for snapper.

Risks/Threats

- Commercial fishing using bottom-impacting methods.

Existing protection measures

- Voluntary seasonal trawl closures, estuary and seasonal trawl prohibitions (see Table 8).

Evidence

- Drummond and Kirk (1986)

Mahau and Kenepuru Sounds, Hikapu Reach, and Nydia Bay

Attributes of habitat

- Not well defined.

Reasons for particular significance.

- Juvenile habitats for snapper.

Risks/Threats

- Sedimentation from land-based activities.

Existing protection measures

- Trawling is prohibited in many areas of the Marlborough Sounds (see Table 8).

Evidence

- Drummond and Kirk (1986)

Chetwode Banks

Attributes of habitat

- Patches of bryozoan fields and horse mussel bed. One of the few known remaining areas of healthy bryozoan habitat in the Sounds region.

Reasons for particular significance

- Juvenile habitat for blue cod.

Risks/Threats

- Bottom contact fishing, resuspension of sediment by bottom-contact fishing, sedimentation from land-based practices or marine farming, marine dumping, and anchoring.

Existing protection measures

- None.

Evidence

- Carbines (2004), Anderson et al., (2019), Jones et al., (2016).

1993. These stocks are highly important for multiple sectors and have been selected for review together to ensure that interlinkages as part of the mixed trawl fishery, in which the majority of catch volume is taken, are taken into account.

1994. All of the options for SNA 7 and ELE 7 are considered likely to maintain the stocks at or above B_{MSY}, based on forward projections or qualitative analysis of CPUE, meaning you have discretion to decide between them whilst meeting key *MSY* related obligations in section 13.

1995. For FLA 7, B_{MSY} cannot be reliably estimated, but FNZ considers Options 2 and 3 to be consistent with your obligations. FNZ considers Option 1 is potentially inconsistent with the objective of maintaining the stock at or above B_{MSY} and therefore advises against it.

1996. Beyond single-species considerations, TAC settings for these stocks may well influence each other, other stocks in the mixed trawl fishery, and the wider marine environment. These have been outlined in various sections, with key considerations being the impacts of potential increases in trawl effort on other species and the benthos, protection of potential habitats of particular significance, and the role of snapper in predating on kina and preventing trophic cascades.

1997. Based on analysis of best available information, submissions, and legal provisions, FNZ recommends Option 2 for SNA 7, Option 3 for FLA 7, and Option 2 for ELE 7. To mitigate concerns raised during consultation around uncertain fleet response and impacts of fishing from a significant TAC increase, FNZ proposes that you could signal a commitment in your decision letter to reconvene the multisector snapper workshop in mid-2025, to present information on and facilitate discussion on any:

- changes in trawl footprint and protected species interactions.
- changes in fleet activity and finfish catch volumes; and
- monitoring and reporting of adherence to Tasman and Golden Bay voluntary trawl closures, to build confidence in their utility in avoiding inter-sector conflict or juvenile bycatch.

1998. This approach is considered to provide a meaningful opportunity for utilisation of SNA 7, minimise the risk of significantly increasing fishing pressure on FLA 7 with a lower TACC, and reduce the financial burden of ELE 7 catches while recognising an overlap of effort in NZ sole habitat. It also seeks to mitigate the risk of any long-term adverse outcomes due to fishing activity and enable local participation in fisheries management.

1999. If you wish to place greater weight on minimising the risks associated with uncertainty around benthic impacts, protected species and more vulnerable finfish bycatch, and overall fleet activity (key concerns of many submitters) an alternative, smaller staged increase to the SNA 7 TAC is included for your consideration (Option 1b), in combination with Option 2 for FLA 7, and Option 2 for ELE 7. To ensure the scale of the utilisation opportunity for SNA 7 is not dismissed, this could be supplemented by a commitment to another review in the near future, dependent on insights derived in 2024/25.

2000. Broader fishery and ecosystem interlinkages have been considered in recommending these combinations of options. If you wish to progress a different combination, information is presented throughout this paper to ensure they are complementary and consider potential wider implications.

2001. As part of this review, FNZ has identified a risk of adverse effects on the potential habitat of particular significance for fisheries management at Chetwode Banks from wider trawling activity, which is not considered to be substantially exacerbated by the proposed options. FNZ will conduct further work to understand the effects of trawling, its role as nursery habitat, and whether protections are needed.

2002. In regard to the MSA snapper daily limit, no new information was provided to demonstrate that the prevailing understanding of Marlborough Sounds snapper being a separate stock is incorrect, or that abundance in the Sounds has increased at a similar rate as in Tasman/Golden Bay to enable substantially increased utilisation. FNZ is not proposing to pursue a change currently (which would require consultation on options) but acknowledges concerns about accessibility of evidence on stock separation and recreational monitoring. FNZ will look to publish relevant research online, increase ramp survey coverage in the Sounds, and explore potential for tagging to understand movement, connectivity, and recruitment sources for snapper.

Decisions for SNA 7

Option 1

Agree to retain the SNA 7 TAC at 768 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 30 tonnes;
ii. Retain the allowance for recreational fishing interests at 250 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 38 tonnes;
iv. Retain the TACC at 450 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 1b *(introduced following consultation)*

Agree to set the SNA 7 TAC at 1,116 tonnes and, within the TAC, to:

- supported after consultation which has to be given due weight

i. Increase the allowance for Māori customary non-commercial fishing interests from 30 to 60 tonnes;
ii. Increase the allowance for recreational fishing interests from 250 to 275 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 38 to 61 tonnes;
iv. Increase the TACC from 450 to 720 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(FNZ preferred option)*

Agree to set the SNA 7 TAC at 1,311 tonnes and, within the TAC, to:

i. Increase the allowance for Māori customary non-commercial fishing interests from 30 to 60 tonnes;
ii. Increase the allowance for recreational fishing interests from 250 to 275 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 38 to 76 tonnes;
iv. Increase the TACC from 450 to 900 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3

Agree to set the SNA 7 TAC at 1,445 tonnes and, within the TAC, to:

i. Increase the allowance for Māori customary non-commercial fishing interests from 30 to 60 tonnes;
ii. Increase the allowance for recreational fishing interests from 250 to 300 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 38 to 85 tonnes;
iv. Increase the TACC from 450 to 1,000 tonnes.

Agreed / Agreed as Amended / Not Agreed

AND

Note FNZ will conduct further work to understand the effect of inshore bottom trawling on the 'Chetwode Banks and its role as nursery habitat for blue cod.

Noted

Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Decision for FLA 7

Option 1

Agree to set the FLA 7 TAC at 2,228.6 tonnes and, within the TAC, to:

i. Set an allowance for Māori customary non-commercial fishing interests at 30 tonnes;
ii. Set an allowance for recreational fishing interests at 30 tonnes;
iii. Set an allowance for all other sources of mortality to the stock caused by fishing at 103 tonnes;
iv. Retain the TACC at 2,065.6 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the FLA 7 TAC at 1,110 tonnes and, within the TAC, to:

i. Set an allowance for Māori customary non-commercial fishing interests at 30 tonnes;
ii. Set an allowance for recreational fishing interests at 30 tonnes;
iii. Set an allowance for all other sources of mortality to the stock caused by fishing at 50 tonnes;
iv. Reduce the TACC from 2,065.6 to 1,000 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(FNZ preferred option)*

Agree to set the FLA 7 TAC at 584 tonnes and, within the TAC, to:

i. Set an allowance for Māori customary non-commercial fishing interests at 10 tonnes;
ii. Set an allowance for recreational fishing interests at 10 tonnes;
iii. Set an allowance for all other sources of mortality to the stock caused by fishing at 40 tonnes;
iv. Reduce the TACC from 2,065.6 to 524 tonnes.

Agreed / **Agreed as Amended / Not Agreed**

Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Decision for ELE 7

Option 1

Agree to retain the ELE 7 TAC at 127 tonnes, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 10 tonnes;
iv. Retain the TACC at 102 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(FNZ preferred option)*

Agree to set the ELE 7 TAC at 149 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 10 to 12 tonnes;
iv. Increase the TACC from 102 to 122 tonnes.

Agreed **Agreed as Amended / Not Agreed**

OR

Option 3.

Agree to set the ELE 7 TAC at 160 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Retain the allowance for recreational fishing interests at 10 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 10 to 13 tonnes;
iv. Increase the TACC from 102 to 132 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon Shane Jones
Minister for Oceans and Fisheries

16 / 09 / 2024

Chapter 12: Snapper / Karati, Tāmure (SNA 8) – West Coast of Northland, Auckland, Taranaki & Wellington

Part 1: Overview

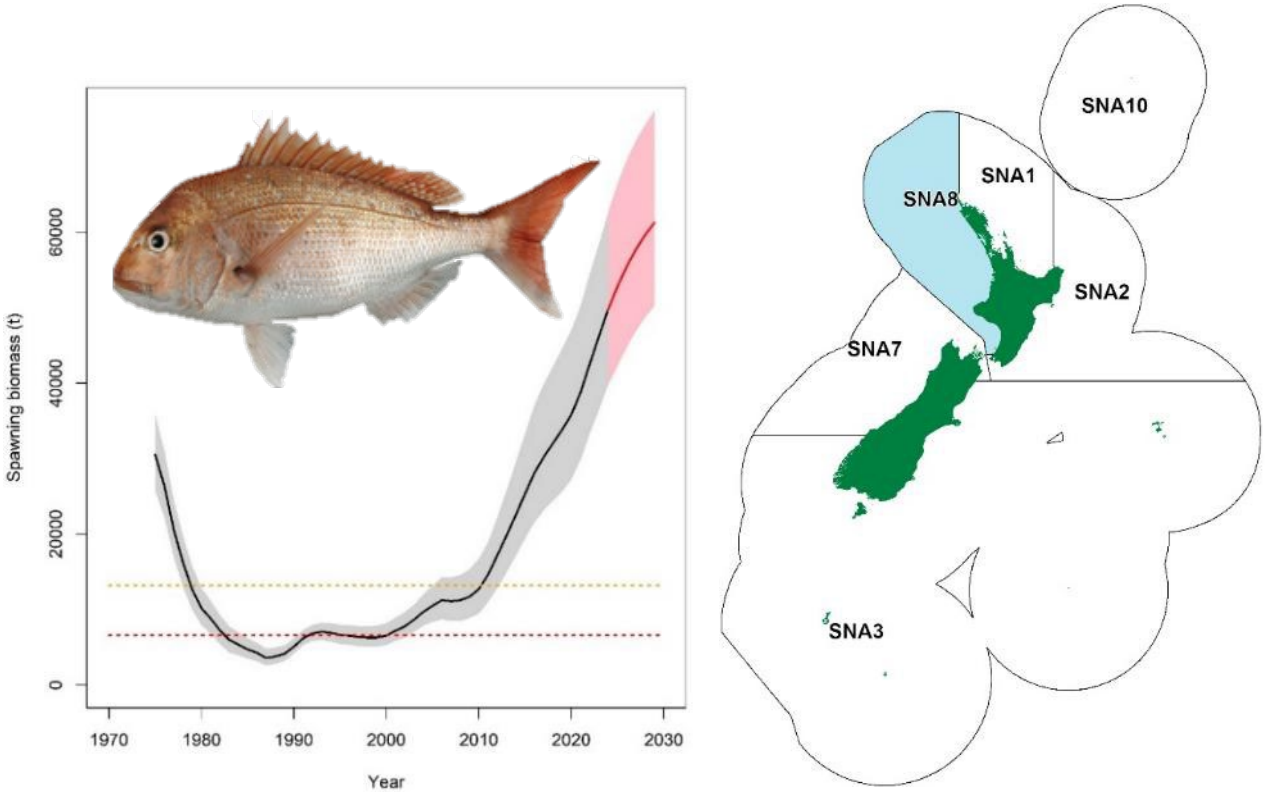


Figure 1: Quota Management Areas (QMAs), with SNA 8 highlighted, and SNA 8 spawning stock biomass (for the period since 1975) for snapper/karati, tāmure (*Pagrus auratus*). Horizontal yellow and red dotted lines represent the soft and hard limits, respectively.

Rationale for review

2003. The TAC of SNA 8 was last reviewed in 2021,[124] when the stock was assessed to have rebuilt from historically low levels. At that point, FNZ considered that there was an opportunity to provide for additional utilisation in the SNA 8 fishery. Of the options proposed in 2021, the then Minister chose the smallest increase which included increasing the TACC from 1300 tonnes to 1600 tonnes (Figure 2), the customary allowance from 43 tonnes to 100 tonnes and the recreational allowance from 312 tonnes to 1,205 tonnes.[125] This decision provided for some additional utilisation, while also acknowledging the concerns of Iwi Fisheries Forums and recreational stakeholders around the impacts a large-scale increase might have on the continued recovery of SNA 8, other associated stocks, and the wider marine environment.

2004. The Minister, in his 2021 decision, also signalled his desire for SNA 8 to be managed at a higher abundance and asked that FNZ work with stakeholders to develop advice on future management targets. While acknowledging his decision as a relatively cautious approach, the Minister directed FNZ to conduct a further review of the SNA 8 stock within the next three years, at which point it was expected there may be further opportunity for increased use of the fishery. The Minister also directed that appropriate research be conducted to monitor the fishery and inform future decision making.

2005. In early 2024, a new stock assessment,[126] presented through the May 2024 Fisheries Assessment Plenary, indicated further increases in the SNA 8 spawning biomass[127] to about 50,000 tonnes (Figure 4). This was a

[124] Review of sustainability measures for snapper (SNA 8) for 2021/22 - https://www.mpi.govt.nz/dmsdocument/45484/direct
[125] SNA 8 decision letter 2021 - https://www.mpi.govt.nz/dmsdocument/47620-The-Decision-letter-Minister-for-Oceans-and-Fisheries
[126] This is published in the 2024 May Fisheries Assessment Plenary. It is referred to throughout the text with the following citation: (FNZ - Plenary, 2024)
[127] Spawning biomass - combined weight of all individuals in a fish stock that have reached sexual maturity and are capable of reproducing.

30% increase from 2021, when the spawning biomass was assessed to have been approximately 38,000 t. The 2024 biomass estimate is well above the hard and soft limits, being assessed as approximately three and a half times greater than the SNA 8 soft limit[128] and seven times greater than the hard limit.[129] The stock assessment also revealed ongoing increases in recruitment and productivity, which necessitated a change in the approach to setting the TAC.

2006. The management target for SNA 8, which is 40% of the unfished biomass, is provided by the Harvest Strategy Standard (**HSS**) and Guidelines. While this target hasn't been changed for the 2024 sustainability review, the approach to setting the TAC in relation to the management target has changed. Because the recent increase in productivity has made it difficult to confidently estimate the unfished biomass (B_0)[130] of the SNA 8 stock, it was decided that the maximum sustainable yield (***MSY***)-based target should move to a fishing mortality rate,[131] rather than a biomass target.

2007. The 2024 assessment included biomass projections over a five-year period (to 2028) under differing levels of catch (Figure 5). These projections demonstrate how SNA 8 biomass is likely to respond to differing catch settings and they have helped inform the development of TAC options. The rationale for this change of approach is described in detail under '*Information principles: section 10 of the Act*'.

2008. The 2024 stock assessment indicates that for the current SNA 8 biomass, the existing level of harvest is at the target fishing mortality rate. However, strong recent year classes (particularly recruitment from 2016) will continue to drive rapid growth of the stock. If SNA 8 harvest is maintained at its current level, the fishing mortality rate will almost immediately fall below the target exploitation rate which would lead to underutilisation of the fishery with respect to the management target (FNZ - Plenary, 2024). For harvest rates to be maintained at the fishing mortality target, utilisation will need to be increased for the upcoming fishing years.

2009. Based on the 2024 SNA 8 stock assessment, as well as the best available information for other species associated with the SNA 8 fishery, FNZ is advising you on options to either maintain or increase the TAC, allowances and TACC for SNA 8 for the upcoming 1 October 2024 fishing year (Table 1).

2010. FNZ is seeking your decision to set the TAC of SNA 8 under section 13(2)(a) of the Fisheries Act 1996 (**the Act**). Your decision will take effect from the beginning of the next fishing year on 1 October 2024.

Proposed options and FNZ's recommendations

Table 1: Proposed management options (in tonnes) for SNA 8 from 1 October 2024. FNZ's preferred options are highlighted in orange.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 (*Status quo)*	3,065	1,600	100	1,205	160
Option 2	3,505 (↑ 440)	2,000 (↑ 400)	100	1,205	200 (↑ 40)
Option 3	3,637 (↑ 572)	2,120 (↑ 520)	100	1,205	212 (↑ 52)
Option 4	3,769 (↑ 704)	2,240 (↑ 640)	100	1,205	224 (↑ 64)
Option 5	4,165 (↑ 1,100)	2,600 (↑ 1,000)	100	1,205	260 (↑ 100)

2011. FNZ received a total of 65 submissions during public consultation. Commercial fishers and fishing organisations supported increasing the TACC of SNA 8 by either 40% (Option 4) or in one case 62% (Option 5). In contrast, recreational fishing and ocean user representative groups, non-governmental organisations (NGOs), and many individual submitters recommended a more cautious approach, with most supporting either no TACC increase (Option 1) or a small increase (Option 2 or a lesser increase).

[128] A soft limit – a biomass level below which a stock is deemed to be overfished or depleted and needs to be actively rebuilt using a formal, time constrained rebuilding plan.
[129] A hard limit – a biomass level below which a stock is deemed to be collapsed and fishery closures should be considered to rebuild the stock at the fastest possible rate.
[130] The average biomass likely to exist in the absence of fishing.
[131] Fishing mortality rate - a measure of the intensity with which a stock is being exploited. This is the fraction of the fish population that is expected to be caught.

2012. The feedback from submissions has been characterised further under the 'Analysis of options' below. More detail, including other matters raised by submitters, is provided in Part 2 'Submissions'.

2013. Based on our analysis of these options and incorporating the feedback received, as well as our assessment of the options against legal provisions (see Part 3), FNZ prefers Option 3 or 4. The level of harvest provided for under Option 3 will most closely align (on average) to the fishing mortality management target and will therefore maximise yield from the fishery in the long term. Option 4, which is at the upper end of what FNZ considers consistent with the management target, will provide for some additional utilisation beyond that offered in Option 3 and will therefore better address the challenge of snapper bycatch and ACE availability currently being faced by commercial fishers operating in FMA 8 and FMA 9. FNZ has confidence in the 2024 SNA 8 stock assessment, that supported the development of these options, which indicates that SNA 8 biomass will continue to increase under either of these options.

2014. FNZ acknowledges the risks and concerns that have been raised by Iwi Fisheries Forums and submitters who favoured either the *status quo* or a smaller TAC increase. While FNZ recommends that Options 3 and 4 are preferable with respect to setting the TAC, TACC and allowances, a number of opportunities to avoid or mitigate potential impacts of increasing the TACC have been identified by FNZ and are supported by many submitters.

2015. These opportunities, which are described in greater detail within this document, include measures to protect some small, but ecologically important, areas of habitat within SNA 8, specifically, Patea Shoals in the South Taranaki Bight and subtidal mussel beds and inshore shallow fishing grounds off of Te Oneroa-a-Tōhe (Ninety Mile Beach). FNZ considers that these measures would further strengthen the overall sustainability of the SNA 8 fishery and provide increased confidence across all stakeholders that increased use of the fishery will be sustainable in the long-term.

Analysis of options

2016. The options proposed for SNA 8 are analysed below with an outline of their key risks and benefits. Additional information and rationale to support current and proposed settings within the TAC can be found below in Table 3 under *'Fishery characteristics and settings'*.

Option 1 – retain current settings (*status quo*)

Benefits	2017. While the biomass of SNA 8 is projected to increase over the next five years under all proposed TAC options (Figure 5), Option 1 will allow for the greatest and fastest increase. The benefits of managing SNA 8 at a higher biomass include: • Broadening the age structure of the population to include a higher number of older and bigger fish; • Allowing snapper to maintain the role they play in the ecological functioning of coastal ecosystems; • Offering greater protection against environmental changes that may impact spawning success; and • Increased availability and catchability, which will most benefit recreational and customary fishers, and commercial fishers with access to SNA 8 ACE. 2018. As Option 1 does not provide for any additional catch, it is the option least likely to result in additional fishing effort and is therefore least likely to result in additional captures of protected species, bycatch of non-target species, or for greater fishing related impacts on seafloor biodiversity, such as through an increased trawl footprint. 2019. The SNA 8 fishery is currently estimated to be at the management target. However, because SNA 8 biomass is projected to increase over the next five years, the fishing mortality rate will fall below the fishing mortality management target. Of the five options proposed, this is the option which is most likely to move the stock biomass above the management target and above the biomass that will produce *MSY*. Options 2 – 4 should maintain SNA 8 at, or close to a level that can produce *MSY* and Option 5 will likely reduce the stock to below the level that would produce *MSY* from the fishery.
Risks	2020. The 2024 stock assessment indicates that under the current catch settings (and at projected higher TACCs) snapper biomass will continue to increase over the next five years. Snapper is

	commonly described as a 'choke' species[132] for commercial fishers operating in SNA 8 and many are adapting their fishing behaviour to try to minimise their bycatch of snapper while targeting other species. Without a significant TACC increase, the economic viability of some commercial inshore fishers will be increasingly threatened by their inability to balance snapper bycatch with their annual catch entitlement (**ACE**). This is an acute issue for smaller fishing companies and owner-operators. 2021. This *status quo* option would forgo an opportunity for sustainable utilisation of snapper in SNA 8 and limit opportunities to utilise other species caught together with snapper in the Fisheries Management Area 8 (FMA 8 – Central West) and Fisheries Management Area 9 (FMA 9 - Auckland West)[133] fish stock complex.
Feedback received	2022. This option is supported by LegaSea, New Zealand Sport Fishing Council, New Zealand Angling & Casting Association, and New Zealand Underwater Association (collectively '***the joint submitters***'), the Environmental Defence Society (**EDS**), the Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA**), Piha Deep Sea Fishing Club, Whakatakataka Bay Sportfishing Club Inc., the Outboard Boating Club of Auckland Inc. and 22 individual submitters (Table 5). These submitters support maintaining the *status quo* for reasons including concerns about the environmental and ecological impacts of trawling, animal welfare, and concern that increasing the TAC may lead the fishery back to the depleted state of the 1980s to early 2000s. 2023. As part of their rationale for supporting this option, the joint submitters suggest that increased catches of associated or dependent species would be inevitable if the SNA 8 TACC is increased, and that you must take into account the stock status of these overlapping stocks. They specifically refer to the John dory (JDO 2) stock[134] for which FNZ is proposing a TACC decrease. You should note that the JDO 2 assessment is showing a sustainability concern for John dory in the east coast part of the stock (FMA 2) and no concern for FMA 8 which overlaps with SNA 8. An increase in JDO 2 catch in FMA 8 (due to a SNA 8 TAC increase) would be less of a concern in relation to JDO 2 stock status.

Option 2 – 14% TAC increase; 25% TACC increase

Benefits	2024. Of the four options in which TAC and TACC increases are proposed (Options 2-5), Option 2 offers the smallest increase, and will therefore allow for the greatest and fastest increase in snapper biomass (Figure 5; the benefits of managing to a higher biomass are covered in Option 1 *benefits*). 2025. The proposed additional 400 tonnes of snapper catch would have an estimated annual landed revenue of close to $2.1 million.[135] This figure does not include value derived outside of the catching sector, such as in processing and retail. 2026. This option may provide commercial inshore fishers some further ability to target other species and balance snapper bycatch with ACE, although this relief will be less than that provided in Options 3, 4 or 5. 2027. Projections suggest SNA 8 catch under Option 2 is unlikely to exceed the fishing mortality management target[136] at any point over the five-year projection period, and therefore may represent underutilisation with respect to *MSY*.
Risks	2028. All options that provide for an increase in TACC could lead to an increase in fishing effort. Consequently, there is potential for additional captures of protected species, bycatch of non-target species, and for greater impacts on seafloor biodiversity through an increased trawl

[132] In a mixed fishery, a choke species is a stock whose available quota is exhausted while other stocks still have quota available to the fisher. In this instance it restricts the fisher's ability to continue to fish for stocks where quota is still available.

[133] The New Zealand Exclusive Economic Zone is divided into 10 areas, each known as a Fishery Management Area (**FMA**). FMAs are based on likely stock boundaries as well as administrative considerations. The standard FMAs are the basis of QMAs for most fish stocks. This term is defined in the Fisheries Act 1996.

[134] The JDO 2 stock spans FMA 8 and FMA 2, overlapping with the southern portion of SNA 8.

[135] Based on the 2023/24 port price average.

[136] Management target - the level at which a fish stock should fluctuate around for the best balance between use and sustainability, while allowing for environmental variation. The management target for SNA 8, which is 40% of the unfished biomass, is provided by the Harvest Strategy Standard and Guidelines.

	footprint (refer to '*Key matters for assessment of the proposals against section 9 of the Act*' in Part 3 for information on current impacts). 2029. TACC increases, or an aggregation of fishing effort may also lead to localised depletion where catch is not evenly distributed across an FMA. Concerns about localised depletion have been raised by both recreational and customary fishers about the area adjacent to Te Oneroa-a-Tōhe (Ninety Mile Beach), where approximately 24% of the SNA 8 TACC is caught. There is a disproportionate concentration of commercial fishing effort in this area for a number of reasons including: • This area is not subject to trawl restrictions under the Hector's and Māui dolphin Threat Management Plan; • The proximity of this area to the harbours and generally calmer waters of the upper east coast of the North Island. 2030. Should the TACC be increased, it is likely that some of this additional snapper catch will be taken adjacent to Te Oneroa-a-Tōhe. This could lead to either perceived or actual localised depletion of snapper and other species in this area. The risk of localised depletion will be greater with larger TACC increases. 2031. Providing additional SNA 8 TACC will provide additional access to other species within the fishery complex which may have previously been under caught due to the limited availability of SNA 8 ACE (e.g., GUR 1 and JDO 1). The extent to which these risks could be realised will depend on fisher behaviour, which is hard to predict. Of the four options where a TACC increase is proposed (Options 2-5), Option 2 provides the smallest increase and therefore the smallest risk. 2032. Option 2 may be viewed as a lost opportunity to utilise SNA 8 biomass, as harvest conducted at this rate is projected to fall below the fishing mortality management target during the final three years of the five-year projection period (Figure 4). However, a benefit of the longevity of snapper is any untaken utilisation opportunity will not be foregone as this snapper will be available to be harvested at a later date. 2033. It is possible that the increased availability of SNA 8 ACE provided for under Option 2 will be offset by the forecast increases in snapper biomass. Consequently, commercial fishers with limited access to SNA 8 ACE may continue to be limited in their ability to catch other species from the fish stock complex despite the 400-tonne TACC increase provided in Option 2.
Feedback received	This option is supported by the Feilding Surfcasting Club, the Raglan Sportfishing Club, and one individual submitter (Table 5). 2034. These submitters have recognised that the increasing biomass of SNA 8 provides an opportunity for commercial utilisation but urge that you take a cautious approach to increasing the TAC or TACC. Specifically, they have raised concerns about the unforeseen consequences of climate change, uncertainty around the link between SNA 7[137] and SNA 8 stocks, uncertainty about the level of recreational catch, and the uneven distribution of fishing effort across the entirety of SNA 8 as reasons for you to choose Option 2 in preference to one of the larger proposed TAC increases.

Option 3 – 18.5% TAC increase; 32.5% TACC increase

Benefits	2035. The proposed additional 520 tonnes of snapper provided for by this option would have an estimated annual landed revenue of close to $2.8 million.[138] 2036. This option may provide commercial inshore fishers some additional ability to target other species and balance snapper bycatch with ACE. 2037. Projections suggest that when averaged over a five-year period, the levels of harvest provided for in Option 3 will most closely align (on average) to the fishing mortality management target (Figure 5).
Risks	2038. The TACC increase provided for in Option 3 is likely to lead to an increase in fishing effort. Consequently, there is a risk of:

[137] The SNA 7 quota management area is adjacent to SNA 8, covering the west coast and top of the South Island
[138] Based on the 2023/24 port price average.

	• Additional captures of protected species; • Additional bycatch of non-target species; • Greater impacts on seafloor biodiversity; • Increased pressure on species within the FMA 8 and FMA 9 fishery complex; and • Localised depletion. 2039. Commercial fishers may still be limited in their ability to catch other species in the trawl fishery stock complex due to the limited availability and affordability of SNA 8 ACE.
Feedback received	2040. There were no submissions or responses received in support of this option.

Option 4 – 23% TAC increase; 40% TACC increase

Benefits	2041. The proposed additional 640 tonnes of snapper provided for by this option would have an estimated annual landed revenue of close to $3.4 million.[139] 2042. This option will provide commercial inshore fishers with additional ability to target other species and balance snapper bycatch with ACE.
Risks	2043. The TACC increase provided for in Option 4 is likely to lead to an increase in fishing effort. Consequently, there is a risk of: • Additional captures of protected species; • Additional bycatch of non-target species; • Greater impacts on seafloor biodiversity; • Increased pressure on other fish species within the FMA 8 and FMA 9 fishery complex; and • Localised depletion. 2044. Projections indicate that under Option 4, snapper catch will exceed the fishing mortality management target for the first three years of the five-year projection (Figure 4). However, as recent recruits to the fishery continue to grow and thereby increase the biomass of the stock, the exploitation rate associated with the level of catch proposed under Option 4 will then decline to meet the management target. 2045. Some commercial inshore fishers have indicated that a 640-tonne increase would still be insufficient for some fishers to balance snapper bycatch with ACE.
Feedback received	2046. This option was supported by Seafood NZ, Aotearoa Fisheries Limited (Moana), Sealord Group Ltd and Te Ohu Kaimoana (Table 5). 2047. These submitters point to the best available information, including the rapidly increasing SNA 8 biomass, as evidence that a significant increase in the TACC would be sustainable. 2048. Seafood NZ submitted that the current settings are causing significant issues for commercial utilisation. Despite their best efforts to actively avoid bycatch of snapper, operators are facing significant deemed value costs due to the high and widespread abundance of snapper. Snapper bycatch is also preventing fishers from targeting other species. 2049. Seafood NZ further suggest that the deemed value rates for SNA 8 are overly punitive and would be more so if an increase in TACC affected ACE price. FNZ has responded to this matter in Part 2 under '*Other matters raised during consultation'*.

Option 5 – 36% TAC increase; 62.5% TACC increase

Benefits	2050. The proposed additional 1,000 tonnes of snapper provided for in this option would have an estimated annual landed revenue of close to $5.25 million.[140] 2051. Being the largest of the proposed TACC increases, this option will provide commercial fishers with the greatest opportunity to target other species and balance snapper bycatch with ACE.

[139] Based on the 2023/24 port price average.
[140] Based on the 2023/24 port price average.

	Some commercial inshore fishers have indicated that a 1,000-tonne increase would be sufficient to balance snapper bycatch with ACE while targeting other species in the fishery stock complex.
Risks	2052. The TACC increase provided for in Option 5 will lead to the greatest increase in fishing effort of all the options proposed here. Consequently, this option comes with the greatest risk of: • Additional captures of protected species; • Additional bycatch of non-target species; • Greater impacts on seafloor biodiversity; • Increased pressure on species within the FMA 8 and FMA 9 fishery stock complex; and • Localised depletion of snapper and associated species. 2053. Even though recent recruits to the SNA 8 fishery will continue to grow and thereby increase the biomass of the stock, forward projections indicate that, under Option 5, snapper catch is very likely to result in overfishing for the entire five-year projection period (Figure 5) and will very likely reduce the stock to below the level that would produce the maximum sustainable yield from the fishery. Consequently, FNZ considers this option would be inconsistent with section 13(2)(a) of the Act (see '*Key matters for assessment of the proposals against section 13 of the Act'* for further analysis). 2054. While a TACC increase greater than 40% will provide immediate relief for fishers who have limited access to SNA 8 ACE in the short term, it may jeopardise future opportunities for TACC increases. It could be a short-term gain at the expense of maximising yield from the fishery over the longer term.
Feedback received	2055. This option was supported by Egmont Seafoods Ltd (Table 5). They submit that snapper biomass has increased and that unavoidable snapper bycatch is preventing fishers from targeting other species. 2056. Egmont Seafoods Ltd also submitted that a benefit of the 1,000 tonne TACC increase of Option 5 is that it would provide for all remaining 28N rights (632.4 t) in SNA 8 to be extinguished and would therefore provide all quota owners with an increase in SNA 8 entitlement. 28N rights are discussed in more detail in '*Preferential allocation rights (28N rights)*'.

Other SNA 8 options considered or supported by submitters

Option 1a: Increase the TACC by 250 tonnes

2057. The joint submitters, and some individual submitters supported an alternative option that would increase the SNA 8 TACC by 250 tonnes (a smaller increase than proposed in Option 2), maintain the Māori customary and Recreational allocations at their current level (100 and 1205 tonnes, respectively) and adjust the other mortality allowance to 185 tonnes (10% of the suggested TACC).

2058. While the preferred option of the joint submitters was the *status quo* (Option 1), their position was that if you were to increase the TAC, that you should consider their proposed variation which is outlined in the table below and hereafter referred to as Option 1a.

Table 2: Catch settings (in tonnes) proposed by the joint submitters for SNA 8. Option 1 (*Status quo*) is presented for comparison.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 (*Status quo)*	3,065	1,600	100	1,205	160
Option 1a	3,340 (↑ 275)	1,850 (↑ 250)	100	1,205	185 (↑ 25)

2059. The benefits and risks of the joint submitter's proposed Option 1a are the same, or similar, to those proposed in Options 1 and 2 above. It is a generally cautious option with respect to ensuring sustainability

and is unlikely to result in significantly increased impacts on the aquatic environment or interdependent stocks. However, it is also likely to constrain commercial utilisation of snapper and other species caught in the same area.

2060. The TAC and allowances proposed under this alternative option are within the range consulted on, and you have discretion to decide on how the TAC should be allocated. This option is therefore open to you, should you decide that it would be appropriate and in line with your statutory obligations under the Act.

2061. FNZ is not recommending this option. This is because based on the information available, FNZ believes that it would be sustainable for the TAC to be set at a higher level that also allows for greater commercial utilisation. FNZ considers that the risks identified by these submitters can be addressed in the management measures outlined in '*Other matters raised during consultation*' below. FNZ ultimately considers that other options would better provide for utilisation, while still ensuring sustainability in line with the purpose of the Act (see Part 5 *'Conclusions and recommendations'*).

Who will be affected by the proposed changes?

2062. SNA 8 is recognised as a shared fishery under the National Inshore Finfish Fisheries Plan, and is highly valued by tangata whenua, recreational, and commercial fishers. To assist with developing the catch setting options proposed in the consultation document, FNZ met with Iwi Fisheries Forums and with fishery stakeholders to gain insight into fisher experiences in SNA 8 under the current catch settings and a better understanding of expectations for future management of the stock.

Recreational fishers

2063. Recreational interest in this stock has increased over the last 15 years (Table 4; FNZ - Plenary, 2024). The highest intensity of recreational fishing is typically around population centres, particularly where launching points and sheltered areas of coast provide access to the fishery. Approximately 25% of the recreational harvest is understood to come from fishing within harbours such as the Kaipara, Manukau and Raglan.

2064. Feedback during pre-consultation engagement discussions with recreational fishers identified that subsistence fishing in west coast harbours is common and supports local communities in these areas. While the remote and exposed nature of the west coast of the North Island means that weather conditions often limit access to the open coast fishery, recreational fishing on the open coast (outside of the harbours) still accounts for 75% of recreational SNA 8 catch.

2065. The fishing club and recreational fishing representatives that FNZ spoke with have reported that catch rates have improved significantly over the last 10–15 years and that west coast snapper fishing is the best it has been in most fishers' living memory. Recreational fishers have noted an increase in the abundance of smaller fish in SNA 8 in recent times which corresponds with the elevated levels of snapper recruitment seen over the last 10 or more years (FNZ - Plenary, 2024). Recreational harvest inside the harbours tends to include smaller snapper, while fishers on the open coast tend to catch larger fish (although they have also noted recent increases of smaller snapper in their catch).

2066. The recreational fishers FNZ have so far spoken to have largely agreed that the current SNA 8 daily limit (10 per person per day) is appropriate. Fishers who predominantly operate on the open coast often supported an increase in the minimum legal size (**MLS**) (currently 27 cm), while subsistence fishers who primarily operate in harbours and catch smaller fish would not support an MLS change.

2067. During the pre-consultation engagement process, many recreational fishers were also not opposed to an increase in the TACC, but urged caution, preferring the idea of gradual increases over time rather than a single large increase to the commercial catch limit. This contrasts with feedback received from recreational stakeholders through the public consultation process which was mostly in opposition to any TACC increases. Recreational fishers were also concerned about the impact of a TACC increase on other fish stocks within FMA 8 and FMA 9 and the potential for an increased trawl footprint should the TACC increase. There was general support for management of snapper at higher abundance, concern that large TACC increases could 'crash the fishery' and it was suggested that FNZ should think more holistically about coastal ecosystems when making fisheries management decisions.

Commercial fishers

2068. Commercial interests in these stocks include a number of quota owners (8.5% of all SNA 8 shares are Settlement quota), owner/operators and contract fishers in the catching sector, and Licensed Fish Receivers (LFRs). The interests of these groups are represented through organisations such New Zealand Federation of Commercial Fishermen and Seafood New Zealand Inshore Council.

2069. Based on the last three fishing years, in SNA 8 there have been on average 71 quota owners that provide ACE to 67 permit holders (10% of all permit holders nationwide), landing snapper to 35 LFRs (18% of all LFRs nationwide). Over the last three fishing years, there were between 78 and 89 vessels landing snapper from SNA 8, of which on average 22 reported targeting snapper. Other species commonly targeted in the SNA 8 area include red gurnard, trevally, tarakihi, John dory, jack mackerel, rig, and school shark.

2070. As detailed in the benefits and risks table above (Option 1), commercial fishers report that the increase in snapper biomass in SNA 8 has become prohibitive when targeting other species such as trevally, red gurnard, rig, and John dory. Many fishers actively avoid snapper (through fishing location and gear settings) and have been targeting other species in order to maximise their overall catch within the limitations of the available SNA 8 ACE. The increasing abundance of snapper is a particularly significant problem for fishers with limited access to SNA 8 ACE. Since the 2019/2020 fishing year, commercial fishers have paid approximately $1.3 million in deemed value for 261 tonnes of SNA 8 catch that was not balanced with ACE. For each of the 2021/2022 and 2022/2023 fishing years, deemed value payments were more than $500,000.[141]

2071. Some smaller commercial fishing operators expressed concern that a big increase in TACC would result in increased competition with larger operators and were concerned how a large TACC increase would impact their ability to catch other species.

2072. Larger operators have stressed their need for a significant increase in the TACC to facilitate the harvest of species such as John dory, red gurnard, and trevally, and would like to see SNA 8 managed at lower than the current biomass level.

Input and participation of tangata whenua

2073. Historically, snapper were an important harvest for Māori as they were abundant and easily captured in shallow waters close to densely populated areas (Wehi et al., 2013; Nims, 2022). Customary harvest of snapper has continued through time and while data on customary fishing is limited, it is acknowledged that access to and utilisation of a healthy snapper fishery is of significant importance to Māori.

2074. Te Hiku o Te Ika, Mid-North West, Ngaa Hapuu o Te Uru o Tainui and Te Tai Hauāuru Iwi Fisheries Forums represent iwi with a customary interest in SNA 8. FNZ circulated a summary of the stocks proposed for review in this round (including SNA 8) to these forums and attended forum hui to discuss the proposed review of SNA 8, including the appropriateness of current allowances.

2075. Discussions with some forum members indicated a concern with the accuracy of the stock assessment, in part due to trawl surveys not covering the entire management area and recreational catch data being limited. Forum members expressed a desire for current catch settings to be retained and a concern that large TACC increases could impact on customary harvest. If the TACC was to be increased, the preferred approach was for incremental change rather than large increases. One of the main concerns raised with an increased SNA 8 TACC was that it could increase the risk of invasive species, such as exotic Caulerpa, being transported from the east coast to the west coast as more vessels moved between coasts to take the additional SNA 8 catch. It was also suggested that FNZ should take a more ecosystem-based approach to fisheries management decision-making, for example, considering impacts of increasing the SNA 8 TACC on the sustainability of other species.

2076. The Te Hiku o Te Ika forum raised their continued concern around localised depletion off the coast of Te Oneroa-a-Tōhe (Ninety Mile Beach) as there is a disproportionate concentration of fishing effort in their rohe.[142] Because trawl restrictions under the Hector's and Māui dolphin Threat Management Plan end south of Ahipara, commercial vessels fish in areas close to shore along the coast. Forum members believe that despite the wider stock being in good shape, large scale harvest of snapper (and other species) in their area is leading to localised depletion and affecting their ability to utilise and derive benefit from the recovery of the fishery. A buffer zone around Te Aupōuri Peninsula from which commercial fishing would be excluded was suggested as a possible solution to the issue of local depletion in this region.

    Forum members also suggested that fisheries should be managed at smaller spatial scales, and that catch spreading could be used to address issues such as local depletion.

[141] In 2021, the annual deemed value rate for SNA 8 was lowered from $6.00/kg (for 100-105% catch of ACE) to $4.48/kg (for 100-120% catch of ACE), and the differential schedule was also lowered and put on a standard regime. In 2023, the deemed value rate was again reviewed in response to catches exceeding the available ACE in the 2021/22 fishing year with the annual rate increased to $5.20/kg (for 100-120% catch of ACE.

[142] The Te Hiku o Te Ika forum raised their concern about localised depletion during the 2021 SNA 8 Sustainability Review.

2077. Customary fishers with commercial interests also expressed their dissatisfaction with a system that favours larger fishing companies while providing few opportunities, and little or no support for local independent fishers to enter and thrive in the fishing industry.

Fishery characteristics and settings

Table 3: Fishery characteristics and settings for SNA 8.

Commercial (TACC)
2078. SNA 8 was introduced into the QMS in 1986 with a TACC set at 1,594 tonnes (Figure 2). The TACC was reduced to 1,500 tonnes in 1992. In 1998, the Minister of Fisheries decided to set a 10-year rebuild strategy for the fishery. At this time, the TAC was set at 2,060 tonnes which included an unchanged TACC, a customary Māori allowances of 50 tonnes, a recreational allowance of 360 tonnes, and an allowance of 150 tonnes for other sources of mortality caused by fishing. In response to a new stock assessment in 2005, the TACC was reduced to 1,300 tonnes as part of a fishery rebuild plan (allowances were also reduced). SNA 8 was next reviewed in 2021 when the TAC was increased to 3,065 tonnes, including a 300-tonne increase to the TACC (taking it to the current setting of 1,600 tonnes).

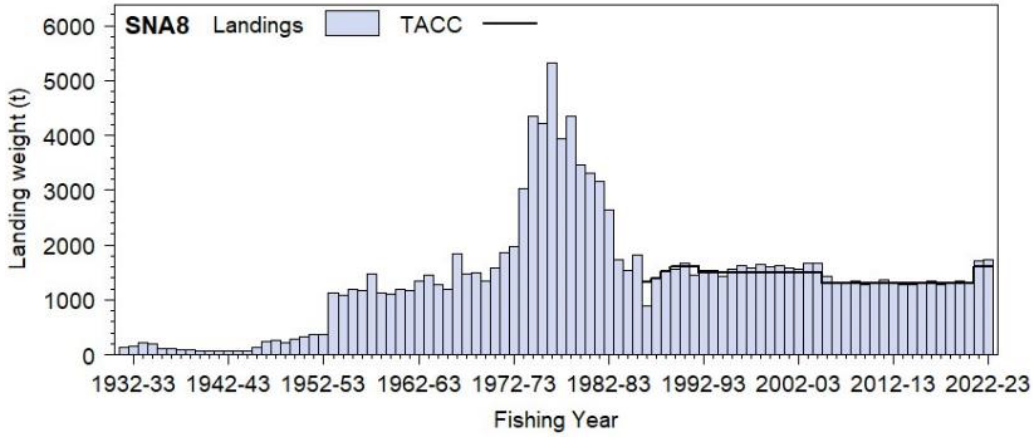


Figure 2: Total reported landings and TACC for the SNA 8.

2079. The majority of commercial SNA 8 catch is taken through bottom trawling (68% in 2022/23), with a relatively small fleet taking the majority of catch. It is worth noting that, in addition to the changes in catch settings that have been implemented over the years, there have also been changes in the behaviour or operation of the commercial fishing fleet (FNZ - Plenary, 2024). These changes have included:

- Moving from being a fishery targeting snapper in the 1990s, to the present-day fishery where snapper are mostly caught as bycatch when targeting trevally, gurnard and tarakihi;
- A move from being an October to April focused fishery in the 1990s, to now being a year-round fishery;
- An increase in the depth at which snapper are caught;
- Fishing gear has been increasingly configured to avoid catching snapper; and
- A move from SNA 8 catch being relatively evenly spread across FMA 9 to now being concentrated in the north, particularly off Te Oneroa-a-Tōhe (Ninety Mile Beach).

2080. These changes have been driven by a range of factors including increased snapper biomass in SNA 8 and the implementation of trawl prohibition areas to protect Maui dolphins.

Customary Māori
2081. The Māori customary fishing allowance for SNA 8 is currently set at 100 tonnes. In 2021, this allowance was increased from 43 to 100 tonnes. FNZ's information on customary harvest is limited and it is likely that Māori customary fishers often collect kaimoana under the recreational fishing regulations. For significant parts of the SNA 8 QMA the Fisheries (Kaimoana Customary Fishing) Regulations 1998 are not in effect. In these areas, customary fishing authorisations are instead issued under the customary fishing provisions within the Fisheries (Amateur Fishing) Regulations 2013, where there is no requirement to report on catch. As such, customary harvest records held by FNZ are known to be incomplete. The records

that FNZ does have, reveal that an average of 37 customary permits have been issued each year in SNA 8 for the last five years, with an average of 18 tonnes of customary harvest authorised each year. The actual amount of snapper caught relative to the amount authorised is unknown.

2082. The customary regulations provide a mechanism to enable the use of Pātaka Kai. This is where customary fishers store and distribute fish taken under a customary authorisation. Fishing for the purposes of a Pātaka Kai can be undertaken by commercial fishing vessels, under authorisation from a kaitiaki of the area. Since 2014, Te Atiawa (Taranaki) iwi have operated a Pātaka Kai system for the purpose of providing kaimoana to whānau/ngā uri o Taranaki Iwi for tangihanga. FNZ is aware that other iwi within SNA 8 are exploring whether a form of Pātaka Kai meets their needs and should be considered. As snapper are one of the most abundant species on the west coast of the North Island, it is likely that if more Pātaka Kai are to be utilised within SNA 8, then the amount of snapper taken under the customary allowance will increase.

Recreational

2083. SNA 8 is New Zealand's second largest recreational snapper fishery (after SNA 1) and one of the most popular recreational fisheries in New Zealand.

2084. FNZ's best available information on the size of the recreational catch comes from the National Panel Survey of Marine Recreational Fishers (**NPS**). These surveys, as well as boat ramp and camera monitoring, indicate that recreational catch in SNA 8 has increased markedly as the stock has rebuilt in the early to mid-2010s. While the most recent estimate of SNA 8 recreational harvest (702 tonnes) from the 2022/23 NPS was less than the 2017/18 estimated (853 tonnes), this recent survey coincided with a year of unusually bad weather and is not considered representative of recreational SNA 8 harvest under more typical weather conditions.

2085. Estimates of harvest levels from the NPS are detailed below, alongside reported charter vessel[143] and section 111[144] catch. Charter vessel reporting became mandatory in 2020, and as such, this component of the estimate of recreational catch may not be comparable between surveys.

Table 4: Recreational catch estimates for SNA 8 for National Panel Survey years. Figures are in tonnes (t). Reporting of charter vessel catch of snapper has only been required since 2020/21.

	2011/12	2017/18	2022/23
National Panel Survey	630 (CV=0.16)	830 (CV=0.13)	543 (CV=0.12)
Reported Charter Catch	3	16	157
Section 111	9	6	6
Total	**641**	**853** ↑	**702** ↓

Other sources of mortality caused by fishing

2086. This allowance accounts for other mortality arising from loss in commercial fishing gear including cryptic mortality occurring for example as a result of fish escaping through trawl net meshes underwater, release mortality (both recreationally and commercially for sub-MLS returns), any illegal discarding or high-grading, and poaching. This allowance has not previously been quantified by source, but rather set as a proportion of the TAC or TACC depending on the biological characteristics of the stock, perceived vulnerability, and anecdotal or documented evidence on fishing practices. The current allowance for other sources of mortality caused by fishing is set at a level that equates to 10% of the TACC for SNA 1 and SNA 8, and 8.4% of the TACC for SNA 7. During our pre-consultation discussions with stakeholders, questions were raised as to whether the current approach to setting this allowance in SNA 8 is appropriate.

2087. A review of the allowance would need to consider a range of factors including the amount of sub-MLS fish caught in a fishery and the likelihood of those fish surviving once returned to the sea. We know from commercial catch records and from discussions with recreational fishers operating on the open coast that the sub-MLS catch in SNA 8, as a proportion of total catch, is much less than that of SNA 1, but is more comparable to SNA 7. Conversely, for recreational fishers operating within the west coast harbours, which are snapper nursery areas, sub-MLS fish are a larger component of their catch. Based on the differences

[143] Reporting of snapper catches on charter vessels has only been mandatory since 2020, meaning comparison between years may be misleading.

[144] Catch taken using recreational methods on a registered commercial fishing vessel, using a permit issued under section 111 of the Act.

between SNA 8 and SNA 1, it may make sense to align the allowance for other sources of mortality in SNA 8 with that of SNA 7 (8.4%), rather than with SNA 1 (10%). Furthermore, due to the rollout of onboard cameras, FNZ has improved confidence in the accuracy of fisher-reported catch and discard volumes.

2088. In terms of assessing the survivability for released snapper, there is new research that could aid in determining an appropriate allowance. For example, a recent study by NIWA suggests low to moderate survivability for trawl-caught snapper, with increased depth, duration and catch size of trawls being exacerbating factors (McKenzie et al., 2024). Similarly, for recreationally caught fish, research has confirmed that post-release survival decreases as capture depth increases and that the survival of gut-hooked fish is low (Maggs et al., 2024).

2089. FNZ sought feedback on the adjusting the allowance for other sources of mortality as part of this review and received comments on the topic from Seafood New Zealand, Egmont Seafoods Ltd, and two individuals.

Seafood NZ and Egmont Seafoods Ltd both supported a reduction in the allowance for other sources of mortality, to reflect the high levels of monitoring in the fishery (which will provide greater certainty around levels of discarding) and for consistency with SNA 7.
The individual submitters requested the allowance stay the same as a precautionary measure.
FNZ is not proposing changing the approach to setting the allowance for other sources of mortality caused by fishing at this time, noting that changing this allowance would not alter the proposed TACC options presented above.

Preferential allocation rights (28N rights)

2090. There are 632.4 tonnes of preferential allocation, known as '28N' rights, associated with the SNA 8 stock. A total of sixteen SNA 8 quota holders have preferential rights, with two holders having 96% of the rights.

2091. Preferential allocation rights were granted to permit holders under section 28N of the Fisheries Act 1983 who elected to take administrative rather than compensated reductions to their catch allocations when quota rights were converted from a quantity into proportional shares. When the TACC is increased for a stock that has 28N rights associated with it, the quota shares of owners who do not have 28N rights are reduced and redistributed to the holders of 28N rights. Reallocation of quota shares not only increases the catch entitlement of the 28N rights holder, but also alters the proportionate shares of all quota owners in the stock.

2092. Te Ohu Kai Moana Trustee Ltd has brought a claim for declaratory judgment regarding the operation of 28N rights. It claims that the Act has enabled, via the redemption of 28N rights, a re-taking of settlement benefits in breach of an implied term of the settlement, tikanga, and general obligations under Te Tiriti o Waitangi. The High Court heard this claim in July 2024. However, it is unknown when a judgment in that litigation will be available, and the claim is not about how section 23 of the Act should be interpreted or whether you can or must take into account the potential effect of 28N rights on settlement assets if the TACC is increased. When decisions are made to increase the TACC for stocks with 28N rights, and you must apply the statute as it currently understands Parliament intended it to operate.

2093. Therefore, notwithstanding their consequence for quota holders, the existence of 28N rights is not a reason for or against setting or varying the TAC, TACC, and allowances. If a TACC is to increase for a stock with associated 28N rights, section 23 must be applied and shares deducted from persons owning quota for that stock and reallocated to 28N rights holders.

Part 2: Submissions

2094. In total, 65 submissions and responses were received. Twenty-one submissions supported Option 1, and three submissions supported Option 2. No submissions were received in support of Option 3. Four submitters supported Option 4, one submitter supported Option 5, and 14 submitters did not support any proposed option or provided an alternative option. Three submissions supported the alternative option proposed by LegaSea. The key details of the submissions received are summarised in Table 5 below.

2095. In addition to the specific submissions on these stocks, there were several submissions received which did not comment directly in support of specific TAC options or alternatives for SNA 8 but commented generally about catch limits or other aspects of fisheries management. These general concerns are discussed within Appendix Two of B24-0483.

Table 5: Submissions received for SNA 8 during consultation.

Submitter	Option supported						Notes
	1	2	3	4	5	Other	
Organisations							
Aotearoa Fisheries Limited (Moana New Zealand)				✓			Submitter requests a reduction to deemed value rates, and requests mandatory recreational reporting.
Egmont Seafoods Ltd					✓		Submits that it is increasingly difficult for commercial fishers to cover SNA 8 catch with ACE, which is becoming more expensive. Submits that the science supports a significant TAC increase. Submits that the 10% allowance for All Other Mortality Caused by Fishing is excessive. Submits that Option 5 would allow all quota owners to see an increase, as other options would see all increases go to 28N rights holders.
Environmental Defence Society (**EDS**)	✓						Submits that there is uncertainty regarding the effects of a higher TACC, and that increased fishing effort will affect unprotected habitat.
Counties Sports Fishing Club						✓	Supports the LegaSea submission, and request that no TACC increase occur until a stock assessment on all associated species is undertaken. Submits that caution is needed to protect habitats of significance and associated and dependent species. Submitters encourage longlining instead of trawling and advocate for increased camera monitoring.
Feilding Surfcasting Club		✓					Submitter acknowledges that biomass is increasing but notes overlap of SNA 7 and 8 stocks, uncertainty of recreational take, and uncertain consequences of climate change.
LegaSea New Zealand Sport Fishing Council New Zealand Angling & Casting Association New Zealand Underwater Association ('***the joint submitters***')	✓						Submit that increasing the TACC will result in increased trawl impacts on habitats of significance. Requests you take into account views of the west coast Iwi Fisheries Forums in recommending no TAC increase, or Option 2 provided management changes include smaller spatial area management and ecosystem-based management. Also requests transition from trawling to longline commercial fishing. The submitters propose an alternative TAC option (Option 1a) that they recommend, should you decide to increase the TAC. They also submit that a precautionary decision is required by law as the consultation document provides no details on how Minister will avoid, remedy or mitigate effects of fishing on associated and dependent species and their habitats.

Submitter	Option supported						Notes
	1	2	3	4	5	Other	
New Plymouth Sportfishing and Underwater Club						✓	Submit that a cautious approach is necessary to allow additional utilisation without fishers needing to rent ACE from 28N rights holders. Submitter would like the snapper age profile to broaden before any TAC increase is initiated.
Ngātiwai Holdings Ltd						✓	Submits in support of Te Ohu Kaimoana's submission, recognising SNA as a choke species but not supporting an increase in TAC until 28N rights have been resolved. Would otherwise support a TACC increase up to 40%.
Piha Deep Sea Fishing Club	✓						Advocates for cautious approach to altering the TAC, further protection for bycatch and protected species, and for additional science to support decision-making.
Raglan Sport Fishing Club		✓					Submits that the recreational surveys (NPS) do not reflect accurate recreational fishing effort in the Raglan area. They consider that the NPS underestimates recreational catch, and suggest the recreational allowance should be greater than 1,205 tonnes.
Royal NZ Society for the Prevention of Cruelty to Animals Inc. (**SPCA**)	✓						Submits that faster stock growth will benefit the fish and the ecosystem greatest, and that increased trawl fishing will have negative consequences for animal welfare and climate change reasons.
Seafood New Zealand				✓			Requests a reduction to deemed value rate and considers that the SNA 8 stock could sustain a larger increase than provided for in Option 4. Seafood New Zealand also considers that the recreational allowance is set too high and requests a reduction to the current 10% of TACC setting for All Other Mortality Caused by Fishing. They also propose that a new stock assessment should be undertaken in 3 years.
Sealord Group Ltd				✓			Supports the submissions of Seafood New Zealand, Te Ohu Kaimoana, and Aotearoa Fisheries Limited.
Te Ohu Kaimoana				✓			Submits that more conservative options (Options 1-3) present a missed opportunity to give relief to west coast fishers, and that Option 4 gives the ability to balance unavoidable snapper bycatch sustainably. Te Ohu Kaimoana supports a review of deemed values and would like to see SNA 8 reviewed within 3 years. Submits that the current customary allowance is appropriate.
Te Pātaka o Tangaroa Limited						✓	Supports the submission of Te Ohu Kaimoana. Te Pātaka o Tangaroa Limited recognises the impact of high SNA 8 biomass as a choke species, but will not support an increase in TAC until 28N rights have been resolved. Once resolved, they would support a TACC increase up to 40%.
Whakatakataka Bay Sportfishing Club Inc. and Outboard Boating Club of Auckland Inc.	✓						Supports the *status quo*, but should the TACC be increased, would prefer Option 1a as proposed by the joint submitters.
Individuals							
A. Frost	✓						Submits that the recreational fishery should be maintained for future generations.
B. Griffin	✓						Submits that quota increases could cause harm to the fishery, that Hector's [Māui] dolphin and seabird bycatch is underreported, and that more on-board cameras are needed.

Submitter	Option supported						Notes
	1	2	3	4	5	Other	
C. Rogers	✓						Submits that commercial fishing is a problem and that more responsible fishing methods should be used.
C. Latour	✓						Submits that the data used in developing options is misleading.
C. Oughton	✓						Submits that on-board cameras have revealed misreporting, and that the balance between recreational and commercial fishers is unfair.
D. Nelson	✓						No context provided.
D. Miller	✓						Requests that health issues in snapper such as milky flesh and 'zombie' syndromes should be addressed prior to adjusting TAC and submits that the SNA 8 stock is still rebuilding from past overfishing. This submission also emphasises the importance of the Kaipara harbour as a fish nursery area.
E. Calhoun	✓						Supports LegaSea's position of transitioning from trawling to longlining.
G. Ryder	✓						Submitter has concerns for the impact of fishing on Māui dolphins.
H. Bright	✓						Submitter raises concern about crayfish limits and suggests these need changing.
J. (surname not provided)	✓						Does not support bottom trawling and no confidence in the science presented in the consultation document.
M. Currie	✓						Would support an increase to TACC on the condition of smaller spatial management areas and the implementation of ecosystem-based management.
P. McKnight	✓						Wants bycatch issues to be addressed before increasing TACC and submits that commercial catch methods are destructive.
P. A. Williamson	✓						Urges more caution when considering TAC increases and submits that the proposed increase options are too large. Suggests waiting and revisiting catch settings next year.
P. McCormack	✓						Submits that TAC should increase at the same amount as biomass.
J. Blyth		✓					Submitter recognises an increase in biomass but would like to see snapper managed at smaller spatial scales. Also notes that fishing effort is not evenly distributed across SNA 8.
K. Adair						✓	Supports LegaSea's submission.
L. Wright						✓	Expresses general dissatisfaction with the management of SNA 8.
M. Watson						✓	Requests that their 28N rights be discharged to provide relief.
N. Calhoun						✓	Generally disagrees with the measures proposed and rationale provided and notes the importance of snapper in kina barren reduction.
P. Götz						✓	Supports LegaSea's submission.
P. Gatley						✓	General concern about snapper stocks and urges caution. Submitter also notes improvement in the SNA 8 stock over the last 10 – 15 years.
P. Hewlett						✓	Raises concern regarding the harvesting of baitfish impacting snapper abundance.

Other matters raised during consultation

SNA 8 deemed value rates

2096. FNZ did not propose any deemed value rate changes for SNA 8 as part of this review. However, in recognition of the fact that deemed value and catch limit settings are interlinked (TACC changes can impact deemed values), FNZ welcomed general feedback on the deemed value settings of SNA 8 during consultation.

2097. Seafood New Zealand, Aotearoa Fisheries Limited and Te Ohu Kaimoana submitted in relation to the deemed value settings for SNA 8, suggesting that the current deemed value rates of SNA 8 are too punitive and do not adequately reflect the stock's sustainability status and economic factors. Seafood New Zealand proposes that the TAC decision should be accompanied by a reduction in the deemed value rates and suggests that the basic annual deemed value rate is too high relative to the port price of the stock. They also support the removal or softening of the differential rates that apply for higher levels of excess catch.

2098. Aotearoa Fisheries Limited highlight that the current deemed value rates are having disproportionately negative impacts for smaller independent fishers who are unable to acquire sufficient ACE to balance catches. It is argued that the rates should be reviewed with urgency to ensure that the fishery remains financially viable for smaller operators.

FNZ response

2099. The deemed value rates of SNA 8 were last reviewed in 2023 and the annual rate was slightly increased to better align with the port price and to ensure appropriate incentives remained for fishers to operate within their ACE holdings. As noted by Seafood New Zealand, the annual rate is now set above ACE price, and very close to the port price of the stock (see Figure 3 below).

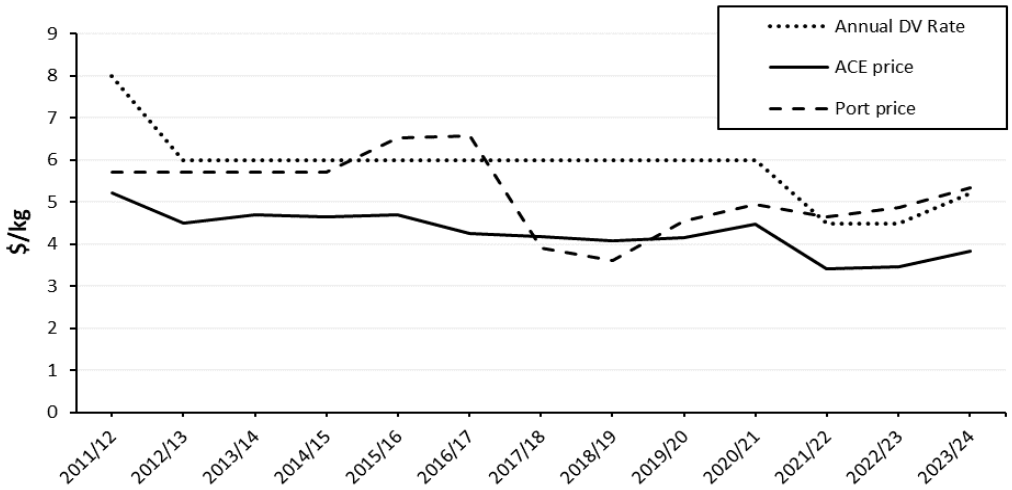


Figure 3: Summary of port price, average annual ACE transfer price, and annual deemed value rate information for SNA 8 since 2011/12.

2100. FNZ acknowledges that there is no sustainability concern for SNA 8. However, the TACC of SNA 8 was exceeded last year, and is on track to be exceeded this year. Consequently, FNZ is concerned that a lower annual deemed value rate may not provide strong enough incentives for fishers to avoid higher levels of catch in excess of the TACC (which is something you may have regard to when setting deemed value rates under section 75(2)(b)(v) of the Act).

2101. In relation to the concerns that the deemed value rates are having more negative impacts for smaller independent fishers, FNZ agrees this is an issue, but notes that under section 75(6) of the Act, when setting deemed values you must not have regard to the personal circumstances of any individual or class of person and cannot set separate deemed value rates in individual cases. FNZ also does not have control of the ACE market.

2102. FNZ is recommending a large TACC increase for SNA 8, which would substantially increase the amount of SNA 8 ACE available in the market. This is expected to help to alleviate some of these catch balancing issues resulting from high snapper abundance. If this increase is implemented, it will cause subsequent changes in the ACE market, which may result in the need for the deemed value rates to be re-evaluated in the future.

2103. Ultimately, based on the information presented above, FNZ remains of the view that deemed value rate changes are not needed for SNA 8 at this time. FNZ is open to further discussion and feedback on these

issues through the commercial catch balancing forum process, which is in place to assess, and if needed, address the types of issues raised by submitters. FNZ will continue monitoring deemed value payments and adjust rates if needed in the future.

Localised depletion

2104. The issue of localised depletion of fish stocks, both in a general sense and specifically with relation to Te Oneroa-a-Tōhe (Ninety Mile Beach), was raised both in pre-engagement discussions and in public submissions (local depletion at Kāpiti Island was also raised by one individual submitter). The concern is based on the uneven distribution of fishing effort across SNA 8. Recreational and customary fishers in areas where commercial fishing is concentrated, such as at Te Oneroa-a-Tōhe where approximately 24% of SNA 8 TACC is harvested, believe that despite the wider stock being in good shape, large scale harvest of snapper (and other species) in this area is leading, or may lead, to localised depletion and affecting their ability to utilise and derive benefit from the recovery of the fishery.

2105. The concept of a buffer zone either around Te Aupōuri Peninsula or running the length of Te Oneroa-a-Tōhe was suggested by the Te Hiku o Te Ika Fisheries Forum and other submitters as a mechanism for mitigating the impact of aggregated commercial fishing effort on the community, as well as local recreational and customary fishers.

2106. At present, trawl fishing is prohibited within 4 nautical miles (**nm**) of the coast between Maunganui Bluff (south of Hokianga) and Waiwhakaiho (Taranaki), and within 1 nm of the coast between Maunganui Bluff and Scott Point (northern end of Te Oneroa-a-Tōhe) under Regulation 10B Fisheries (Auckland and Kermadec Areas Commercial Fishing) Regulations 1986.

2107. FNZ consider that an effective measure to mitigate the risk of localised depletion would be to work with iwi and stakeholders on extending the existing 1 nm trawl prohibition along the northern coast of SNA 8, which includes Te Oneroa-a-Tōhe, whether through regulatory or voluntary measures. Discussing commercial catch spreading arrangements in the region may also be an option, which Industry have indicated a willingness to explore.

2108. This approach would:

- Contribute to protecting the subtidal mussel beds off Te Oneroa-a-Tōhe and Ahipara from the risk of trawl disturbance. These mussel beds are considered to be the main source of spat that underpins New Zealand's valuable mussel aquaculture industry (Table 9);
- Mitigate some of the concerns about the ecological impacts of bulk harvest and bottom impact fishing raised in numerous submissions, including from EDS, the joint l submitters, sport fishing clubs (Piha, Counties, Raglan and Fielding), the SPCA, and a number of individual submitters; and
- Speak to the purpose of the Act (section 8) which includes enabling people to provide for their social and cultural well-being.

Consideration of other measures, including fishing method restrictions

2109. Submitters including the joint submitters, fishing clubs, SPCA, EDS, and some individuals suggested that other controls should be considered to support sustainable management of the stocks, instead of relying on the TAC as a measure.

2110. This included a general theme across submissions from recreational and environment interests that FNZ should more seriously consider implementing restrictions on certain commercial fishing methods, such as trawling, which can damage the marine environment. The joint submitters suggested that this would be an ideal time to transition more of the fleet to longline fishing.

FNZ response

2111. These general concerns are discussed within Appendix Two of B24-0483.

2112. With specific regard to SNA 8, there are already extensive trawl prohibitions in place that protect 55,541 km^2 of FMA 8 and 9 from disturbance caused by bottom contact fishing methods. These prohibitions, which are described in more detail in Table 9, were put in place to protect Māui dolphins and include all the west coast harbours, 50% of coastal seafloor out to a distance of 4 nm from the coast and 14% of seafloor beyond 4 nm.

2113. Furthermore, FNZ has commenced discussions with the fishing industry on options, which include regulated or nonregulated closures of areas to trawling, for the protection of two additional areas considered to be potential habitat of particular significance for fisheries management (Patea Shoals and subtidal mussel beds off Te Oneroa-a-Tōhe) from the impacts of trawling (Table 9).

Part 3: Assessment against relevant legal provisions

Overview

2114. You are being asked to make a decision under section 13 of the Act, to set the TAC for SNA 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 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992); Section 8 (Purpose); Section 9 (Environmental principles); Section 10 (Information principles).

2115. Guidance for you on the meaning of sections 5 and 8 and how they should be applied for decision making (for all the stocks being reviewed as part of this round) is provided in Chapter 1 '*Legal overview*'.

On the following pages, FNZ has provided a series of tables outlining our assessment of the proposed changes against sections 9, 10, 11, and 13 of the Act. Information to support this assessment can be found in *Part 4: Supporting information*.

2116. In the sections below, FNZ has provided more information on kaitiakitanga, which you must have particular regard to under section 12(1)(b), and mātaitai reserves and other customary management tools which are relevant to your decision making under section 21(4).

Assessment of the proposals against section 13 of the Act

2117. Table 6 below outlines FNZ's assessment of the proposed options for SNA 8 against section 13(2)(a) of the Act. This assessment has been informed by the best available information on the status of the stocks and the information discussed in '*Information on biology, interdependence, and environmental factors*' in *Part 4: Supporting Information*.

Table 6: Assessment under section 13(2)(a) of the Act for SNA 8.

Section 13(2)(a)	2118. The best available information on attaining *MSY* for SNA 8 comes from a 2024 stock assessment. The biomass of SNA 8 is higher than it has been for several decades and it is projected to continue increasing over the next five years (Figures 4 and 5). Because the recent increase in SNA 8 productivity has made it difficult to confidently estimate the B_0[145] of the stock, the *MSY*-compatible management target has been changed from a percentage of B_0 to a target exploitation rate. The stock is currently at this target rate, but at current catch levels, the exploitation rate is projected to immediately fall below the management target as a result of increasing snapper biomass (meaning the stock biomass will move to a level above that which would produce *MSY*) (Figure 5). 2119. As the stock status can be reliably estimated in relation to *MSY* and there is a desire to maintain the stock at or above this level, the proposed changes for SNA 8 would be made under section 13(2)(a) of the Act. Under this provision of the Act, you must set a TAC using the best available information that is consistent with maintaining the stock at or above a level that can produce *MSY* (i.e. B_{MSY}), while also having regard to the interdependence of stocks. 2120. FNZ's view is that Options 1-4 (which range from maintaining the *status quo* to applying up to a 23% TAC and 40% TACC increases) would be consistent with the objective of maintaining the stock at or above the level that would produce *MSY*. This view is supported by the assessment forward projections (Figure 5), which show that under these options, the stock would be maintained at or above the level that would produce *MSY* within 5 years (as measured by being at or below the fishing mortality rate target). Biomass is also projected to continue increasing under all these options. 2121. For Option 5 (which proposes a 36% TAC increase including a 62.5% TACC increase), SNA 8 biomass is projected to continue increasing, but forward projections indicate that the fishing mortality rate target is very likely to be exceeded for the duration of the 5-year projection period, and thus, the stock is unlikely to be maintained above a

[145] The average biomass likely to exist in the absence of fishing.

	level that produces *MSY* within this timeframe. FNZ therefore considers this option would be inconsistent with section 13(2)(a) of the Act.
Harvest Strategy Standard (HSS) **See '*The Harvest Strategy Standard*' *under* Chapter 1 '*Legal Overview*' for more information.**	2122. 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. The minimum requirement of the HSS is that stocks are maintained at or above B_{MSY} - compatible reference points. 2123. The default biomass target for snapper provided by the HSS and Guidelines, based on the biological characteristics of the species, is considered to be 40% of the unfished biomass. This reflects international best practice. 2124. Substantial increases in annual recruitment (Figure 6) suggest an increase in productivity for SNA 8. Owing to the complexities associated with estimating SB_0[146] under these circumstances, the Inshore Finfish Working Group[147] made the decision to base the target reference point on exploitation rate instead of biomass as a proportion of SB_0. This decision does not change the management objective which is that the stock remains at 40% of the unfished biomass, but it does change the approach to setting the TAC in relation to the management target. 2125. Consistent with international best practice, the hard and soft limits were based on absolute biomass. 2126. The default target accepted for SNA 8 was the exploitation rate that, if applied perfectly over the long term, would produce a spawning biomass of 40% of that in the absence of fishing ($F_{SB40\%}$; U=4.8%). This approach is consistent with the HSS. 2127. The hard limit was selected as the average spawning biomass estimated for the period 1992 to 2000. This was a relatively stable period that was close to the default Harvest Strategy Standard hard limit of 10% SB_0 when estimated in previous assessments, particularly the 2005 assessment (Davies et al., 2013), which did not include the period of increased productivity. This period was preceded by a period of very high catch from which it took the stock a long time to rebuild, possibly due to impaired recruitment. The soft limit was assumed to be twice the biomass of the hard limit. 2128. SNA 8 has been assessed as Very Unlikely (<10% probability) to be below the soft limit and Exceptionally Unlikely (<1% probability) to be below the hard limit defined under the HSS, and Options 1-4 are projected to maintain biomass at or above the stock's management target. On this basis FNZ considered these options are consistent with the HSS.
Section 13(2)(a) **Interdependence of stocks**	2129. SNA 8 biomass is projected to increase under all of the proposed options with the greatest increase expected under *status quo* catch settings (Option 1). Kina barrens are not presently thought to be a significant ecological issue in FMA 8 and FMA 9, but in the limited areas in SNA 8 where they are known to occur (Shears and Babcock 2007), the increasing snapper biomass will not exacerbate the issue and may potentially contribute to reducing the abundance of kina and the prevalence of kina barrens. 2130. Adult snapper are generalist predators, capable of occupying a wide range of habitats and eating a wide variety of food sources (Parsons et al., 2013). They have significant dietary overlaps with many other carnivorous inshore species such as red gurnard, John dory, blue cod, rig and flatfish. As the SNA 8 biomass grows, snapper are likely to be increasingly in competition for food resources with other finfish species. It is possible that increases in SNA 8 biomass (driven by recent increased productivity) will, through competition, drive a decline in the abundance of other finfish species. SNA 8 biomass is now the highest it has been since the 1970s (Figure 4) and it may be

[146] SB_0, known as virgin spawning biomass (also referred to as unfished biomass), is the theoretical carrying capacity of the spawning biomass of a fish stock (the level of biomass that theoretically would occur if the stock is not fished).

[147] The Inshore Finfish Working Group is one of a many of Science Working Groups which oversee the peer review processes and production of the Plenary reports. They are chaired by FNZ scientists, and include participation by research providers, independent experts (often contracted by FNZ), fisheries managers and experts representing iwi and various stakeholders (for example, commercial, recreational, and environmental NGOs).

	that if the relative abundance of different fish species is changing, that it is returning to something like it was prior to the intensification of fishing in the 1960s. However, we can only speculate on this as the information needed for a quantitative comparison is not available.

Kaitiakitanga

2131. Information provided by Iwi Fisheries 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.

2132. As noted above under 'input and participation', Te Hiku o Te Ika, Mid-North West, Ngā Hapu o Te Uru o Tainui and Te Tai Hauāuru Iwi Fisheries Forums represent iwi with a customary interest in SNA 8.

There is currently no Fisheries Plan for the Mid-North West Iwi Fisheries Forum. The Te Tai Hauāuru, Nga Hapū o Te Uru o Tainui, and Te Hiku o Te Ika Forums, all have Fisheries Plans that contain objectives relevant to the management of fisheries in their rohe. In Table 7 below, FNZ has summarised the objectives specified within these plans.

Table 7: Summary of management objectives from Iwi Fisheries Forum and Iwi Fisheries Plans, which are relevant to the reviews of SNA 8.

Iwi Fisheries Plan	Relevant Management Objectives contained in plan
Relevant to the review of SNA 8 (Fisheries Management Areas 8 and 9)	
Te Hiku o Te Ika Iwi Fisheries Plan	• **Outcome area 1:** Te Hiku's fisheries management decisions and directions reflect a strong leadership. • **Outcome area 2:** Fisheries are developed and used in a manner that gains best value for Te Hiku iwi and hapu. • **Outcome area 3:** The fisheries environment supports a healthy fishery.
Ngā Hapu o Te Uru o Tainui Forum Regional Customary Fisheries Management Plan	• **Management objective 1**: Ngaa Hapuu o Te Uru kaitiaki are able to participate in and influence fisheries decision-making. • **Management objective 2:** Relationships and partnerships with key stakeholders, managers and agencies are established and maintained. • The forum generally considers all fish and shellfish species to be taonga (treasures). Snapper is also listed in the plan as an important taonga species.
Te Tai Hauāuru Iwi Forum Fisheries Plan	• Our customary non-commercial fisheries are healthy, sustainable and supports the cultural wellbeing of Te Tai Hauāuru Iwi. • Our commercial fisheries are sustainable and support the economic wellbeing of Te Tai Hauāuru Iwi. • Mana and rangatiranga over our fisheries is restored, preserved and protected for future generations. • Iwi collaborate in fisheries and environmental resource management to achieve iwi driven objectives.

2133. FNZ considers that the proposed management processes and proposed options for SNA 8 are in keeping with the objectives of the plan summarised above, which generally relate to opportunities for iwi to actively engage in fisheries management processes. Further exploration of additional management measures along Te Oneroa-a-Tōhe would deliver specifically back to a longstanding concern raised by the Te Hiku o Te Ika Iwi Fisheries Forum.

2134. Te Hiku o Te Ika, Mid-North West, and Ngā Hapu o Te Uru o Tainui Iwi Fisheries Forums provided specific feedback on the proposed options. Te Hiku o Te Ika and Ngā Hapu o Te Uru o Tainui favoured Option 1 (*status quo*), which they considered most consistent with the objectives of their fisheries plans. All three of these forums requested that if you were to increase the TAC and TACC, that you do so slowly and incrementally (rather than with a single large increase). This more cautious approach would provide the Iwi Fisheries Forums with greater confidence that the fishery would not be depleted should the stock assessment prove to have been overly optimistic.

Mātaitai reserves and other customary management tools

2135. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, you must take into account any mātaitai reserve that is declared by notice in the *Gazette* under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

2136. The mātaitai reserves, area closures, fishing method restrictions, and prohibitions that apply in SNA 8 are listed in Table 8 below.

Table 8: Mātaitai reserves and other customary management tools that apply to SNA 8.

Customary area	Management type
Aotea Harbour Marokopa	**Mātaitai reserve** Commercial fishing is not permitted within the mātaitai reserve.
Kawhia Aotea Waka-te-hāua Taiāpure	**Taiāpure** All types of fishing are permitted within a taiāpure.

2137. Within the SNA 8 management area there are two mātaitai reserves and two taiāpure. For the two mātaitai and the Kawhia taiāpure it is not anticipated that the proposed TAC increases for SNA 8 would negatively impact the availability of snapper in these areas, given the increasing abundance of snapper and the distribution of commercial fishing effort outside of these areas. However, because of disproportionate concentration of fishing effort off the coast of Te Oneroa-a-Tōhe (Ninety Mile Beach), it is possible that a large TACC increase could lead to a significant increase in commercial SNA 8 harvest in that area, which includes the Waka-te-hāua Taiāpure, which could result in localised depletion of snapper and other species. Potential measures for addressing localised depletion are discussed in in more detail in '*Other matters raised during consultation*'.

Assessment of the proposals against section 9 of the Act

2138. Table 9 below outlines FNZ's assessment of the proposed options for SNA 8 against the environmental principles in section 9 of the Act, which you must take into account when considering the TACs of these stocks. This assessment has been informed by our knowledge of the current environmental impact of this fishery, which is discussed under *Information on environmental impacts* within *Part 4: Supporting Information*.

Table 9: Assessment under section 9 of the Act for SNA 8.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	2139. The proposals to increase the TAC and TACC for SNA 8 will likely lead to some level of increased fishing effort in FMA 8 and FMA 9. Therefore, there is potential for additional captures of protected species, bycatch of non-target species, and for greater fishing related impacts on seafloor biodiversity such as through an increased trawl footprint[148] or frequency.[149] Increasing the SNA 8 TACC will provide additional access to other species within the fishery complex which fishers report have previously been undercaught due to the limited availability of SNA 8 ACE (Table 14). The extent to which these risks could be realised will depend on the size of any TACC increase and how the fishing fleet responds to increased SNA 8 availability, for example, undertaking additional fishing events versus gear modifications such as raising trawl headline heights to increase snapper catch per unit of effort (**CPUE**). 2140. FNZ has received some feedback from some commercial fishers that any additional SNA 8 ACE will be able to be caught through modifying trawl gear configuration rather than requiring additional fishing events or effort. While this may be true to some extent, in certain circumstances, FNZ considers it likely that the larger TACC increases proposed will ultimately result in additional fishing effort, with further concentration of fishing also likely in certain regularly fished areas, such as off Te Oneroa-a-Tōhe. 2141. Potential effects on associated or dependent species, biological diversity of the aquatic environment, or potential habitats of particular significance are outlined in *Part 4:*

[148] The trawl footprint is the total area of the seabed that has or may have been contacted by fishing gear.
[149] Trawl frequency is the interval between trawling events for an area.

	Supporting Information under '*Information on biology, interdependence, and environmental factors*'. Information presented is based on observer collected information, and fisher-reported data that may not have been independently verified, noting that over the last three fishing years average observer coverage for these stocks has been 21%. On-board cameras have been live on proof-of-concept vessels in SNA 8 since 2019, and on trawl vessels less than or equal to 32 metres in overall length fishing in SNA 8 since August 2023. Camera coverage in SNA 8 from the 2018/19 to 2022/23 fishing years is 24%. These coverage levels have been calculated from all events which caught SNA 8 (rather than those just targeting SNA 8).
Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	2142. SNA 8 is mainly caught by bottom trawling, which is known to have impacts on seafloor biological biodiversity and benthic habitats, some of which may support the different life stages of harvested fish species. Although it is difficult to predict how the commercial fleet will respond to a significant increase to the TACC, possible outcomes include (a) no change to the amount of trawl effort (with additional snapper taken through modification of fishing gear such as raising headline height), (b) an increased trawl footprint, (c) new areas being fished, and (d) intensification of fishing in areas that are already fished. During pre-consultation engagement discussions, it was noted that some commercial trawlers have changed fishing behaviour and gear setup to actively avoid snapper and target gurnard. The resulting lowered headline and concerted effort to keep the net on the seafloor to actively target gurnard may result in greater levels of bottom contact. 2143. Trawling and Danish seining are currently prohibited from large areas within SNA 8. This includes harbours and estuaries, and Māui dolphin habitat protected under the Hector's and Māui dolphin Threat Management Plan. This protects large areas of inshore marine space from impacts from trawling (Table 10). At present, 55,541 km^2 of seafloor is protected from the impacts of bottom trawling and Danish seining. This includes all of the harbours, 55% of seafloor out to a distance of 2 nm from the coast, and 46% of seafloor between 2 nm and 4 nm from the coast. **Table 10: The area (km^2) of seafloor present at different distances from the mainland coast within SNA 8, and the area (km^2) and percentage of each distance band that is closed to set netting, trawling and Danish seining under the Hector's and Māui dolphin Threat Management Plan.**

Zone	Total area of habitat in SNA 8 (km^2)	Total area closed to trawling and Danish seining in SNA 8 (km^2)	Total percentage of habitat closed
Over 4 nm	373,177	50,357	14
2 – 4 nm	3,735	1,715	46
0 – 2 nm	3,777	2,060	55
Harbours	1,409	1,409	100
Total	382,098	55,541	15

	2144. FNZ considers that the proposed options which include a TACC increase (Options 2-5) will likely result in some additional impacts on the benthic environment relative to current settings. However, we do not consider that the potential effects of these TACC increases will be adverse at the scale of the SNA 8 FMA as (a) trawling is already occurring throughout SNA 8, and (b) large areas of seafloor within SNA 8 are already protected from the impacts of bottom contact fishing methods (Table 10). FNZ will continue monitor changes in the fishery (including trawl footprints) that occur as a result of this review.
Habitat of particular significance for fisheries management should be protected -	2145. The Kaipara and Manukau Harbours and the Patea Shoals and Ahipara subtidal mussel beds are considered to be potential habitats of particular significance for fisheries management. 2146. While Kaipara and Manukau Harbours are protected from adverse effects of fishing (through regulated prohibitions on trawling, Danish seining, and dredging) under the Fisheries (Auckland and Kermadec Areas Commercial Fishing) Regulations 1986, the Patea Shoals and Ahipara subtidal mussel beds are not. Geospatial Position Reporting

Section 9(c) of the Act	(**GPR**) data from inshore trawl vessels indicates that both habitats experience some level of trawl disturbance (particularly the subtidal mussel beds). 2147. The proposals to increase the TACC for SNA 8 may lead to increased fishing effort in FMA 8 and FMA 9, and could lead to increased fishing effort (and increased risk of adverse effects) at Ahipara and Patea Shoals. The Ahipara subtidal mussel beds, which are thought to be the main source of spat for the $380 million per year mussel aquaculture industry, may be especially vulnerable as approximately 24% of the SNA 8 TACC is caught off Te Oneroa-a-Tōhe (Ninety Mile Beach) in the vicinity of these mussel beds. 2148. Given the importance of these habitats for both aquaculture and fisheries, FNZ has commenced discussions with key stakeholders and is considering options (including regulated or nonregulated area closures to trawling) to manage the risk of adverse effects of fishing at these sites to support the ongoing function of these areas in maintaining productive fisheries and ecosystems. 2149. Managing the risks of adverse effects at these sites would also mitigate concerns about the ecological impacts of trawling raised in numerous submissions, including from EDS, the joint submitters, sport fishing clubs (Piha, Counties, Raglan, and Fielding), the SPCA, and a number of individual submitters.

Assessment of the proposals against section 11 of the Act

2150. Table 11 below outlines FNZ's assessment of the proposed options for SNA 8 against provisions of section 11 of the Act, which you must either take into account or have regard to when considering the TAC of this stock.

Table 11: Assessment under section 11 of the Act for SNA 8.

You must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	2151. "Effect" is defined widely in the Act.[150] The direct effects of fishing for snapper need to be considered, as well as the indirect effects of this fishing for associated stocks and species, and the surrounding ecosystem. 2152. Information relevant to the direct effects of fishing on SNA 8 are described throughout this paper, particularly in Part 1 under '*Rationale for review*', '*Options and analysis*' and *'fishery characteristics and settings'*, and in Part 4 under '*stock status*'. The effects of the SNA 8 fishery for associated stocks and species, and the wider ecosystem, are summarised above in Table 6 and Table 9, and detailed further in Part 4 under '*Information on biology, interdependence, and environmental factors'* and *'information on environmental impacts'*. 2153. The magnitude of these effects of fishing on SNA 8, associated species and the environment, will vary depending on the TAC setting for SNA 8. FNZ considers that the proposed TAC options appropriately balance the utilisation opportunity for SNA 8 against these potential effects. We note that greater effects are expected to occur under higher TAC settings, and this is something you must take into account in your decision.
Existing controls that apply to the stock or area – section 11(1)(b)	**Commercial** 2154. A number of inshore areas within SNA 8 are closed to bottom trawl and Danish seining, including all harbours and estuaries. 2155. Various restrictions on the use of commercial fishing gear and methods exist within SNA 8. Examples include but are not limited to the following: • Spatial prohibitions / restrictions in some areas on trawlers larger than 46 metres, drag netting, beach seining and set netting; • Area prohibitions on the methods of pair trawling and Danish seining;

[150] 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.

	• Fishing gear restrictions including set net and cod-end mesh size; and • Prohibition on the sale of certain reef species, to prevent targeting of reef habitat. 2156. In 2020, as part of the Hector's and Māui Dolphin Threat Management Plan, a number of measures were introduced to strengthen the protection of Māui dolphins and reduce the risk of capture. This included broader closures for set netting and extending the area closed to bottom trawling. 2157. A commercial minimum legal size (**MLS**) limit of 25 cm applies for snapper across all fisheries. Any snapper below 25 cm must be returned to the sea and, since the introduction of electronic reporting 2019, fishers must record an estimate of the quantity of undersize snapper returned for each fishing event where undersize snapper is caught. **Recreational** 2158. The MLS for recreationally caught snapper in SNA 8 is 27 cm. The recreational daily limit is 10 per person per day. It was noted during pre-consultation engagement that the current daily limit and size limit in SNA 8 were important to allow for subsistence fishing, which supports local communities. 2159. Various fishing method restrictions are also in place in SNA 8. These include closed areas for set netting consistent with those for commercial fishers. Outside these areas, a minimum net mesh size of 125 mm for set nets applies for snapper. For line fishing (long line, kontiki and dahn lines) there is a maximum number of 25 hooks that can be used on a line.
The natural variability of the stock – section 11(1)(c)	2160. Snapper are considered a low variability species due to their low natural mortality, high longevity, role in coastal ecosystems as dominant generalist predator, and broadcast spawning characteristics. High exploitation rates during the 1960s to 1980s reduced the proportion of older fish present in the SNA 8 population, which may have in turn limited recovery potential of the stock and contributed to the high level of recruitment variability recorded over the last 20+ years. As the SNA 8 stock continues to build from its historically low biomass of the 1980s and 90s, increasing numbers of larger fish should result in less variability in recruitment between years. 2161. Recruitment can also be influenced by environmental conditions such as water temperature. Warmer water is known to improve spawning success and egg and larval survival. More research is required to better understand the biological and environmental processes that determine snapper recruitment success.
Fisheries plans, and conservation and fisheries services – section 11(2A)	**National Inshore Finfish Fisheries Plan** 2162. Snapper is managed under the National Inshore Finfish Fisheries Plan, which is an approved fisheries plan under section 11A and specifies management objectives and strategies for the next five years. Snapper falls under Group 1, which recognises stocks that provide the greatest benefit and are highly desirable to all sectors. They are managed to provide for utilisation, while mitigating the increased risk to their sustainability as a consequence of high levels of fishing pressure. **Fisheries and conservation services:** 2163. Fisheries and conservation services of significance have been described throughout this paper where relevant. 2164. Fisheries services of relevance to SNA 8 includes the research used to monitor abundance (detailed in Part 4 under '*stock status'*) and the tools used to enforce compliance with management controls in the fishery. 2165. Compliance is supported by observer and on-board camera monitoring in the commercial fishery. The observer and camera coverage relevant to the SNA 8 fishery is described above in Table 9 (in the section on associated and dependent species). 2166. Relevant conservation services include research and monitoring necessary to manage and mitigate the effects of fishing on the aquatic environment and biodiversity, including protected species.

	2167. FNZ is not aware of any decisions not to require conservation services or fisheries services.
You must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	2168. There are six Regional Councils[151] that have coastline within the boundaries of SNA 8. Each of these regions has multiple plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. 2169. FNZ has reviewed the documents and the provisions that might be considered relevant. A summary of these can be found in Addendum 1. 2170. 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. There are no provisions specific to this stock.
Non-mandatory relevant considerations	
Other plans and strategies	2171. Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy sets a strategic direction for the protection, restoration and sustainable use of biodiversity, particularly indigenous biodiversity, in Aotearoa New Zealand. The Strategy sets a number of objectives across three timeframes. The most relevant to setting sustainability measures for SNA 8 are objectives 10 and 12: • **Objective 10:** Ecosystems and species are protected, restored, resilient and connected from mountain tops to ocean depths. • **Objective 12:** Natural resources are managed sustainably.

Information principles: section 10 of the Act

The best available information relevant to SNA 8 is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. The table below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in that information.

Table 12: Best available information and key areas of uncertainty for SNA 8.

Best available information
2172. The best available information to inform management of SNA 8 includes the 2024 stock assessment which is summarised within this paper and described in more detail within the May 2024 Fisheries Assessment Plenary. FNZ has a high degree of confidence in the stock assessment which uses an age-structured fully quantitative model with a wide range of inputs (detailed in Part 4 under '*Stock status*'). Other sources used to inform the development of management options are cited in the text and listed in '*Referenced reports*'.
2173. The best available information regarding recreational fishing for these stocks is presented in Table 4. Recreational catch information relies heavily on the results of the 2022/23 NPS.
2174. New Zealand Aquatic Environment and Biodiversity Chapter 13 'Trophic and ecosystem-level effects', and Report No. 324, 'Fishery-induced trophic cascades and sea urchin barrens in New Zealand: a review and discussion for management' (Doheny et al, 2023), provide information on the role of fishing in the occurrence of kina barrens in New Zealand.
2175. Additional information about the operation of and challenges faced by the commercial fishing fleet is derived from pre-consultation engagement discussions with fishers, fishing companies and industry groups. Similarly, FNZ's understanding of the experiences of recreational fishers in SNA 8 comes from ongoing dialogue and pre-consultation engagement discussions held prior to the development of the consultation document.

[151] Regional Councils that have coastline within SNA 8: Northland Regional Council, Auckland Council, Waikato Regional Council, Taranaki Regional Council, Horizons Regional Council (Manawatu-Wanganui Region) and Greater Wellington Regional Council.

Key areas of uncertainty

2176. With any stock assessment there are uncertainties that must be considered. While FNZ has a great deal of confidence in the SNA 8 stock assessment model and the inputs that drive it, there are some areas of uncertainty which are noted below.

2177. Since 1989–90, the area north of Cape Egmont has accounted for 90–95% of the SNA 8 commercial catch. Most observational data included in the stock assessment model were also derived from the northern area of the fisheries including the CPUE indices, trawl survey indices, and the commercial age composition data. Consequently, the dynamics of the assessment model will be strongly influenced by the data from the northern portion of the quota management area.

2178. Snapper from the South Taranaki Bight also grow significantly faster than those found further north, but not as fast as those from SNA 7. This may indicate some degree of spatial structure in the SNA 8 population and possible linkages between the southern area of SNA 8 and the SNA 7 (Tasman Bay/Golden Bay) stock.

2179. Productivity of the SNA 8 stock appears to have varied considerably over the history of the fishery, with variable levels of recruitment and variation in growth rates (that appear to be related to stock abundance). Recent recruitment appears to be at an historically high level, suggesting that the stock is currently in a phase of higher productivity (possibly because of ocean warming). Future recruitment trends are unknown and only observed with a high degree of uncertainty through trawl surveys for year classes since 2019. The available information on these cohorts suggests they may be smaller than those which have driven the increasing biomass trajectory over the last decade.

2180. The variability in the catchability of adult snapper in the recent west coast North Island trawl surveys has limited the utility of the trawl surveys to monitor the overall magnitude of the increase in the abundance of snapper. The limitations of the trawl survey are partly attributable to variability in the timing of the survey relative to the main spawning period and the restricted ability to sample within the Māui dolphin trawl exclusion zone. Further, the distribution of snapper appears to have expanded (into deeper water) as the abundance of snapper has increased over recent years. Consequently, FNZ has made the decision to shift the timing of trawl surveys from October to February (beginning February 2025) to better monitor adult snapper. By establishing this new survey time series (surveys are planned for 2025, 2026, and 2027) FNZ hope to be in the position to more thoroughly evaluate the factors influencing the variability in catchability of adults (>5 years old) and, thereby, increase the utility of the trawl surveys for monitoring stock abundance.

2181. There have been considerable changes in the operation of the trawl fisheries during the assessment period related to the extent of targeting/avoidance of snapper. The CPUE analysis has endeavoured to account for some of these changes; however, the CPUE indices are considered to under-estimate the increase in abundance during the more recent years.

2182. The recreational catch from SNA 8 has increased alongside the increasing biomass of the stock. It is estimated that under the current catch settings that the recreational catch accounts for approximately 24–41% of the total catch (FNZ, 2024). This figure highlights the significance of this component of the fishery, and the reinforces the importance of routinely monitoring the level of recreational catch to provide an accurate assessment fish harvested from this stock.

2183. Additional areas of uncertainty in the stock assessment are recorded in the Inshore Finfish Working Group report (FNZ - Plenary, 2024).

2184. There is very little information to inform the extent to which the proposed TAC changes might impact other species because of interdependencies. This is because there is little to no information available on the strength of interrelationships between these and other species.

Part 4: Supporting information

Stock status

2185. SNA 8 was assessed in 2024 (FNZ - Plenary, 2024) using an age-structured fully quantitative model, with a wide range of inputs such as length/age frequencies of commercial and recreational catches, commercial and recreational catch histories, trawl survey biomass estimates, two biomass estimates from tagging studies, and commercial catch per unit effort (CPUE).

2186. In addition to providing an estimate of the current biomass of snapper in SNA 8, the assessment also confirmed the findings of the 2021 assessment, that recruitment into SNA 8 has increased substantially in the last 10-15 years and is now significantly greater than it had been in the period from the 1980s through to early 2000s (Figure 6). While the estimate of the actual biomass of fish present in SNA 8 is robust, variability in recruitment means it is not possible to produce a reliable estimate of SB_0 (the spawning stock biomass SNA 8 would attain in the absence of fishing). Importantly, because of this issue, the Inshore Finfish Working Group made the decision that it would be most appropriate to base the SNA 8 management target on an exploitation rate (harvest of a proportion of the current biomass), rather than the previous approach of managing the stock to a proportion of SB_0.

2187. The exploitation-rate based approach revolves around utilising a constant proportion of the stock biomass each year, with the weight of fish able to be harvested changing as the stock biomass changes over time. The previous management target for SNA 8 was 40% of SB_0. Fishing to an exploitation rate of 4.8 percent (of the spawning biomass each year) will move the stock towards and maintain the stock at the 40% biomass target ($SB_{40\%}$) that is considered likely to achieve the maximum sustainable yield (*MSY*) from the fishery.

2188. This exploitation-rate based approach provides a more consistent and stable approach to managing the fishery because it is independent of variability in recruitment patterns. FNZ considers that the approach of utilising an exploitation rate of 4.8 percent is robust and should maintain the SNA 8 spawning biomass at $SB_{40\%}$ over time. This outcome is consistent with the Harvest Strategy Standard guidance, and the objective set out in the Act of maintaining the stock at or above a level that can produce *MSY*.

2189. Due to stock assessment scientists now having a better understanding of the increasing productivity of the fishery, the assessment of where the stock is at relative to the management target ($SB_{40\%}$) has changed between the 2021 and 2024 assessments. Based on the updated considerations of recruitment and productivity, the recent stock assessment indicates that in 2021 the fishery was at (or close to) the management target, as opposed to being above the target (at 54% of SB_0) as assessed in 2021.

    In 2024, the stock was determined to be:

    - About as Likely as Not (40–60%) to be at or below the exploitation rate management target (U $SB_{40\%}$= 4.8%; Figure 4); and
    - Very unlikely to be to be below the new soft limit (twice the biomass of the hard limit; Figure 2); and
    - Exceptionally unlikely to be to be below the new hard limit (average spawning biomass between 1992 and 2000); with
    - Likely to increase in biomass based on projections five years into the future under the *status quo*.

2190. Monitoring of year class strengths is possible through West Coast North Island trawl surveys and catch ageing. These surveys began in 1986 with subsequent surveys conducted in 1987, 1989, 1991, 1994, 1996, 1999, 2018, 2019, 2020 and 2022.

2191. Results from the most recent surveys (2018-2022) have shown a substantially higher biomass than estimated in the earlier surveys (1987-1999), and as described above, have also revealed there has been substantially higher recruitment in recent times. It is this elevated level of recruitment that is driving the increased productivity and growth of the stock. SNA 8 biomass is currently dominated by fish that recruited into the fishery from an exceptionally strong 2016 year class. It is the strength of this year class and knowing that these fish will mature and grow rapidly over the next few years that drives the upward trajectory of biomass projections for SNA 8.

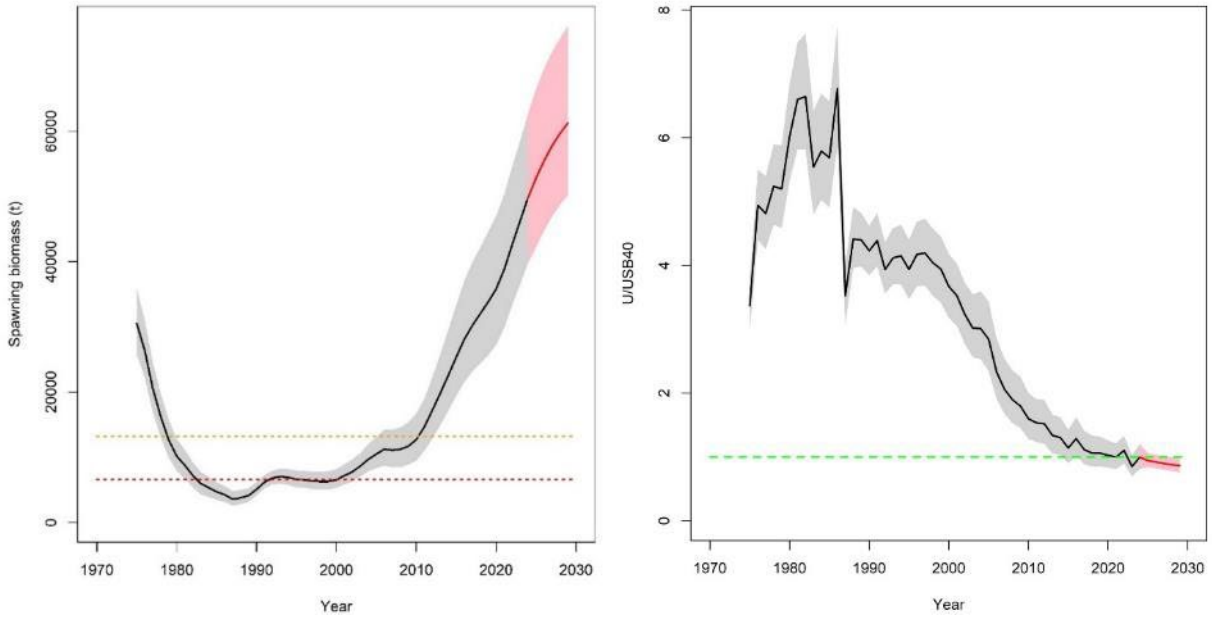


Figure 4: Modelled spawning biomass (left) and exploitation rate ($U_{SB40\%}$) (right) trajectories for the period since 1975 (red and orange dashed lines represent the hard and soft limits respectively and green dotted line indicates target $U_{SB40\%}$ fishing mortality rate). The black line represents the median, the shaded area represents the 95% credible intervals, and the red sections are five-year projections under *status quo* catch setting.

2192. Given the positive outlook for the stock, projections were made for a range of scenarios with increased catches. Assuming that recreational catches remain at the current allowance (1,205 tonnes), commercial catch increases of 25% to 75% of the current TACC were initially modelled before narrowing the range of TACC increase down to between 25% to 62.5% as shown below (Figure 5).

2193. These projections suggest that while biomass would continue to increase under the proposed TACC increases in the short term, that TACC increases of 45% and above would likely exceed the target fishing mortality rate throughout the 5-year projection period (Figure 5) and would likely cause the fish stock to fall below a biomass that would produce the *MSY* from the fishery.

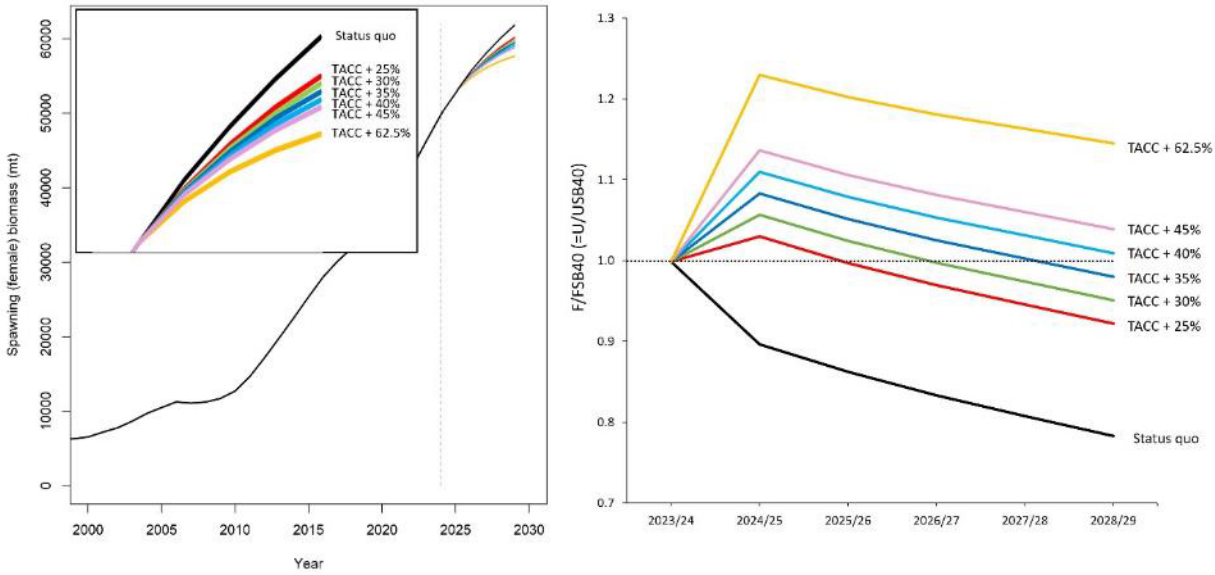


Figure 5: Projected biomass, with five-year projections magnified in inset panel (left), and fishing mortality rate relative to $U_{SB40\%}$ (right), under the current TACC (black) and TACC increases of 25% (red), 30% (green), 35% (dark blue), 40% (light blue), 45% (pink) and 62.5% (yellow). Dashed horizontal line indicates the fishing mortality rate target.

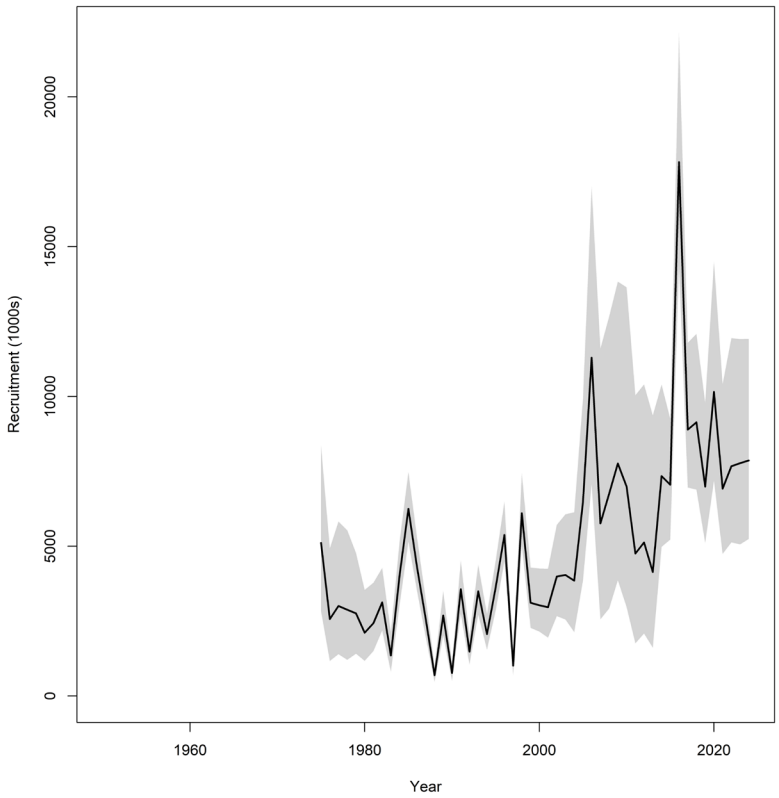


Figure 6: Estimates of annual recruitment (numbers of fish, thousands) from the 2024 SNA 8 stock assessment. The black line represents the median estimate and the shaded area represents the 95% credibility interval (FNZ - Plenary, 2024).

Information on biology, interdependence, and environmental factors

2194. This information supports FNZ's assessment of the proposals against section 13 of the Act in Part 3 '*Assessment against relevant legal provisions'*. Information in this section was derived from the snapper chapter of the May 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

2195. Snapper are generalist predators that feed opportunistically on a range of benthic invertebrates and fish. They a occupy a wide range of habitats, including rocky reefs and areas of sand and mud seafloor, and are found down to depths of 200 m (but are most abundant in 15 – 100 m). Consequently, snapper are likely to have significant dietary overlaps with many other carnivorous inshore species such as red gurnard, John dory, rig, blue cod and flatfish. There is very little information on natural predators of snapper (Parsons et al., 2014).

2196. When setting a TAC for snapper stocks in some regions of New Zealand (particularly SNA 1), it is important to consider the role that snapper play in shaping the ecology of rocky reefs through their consumption of kina (sea urchin; *Evechinus chloroticus*). Predation by snapper and other species such as rock lobster can reduce kina abundance and alter kina behaviour thereby reducing the prevalence of kina barrens (Doheny et al., 2023). However, the dynamics of kina barren formation in SNA 8 (west coast) are different to those in SNA 1 (east coast) due to differences in prevailing sea state and reef depth. Our current understanding is that for the most part, kina barrens do not form on west coast reefs because of the near-constant high wave action and the mostly shallow depth of coastal reefs. The hypothesis is that west coast conditions are too rough for kina to roam freely across reefs and cause widespread deforestation (of kelp forests) (see Shears and Babcock, 2007; Kerr et al., 2024). Urchin barrens have been recorded at places such as Gannet Rock (off Raglan) and the Sugarloaf Islands (New Plymouth), but these are structures with lee shores, and deeper reefs where kina do not have to contend with such severe turbulence (Shears and Babcock, 2007). As a consequence of this interplay between kina behaviour and coastal oceanography in the SNA 8 area, FNZ considers that there is a low risk of kina barren formation under any of the proposed options.

Biological characteristics

2197. Snapper is a demersal species, found in central and northern regions of New Zealand to depths of 200 m. It is one of the most abundant, dominant, and widely distributed inshore species from 15-100 m, and occupies a range of habitats including rocky reefs and sandy/mud seafloor. There is likely a degree of mixing between the southern part of SNA 8 (South Taranaki Bight) and SNA 7 (top of the South Island and West Coast South Island), given continuous commercial catch across the western approaches to Cook Strait and similarities in age compositions and growth rate (Parsons et al., 2014).

    Snapper is considered to be a low productivity species, as it has a low level of natural mortality and long natural lifespan (up to 60 years or 105 cm). These characteristics are offset to some degree by their relatively young age of maturity (3 to 7 years) and high fecundity, being serial broadcast spawners.

2198. Snapper are generalist predators, eating a diverse range of species opportunistically including crustaceans, polychaetes, echinoderms (urchins and sea stars), molluscs, and other fish.

Environmental conditions affecting the stock

2199. There is evidence of above average recruitment over recent years for SNA 8, which may correspond with environmental conditions such as warmer water temperatures (FNZ - Plenary, 2024). However, predictors for recruitment success are numerous and not well understood. It is uncertain if the current high recruitment will continue, revert to the long-term average, or decline (if, for example, environmental conditions exceed a natural threshold and begin to negatively impact snapper recruitment).

Information on environmental impacts

2200. This information supports FNZ's assessment of the proposals against section 9 of the Act in Part 3 '*Assessment against relevant legal provisions*'.

Protected species

Seabirds

2201. Over the last five years in SNA 8, 15 seabird captures have been reported in fishing events targeting snapper, and 63 seabirds were reportedly caught in all fishing events that caught snapper (includes events where snapper was not the target species). The species with the most captures was the flesh-footed shearwater (medium-risk ranking), which made up around a third of these captures. Another third consisted of black petrels, sooty shearwaters, and unidentified albatrosses, with the remaining captures including shearwaters, petrels, albatross, gulls, shags, gannets, and prions.

2202. Despite covering a larger area, fewer seabirds were caught in SNA 8 compared to SNA 1 over the same period (15 versus 619 captures when targeting snapper, and 63 versus 727 captures for events in which snapper were caught). While the underwater ridges, seamounts, and extensive shelf areas within SNA 8 create a rich foraging habitat for seabirds, a lack of larger offshore islands on the west coast means there is limited seabird breeding habitat. Consequently, there seems to be less overlap between protected seabirds and risk activity in the SNA 8 fishery which likely contributes to the lower seabird capture rate in FMAs 8 and 9.

2203. Nationally, the inshore trawl fishery (trawl vessels <28 m, including vessels that catch snapper in SNA 8) poses significant risks to several seabird species, including four high-risk ranking species: the white-capped albatross, Salvin's albatross, Westland petrel, and black petrel.

Mammals

2204. Historically, trawl fisheries in the areas that encompass SNA 8 have been responsible for incidental capture of fur seals and dolphin species. SNA 8 includes the only habitat that Māui dolphin are found in. 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. Extensive set netting and trawl prohibitions are in place to manage the risks of commercial and recreational fishing to Māui dolphins along the west coast North Island (Cape Reinga to Wellington).

2205. In October 2020, as part of a revised Threat Management Plan, extensive new measures were implemented to further reduce fishing-related threats to Māui dolphins. The new measures provide a high degree of certainty that the current risk of fishing to Māui dolphin mortality is close to zero. The measures included:

a) Creating a new commercial and recreational set-net closure out to 4 nm offshore between Cape Reinga and Maunganui Bluff;
b) Extending the commercial and recreational set-net closure between Maunganui Bluff and the Waiwhakaiho River (New Plymouth) from 7 nm to 12 nm offshore;
c) Extending the commercial and recreational set-net closure between the Waiwhakaiho River (New Plymouth) and Hawera from 2 nm to 7 nm offshore;
d) Creating a new commercial and recreational set-net closure out to 4 nm offshore between Hawera and Wellington; and
e) Extending the existing trawl closure between Maunganui Bluff and Pariokariwa Point further south to the Waiwhakaiho River (New Plymouth), and to 4 nm offshore from Maunganui Bluff to the Waiwhakaiho River.

2206. New regulations also include a fishing-related mortality limit of one dolphin (*Cephalorhynchus spp*.) within the Māui dolphin habitat zone that extends from Cape Reinga to Cape Egmont. To support this, on-board cameras or observers are used to monitor potential interactions with commercial trawl or set net vessels operating in the coastal area.

2207. Any increase to the TACC for SNA 8 will need to be closely monitored to assess changes in fishing effort (number of events and distribution) by methods that pose a risk to Māui dolphins. Reviews of the existing fisheries restrictions may be necessary if new information changes our assessment that the risk of fishing-related mortality is no longer close to zero.

Fish and invertebrate bycatch

SNA 8 is predominantly caught in a 'mixed' multispecies inshore trawl fishery (Table 13). The core associated species are red gurnard (GUR 1 & 8), John dory (JDO 1 & 2), spiny dogfish (SPD 8), rig/spotted dogfish (SPO 1 & 8), tarakihi (TAR 1 & 8), trevally (TRE 7), and school shark (SCH 1 & 8).

2208. Although these stocks are not being reviewed together with SNA 8 in the October 2024 sustainability round, in recognition of the interlinkages between them and commitments made to progressing integrated multi-stock management, we have considered the status of these stocks and the potential impacts of changes to the SNA 8 TAC (Table 13).

2209. Of the species in this complex, none are currently overcaught and it is only GUR 1, TAR 8, and SCH 1 where reported catches are more than 80% of the TACC. Depending on the size of any TACC increase and how the commercial fishing fleet respond to the availability of additional ACE, it is possible that these species could be fully caught and end up constraining catches of other stocks.

2210. The impact of a SNA 8 TACC increase on the sustainability red gurnard was raised by several submitters. The TACC for GUR 1 was reduced in 2021 due to concerns that if it was fully caught it could impact on the sustainability of the stock.[152] The GUR 1 stock spans east and west coasts of the upper North Island (FMAs 1 and 9) with the majority of the GUR 1 catch taken from the West Coast sub-stock (GUR 1W). While biomass estimates are not available for GUR 1, trawl survey data (2018 – 2020) indicates a reduced biomass in GUR 1W relative to earlier surveys (1989 – 1999) with this decline attributed to poor recruitment. It has also been suggested that competition with, and predation by, an increasingly abundant snapper population may be impacting gurnard recruitment and abundance. A partial quantitative stock assessment was conducted in 2022 that concluded the stock was at the target (About as likely as not (40-60%) to be at or above the target) and that relative fishing intensity was below the overfishing threshold. There was concern that a substantial increase in effort could drive the stock down to below the target and cause fishing intensity to increase to above the threshold. An updated assessment for GUR 1 is expected in 2025 and FNZ will monitor how the harvest of GUR 1 responds to any change in the SNA 8 TAC setting.

2211. JDO 2 is being reviewed as part of this sustainability round, with proposals to either retain or reduce the TACC. The current TACC is significantly underutilised at present, however there is concern that a sustainability risk could occur should the full current TACC be caught. This has the potential to lead to the stock constraining commercial fishers' ability to catch SNA 8. You should note that the JDO 2 assessment is showing a sustainability concern for John dory in the east coast part of the stock (FMA 2) and no concern for FMA 8 which overlaps with SNA 8. An increase in JDO 2 catch in FMA 8 (due to a SNA 8 TAC increase) would be less of a concern in relation to JDO 2 stock status.

2212. In addition to the species complex above, skate species in FMA 9 may be affected should the TACC of SNA 8 increase. These species occur largely in deeper water where fishing pressure has moved since the introduction of the Hector's and Māui dolphin Threat Management Plan.

[152] 2021 GUR 1 Review of Sustainability measures

2213. Should the SNA 8 TACC be increased, it will be important to monitor catch rates across the whole fishery stock complex to determine whether future changes in fishing effort or behaviour pose a sustainability risk for the species associated with SNA 8.

2214. Future reviews of North Island West Coast fishery could move further towards a multi-stock management approach.

Table 13: Species included in the inshore mixed trawl and set net fishery stock complex for FMA 8 and FMA 9 with TACC and reported catch (tonnes) for the 2022/23 fishing year. The species caught in significant quantities alongside snapper are indicated in bold text. Catch level indicates reported catch relative to the TACC: 90-100% of TACC (At target), 80-90% of TACC (****), 70-80% of TACC (***), 60-70% of TACC (**), and less than 60% of TACC (*). Stock specific sustainability concerns are identified where they exist.

Species	Stock	TACC in 2022/23	Commercial harvest in 2022/23	Catch level	Sustainability concerns
Snapper	**SNA 8**	1,600	1,728	Overcaught	No known concerns
Red gurnard	**GUR 1**	800	615	***	No known concerns
	GUR 8	543	86	*	No known concerns
John dory	**JDO 1**	354	235	**	No known concerns
	JDO 2	269.5	90	*	There is concern that a sustainability risk could occur should the full current TACC be caught. This concern is specific to the eastern part of JDO 2[153] which does not overlap with SNA 8.
Tarakihi	**TAR 1**	978	676	**	CPUE is declining strongly and fishing intensity increasing, so some sustainability concern
	TAR 8	225	202	At target	No known concerns
Trevally	**TRE 7**	2,153	1,132	*	No known concerns
School shark	**SCH 1**	689	586	****	No known concerns
	SCH 8	529	273	*	No known concerns
Rig	SPO 1	692	241	*	No known concerns
	SPO 8	310	66	*	No known concerns
Spiny dogfish	SPD 8	307	97	*	No known concerns
Warehou	WAR 8	160	45	*	No known concerns
Kahawai	KAH 8	520	274	*	No known concerns
Ling	LIN 1	400	268	**	No known concerns

Biological diversity of the environment

2215. SNA 8 is mainly caught by bottom trawling, which is known to have impacts on seafloor biological biodiversity and benthic habitats, some of which may support the different life stages of harvested fish species. Although it is difficult to predict how the commercial fleet will respond to a significant increase to the TACC, possible outcomes include (a) no change to the amount of trawl effort (with additional snapper taken through modification of fishing gear such as raising headline height), (b) an increased trawl footprint, (c) new areas being fished, and (d) intensification of fishing in areas that are already fished. During pre-consultation engagement discussions, it was noted that some commercial trawlers have changed fishing behaviour and gear setup to actively avoid snapper and target gurnard. The resulting lowered headline and

[153] The JDO 2 stock spans FMA 8 and FMA 2, overlapping with the southern portion of SNA 8.

concerted effort to keep the net on the seafloor to actively target gurnard may result in greater levels of bottom contact.

2216. Trawling and Danish seining are currently prohibited from large areas within SNA 8. This includes harbours and estuaries, and Māui dolphin habitat protected under the Hector's and Māui dolphin Threat Management Plan. This protects large areas of inshore marine space from impacts from trawling (Table 14). At present, 55,541 km^2 of seafloor is protected from the impacts of bottom trawling and Danish seining. This includes all of the harbours, 55% of seafloor out to a distance of 2 nm from the coast, and 46% of seafloor between 2 nm and 4 nm from the coast.

Table 14: The area (km^2) of seafloor present at different distances from the mainland coast within SNA 8, and the area (km^2) and percentage of each distance band that is closed to set netting, trawling and Danish seining under the Hector's and Māui dolphin Threat Management Plan.

Zone	Total area of habitat in SNA 8 (km2)	Total area closed to trawling and Danish seining in SNA 8 (km2)	Total percentage of habitat closed
Over 4 nm	373,177	50,357	14
2 – 4 nm	3,735	1,715	46
0 – 2 nm	3,777	2,060	55
Harbours	1,409	1,409	100
Total	382,098	55,541	15

2217. FNZ considers that the proposed options which include a TACC increase (Options 2-5) may result in some additional impacts on the benthic environment relative to current settings. However, we do not consider that the potential effects of these TACC increases will be adverse at the scale of the SNA 8 FMA as (a) trawling is already occurring throughout SNA 8, and (b) large areas of seafloor within SNA 8 are already protected from the impacts of bottom contact fishing methods (Table 14). FNZ will continue monitor changes in the fishery (including trawl footprints) that occur as a result of this review.

Habitat of particular significance for fisheries management

Table 15: Potential habitats of particular significance for fisheries management relevant to SNA 8.

Potential habitats of particular significance for fisheries management
Patea Shoals – South Taranaki Bight
Attributes of habitat • Mixed biogenic habitat – sand, low-lying rocky outcrops, worm fields, bivalve rubble, and bryozoan rubble. **Reasons for particular significance** • Known nursery ground for some finfish species and may also be a spawning ground for some finfish species, including John dory. **Risks/Threats** • Extreme weather events, which can modify inshore biogenic habitats, mobile bottom-contact fishing methods, sedimentation from land-based sources or the resuspension of sediments by bottom contact fishing or subtidal sand or mineral mining. **Existing protection measures** • Trawl and set net restrictions along the North Island West Coast to protect Māui dolphin; prohibition of Danish seining around the lower North Island within 3 nautical miles seaward of the mean high-water mark; restricted areas around Taranaki to protect petroleum installations, prohibits fishing in these areas. **Evidence** • Morrison *et al.,* (2014d), Morrison *et al.,* (2022), Beaumont *et al.,* (2015), Anderson *et al.,* (2019) and Hurst et al. (2000)

Intertidal and subtidal mussel reefs and macroalgal beds at and adjacent to Ahipara and Te Oneroa-a-Tōhe (Ninety Mile Beach)

Attributes of habitat

- Intertidal and subtidal rocky reefs; intertidal and subtidal mussel beds to a depth of 25m; intertidal and subtidal macroalgal beds with associated sponges, bryozoans, and hydroids.

Reasons for particular significance

- Provide mussel spat to support the sustainability of green lipped mussel fisheries (including customary and recreational) as well as being the main source of mussel spat for New Zealand's $380 million per year mussel aquaculture industry.

Risks/Threats

- Disturbance from bottom contact fishing methods and resuspended sediment from bottom contact fishing.

Existing protection measures

- There is currently a set net prohibition in this area. There are no measures currently in place to protect this habitat of particular significance for fisheries from the impacts of trawling or dredging.

Evidence

- Alfaro *et al.,* (2011), Dunphy *et al.,* (2015), Quigley *et al.,* (2022), Quigley (2023) and Quigley *et al.,* (2023)

Kaipara and Manukau Harbours

Attributes of habitat

- Different attributes of the Kaipara and Manukau Harbours are important for different species.

Grey mullet:

- High level of connectivity to freshwater environment and large, muddy estuaries.

Rig/spotted dogfish:

- High level of connectivity to freshwater environment and large, muddy estuaries and high shellfish density.

Snapper:

- Biogenic habitat – e.g., subtidal seagrass beds, red algal meadows.

Reasons for particular significance

- The Kaipara and Manukau Harbours acts as nursery areas for Grey Mullet, Rig/Spotted Dogfish, and Snapper. The Kaipara and Manukau Harbours are also known to support juveniles of other fish species (e.g., Trevally).

Risks/Threats

- Sedimentation from land-based practices, eutrophication from land-based practices and finfish farming, electricity generating turbines altering tidal energy flux – note: this proposal has not progressed, additional aquaculture facilities over seagrass, bottom contact fishing, and introduction of non-indigenous/invasive species such as the Asian date mussel.

Existing protection measures

- Trawl, Danish seine, and commercial scallop dredging are prohibited in all estuaries and harbours in SNA 8. The Kaipara Harbour is closed to recreational fishing for scallops (including recreational dredging). The National Policy Statement on Freshwater Management and the National Environmental Standards for Freshwater, which came into effect on 3 September 2020, may lead to improved water quality in shallow harbours and estuaries and other shallower inshore waters. FNZ engages with the RMA coastal planning processes to support marine management decisions to manage land-based impacts on habitat of particular significance for fisheries management.

Evidence

- Morrison *et al.,* 2014d;Francis *et al.,* 2012; Getzlaff, 2012; Nurhazwan, 2013; Morrison *et al.,* 2014a, b, and c; Morrison *et al.,* 2016;and Jones *et al.,* 2016.

Part 5: Conclusions and recommendations

2218. The best available information indicates that snapper are increasing in abundance across the west coast of the North Island and that a significant increase in the SNA 8 TAC would be sustainable. In line with this, FNZ considers that Options 3 and 4 best fit the purpose of the Act for enabling sustainable utilisation and recommends that you choose one of these options. Option 3 (TACC increase of 520 tonnes) is most closely aligned (on average) to the fishing mortality management target and will therefore maximise yield from the fishery in the long term, while the larger TACC provided for in Option 4 (TACC increase of 640 tonnes) will provide more immediate relief in addressing the challenge of snapper bycatch and ACE availability currently being faced by commercial fishers operating in FMA 8 and FMA 9.

2219. Selecting Option 3 would provide a balance between Option 1 (*status quo*) and Option 2 (400 tonne TACC increase), which were supported by recreational fishing and environmental interests, and Options 4 (640 tonne TACC increase) and Option 5 (1,000 tonne TACC increase), that were supported by commercial fishing interests. The 520 tonne TACC increase provided for under Option 3 would increase the TACC from 1,600 to 2,120 tonnes, providing (a) additional annual revenue of approximately $2.8 million and (b) commercial inshore fishers with some additional ability to balance snapper bycatch with ACE.

2220. Selecting Option 4 would increase the TACC from 1,600 to 2,240 tonnes, providing (a) additional annual revenue of approximately $3.4 million and (b) commercial inshore fishers with a further 120 tonnes of additional ACE (beyond that provided in Option 3) to balance snapper bycatch.

2221. FNZ considers that Option 5 is very likely to result in overfishing of SNA 8, is very likely to reduce the stock to below the level that would produce the maximum sustainable yield from the fishery, and this option is therefore not considered to be consistent with section 13(2)(a) of the Act. FNZ therefore recommends that you do not select Option 5.

2222. Submitters opposed to TAC increases raised a number of concerns including: the ecological and fisheries impacts of trawling; localised depletion arising from the uneven distribution of commercial fishing effort; uncertainties in the SNA 8 stock assessment; and possible impacts of unforeseen impacts of climate change. While these concerns are valid, FNZ believes they can be addressed through regular monitoring of SNA 8 and additional management measures, which FNZ intends to explore with Treaty partners and stakeholders.

2223. FNZ considers that it would be appropriate for spatial measures to be used at Patea Shoals and off Te Oneroa-a-Tōhe to (a) better protect these potential habitats of particular significance to fisheries management from trawl disturbance and (b) to address the concerns of recreational and customary fishers regarding localised depletion and competition with commercial fishers. FNZ has held constructive discussions with Seafood New Zealand (who have in turn engaged with fishers and LFRs) about possible options for addressing the issues listed above. FNZ considers it is appropriate to further explore these measures and will continue discussions with stakeholders and tangata whenua to further develop management options for these two areas.

2224. With regard to the impacts of trawling it is noteworthy that on account of the trawl prohibitions that have already been put in place to protect Māui dolphins, that 55,541 km^2 of seafloor in FMA 8 and 9 is currently protected from the impacts of bottom trawling. This includes all the west coast harbours, 50% of coastal seafloor to a distance of 4 nm from the coast and 14% of the seafloor beyond 4 nm.

2225. FNZ will continue to monitor the SNA 8 fishery following your decisions and recommends that the SNA 8 stock is assessed and catch settings are reviewed within five years. West Coast North Island trawl surveys are currently planned for 2025, 2026 and 2027, meaning FNZ should have sufficient updated information on the status of the stock to conduct a full quantitative stock assessment in 2028. This will support FNZ undertaking a comprehensive review and considering further management changes for SNA 8 if appropriate.

Decision for SNA 8

2226. Option 5 has been presented below for your consideration. However, FNZ considers there to be a significant risk under this option that commercial catches could reduce the stock to below the level that would produce the maximum sustainable yield from the fishery. On this basis, FNZ considers that this option would be inconsistent with your requirements for setting the TAC under section 13(2)(a). We therefore do not recommend this option. We note that you have discretion to make your own assessment of these risks, and of the consistency of these two options with section 13(2)(a). Please note that all but one of the industry submitters did not support Option 5, instead advocating for the smaller increase (640 tonnes) provided for in Option 4.

Option 1

Agree to retain the SNA 8 TAC at 3,065 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 100 tonnes;
ii. Retain the allowance for recreational fishing interests at 1,205 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 160 tonnes;
iv. Retain the SNA 8 TACC at 1,600 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SNA 8 TAC at 3,505 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 100 tonnes;
ii. Retain the allowance for recreational fishing interests at 1,205 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 160 to 200 tonnes;
iv. Increase the SNA 8 TACC from 1,600 to 2,000 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3

Agree to set the SNA 8 TAC at 3,637 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 100 tonnes;
ii. Retain the allowance for recreational fishing interests at 1,205 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 160 to 212 tonnes;
iv. Increase the SNA 8 TACC from 1,600 to 2,120 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 4

Agree to set the SNA 8 TAC at 3,769 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 100 tonnes;
ii. Retain the allowance for recreational fishing interests at 1,205 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 160 to 224 tonnes;
iv. Increase the SNA 8 TACC from 1,600 to 2,240 tonnes.

Agreed / **Agreed as Amended / Not Agreed**

OR

Option 5

Agree to set the SNA 8 TAC at 4,165 tonnes and, within the TAC, to:

i. Retain the allowance for Māori customary non-commercial fishing interests at 100 tonnes;
ii. Retain the allowance for recreational fishing interests at 1,205 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 160 to 260 tonnes;
iv. Increase the SNA 8 TACC from 1,600 to 2,600 tonnes.

Agreed / Agreed as Amended / Not Agreed

AND

Note FNZ will conduct further work, including engaging with tangata whenua, industry, and other stakeholders, to develop options for mitigating fishing related impacts to Patea Shoals and the northern coastline of SNA 8, which includes Te Oneroa-a-Tōhe.

Noted

Hon Shane Jones
Minister for Oceans and Fisheries
16 / 09 / 2024

Referenced reports

SWA 3 and SWA 4 deemed value rates

Dunn, M.R.; McGregor, V. (2023). Stock assessment research in 2023 for silver warehou in SWA 3 and SWA 4. New Zealand Fisheries Assessment Report 2023/53

Fisheries New Zealand (2020). Deemed Values Working Group Final Report. Accessible at: https://www.mpi.govt.nz/dmsdocument/40253-deemed-values-working-group-final-report.

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

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/62766-May-2024-Volume-3-Red-Gurnard-to-Yellow-eyed-Mullet

Jack mackerel (JMA 7), kingfish (KIN 7 & KIN 8), and pilchard (PIL 7 & PIL 8)

Anderson, T.J., Morrison, M., MacDiarmid, A., Clark, M., D'Archino, R., Nelson, W., Tracey, D., Gordon, D., Read, G., Kettles, H., Morrisey, D., Wood, A., Anderson, O., Smith, A.M., Page, M., Paul-Burke, K., Schnabel K., and Wadhwa, S. (2019). Review of New Zealand's Key Biogenic Habitats. National Institute of Water & Atmospheric Research Ltd, Wellington. 190 pp.

Beaumont, J., Anderson, T.J., MacDiarmid, A.B. (2015) Benthic flora and fauna of the Pātea Shoals region, South Taranaki Bight. Unpublished NIWA Client Report WLG2012-55 prepared for Trans-Tasman Resources Ltd. 200 p

Edwards, C.T.T; Peatman, T.; Goad, D.; Webber, D.N. (2023). Update to the risk assessment for New Zealand seabirds. New Zealand Aquatic Environment and Biodiversity Report 314.

Finucci, B.; Anderson, O.F.; Edwards, C.T.T. (2022). Non-target fish and invertebrate catch and discards in New Zealand jack mackerel trawl fisheries from 2002-03 to 2018-19. New Zealand Aquatic Environment and Biodiversity Report 279.

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

Fisheries New Zealand (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. Accessible at: https://www.mpi.govt.nz/dmsdocument/51472-Aquatic-Environment-and-Biodiversity-Annual-Review-AEBAR-2021-A-summary-of-environmental-interactions-between-the-seafood-sector-and-the-aquatic-environment

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/62763-May-2024-Volume-2-Horse-Mussel-to-Red-Crab

Heinemann, A.; Gray, A. (in prep). National Panel Survey of Marine Recreational Fishers 2022-23. New Zealand Fisheries Assessment Report.

Hurst, R.J.; Stevenson, M.L.; Bagley, N.W.; Griggs, L.H.; Morrison, M.A.; Francis, M.P. (2000) Areas of importance for spawning, pupping or egg-laying, and juveniles of New Zealand coastal fish. Final Research Report for Ministry of Fisheries Research Project ENV1999/03 Objective 1. 271 p. Accessible at: https://fs.fish.govt.nz/Doc/22534/ENV1999-03%20Coastal%20Fish%20NZ%20Objective%201%20Final.pdf.ashx

MacGibbon, D.J.; Mules, R. (2023). Extent and intensity of bottom contact by commercial trawling and shellfish dredging in New Zealand waters, 1990-2021. New Zealand Aquatic Environment and Biodiversity Report 316.

Middleton, D.A.J.; Neubauer, P.; Wells, R.H.; Starr, P.J. (in prep). Characterisation and CPUE analyses for jack mackerels in the JMA 7 fishery. New Zealand Fisheries Assessment Report.

Moore, B.R.; Ó Maolagáin, C.; Spong, K.; Barnes, T. (2024). Commercial catch sampling for species proportion, sex, length, and age of jack mackerels in JMA 7 in the 2021/22 fishing year, with a summary of all available data sets. New Zealand Fisheries Assessment Report 2024/08.

Morrison, M.A.; Jones, E.G.; Parsons, D.P.; Grant C.M. (2014). Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report 125.

Morrison, M, Woolley, J.-M., Mills, S., Yeoman, J., Bian, R., Kelly, M., Tracey, D., Anderson, O., Nelson, W., Gordon, D., Read, G., Marshall, B., Jones, E. (2022) Deep rocky and biogenic reefs (50–300 metres) around New Zealand. Science for Conservation.

Paul, L.J.; Taylor, P.R.; and Parkinson D.M. (2001). Pilchard (*Sardinops neopilchardus*) biology and fisheries in New Zealand, and a review of pilchard (*Sardinops*, *Sardina*) biology, fisheries, and research in the main world fisheries. New Zealand Fisheries Assessment Report 2001/37.

Wynne-Jones, J.; Gray, A.; Heinemann, A.; Hill, L.; Walton, L. (2019). National Panel Survey of Marine Recreational Fishers 2017-2018. 104p. New Zealand Fisheries Assessment Report 2019/24.

Orange roughy (ORH 7A)

Baird, S.; Mules, R. (2021). Extent of bottom contact by commercial trawling and dredging in New Zealand waters, 1989-90 to 2018-19. New Zealand Aquatic Environment and Biodiversity Report No. 260. 157 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/44968-AEBR-259- Extent-of-bottom-contact-by-commercial-fishing-activity-in-New-Zealand-waters-for-198990-to201718

Clark, M; Bowden, D; Rowden, A; & Stewart, R. (2019) Little Evidence of Benthic Community Resilience to Bottom Trawling on Seamounts After 15 Years. *Frontiers in Marine Science* 6 (63) 1-16. https://doi.org/10.3389/fmars.2019.00063

Clark, M; Bowden, D.; Stewart, R.; Rowden, A.; & Goode, S. (2022). Seamount recovery: analysis of 20 years of time-series data from the Graveyard Knolls, Chatham Rise, New Zealand. New Zealand Aquatic Environment and Biodiversity Report No. 292. 25 p. Accessible at: https://fs.fish.govt.nz/Doc/25302/AEBR-292-Seamount-Recovery-20-Year-AnalysisGraveyard-Knolls-Chatham-Rise-4319.pdf.ashx

Dunn, M.R.; Forman, J.S. (2011). Hypotheses of spatial stock structure in orange roughy *Hoplostethus atlanticus* inferred from diet, feeding, condition, and reproductive activity. PLoS ONE 6(11): e26704. doi:10.1371/journal.pone.0026704

Dunn, M.R. (2024). Assessment of the Challenger Plateau orange roughy stock for 2024. New Zealand Fisheries Assessment Report 2024/58. 42 p.

Fisheries New Zealand (2011). Operational Guidelines for New Zealand's Harvest Strategy Standard

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.

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p.

Heinemann, A; Gray, A. (2024) National Panel Survey of Marine Recreational Fishers 2022–23. *New Zealand Fisheries Assessment Report 2024/XX*. 122 p.

MacGibbon, D; & Mules, R. (2023). Extent and intensity of bottom contact by commercial trawling and shellfish dredging in New Zealand waters, 1990-2021. New Zealand Aquatic Environment and Biodiversity Report No. 316. 174 p.

Morrison, M.A., Jones, E.G., Consalvey, M., and Berkenbusch, K. (2014b). Linking marine fisheries species to biogenic habitats in New Zealand: a review and synthesis of knowledge in New Zealand Aquatic Environment and Biodiversity Report No. 130. Ministry for Primary Industries, Wellington. 160 pp.

NIWA (2015) Assessment of orange roughy and oreo trawl footprint in relation to protected coral species distribution MSC P1 2.3.1 Prepared for Deepwater Group Ltd

NIWA (2023) Identification of protected coral hotspots using species distribution modelling. Report prepared for Project POP2021-02

Conservation Services Programme, Department of Conservation

O'Driscoll, R.L., Booth, J.D., Bagley, N.Q., Anderson, O.F., Griggs, L.H., Stevenson, M.L., and Francis, M.P. (2003). Areas of importance for spawning, pupping, or egg-laying, and juveniles of New Zealand deepwater fish, pelagic fish, and invertebrates. NIWA Technical Report 119. 377 pp.

Tracey, D.M. & Hjorvarsdottir, F. (eds, comps) (2019). The State of Knowledge of Deep-Sea Corals in the New Zealand Region. NIWA Science and Technology Series Number 84. 140 p

Wynne-Jones, J; Gray, A; Heinemann, A; Hill, L; Walton, L (2019) National Panel Survey of Marine Recreational Fishers 2017-2018. New Zealand Fisheries Assessment Report 2019/24. 104 p.

Blue cod (BCO 5)

Beentjes, M. P.; Miller, A. (2024). Relative abundance, size and age structure, and stock status of blue cod in Foveaux Strait in 2023. *New Zealand Fisheries Assessment Report 2024/03*. *52* p.

Beentjes, M.P.; Bian, R. (*in prep*). Length and age structure of commercial landings of blue cod in BCO 5 (2022 and 2023), and characterisation of the fishery. New Zealand Fisheries Assessment Report 2024/XX. xx p.

Beentjes, M.P.; Bian, R.; McKenzie, A. (*in prep*). Catch per unit effort analyses and fisheries characterisation for BCO 5 from 1990 to 2023. New Zealand Fisheries Assessment Report 2024/XX. xx p.

Behrens, E.; Dunn M.R.; Cummings, V.J. (in prep). The potential impacts of marine heatwaves on fisheries in New Zealand: Observed and projected temperature anomalies and fisheries management areas. New Zealand Aquatic Environment and Biodiversity Report No. XX. XX p.

Bodeker, G.; Cullen, N.; Katurji, M.; McDonald, A.; Morgenstern, O.; Noone, D.; Renwick, J.; Revell, L; Tait, A. (2022). Aotearoa New Zealand climate change projections guidance: Interpreting the latest IPCC WG1 report findings. Prepared for the Ministry for the Environment, Report number CR 501, 51p.

Brough, tonnes.E.; Leunissen, E.M.; Beentjes, M. (2023). Habitat use and the impact of multiple stressors on blue cod populations off Canterbury and in the Marlborough Sounds. *New Zealand Aquatic Environment and Biodiversity Report No. 323*. 108 p.

Burn, C.J. (2017). Cod in hot water : the thermal physiology of blue cod (*Parapercis colias*), black cod (*Paranotothenia angustata*) and emerald rock cod (*Trematomus bernacchii*): M.Sc Thesis. University of Canterbury.

Carbines, G., Weimin, J., Beentjes, M. P. (2004). The impact of oyster dredging on growth of blue cod, *Parapercis colias*, in Foveaux Strait New Zealand. *Aquatic Conservation: Mararine and Freshwater Ecosystems* 14: 491-504.

Carbines, G.; Cole, R.G. (2009). Using a remote drift underwater video (DUV) to examine dredge impacts on demersal fishes and benthic habitat complexity in Foveaux Strait, Southern New Zealand. *Fisheries Research* 96: 230–237. Cranfield, H.J; Michael, K.P. (1989). Larvae of the incubatory oyster *Tiostrea chilensis* (Bivalvia: Ostreidae) in the plankton of central and southern New Zealand. New Zealand Journal of Marine and Freshwater Research 23: 51-60

Cranfield, H.J.; Michael, K.P.; Doonan, I.J. (1999). Changes in the distribution of epifaunal reefs and oysters during 130 years of dredging for oysters in Foveaux Strait, southern New Zealand. Aquatic Conservation: Marine and Freshwater Ecosystems 9(5): 461–483.

Doheny, B.; Davis J.P.; Miller, B. (2023). Fishery-induced trophic cascades and sea urchin barrens in New Zealand: a review and discussion for management. *New Zealand Aquatic Environment and Biodiversity Report No. 324.* 110 p.

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/62760-May-2024-Volume-1-Introductory-sections-and-Alfonsino-to-Hoki

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.

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

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

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

Heinemann A; Gray, A. (*in prep*.) National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand Fisheries Assessment Report.

Jiang, W; Carbines, G.D. (2002) Diet of blue cod, *Parapercis colias*, living on undisturbed biogenic reefs and on seabed modified by oyster dredging in Foveaux Strait, New Zealand. Aquatic Conservation 12: 257–272.

Jones, E.G.; Morrison, M.A.; Davey, N.; Mills, S.; Pallentin, A.; George, S.; Kelly, M.; Tuck, I. (2018) Biogenic habitats on New Zealand's continental shelf. Part II: National field survey and analysis. New Zealand Aquatic Environment and Biodiversity Report No. 202. 261 p.

Michael, K.P.; (2019). Recruitment of *Ostrea chilensis* (Philippi, 1844) in Foveaux Strait, Southern New Zealand. PhD thesis, Victoria University of Wellington. 508 p.

Montie, S., Thoral, F., Smith, R.O., Cook, F., Tait, L.W., Pinkerton, M.H., Schiel, D.R., Thomsen, M.S. (2023). Seasonal trends in marine heatwaves highlight vulnerable coastal ecoregions and historic change points in New Zealand. *New Zealand Journal of Marine and Freshwater Research*, pp.1-26.

Morrison, M.A.; Jones, E.G.; Parsons, D.P.; Grant C.M. (2014). Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report 125.

Neubauer, P. (*in prep*). BCO 5 Harvest Control Rule. Unpublished Draft Report held by BCO5 Association Limited.

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

Salinger, M.J., Diamond, H.J., Bell, J., Behrens, E., Fitzharris, B.B., Herod, N., McLuskie, M., Parker, A.K., Ratz, H., Renwick, J., Scofield, C. (2023). Coupled ocean-atmosphere summer heatwaves in the New Zealand region. *Weather and Climate*, *42*(1), pp.18-41.

Street, R.J.; Crowther, G.S.; Kirkman, J.S.; (1973). Oyster shell return experiment – Foveaux Strait. New Zealand Ministry of Agriculture and Fisheries. Fisheries Technical Report No. 107. 20 p.

Wade, B., (2020). *The consequences of complex habitat loss for the New Zealand blue cod, Parapercis colias* (Doctoral dissertation, Open Access Te Herenga Waka-Victoria University of Wellington).

Wynne-Jones, J; Gray, A; Heinemann, A; Hill, L; Walton, L (2019) National Panel Survey of Marine Recreational Fishers 2017–2018. New Zealand Fisheries Assessment Report 2019/24. 104 p.

Kina (SUR 3)

Alestra, T.; Gerrity, S.; Dunmore, R. A.; Marsden, I; Pirker, J; Schiel, D. R. (2019). Rocky reef impacts of the Kaikōura earthquake: quantification and monitoring of nearshore habitats and communities. New Zealand Aquatic Environment and Biodiversity Report No. 212. 120 p.

Alestra, T.; Gerrity, S.; Dunmore, R. A.; Schiel, D. R. (2020). Rocky reef impacts of the Kaikōura earthquake: extended monitoring of nearshore habitats and communities – Year 1 results. New Zealand Fisheries Assessment Report 2019/01. 40 p.

Anderson, O.F.; Olsen, L.; Marriott, P.; Stead, J.; Olmedo-Rojas, P. (2023). Biomass survey and condition index for kina (*Evechinus chloroticus*) in SUR 7A. New Zealand Fisheries Assessment Report 2023/60. 20 p.

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

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

Fisheries New Zealand (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.

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/62763-May-2024-Volume-2-Horse-Mussel-to-Red-Crab

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p.

Accessible at: https://www.mpi.govt.nz/dmsdocument/62763-May-2024-Volume-2-Horse-Mussel-to-Red-Crab

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

Heinemann A; Gray, A (in prep.) National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand

Heinemann, A.; Gray, A. (in prep.). National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand Fisheries Assessment Report.

James, P. & Herbert, P. (2009). Kina roe enhancement by translocation. 23 p. (Unpublished report held by Seafood Innovations Limited, Wellington.)

Kerr, V.C. (2016). Urchin barrens and algal community zonation; a transect-based study, Maunganui Bay and Cape Brett. Prepared by Kerr and Associates for Fish Forever, Bay of Islands Maritime Park Inc.

McKenzie, A., Anderson, O., & MacKay, K. (2024) Kina abundance estimation for two sub-areas within SUR 3. NIWA client report prepared for Sustainable Fisheries Development Limited. (Unpublished report held by NIWA, Wellington and Sustainable Fisheries Development Limited). Accessible at: https://bestfile.io/3i3GCVwDSohtFKL/file

McShane, P. & Naylor, J. (1991). A survey of kina populations (Evechinus chloroticus) in Dusky Sound and Chalky Inlet, southwestern New Zealand. Fisheries Assessment Research Document 91/17. 21 p.

Naylor, J. R. & Gerring, P. (2001). Interaction between pāua and kina. Water & Atmosphere 9(2): 16–17

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

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

Schiel, D. R., Gerrity, S., Orchard, S., Alestra, T., Dunmore, R. A., Falconer, T., Thomsen, M., & Tait, L. W. (2021). Cataclysmic disturbances to an intertidal ecosystem: Loss of ecological infrastructure slows recovery of biogenic habitats and diversity. Frontiers in Ecology and Evolution, 9, 767548.

Sutton, P. J. H. & Bowen, M. (2019). Ocean temperature change around New Zealand over the last 36 years. New Zealand Journal of Marine and Freshwater Research, 53(3), 305–326. https://doi.org/10.1080/00288330.2018.1562945

Villouta, E.; Chadderton, W.L.; Pugsley, C.W.; Hay, C.H. (2001). Effects of sea urchin (*Evechinus chloroticus*) grazing in dusky sound, Fiordland, New Zealand. New Zealand Journal of Marine and Freshwater Research, 35(5), pp.1007-1024.

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

Wynne-Jones, J; Gray, A; Heinemann, A; Hill, L; Walton, L (2019) National Panel Survey of Marine Recreational Fishers 2017–2018. New Zealand Fisheries Assessment Report 2019/24. 104 p.

Kingfish (KIN 3)

Anderson, T.J., Morrison, M., MacDiarmid, A., Clark, M., D'Archino, R., Nelson, W., Tracey, D., Gordon, D., Read, G., Kettles, H., Morrisey, D., Wood, A., Anderson, O., Smith, A.M., Page, M., Paul-Burke, K., Schnabel K., and Wadhwa, S. (2019). Review of New Zealand's Key Biogenic Habitats. National Institute of Water & Atmospheric Research Ltd, Wellington. 190 pp.

Batson, P.B and Probert, P.K (2000). Bryozoan thickets off Otago Peninsula. New Zealand Fisheries Assessment Report 2000/46. 31p

Bodeker, G.; Cullen, N.; Katurji, M.; McDonald, A.; Morgenstern, O.; Noone, D.; Renwick, J.; Revell, L; Tait, A. (2022). Aotearoa New Zealand climate change projections guidance: Interpreting the latest IPCC WG1 report findings. Prepared for the Ministry for the Environment, Report number CR 501, 51p.

Cranfield, H.J; Michael, K.P. (1989). Larvae of the incubatory oyster *Tiostrea chilensis* (Bivalvia: Ostreidae) in the plankton of central and southern New Zealand. New Zealand Journal of Marine and Freshwater Research 23: 51-60

Cranfield, H.J.; Michael, K.P.; Doonan, I.J. (1999). Changes in the distribution of epifaunal reefs and oysters during 130 years of dredging for oysters in Foveaux Strait, southern New Zealand. Aquatic Conservation: Marine and Freshwater Ecosystems 9(5): 461–483.

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

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

Fisheries New Zealand (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.

Fisheries New Zealand (2022). National Inshore Finfish Fisheries Plan. Accessible at: https://www.mpi.govt.nz/dmsdocument/54529-National-Inshore-Finfish-October-2022

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/62763-May-2024-Volume-2-Horse-Mussel-to-Red-Crab

Heinemann A; Gray, A (in prep.) National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand

Hurst, R.J., Stevenson, M.L., Bagley, N.W., Griggs, L.H., Morrison, M.A. Francis, M.P., and Duffy, C.A. (2000). Areas of importance for spawning, pupping or egg-laying, and juveniles of New Zealand coastal fish. Final Research Report for Ministry of Fisheries Research Project ENV1999/03 Objective 1. National Institute of Water and Atmospheric Research. 271 pp.

Jiang, W; Carbines, G.D. (2002) Diet of blue cod, *Parapercis colias*, living on undisturbed biogenic reefs and on seabed modified by oyster dredging in Foveaux Strait, New Zealand. Aquatic Conservation 12: 257–272.

Jones, E.G., Morrison, M.A., Davey, N., Hartill, B.W., and Sutton, C. (2016). Biogenic habitats on New Zealand's continental shelf. Part I: Local ecological knowledge. New Zealand Aquatic Environment and Biodiversity Report No. 174. Ministry for Primary Industries, Wellington. 99 pp.

Jones EG, Morrison MA, Davey N, Mills S, Pallentin A, George S, Kelly M, Tuck I (2018) Biogenic habitats on New Zealand's continental shelf. Part II: National field survey and analysis. New Zealand Aquatic Environment and Biodiversity Report No. 202. 261 p.

McKenzie, J.R.; Beentjes, M.; Armiger, H.; Bradley, A.; Spong, K.; Walsh, C.; Buckthought, D.; Stevenson, M.; Taylor, R.; Evans, O.; Bian, R.; Parsons, D.; Sutton, C.; Hart, A.; Ó Maolagáin, C.; Patke, S.; Langley, A.; Kater, D.; Sykes, J.; O'Driscoll, M.; Qureshi, Y.; Miller, A.; Bodie, C.; Smith, M.; Hartill, B.; Toman, D.; Maggs, J.; Bagley, N. (2021.) Fishery characterisation and age composition of tarakihi in TAR 1, 2, 3, 5, 7, and 8, for 2018–19 and 2019–20.

McKenzie, J.R.; Underwood, M.J.; Jones, E.G.; Jordan, L.; Bian, R. (2024). Estimation of finfish release survival from New Zealand inshore commercial fisheries. New Zealand Fisheries Assessment Report 2024/09. 180p. https://www.mpi.govt.nz/dmsdocument/61042-FAR-202409-Estimation-of-finfish-release-survival-from-New-Zealand-inshore-commercial-fisheries

Michael, K.P.; (2019). Recruitment of *Ostrea chilensis* (Philippi, 1844) in Foveaux Strait, Southern New Zealand. PhD thesis, Victoria University of Wellington. 508 p.

Middleton, D.A.J.; Tornquist, M.G.; Neubauer, P. (2023). Characterisation and CPUE for the kingfish fishery in KIN 1, KIN 2, KIN 3, KIN 7 and KIN 8 - DRAFT. New Zealand Fisheries Assessment Report. 423 p.

Morrison, M.A.; Jones, E.G.; Parsons, D.P.; Grant C.M. (2014). Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report 125.

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

South-East Marine Protection Forum. 2018. Recommendations to the Minister of Conservation and the Minister of Fisheries: Recommendations towards implementation of the Marine Protected Areas Policy on the South Island's south-east coast of New Zealand. Department of Conservation. Wellington. 314 p.

Street, R.J.; Crowther, G.S.; Kirkman, J.S.; (1973). Oyster shell return experiment – Foveaux Strait. New Zealand Ministry of Agriculture and Fisheries. Fisheries Technical Report No. 107. 20 p.

Vooren, C.M. (1975) Nursery grounds of tarakihi (Teleostei: Cheilodactylidae) around New Zealand. New Zealand Journal of Marine and Freshwater Research 9: 121–158.

Wynne-Jones, J; Gray, A; Heinemann, A; Hill, L; Walton, L (2019) National Panel Survey of Marine Recreational Fishers 2017–2018. New Zealand Fisheries Assessment Report 2019/24. 104 p.

Leatherjacket (LEA 3)

Anderson, T.J. 2019. Review of New Zealand's Key Biogenic Habitats, Prepared for the Ministry for the Environment. 190 p. https://environment.govt.nz/publications/review-of-new-zealands-key-biogenic-habitats/

Batson, P.B and Probert, P.K (2000). Bryozoan thickets off Otago Peninsula. New Zealand Fisheries Assessment Report 2000/46. 31p

Beentjes, M P; MacGibbon, D J; Escobar-Flores, P (in press). Inshore trawl survey of Canterbury Bight and Pegasus Bay, May–June 2022 (KAH2204). Draft New Zealand Fisheries Assessment Report.

Bodeker, G.; Cullen, N.; Katurji, M.; McDonald, A.; Morgenstern, O.; Noone, D.; Renwick, J.; Revell, L; Tait, A. (2022). Aotearoa New Zealand climate change projections guidance: Interpreting the latest IPCC WG1 report findings. Prepared for the Ministry for the Environment, Report number CR 501, 51p.

Carbines, G.D. 2004 Age, growth, movement and reproductive biology of blue cod (*Parapercis colias* - Pinguipedidae): Implications for fisheries management in the South Island of New Zealand. Unpublished doctoral thesis. University of Otago. 236 pp.

Carbines, G; Cole, R G (2009) Using a remote drift underwater video (DUV) to examine dredge impacts on demersal fishes and benthic habitat complexity in Foveaux Strait, Southern New Zealand. Fisheries Research 96: 230–237.

Cranfield, H.J.; Michael, K.P. (1989). Larvae of the incubatory oyster *Tiostrea chilensis* (Bivalvia: Ostreidae) in the plankton of central and southern New Zealand. New Zealand Journal of Marine and Freshwater Research 23: 51-60

Cranfield, H.J.; Michael, K.P.; Doonan, I.J. (1999). Changes in the distribution of epifaunal reefs and oysters during 130 years of dredging for oysters in Foveaux Strait, southern New Zealand. Aquatic Conservation: Marine and Freshwater Ecosystems 9(5): 461–483.Fisheries New Zealand (2011) Operational Guidelines for New Zealand's Harvest Strategy Standard. Accessible at: https://www.mpi.govt.nz/dmsdocument/19706-OPERATIONAL-GUIDELINES-FOR-NEW-ZEALANDS-HARVEST-STRATEGY-STANDARD

Fisheries New Zealand (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. https://www.mpi.govt.nz/science/fisheries-research-and-science/about-our-fisheries-research/aquatic-environment-and-biodiversity-annual-review-aebar/

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/62763-May-2024-Volume-2-Horse-Mussel-to-Red-Crab

Heinemann A; Gray, A (*in prep*.) National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand

Holmes, S.J.; Arnold, R.; Doonan, I.J.; Dunn, A.; Dunn, M.R.; Edwards, C.T.T.; Hamill, J.; Hurst, R.J.; Langley, A.D.; McGregor, V.L.; Zhou, S. (2022). Low information fisheries stock status assessment 2021. New Zealand Fisheries Assessment Report 2022/19. 249 p.

Hurst, R.J., Stevenson, M.L., Bagley, N.W., Griggs, L.H., Morrison, M.A. Francis, M.P., and Duffy, C.A. (2000). Areas of importance for spawning, pupping or egg-laying, and juveniles of New Zealand coastal fish. Final Research Report for Ministry of Fisheries Research Project ENV1999/03 Objective 1. National Institute of Water and Atmospheric Research. 271 pp.

Jiang, W; Carbines, G.D. (2002) Diet of blue cod, *Parapercis colias*, living on undisturbed biogenic reefs and on seabed modified by oyster dredging in Foveaux Strait, New Zealand. Aquatic Conservation 12: 257–272.

Jones, E.G., Morrison, M.A., Davey, N., Hartill, B.W., and Sutton, C. 2016. Biogenic habitats on New Zealand's continental shelf. Part I: Local ecological knowledge. New Zealand Aquatic Environment and Biodiversity Report No. 174. Ministry for Primary Industries, Wellington. 99 pp.

Jones, E.G.; Morrison, M.A.; Davey, N.; Mills, S; Pallentin, A; George, S; Kelly, M; Tuck, I, (2018), Biogenic habitats on New Zealand's continental shelf. Part II: National field survey and analysis. New Zealand Aquatic Environment and Biodiversity Report No. 202. ISSN 1179-6480 (online)

Kaiser, M J; Clarke, K R; Hinz, H; Austen, M C V; Somerfield, P J; Karakassis, I (2006) Global analysis of the response and recovery of benthic biota to fishing. Marine Ecology Progress Series 311: 1–14. DOI:10.3354/meps311001

McKenzie, J.R.; Beentjes, M.; Armiger, H. et al. (2021). Fishery characterisation and age composition of tarakihi in TAR 1, 2, 3, 5, 7, and 8, for 2018–19 and 2019–20. New Zealand Fisheries Assessment Report 2021/79. 118 p.

Michael, K.P.; (2019). Recruitment of *Ostrea chilensis* (Philippi, 1844) in Foveaux Strait, Southern New Zealand. PhD thesis, Victoria University of Wellington. 508 p.

Morrison, M.A., Jones, E.G., Parsons, D.P., and Grant, C.M. 2014. Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge, and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report No. 125. Ministry for Primary Industries, Wellington. 205 pp.

Rice, J (2006) Impacts of mobile bottom gears on seafloor habitats, species, and communities: a review and synthesis of selected international reviews. Canadian Science Advisory Secretariat Research Document 2006/057. 35 p. https://www.dfo-mpo.gc.ca/csas-sccs/publications/resdocs-docrech/2006/2006_057-eng.htm

Russell, B.C. (1983). The food and feeding habits of rocky reef fish of north-eastern New Zealand. New Zealand Journal of Marine and Freshwater Research 17(2):121-145.

South-East Marine Protection Forum. 2018. Recommendations to the Minister of Conservation and the Minister of Fisheries: Recommendations towards implementation of the Marine Protected Areas Policy on the South Island's south-east coast of New Zealand. Department of Conservation. Wellington. 314 p.

Street. R.J.; Crowther, G.S.; Kirkman, J.S. (1973). Oyster shell return experiment – Foveaux Strait. New Zealand Ministry of Agriculture and Fisheries. Fisheries Technical Report No. 107. 20 p.

Vooren, C.M. (1975) Nursery grounds of tarakihi (Teleostei: Cheilodactylidae) around New Zealand. New Zealand Journal of Marine and Freshwater Research 9: 121–158.

Pāua (PAU 3A)

Alestra, T; Gerrity, S; Dunmore, R A; Marsden, I; Pirker, J; Schiel, D R (2019) Rocky reef impacts of the Kaikōura earthquake: quantification and monitoring of nearshore habitats and communities. New Zealand Aquatic Environment and Biodiversity Report No. 212. 120 p.

Alestra, T; Gerrity, S; Dunmore, R A; Schiel, D R (2020) Rocky reef impacts of the Kaikōura earthquake: extended monitoring of nearshore habitats and communities – Year 1 results. New Zealand Fisheries Assessment Report 2019/01. 40 p.

Alestra, T; Gerrity, S; Dunmore, R; Crossett, D; Orchard, S; Schiel, D R (2021) Rocky reef impacts of the 2016 Kaikōura earthquake: Extended monitoring of nearshore habitats and communities to 3.5 years. Ministry for Primary Industries.

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.

Cummings, V J; Lundquist, C J; Dunn, M R; Francis, M; Horn, P; Law, C; Pinkerton, M H; Sutton, P; Tracey, D; Hansen, L; Mielbrecht, E (2021) Assessment of potential effects of climate-related changes in coastal and offshore waters on New Zealand's seafood sector. New Zealand Aquatic Environment and Biodiversity Report No. 261. 153 p.

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

Fisheries New Zealand (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.

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/62763-May-2024-Volume-2-Horse-Mussel-to-Red-Crab

Gerring, P K; Andrew, N L; Naylor, J R (2003) Incidental fishing mortality of *pāua* (Haliotis iris) in the PAU 7 commercial fishery. New Zealand Fisheries Assessment Report 2003/56. 13 p.

Gerrity, S T; Schiel, D R (2023) Recreational fishing effects on wadeable pāua populations along the Kaikōura coast, 2021–22. New Zealand Fisheries Assessment Report 2023/01. 27 p.
Gerrity, S; Alestra, T; Fischman, H S; Schiel, D R (2020) Earthquake effects on abalone habitats and populations in southern New Zealand. Marine Ecology Progress Series, 656, pp.153-161.
Heinemann A; Gray, A (in prep.) National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand Fisheries Assessment Report.
Holdsworth, J (2022). Harvest estimates from land-based amateur fishers—Kaikōura Marine Area to Marfells Beach. New Zealand Fisheries Assessment Report 2022/40. 27 p.
Holdsworth, J C (2021) Pāua amateur harvest survey design for the Kaikōura Marine Area. New Zealand Fisheries Assessment Report 2021/63. 13 p.
Holdsworth, J C; Curtis, S; Neubauer, P (2023) Pāua harvest estimates by land-based amateur fishers—Kaikōura Marine Area in 2023. New Zealand Fisheries Assessment Report 2023/62. 21 p.
Hordyk, A R; Ono, K; Prince, J D; Walters, C J (2016) A simple length-structured model based on life history ratios and incorporating size-dependent selectivity: application to spawning potential ratios for data-poor stocks. Canadian Journal of Fisheries and Aquatic Sciences, 73(12), 1787-1799.
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.
Neubauer, P (2017) Area lost to the *pāua* fishery from the November 2016 Kaikōura earthquake, 7 p. (Unpublished report held by Fisheries New Zealand.)
Schiel, D R; Alestra, T; Gerrity, S; Orchard, S; Dunmore, R; Pirker, J; Lilley, S; Tait, L; Hickford, M; Thomsen, M (2019) The Kaikōura earthquake in southern New Zealand: Loss of connectivity of marine communities and the necessity of a cross-ecosystem perspective. Aquatic Conservation: Marine and Freshwater Ecosystems, 29(9), pp.1520-1534.
Schiel, D R; Gerrity, S; Orchard, S (2023) Allocations, quota and abalone fishery management: the Tragedy of the commons revisited. New Zealand Journal of Marine and Freshwater Research, 1-18.
Schiel, D R; Gerrity, S; Orchard, S; Alestra, T; Dunmore, R A; Falconer, T; Thomsen, M; Tait, L W (2021) Cataclysmic disturbances to an intertidal ecosystem: Loss of ecological infrastructure slows recovery of biogenic habitats and diversity. Frontiers in Ecology and Evolution, 9, 767548.
Wynne-Jones, J; Gray, A; Heinemann, A; Hill, L; Walton, L (2019) National Panel Survey of Marine Recreational Fishers 2017–2018. New Zealand Fisheries Assessment Report 2019/24. 104 p.
Wynne-Jones, J; Gray, A; Hill, L; Heinemann, A (2014) National Panel Survey of Marine Recreational Fishers 2011–12: Harvest Estimates. New Zealand Fisheries Assessment Report 2014/67.

Snapper (SNA 2), Rig (SPO 2) and John dory (JDO 2)

Anderson, T.J. Morrison, M. MacDiarmid, A. Clark, M. D'Archino, R. Nelson, W. Tracey, D. Gordon, D. Read, G. Kettles, H. Morrisey, D. Wood, A. Anderson, O. Smith, A.M. Page, M. Paul-Burke, K. Schnabel, K. and Wadhwa, A. (2019). Review of New Zealand's Key Biogenic Habitats. National Institute of Water and Atmospheric Research Ltd (NIWA) report No. 2018139WN. 190 p. Accessible at: https://environment.govt.nz/assets/Publications/Files/NZ-biogenic-habitat-review.pdf

Beaumont, J. Anderson, T.J. and MacDiarmid, A.B. (2015). Benthic flora and fauna pf the Patea Shoals region, South Taranaki Bight. National Institute of Water and Atmospheric Research Ltd (NIWA) report No. WLG2012-55. 200 p. Accessible at: https://www.epa.govt.nz/assets/FileAPI/proposal/EEZ000011/Applicants-proposal-documents-Application-documents/4edf54e253/Report-3-NIWA-Patea-Shoals-Benthic-Ecology-November-2015.pdf

Department of Conservation and Fisheries New Zealand (2020a). Hector's and Māui Dolphin Threat Management Plan. Latest review accessible at: https://www.mpi.govt.nz/consultations/hectors-and-maui-dolphins-threat-management-plan-review/

Department of Conservation and Fisheries New Zealand (2020b). National Plan of Action — Seabirds 2020. Accessible at: https://www.mpi.govt.nz/dmsdocument/40652-National-Plan-Of-Action-Seabirds-2020-Report.

Doheny, B.; Davis J.P.; Miller, B. (2023). Fishery-induced trophic cascades and sea urchin barrens in New Zealand: a review and discussion for management. New Zealand Aquatic Environment and Biodiversity Report No. 324. 110 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/60349-AEBR-324-Fishery-induced-trophic-cascades-and-sea-urchin-barrens-in-New-Zealand-a-review-and-discussion-for-management

Dunn, M.R. and Jones, E. (2013). Stock structure and fishery characterisation for New Zealand John Dory. New Zealand Fisheries Assessment Report 2013/40. 99 p. Accessible at: https://fs.fish.govt.nz/Doc/23389/FAR_2013_40_2652_INS2011-03%20Obj1-3,%20MS4,8,12.pdf.ashx

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

Fisheries New Zealand (2022a). National Inshore Finfish Fisheries Plan.

Fisheries New Zealand (2022b). 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.

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/science/fisheries-research-and-science/about-our-fisheries-research

Godfriaux, B. L. (1970). Food of predatory demersal fish in Hauraki Gulf: 2: Five fish species associated with snapper. *New Zealand journal of marine and freshwater research*, *4*(3), 248-266.

Hawke's Bay Regional Council (2020). Key Ecological Areas of the Hawke's Bay Coastal Marine Area. Compiled by National Institute of Water and Atmospheric Research Ltd, Napier, New Zealand. 92 p.

Haggitt, T. and Wade, O. (2016). Hawke's Bay Marine information: Review and Research Strategy. 113 p. Accessible at: https://www.hbrc.govt.nz/assets/Document-Library/Technical-Publications/HB-Marine-Information-Review-and-Research-Strategy-eCoastLtd.pdf

Heinemann A; Gray, A. National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand Fisheries Assessment Report 2024 (in prep.).

Hurst, R.J. Stevenson, M.L. Bagley, N.W. Griggs, L.H. Morrison, M.A. and Francis, M.P. (2000). Areas of importance for spawning, pupping or egg-laying, and juveniles of New Zealand coastal fish. Final Research Report for Ministry of Fisheries Research Project ENV1999/03 Objective 1. 271 p. Accessible at: https://fs.fish.govt.nz/Doc/22534/ENV1999-03%20Coastal%20Fish%20NZ%20Objective%201%20Final.pdf.ashx

Jones, E.G. Morrison, M.A. Davey, N. Hartill, B.W. and Sutton, C. (2016). Biogenic habitats on New Zealand's continental shelf. Part I: Local Ecological Knowledge. New Zealand Aquatic Environment and Biodiversity Report No. 174. 95 p. Accessible at: https://docs.niwa.co.nz/library/public/NZAEBR-174.pdf

Leduc, D.; Collins C.; Gall M.; Lundquist, C.; Macdonald, H.; Mackay, K.; Mountjoy J.; Morrison, M.; Orpin, A.; Pinkerton, M.; Spain, E.; Barry, F.; Bodie, C.; Carson-Groom, E.; Connell, A.; Fenwick, M.; Frontin-Rollet, G.; Halliday, J.; Leunissen, E.; Madden, B.; Mason, G.; Maurice, A.; Nepia-Su'a, A.; Olsen, G.; Peart, R.; Quinn, W.; Stewart, R.; Toataua, N. (2024). Cyclone impacts on fisheries. New Zealand Aquatic Environment and Biodiversity Report No. 326. 167 p.

MacGibbon, D.J.; Mules, R. (2023). Extent and intensity of bottom contact by commercial trawling and shellfish dredging in New Zealand waters, 1990–2021. New Zealand Aquatic Environment and Biodiversity Report No. 316. 174 p.

Miller N. & Peat D. (2023) Documenting Kelp Forest Ecosystem Shifts in Wellington Harbour. NZMSS Conference. Wellington, NZ. (unpublished poster presentation).

Morrison, M.A.; Jones, E.G.; Parsons, D.P.; Grant, C.M. (2014). Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge, and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report No. 125. 202 p.

Morrison, M. Seaward, K. Bodie, C. Madden, B. Evans, O. Smale, P. Pratt, K. Boyd, B. Richardson, J. Guy, R. McElroy, T. Williams, S. Pallentin, A. and Mackay, K. (2022). Offshore subtidal rocky reef habitats on Pātea Bank, South Taranaki. National Institute of Water and Atmospheric Research Ltd (NIWA) report No. 2022229AK. 211 p. Accessible at: https://www.trc.govt.nz/assets/2238-TRC002-FINAL-Offshore-subtidal-rocky-reef-habitats-on-Patea-Bank-South-Taranaki-2.pdf

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

Oosting, T. (2021). Connecting the past, present and future: A population genomic study of Australasian snapper (Chrysophrys auratus) in New Zealand (Doctoral dissertation, Open Access Te Herenga Waka-Victoria University of Wellington).

Pinkerton, M., C. Lundquist, C. Duffy, and D. Freeman. 2008. Trophic modelling of a New Zealand rocky reef ecosystem using simultaneous adjustment of diet, biomass and energetic parameters. Journal of Experimental Marine Biology and Ecology 367:189-203.

Roberts, J. & Webber D.N. (2023). *Local-scale Spatial Risk Assessment of Inshore Commercial Fisheries on Hector's Dolphins*. New Zealand Aquatic Environment and Biodiversity Report No. 308. Fisheries New Zealand, Tini a Tangaroa.

Russell, B.C., 1983. The food and feeding habits of rocky reef fish of north-eastern New Zealand. N.Z. J. Mar. Freshwat. Res. 17(2):121-145.

Starr, P.J. (2024). Rock lobster catch and effort data: 1979–80 to 2022–23. New Zealand Fisheries Assessment Report 2024/10. 146 p.

Walsh, C. McKenzie, J. Bian, R. Armiger, H. Buckthought, D. Smith, M. Ferguson, H. and Miller, A. (2012). Snapper catch-at-length and catch-at-age heterogeneity between spatial strata in SNA 2 bottom trawl; landings, 2007-08 and 2008-09. New Zealand Fisheries Assessment Report 2012/40. 44p. Accessible at: https://fs.fish.govt.nz/Doc/23071/12_40_FAR_TN2535.pdf.ashx

Snapper, Flatfish, & Elephantfish (SNA 7, FLA 7, & ELE 7)

Anderson, T.J.; Morrison, M.; MacDiarmid, A.; Clark, M.; D'Archino, R.; Nelson, W.; Tracey, D.; Gordon, D.; Read, G.; Kettles, H.; Morrisey, D.; Wood, A.; Anderson, O.; Smith, A.M.; Page, M.; Paul-Burke, K.; Schnabel K.; and Wadhwa, S. (2019). Review of New Zealand's Key Biogenic Habitats. National Institute of Water & Atmospheric Research Ltd, Wellington. 190 pp.

Beentjes, M. P., & Renwick, J. A. (2001). The Relationship between Red Cod, *Pseudophycis bachus*, Recruitment and Environmental Variables in New Zealand. Environmental Biology of Fishes, pages 315–328.

Bernal-Ramírez, J. H., Adcock, G. J., Hauser, L., Carvalho, G. R., & Smith, P. J. (2003). Temporal stability of genetic population structure in the New Zealand snapper, *Pagrus auratus*, and relationship to coastal currents. Marine Biology 142(3), 567-574.

Carbines, G.D. (2004) Age, growth, movement and reproductive biology of blue cod (*Parapercis colias* - Pinguipedidae): Implications for fisheries management in the South Island of New Zealand. Unpublished doctoral thesis. University of Otago. 236 pp.

Cummings, V. J., Lundquist, C. J., Dunn, M. R., Francis, M., Horn, P., Law, C., . . . Mielbrecht, E. (2021). Assessment of potential effects of climate-related changes in coastal and offshore waters on New Zealand's seafood sector. New Zealand Aquatic Environment and Biodiversity Report No. 261.

Davidson, R., Baxter, A., Duffy, C., Gaze, P., du Fresne, S., Courtney, S., and Brosnan, B. (2015). Reassessment of selected significant marine sites (2014-2015) and evaluation of protection requirements for significant sites with benthic values. Research, survey and monitoring report number 824. Marlborough District Council and Department of Conservation. 39 pp.

Davidson, R. J; Baxter, A. S; Duffy, C. A. J; Handley, S; Gaze, P.; du Fresne, S; Courtney, S. (2019). Expert panel review of selected significant marine sites surveyed in 2018-2019. Prepared for Marlborough District Council and Department of Conservation. Survey and monitoring report no. 1008.

Didier, D. A. (1992). Phylogenetic systematics of extant chimaeroid fishes (Holocephali, Chimaeroidei). Phd Thesis University of Massachussets.

Doheny, B., Davis, J. P., & Miller, B. (2023). Fishery-induced trophic cascades and sea urchin barrens in New Zealand: a review and discussion for management. New Zealand Aquatic Environment and Biodiversity Report No. 324.

Drummond, K., & Mace, J. (1984). South Island snapper tagging results. Catch '84 (Ministry of Agriculture and Fisheries), 6-7.

Fisheries New Zealand (2011) Operational Guidelines for New Zealand's Harvest Strategy Standard.

Fisheries New Zealand (2022) Aquatic Environment and Biodiversity Annual Review 2021. Compiled by the Aquatic Environment Team, Fisheries Science and Information, Fisheries New Zealand. 779 p.

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p.

Heinemann A; Gray, A (in prep.) National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand

Hurst, R. J., Stevenson, M. L., Bagley, N. W., Griggs, L. H., Morrison, M. A., & Francis, M. P. (2000). Areas of importance for spawning, pupping or egg-laying, and juveniles of New Zealand coastal fish. Report for Ministry of Fisheries research Project ENV1999/03.

Jones, E.G.; Morrison, M.A.; Davey, N.; Hartill, B.W.; and Sutton, C. (2016). Biogenic habitats on New Zealand's continental shelf. Part I: Local ecological knowledge. New Zealand Aquatic Environment and Biodiversity Report No. 174. Ministry for Primary Industries, Wellington. 99 pp.

Drummond, K.L; Kirk, P.D (1986). Report on 1985/86 Tasman/Golden Bay and Pelorus Sound Juvenile Snapper Trawl Survey. Ministry of Agriculture and Fisheries. Fisheries Management Division. Challenger Fisheries Report No 14. 14 p.

Langley, A.D. (2024). A stock assessment of snapper in SNA 7 for 2024. New Zealand Fisheries Assessment Report 2024/48. 104p

MacGibbon, D. J., Walsh, C., Buckthought, D., & Bian, R. (2024). Inshore trawl survey off the west coast South Island and in Tasman Bay and Golden Bay, March–April 2023 (KAH2302). New Zealand Fisheries Assessment Report 2024/06.

MacGibbon, D., & Mules, R. (2023). Extent and intensity of bottom contact by commercial trawling and shellfish dredging in New Zealand waters, 1990-2021. New Zealand Aquatic Environment and Biodiversity Report No. 316.

Maggs, J. Q., Armiger, H., Evans, O., Taylor, R., Davey, N., Payne, G., . . . Hartill, B. W. (in prep.). Trends in recreational boat effort and harvest from 2004-05 to 2022-23. New Zealand Fisheries Assessment Report.

Maggs, J. Q., Hartill, B. W., Evans, J. C., Holdsworth, J. C., Lumley, T., & Stevens, T. (2024). Mortality rates of snapper released by recreational fishers. New Zealand Fisheries Assessment Report 2024/17.

McKenzie, J. R., Underwood, M. J., Jones, E. G., Jordan, L., & Bian, R. (2024). Estimation of finfish release survival from New Zealand inshore commercial fisheries. New Zealand Fisheries Assessment Report 2024/09.

Morrison, M. A., Jones, E. G., Parsons, D. P., & Grant, C. M. (2014). Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge, and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report No. 125.

Morrison, M., Elliot, S., Hughes, A., Kainamu, A., Williams, E., Lowe, M., . . . Semadeni-Davies, A. (2023). Land-based effects on coastal fisheries and kaimoana and their habitats - a review. New Zealand Aquatic Environment and Biodiversity Report No. 309.

Parsons, D. M., Allan, B. J., Bian, R., Herbert, N. A., Gublin, Y., McKenzie, J. R., . . . Munday, P. L. (2021). Ocean acidification and elevated temperature effects on New Zealand snapper. New Zealand Aquatic Environment and Biodiversity Report No. 275.

Rapson, A. M. (1946). The reproduction, growth, and distribution of the Lemon Soles (*Pelotretis flavatus*) of Tasman Bay and Marlborough Sounds. New Zealand Marine Department Fisheries Bulletin No. 7.

Starr, P.J., & Kendrick, T.H. (2022). FLA 7 fishery characterisation and CPUE analysis, 1989–90 to 2018–19. New Zealand Fisheries Assessment Report 2022/03. 215 p.

Tuck, I., Hewitt, J., & Lundquist, C. (2017). Assessing the effects of fishing on soft sediment habitat, fauna and processes. New Zealand Aquatic Environment and Biodiversity Report No. 178.

van der Reis, A., & Jeffs, A. (2020). Determining the diet of New Zealand king shag using DNA metabarcoding. Report prepared for Department of Conservation - Conservation Services Programme Project BCBC2019-05.

Vooren, C. M. (1975). Nursery grounds of Tarakihi (Teleostei: Cheilodactylidae) around New Zealand. New Zealand Journal of Marine and Freshwater Research, 9(2), 121-158.

Wing, S., Shears, N., Tait, L., & Schiel, D. (2022). The legacies of land clearance and trophic downgrading accumulate to affect structure and function of kelp forests. Ecosphere (13)2.

Wynne-Jones, J; Gray, A; Heinemann, A; Hill, L; Walton, L (2019) National Panel Survey of Marine Recreational Fishers 2017–2018. New Zealand Fisheries Assessment Report 2019/24. 104 p.

Zimmermann, C., Kraak, S., Krumme, U., Santos, J., Stotera, S., Nordheim, L. (2015). Research for PECH Committee – Options of handling choke species in the view of the EU landing obligation – the Baltic plaice example. European Parliament (p. 100). https://doi.org/10.2861/808965.

Snapper (SNA 8)

Alfaro, A.C., Jeffs, A.G., Gardner, J.P.A., Bollard Breen, B.A., and Wilkin, J. (2011) Green-lipped Mussels in GLM 9. New Zealand Fisheries Assessment Report 2011/48.

Anderson, T.J., Morrison, M., MacDiarmid, A., Clark, M., D'Archino, R., Nelson, W., Tracey, D., Gordon, D., Read, G., Kettles, H., Morrisey, D., Wood, A., Anderson, O., Smith, A.M., Page, M., Paul-Burke, K., Schnabel K., and Wadhwa, S. (2019). Review of New Zealand's Key Biogenic Habitats. National Institute of Water & Atmospheric Research Ltd, Wellington. 190 pp.

Beaumont, J., Anderson, T.J., MacDiarmid, A.B. (2015) Benthic flora and fauna of the Pātea Shoals region, South Taranaki Bight. Unpublished NIWA Client Report WLG2012-55 prepared for Trans-Tasman Resources Ltd. 200 p

Davies, N M; McKenzie, J R; Gilbert, D J (2013) Assessment of the SNA 8 stock for the 2004–05 fishing year. New Zealand Fisheries Assessment Report 2013/28. 73 p.

Doheny, B.; Davis J.P.; Miller, B. (2023) Fishery-induced trophic cascades and sea urchin barrens in New Zealand: a review and discussion for management. New Zealand Aquatic Environment and Biodiversity Report No. 324. 110 p.

Dunphy, B.J., Silva, C.N.S., and Gardner, J.P.A. (2015) Testing techniques for tracing the provenance of green-lipped mussel spat washed up on Ninety Mile Beach, New Zealand. New Zealand Aquatic Environment Biodiversity Report No. 164. Ministry for Primary Industries, Wellington

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

Fisheries New Zealand (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.

Fisheries New Zealand (2024). Fisheries Assessment Plenary, May 2024: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1941 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/62763-May-2024-Volume-2-Horse-Mussel-to-Red-Crab

Francis, M., Lyon, W., Jones, E., Notman, P., Parkinson, D., and Getzlaff, C. (2012) Rig nursery grounds in New Zealand: a review and survey. New Zealand Aquatic Environment and Biodiversity Report No. 95. Ministry for Primary Industries, Wellington. 54 pp.

Getzlaff, C. (2012) Diet and foraging behaviour of juvenile rig (*Mustelus lenticulatus*) from NZ harbours and estuaries. Unpublished masters thesis. Massey University. 113 pp.

Heinemann A; Gray, A (in prep.) National Panel Survey of Recreational Marine Fishers 2022-23. New Zealand

Hurst, R.J.; Stevenson, M.L.; Bagley, N.W.; Griggs, L.H.; Morrison, M.A.; Francis, M.P. (2000) Areas of importance for spawning, pupping or egg-laying, and juveniles of New Zealand coastal fish. Final Research Report for Ministry of Fisheries Research Project ENV1999/03 Objective 1. 271 p. Accessible at: https://fs.fish.govt.nz/Doc/22534/ENV1999-03%20Coastal%20Fish%20NZ%20Objective%201%20Final.pdf.ashx

Jones, E.G., Morrison, M.A., Davey, N., Hartill, B.W., and Sutton, C. (2016) Biogenic habitats on New Zealand's continental shelf. Part I: Local ecological knowledge. New Zealand Aquatic Environment and Biodiversity Report No. 174. Ministry for Primary Industries, Wellington. 99 pp

Kerr, V. C., Grace, R. V., & Shears, N. T. (2024). Estimating the extent of urchin barrens and kelp forest loss in northeastern Aotearoa, New Zealand. New Zealand Journal of Marine and Freshwater Research, 1–22. https://doi.org/10.1080/00288330.2024.2336081

Maggs, J.Q.; Hartill, B.W.; Evans, O.E.; Holdsworth, J.C.; Lumley, T.; Stevens, T. (2024) Mortality rates of snapper released by recreational fishers. New Zealand Fisheries Assessment Report 2024/17. 31 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/61672/direct

McKenzie, J.R.; Underwood, M.J.; Jones, E.G.; Jordan, L.; Bian, R. (2024) Estimation of finfish release survival from New Zealand inshore commercial fisheries. New Zealand Fisheries Assessment Report 2024/09. 180 p. Accessible at: https://www.mpi.govt.nz/dmsdocument/61042/direct

Morrison, M.A., Jones, E.G., Parsons, D.P., and Grant, C.M. (2014a) Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge, and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report No. 125. Ministry for Primary Industries, Wellington. 205 pp.

Morrison, M.A., Jones, E.G., Consalvey, M., and Berkenbusch, K. (2014b) Linking marine fisheries species to biogenic habitats in New Zealand: a review and synthesis of knowledge New Zealand. Aquatic Environment and Biodiversity Report No. 130. Ministry for Primary Industries, Wellington. 160 pp.

Morrison, M.A., Lowe, M.L., Jones, E.G., Makey, L., Shankar, U., Usmar, N., Miller, A., Smith. M., and Middleton, C. (2014c) Habitats of particular significance for fisheries management: The Kaipara Harbour. New Zealand Aquatic Environment and Biodiversity Report 129. Ministry for Primary Industries, Wellington. 169 pp.

Morrison, M.A.; Jones, E.G.; Parsons, D.P.; Grant, C.M. (2014d) Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge, and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report No. 125. 202 p.

Morrison, M.A., McKenzie, J.R., Gillanders, B.M., and Tuck, I.D. (2016) Can otolith chemistry predict the natal origins of grey mullet (*Mugil cephalus*)? New Zealand Fisheries Assessment Report 2016/15. Ministry for Primary Industries, Wellington. 72 pp.

Morrison, M, Woolley, J.-M., Mills, S., Yeoman, J., Bian, R., Kelly, M., Tracey, D., Anderson, O., Nelson, W., Gordon, D., Read, G., Marshall, B., Jones, E. (2022) Deep rocky and biogenic reefs (50–300 metres) around New Zealand. Science for Conservation.

Nims, R. (2022) The Archaeological Ecodynamics of Māori Fisheries: Climate Change, Harvest Effects, and Mass Capture Strategies in Northern Aotearoa. PhD Thesis. University of Auckland. https://hdl.handle.net/2292/60215

Nurhazwan, M. Z. (2013) Variation in growth rates of juvenile grey mullet in northern New Zealand estuaries. Unpubl. BSc (Hons) thesis, University of Auckland

Parsons, D., Sim-Smith, C., Cryer, M., Francis, M., Hartill, B., Jones, E., … Zeldis, J. (2014) Snapper (*Chrysophrys auratus*): a review of life history and key vulnerabilities in New Zealand. New Zealand Journal of Marine and Freshwater Research, 48(2), 256–283. https://doi.org/10.1080/00288330.2014.892013

Shears, N. T., Babcock, R.C. (2007) Quantitative description of mainland New Zealand's shallow subtidal reef communities. Science for Conservation. Available at: https://www.doc.govt.nz/Documents/science-and-technical/sfc280.pdf

Wehi, P.; Cox, M.; Roa, t.; Whaanga, H. (2013) Marine resources in Māori oral tradition: He kai moana, he kai mā te hinengaro. Journal of Marine and Island Cultures, Volume 2: 59-68.

Wynne-Jones, J; Gray, A; Heinemann, A; Hill, L; Walton, L (2019) National Panel Survey of Marine Recreational Fishers 2017–2018. New Zealand Fisheries Assessment Report 2019/24. 104 p.

Quigley, C.N., Roughan, M, Chaput, R., Jeffs, A.G., and Gardner, J.P.A. (2022) Combined biophysical and genetic modelling approaches reveal new insights into population connectivity of New Zealand green-lipped mussels. Frontiers in Marine Science 9:971209. doi: 10.3389/fmars.2022.971209

Quigley, C.N. (2023) National scale genetic and oceanographic population connectivity in New Zealand kaimoana invertebrates. Unpublished doctoral thesis. Victoria University. 167 pp.

Quigley, C.N., Roughan, M., Chaput, R., Jeffs, A.G., and Gardner, J.P.A. (2023) Simulating larval dispersal across the distribution of the New Zealand green-lipped mussel: insights into connectivity and source–sink dynamics. Marine Ecology Progress Series, https://doi.org/10.3354/meps14411.

Addendum 1: Table of regional plan provisions and policy statements

This table is linked to 'Regional Plans' sections of FNZ's sustainability round consultation papers. 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
Northland	Regional Policy Statement for Northland	**2.2 Indigenous ecosystems and biodiversity** The key pressures on Northland's indigenous terrestrial, freshwater, and coastal marine ecosystems and species are: (d) Fragmentation, loss and isolation of populations and communities of indigenous species due to habitat loss, land use changes and vegetation clearance. **4.5.1 Policy – Identification of the coastal environment, outstanding natural features and outstanding natural landscapes and high and outstanding natural character** This policy assists in the implementation of s6. Resource Management Act and the New Zealand Coastal Policy Statement 2010 (NZCPS) by: • Identifying the coastal environment; • Identifying high and outstanding natural character areas (in the coastal environment); and • Identifying outstanding natural features and landscapes
	Proposed Regional Plan for Northland	**Section D.2 General** D.2.18 Managing adverse effects on indigenous biodiversity 1a) avoiding adverse effects on: i. indigenous taxa that are listed as Threatened or At Risk in the New Zealand Threat Classification System lists, and ii. the values and characteristics of areas of indigenous vegetation and habitats of indigenous fauna that are assessed as significant using the assessment criteria in Appendix 5 of the Regional Policy Statement, and iii. areas set aside for full or partial protection of indigenous biodiversity under other legislation 1b) avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects on: i. areas of predominantly indigenous vegetation, and ii. habitats of indigenous species that are important for recreational, commercial, traditional or cultural purposes, and iii. indigenous ecosystems and habitats that are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, intertidal zones, rocky reef systems, eelgrass, northern wet heathlands, coastal and headwater streams, spawning and nursery areas and saltmarsh.
Auckland	Auckland Council Regional Policy Statement	2.4.7 Auckland's coastal environment is a fundamental part of its heritage and is sensitive to the adverse effects of inappropriate subdivision, use and development. It is also essential for the Region's social and economic wellbeing. The Hauraki Gulf and its islands are resources of regional and national significance for navigation and port purposes, fishing, recreation, tourism and settlement. The Hauraki Gulf Marine Park Act 2000 requires the Council maintains the interrelationship between the Hauraki Gulf, its islands and catchments to sustain the life supporting capacity of the environment.

Regional Council	Document	Relevant sections
		Harbours, such as the Mahurangi, sustain a variety of recreational uses as well as commercial shell fisheries. The catchment also contains large tracts of forest and some urbanisation. These potentially conflicting uses must be carefully managed to ensure this diversity of use is sustainable and the resource qualities are maintained. **7 Coastal Environmental** 7.3 Objectives 2. To protect outstanding natural features and landscapes, areas of significant indigenous vegetation and significant habitats of indigenous fauna, and significant historic and cultural places and areas in the coastal environment. **7.4.4 Policies: Natural character of the coastal environment** 1. The natural character of the coastal environment shall be preserved, and protected from inappropriate subdivision, use and development by: g) areas of indigenous vegetation and habitats of indigenous fauna and associated processes; g) habitat important for preserving the range, abundance and diversity of indigenous and migratory coastal species; (ii) In all other areas, avoiding any adverse effects which result in the significant reduction in habitat important for preserving the range and diversity of indigenous and migratory coastal species within the Auckland Region.
	Auckland Unitary Plan	**Section B6 – Mana Whenua** Section B6.3.2 of the Auckland Unitary Plan states its policy to: "(4) Provide opportunities for Mana Whenua to be involved in the integrated management of natural and physical resources in ways that do all of the following: (a) Recognise the holistic nature of the Mana Whenua world view; (b) Recognise any protected customary right in accordance with the Marine and Coastal Area (Takutai Moana) Act 2011; and (c) Restore or enhance the mauri of freshwater and coastal ecosystems." **Section B7 – Natural Resources** Section B7.1 of the Auckland Unitary Plan notes that the combination of urban growth and past land, coastal and freshwater management practices have placed increasing pressure on land and water resources including habitats and biodiversity. Section B7.7 of the Auckland Unitary Plan states that: Coastal and marine ecosystems are also subject to change, damage or destruction from inappropriate subdivision, use and development, as well as natural processes. Areas containing threatened ecosystems and species require effective management to protect them, and enhance their resilience which is important for the long-term viability of indigenous biodiversity and to help respond to the potential effects of climate change. Effectively addressing these issues requires a combination of regulatory and voluntary efforts. Areas of high ecological value have been identified as significant ecological areas using significance factors set out in the schedules of the Unitary Plan. (See Schedule 3 Significant Ecological Areas – Terrestrial Schedule and Schedule 4 Significant Ecological Areas – Marine Schedule.) The coastal marine area has not yet been comprehensively surveyed for the purpose of identifying marine significant ecological areas. Those that have been identified may under-represent the extent of significant marine communities and habitats present in the sub-tidal areas of the region. It is important that both areas be considered together because of the dynamic and interconnected nature of coastal environments and because the

Regional Council	Document	Relevant sections
		classes may change over time as more knowledge is gained and as pressures on receiving environments change. There is evidence that even moderate levels of degradation can result in ecosystem level changes, and it is not yet known how reversible these changes might be. **Section B8 – Coastal Environment** Section B8.3.2 of the Auckland Unitary Plan lists policies for use and development, including: Provide for use and development in the coastal marine area that: (a) Have a functional need which requires the use of the natural and physical resources of the coastal marine area; (b) Are for the public benefit or public recreation that cannot practicably be located outside the coastal marine area; (c) Have an operational need making a location in the coastal marine area appropriate and that cannot practicably be located outside the coastal marine area; or (d) Enable the use of the coastal marine area by Mana Whenua for Māori cultural activities and customary uses. **Section B8.5. Managing the Hauraki Gulf/Te Moana Nui o Toi/Tīkapa Moana** Section B8.5 lists objectives and policies provide guidance on giving effect to the Hauraki Gulf Marine Park Act. Objectives include: (1) The management of the Hauraki Gulf gives effect to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000. (2) Use and development supports the social and economic well-being of the resident communities of Waiheke and Great Barrier islands, while maintaining or, where appropriate, enhancing the natural and physical resources of the islands. (3) Economic well-being is enabled from the use of the Hauraki Gulf's natural and physical resources without resulting in further degradation of environmental quality or adversely affecting the life-supporting capacity of marine ecosystems. Policies include: Integrated management (1) Encourage and support the restoration and enhancement of the Hauraki Gulf's ecosystems, its islands and catchments. (2) Require the integrated management of use and development in the catchments, islands, and waters of the Hauraki Gulf to ensure that the ecological values and life-supporting capacity of the Hauraki Gulf are protected, and where appropriate enhanced. (3) Require applications for use and development to be assessed in terms of the cumulative effect on the ecological and amenity values of the Hauraki Gulf, rather than on an area-specific or case-by-case basis. (4) Maintain and enhance the values of the islands in the Hauraki Gulf. (5) Avoid use and development that will compromise the natural character, landscape, conservation and biodiversity values of the islands, particularly in areas with natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal, historic heritage and special character. (6) Promote the restoration and rehabilitation of natural character values of the islands of the Hauraki Gulf. (7) Ensure that use and development of the area adjoining conservation islands, regional parks or Department of Conservation land, does not adversely affect their scientific, natural or recreational values. (8) Enhance opportunities for educational and recreational activities on the islands of the Hauraki Gulf if they are consistent with protecting natural and physical resources, particularly in areas where natural and physical resources have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal, historic heritage and special character. (9) Identify and protect areas or habitats, particularly those unique to the Hauraki Gulf, that are:

Regional Council	Document	Relevant sections
		(a) significant to the ecological and biodiversity values of the Hauraki Gulf; and (b) vulnerable to modification; (10) Work with agencies and stakeholders to establish an ecological bottom line, or agreed target, for managing the Hauraki Gulf's natural and physical resources which will do all of the following: (a) provide greater certainty in sustaining the Hauraki Gulf's ongoing life-supporting capacity and ecosystem services; (b) assist in avoiding incremental and ongoing degradation; (c) co-ordinate cross-jurisdictional integrated management and effort to achieve agreed outcomes; (d) better measure the success of protection and enhancement initiatives; (e) assist in establishing a baseline for monitoring changes; (f) enable better evaluation of the social and economic cost-benefits of management; and (g) provide an expanded green-blue network linking restored island and mainland sanctuaries with protected, regenerating marine areas where the ecological health and productivity of the marine area will be enhanced. Providing for the relationship of Mana Whenua with the Hauraki Gulf (11) Work in partnership with Mana Whenua to protect and enhance culturally important environmental resources and values of the Hauraki Gulf that are important to their traditional, cultural and spiritual relationship with the Hauraki Gulf. (12) Incorporate mātauranga Māori with western knowledge in establishing management objectives for the Hauraki Gulf. (13) Require management and decision-making to take into account the historical, cultural and spiritual relationship of Mana Whenua with the Hauraki Gulf, and the ongoing capacity to sustain these relationships. Maintaining and enhancing social, cultural and recreation values (14) Identify and protect the natural and physical resources that have important cultural and historic associations for people and communities in and around the Hauraki Gulf. (15) Identify, maintain, and where appropriate enhance, areas of high recreational use within the Hauraki Gulf by managing water quality, development and potentially conflicting uses so as not to compromise the particular values or qualities of these areas that add to their recreational value. (16) Encourage the strategic provision of infrastructure and facilities to enhance public access and recreational use and enjoyment of the Hauraki Gulf. Providing for the use of natural and physical resources, and for economic activities (17) Provide for commercial activities in the Hauraki Gulf and its catchments while ensuring that the impacts of use, and any future expansion of use and development, do not result in further degradation or net loss of sensitive marine ecosystems. (18) Encourage the strategic provision of infrastructure and facilities that support economic opportunities for the resident communities of Waiheke and Great Barrier islands. (19) Promote economic development opportunities that complement the unique values of the islands and the Hauraki Gulf. **Section B8.6** summarises the reasons of adopting the proposed policies, including: • The coastal environment and the resources of the coastal marine area comprise some of the most important taonga to Mana Whenua, who have a traditional and on-going cultural relationship with the coast.

Regional Council	Document	Relevant sections
		• Auckland's richly varied coastal environment is a finite resource with high environmental, social, economic and cultural values. Its coasts and harbours are among its most highly valued natural features. It is the location of New Zealand's largest commercial port and international airport. The marine industry, transport and aquaculture activities all contribute to social and economic well-being. • The coastal marine area also provides a range of ecosystem services, including providing food, assimilating discharges from land into coastal waters and enabling a range of coastal uses that support the economic well-being of people and communities. • Promoting use and development that provides for social and economic opportunities while avoiding further degradation of the marine environment of the Gulf. **Section D9 – Significant Ecological Areas** Significant Ecological Areas – Marine are identified areas of significant indigenous vegetation or significant habitats of indigenous fauna located in the coastal marine area. Policies for managing these areas include: (12) Manage the adverse effects of use and development on the values of Significant Ecological Areas – Marine, taking into account all of the following: (a) The extent to which existing use and development already, and in combination with any proposal, impacts on the habitat, or impedes the operation of ecological and physical processes; (b) The extent to which there are similar habitat types within other Significant Ecological Areas – Marine in the same harbour or estuary or, where the significant ecological area - marine is located on open coast, within the same vicinity; and (c) Whether the viability of habitats of regionally or nationally threatened plants or animals is adversely affected, including the impact on the species population and location.
Waikato	**The Waikato Regional Policy Statement**	**3.7 Coastal environment** The coastal environment is managed in an integrated way that: a) preserves natural character and protects natural features and landscape values of the coastal environment; b) avoids conflicts between uses and values; c) recognises the interconnections between marine-based and land-based activities; and d) recognises the dynamic, complex and interdependent nature of natural biological and physical processes in the coastal environment. **15.4.4 Coastal marine area** (c) Marine habitats and ecosystems are protected from significant adverse effects.
	Regional Coastal Plan for Waikato	**Section 3.4 – Protection of Coastal Processes** 3.4.3 Policy – Biodiversity Ensure the protection of biodiversity, the inter-relatedness of coastal ecology, and the natural movement of biota within the coastal marine area. **Section 13.1 – Integrated Management Across Boundaries** 13.1.2 Policy – Coastal Environmental Inter-Relationships When managing the use, development and protection of the coastal environment, provide for:

Regional Council	Document	Relevant sections
		(a) The interconnected nature of the coastal environment; and (b) The inter-relationships between natural and physical resources; and (c) The potential for adverse effects to occur; and (d) The range of social, cultural and economic values within the Region. **Section 17.2 – Natural Character, Habitat and Coastal Processes** 17.2.3 – Consultation with the Ministry of Fisheries Environment Waikato, in conjunction with the Ministry of Fisheries, will advocate management practices to resource users harvesting marine life that: i Do not adversely affect significant or extensive areas of indigenous vegetation and habitat of indigenous fauna; ii Avoid sensitive inshore areas; and iii Ensure marine ecosystems and fish stock are managed sustainably.
Bay of Plenty	**Regional Policy Statement**	**Part Two (Issues and objectives)** Objective 20 The protection of significant indigenous habitats and ecosystems, having particular regard to their maintenance, restoration and intrinsic values. **Part Three (Policies and methods)** Policy IR 6B: Promoting consistent and integrated management across jurisdictional boundaries Collaboration and information sharing between agencies with different responsibilities in the coastal environment such as fisheries and conservation should be encouraged to promote integrated and efficient resource management.
	Bay of Plenty Regional Coastal Environmental Plan	**Part 2, Section 2 – Objectives** Objective 1 of this section seeks to "achieve integrated management of the coastal environment" by: (a) Providing a consistent, efficient and integrated management framework; (b) Adopting a whole of catchment approach to management of the coastal environment; (c) Recognising and managing the effects of land uses and freshwater-based activities (including discharges) on the coastal marine area; (d) Enabling the exercise of kaitiakitanga; (e) Planning for and managing: i. cumulative effects; and ii. the effects of climate change; and (f) Promoting the sustainable management of the Bay of Plenty coastal fisheries. **Part 5 Methods, 1.2 Natural Heritage** Method 3A: Support research to identify areas in the Bay of Plenty region where ecosystems and biodiversity values are being, or are likely to be, adversely effected by fishing activities, and investigate the options available to manage such activities for the protection of indigenous biodiversity.

Regional Council	Document	Relevant sections
		Method 19AA: Council will partner with tangata whenua for additional spatial mechanisms for the coastal marine area that identify and protect: (a) Areas or sites of cultural, biodiversity and/or natural character value that may require additional protection and/or restoration; (b) Areas or sites of cultural, biodiversity and/or natural character value that are, or are likely to be, adversely affected by activities (including fishing), and options to manage such activities for the protection of cultural, biodiversity and/or natural character values.
Gisborne	**Gisborne District Council – The Tairāwhiti Resource Management Plan**	**Section C3.6 – Tangata Whenua** Under Policy 7, the Plan notes that: The RMA does not address Fisheries issues which are dealt with under the Fisheries Act or the Marine Reserves Act. Council may, however, advocate for the protection of special areas in the Coastal Marine Area that support traditional fishing or food gathering areas to the responsible agencies on behalf of or in conjunction with Iwi or hapu authorities, This policy is designed to recognise this advocacy role and supports Objective C3.6.2(3), which is to "maintain the integrity of the relationship of Māori with their culture, traditions, ancestral lands, and other resources."
Taranaki	**Taranaki Regional Policy Statement**	**Section 1.2 Purpose** The Regional Policy Statement for Taranaki ('the Regional Policy Statement' or 'Statement') is a statement of policy for the Taranaki region (as constituted under the Local Government (Taranaki Region) Reorganisation Order 1989). Its purpose is to promote the sustainable management of natural and physical resources in the Taranaki region by: • providing an overview of the resource management issues of the Taranaki region • identifying policies and methods to achieve integrated management of the natural and physical resources of the whole region. **Section 8. Coastal Environment** **Objective 1:** To protect the natural character of the coastal environment in the Taranaki region from inappropriate subdivision, use, development and occupation by avoiding, remedying or mitigating the adverse effects of subdivision, use and development in the coastal of subdivision, use and development in the coastal environment. **Objective 2:** To provide for appropriate, subdivision, use, development and occupation of the coastal environment in the Taranaki Region. **Section 9: Indigenous Biodiversity** **Objective 1:** To maintain and enhance the indigenous biodiversity the indigenous biodiversity of the Taranaki region, with a priority on ecosystems, habitats and areas that have significant indigenous biodiversity values.
	Interim version of the Proposed Coastal Plan for Taranaki	**Section 1.2 Purpose** The purpose of the Plan is to assist the Taranaki Regional Council to carry out its functions under the Resource Management Act 1991 (RMA) to promote the sustainable management of the coastal environment, including the coastal marine area, in the Taranaki region. **Section 4. Objectives** **Objective 2: Use and development** Natural and physical resources of the coastal environment are used efficiently, and activities that have a functional need or an operational need, that depend on the use and development of these resources, are provided for in appropriate locations. **Objective 4: Life-supporting capacity and mouri**

Regional Council	Document	Relevant sections
		The life-supporting capacity and mouri of coastal water, land and air are safeguarded from the adverse effects, including cumulative effects, of use and development of the coastal environment. **Objective 6: Natural character** The natural character of the coastal environment is preserved and protected from inappropriate subdivision, use and development and is restored where appropriate. **Objective 7: Natural features and landscapes** The natural features and landscapes of the coastal environment are protected from inappropriate subdivision, use and development. **Objective 8: Indigenous biodiversity** Indigenous biodiversity in the coastal environment is maintained and enhanced and significant indigenous biodiversity in the coastal environment is protected.
Hawke's Bay	**Hawke's Bay Regional Council Coastal Environmental Plan**	Section 4 – Indigenous species and habitats The Hawke's Bay Regional Council Coastal Environmental Plan includes a policy to "ensure adverse effects on ecological systems (including natural movement of biota, natural biodiversity, productivity and biotic patterns) are avoided, including adverse effects on: (a) fishing grounds; (b) shell fish areas; (c) fish spawning and nursery areas; (d) bird breeding and nursery areas; (e) fish and bird migration; (f) feeding patterns; (g) habitats' importance to the continued survival of any indigenous species; (h) wildlife and indigenous marine biota; (i) dune systems; and (j) the intrinsic values of ecosystems."
Manawatu-Wanganui	**Regional Policy Statement**	**Policy 8-4: Appropriate use and development** Any use or development in the CMA must: (a) avoid, as far as reasonably practicable, any adverse effects on the following important values: iii. the landscape and seascape elements that contribute to the natural character of the CMA iv. areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the maintenance of indigenous biological diversity v. the intrinsic values of ecosystems
	Horizons Regional Council One Plan (The Horizons One Plan includes the Regional	**Section 18** of the plan details activities in the coastal marine area. Specifically, it covers; • Occupation; • Structures; • Reclamations and Drainage; • Disturbances, Removal and Deposition; • Water Takes, Uses, Damming and Diversions;

Regional Council	Document	Relevant sections
	Coastal Plan for the Manawatu-Wanganui region)	• Discharges; • Noise and Discharges into Air; • Exotic and Introduced Plants; and • Other Rules
Greater Wellington Region	**Regional Policy Statement for the Wellington region**	**3.2 Coastal environment** Objective 3 Habitats and features in the coastal environment that have significant indigenous biodiversity values are protected; and Habitats and features in the coastal environment that have recreational, cultural, historical or landscape values that are significant are protected from inappropriate subdivision, use and development
	Regional Coastal Plan for the Wellington Region	**Section 4 – General Objectives and Policies** The Regional Coastal Plan for the Wellington Region contains the following Environmental Objectives: 1) The intrinsic values of the coastal marine area and its components are preserved and protected from inappropriate use and development; 2) People and communities are able to undertake appropriate uses and developments in the coastal marine area which satisfy the environmental protection policies in the plan, including activities which: a. rely on natural and physical resources of the coastal marine area; or b. require a coastal marine area location; or c. provide essential public services; or d. avoid adverse effects on the environment; or e. have minor adverse effects on the environment, either singly or in combination with other users; or f. remedy or mitigate adverse effects on the environment and provide a net benefit to the environment; 3) The adverse effects that new activities may have on existing legitimate activities in the coastal marine area are avoided, remedied or mitigated as far as is practicable; 4) Land, water and air in the coastal marine area retains its life supporting capacity; 5) The natural character of the coastal marine area is preserved and protected from inappropriate use and development; 6) Important ecosystems and other natural and physical resources in and adjacent to the coastal marine area are protected from inappropriate use and development; 7) Public health is not endangered through the effects of previous, present or future activities in the coastal marine area; 8) Public access along and within the coastal marine area is maintained and enhanced; 9) Amenity values in the coastal marine area are maintained and enhanced. **Section 16 – Principal reasons for Objectives, Policies and Methods** Section 16 of the Plan states that: The objectives and policies acknowledge the need to protect important characteristics and values of the coastal marine area. They also recognise that the coastal marine area is an important location for many activities, some of which are dependent on this particular location. These activities are important for the economic well-being of the Wellington Region, and to enable people to fulfil their social desires to use the coastal marine area.

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.

Regional Council	Document	Relevant sections
		Chapter 10: Coastal and Marine Environment **Objective 10.1** Recognise and provide for tangata whenua's kaitiaki role in managing coastal resources in accordance with tikanga Māori. **Objective 10.2** Protect the values that contribute to outstanding natural character, outstanding natural landscapes and other significant natural features, and ensure use and development maintains or restores natural values in other areas. **Objective 10.3** Recognise and reconcile the competing social, economic and cultural values that are ascribed to the coastal environment, while providing for uses and development that by their nature must be located in the coastal environment. **Objective 10.4** Maintain or enhance the quality of marine waters to a level that ensures healthy marine ecosystems and safety for people's recreational activities. **Objective 10.5** Protect the integrity, functioning and resilience of coastal physical and ecological processes, from the adverse effects of inappropriate subdivision, use and development.
Tasman	**Tasman Regional Policy Statement**	**Part 1: Introduction, interpretation and glossary** **1.2 Purpose of the Tasman Regional Policy Statement** The purpose of the Tasman Regional Policy Statement as set out in the Act is to promote the sustainable management of natural and physical resources by providing: (i) an overview of the resource management issues of the region; and (ii) policies and methods to achieve integrated resource management. **Section 9: Coastal Environment** **Objective 9.3** A coastal marine area in which adverse effects from activities, including structures, physical modification, or occupation, are avoided, remedied, or mitigated. **Objective 9.4** A fair and efficient process for the allocation of rights to use parts of the coastal marine area, especially where parties are in competition for a limited area. **Objective 9.5** Preservation of the natural character of the coastal environment, including the functioning of natural processes.
West Coast	**West Coast Regional Policy Statement**	**1.1 Role of the Regional Policy Statement – Its Scope and Effect** The role of the Regional Policy Statement (RPS) is to promote the sustainable management of the natural and physical resources of the West Coast. It does this by: • Providing an overview of the resource management issues of the region; and • Identifying policies and methods to achieve integrated management of the West Coast's natural and physical resources. **Chapter 9: Coastal Environment** Objectives (1) Within the coastal environment:

Regional Council	Document	Relevant sections
		a) Protect indigenous biological diversity; b) Preserve natural character, and protect it from inappropriate subdivision, use and development; and c) Protect natural features and natural landscapes from inappropriate subdivision, use and development. (2) Provide for appropriate subdivision, use and development in the coastal environment to enable people and communities to maintain or enhance their economic, social, and cultural wellbeing.
	Regional coastal plan for the West Coast	**Chairman's foreword** The Regional Coastal Plan will enable Council to sustainably manage activities in the coastal marine area of the region. The coastal area covered by this Plan has important ecological, economic, social and cultural values for local communities and visitors, while also being a dynamic environment subject to natural hazards. This Plan is intended to both enable low impact activities to be carried out as well as managing other uses with greater impacts, by way of regulatory and non-regulatory methods, in order to sustain the values associated with the coastal marine area. **Section 5.1 – Coastal Management** Objectives **5.3.1** To recognise and provide for the West Coast's significant coastal values, when considering the use, development and protection of the coastal marine area. **5.3.2** To avoid, remedy or mitigate adverse effects on the amenity, cultural, heritage, scenic and ecosystem values of the entire coastal marine area.
Canterbury	**Canterbury Regional Policy Statement**	8.**2.4 Preservation, protection and enhancement of the coastal environment** In relation to the coastal environment: 1. Its natural character is preserved and protected from inappropriate subdivision, use and development; and 2. Its natural, ecological, cultural, amenity, recreational and historic heritage values are restored or enhanced.
	Regional Coastal Environment Plan for the Canterbury Region	**1.2 Plan Purpose** The purpose of this Plan is to promote the sustainable management of the natural and physical resources of the Coastal Marine Area and the coastal environment and to promote the integrated management of that environment. In particular, the Plan sets out the issues relating to: i. protection and enhancement of the coast; ii. water quality; iii. controls on activities and structures; and iv. coastal hazards
Otago	**Otago Regional Policy Statement**	**Policy 3.1.9 Ecosystems and indigenous biological diversity** Manage ecosystems and indigenous biological diversity in terrestrial, freshwater and marine environments to: Maintain or enhance: a) Ecosystem health and indigenous biological diversity including habitats of indigenous i. fauna; ii. Biological diversity where the presence of exotic flora and fauna supports indigenous iii. biological diversity; b) Maintain or enhance as far as practicable: i. Areas of predominantly indigenous vegetation;

Regional Council	Document	Relevant sections
		ii. Habitats of trout and salmon unless detrimental to indigenous biological diversity; iii. Areas buffering or linking ecosystems **Policy 5.4.9 Activities in the Coastal Marine Area** In the coastal marine area minimise adverse effects from activities by all of the following: a) Avoiding activities that do not have a functional need to locate in the coastal marine area; b) When an activity has a functional need to locate in the coastal marine area, giving preference c) to avoiding its location in: i. Areas of significant indigenous vegetation and significant habitats of indigenous fauna; ii. Outstanding natural features, landscapes and seascapes; iii. Areas of outstanding natural character; iv. Places or areas containing historic heritage of regional or national significance; v. Areas subject to significant natural hazard risk; d) Where it is not practicable to avoid locating in the areas listed in b) above, because of the functional needs of that activity: i. Avoid adverse effects on the values that contribute to the significant or outstanding nature of b)i.-iii; ii. Avoid significant adverse effects on natural character in all other areas of the coastal environment; iii. Avoid, remedy or mitigate adverse effects on values as necessary to preserve historic heritage of regional or national significance; iv. Minimise any increase in natural hazard risk through mitigation measures; v. avoiding, remedying, or mitigating adverse effects on other values;
	Regional Plan: Coast for Otago	**Section 1.1: Purpose of the Plan** The purpose of this Plan is to provide a framework for the integrated and sustainable management of Otago's coastal marine area. **Section 2.10.2: Fisheries Act 1983** This Regional Plan: Coast for Otago does not contain any provisions relating to the management or allocation of the fishery resource within Otago's coastal marine area. **Objective 5.3.1** To provide for the use and development of Otago's coastal marine area while maintaining or enhancing its natural character, outstanding natural features and landscapes, and its ecosystem, amenity, cultural and historical values.
Southland	**Southland Regional Policy Statement**	**Section 1.1 Introduction** The Southland Regional Policy Statement (RPS) guides resource management policy and practice in Southland. It provides a framework on which to base decisions regarding the management of the region's natural and physical resources, gives an overview of the significant resource management issues facing Southland, including issues of significance to tangata whenua, and includes objectives, policies and methods to resolve any identified issues. **Chapter 6: Biodiversity**

Regional Council	Document	Relevant sections
		Objective BIO.1 – Understand and identify **Understand the extent of loss of indigenous ecosystems and habitats across the Southland Region and identify those at risk to further loss and degradation.** **Objective BIO.2 – Maintain and protect** **Maintain indigenous biodiversity in Southland and protect areas of significant indigenous vegetation and significant habitats of indigenous fauna for present and future generations.** **Objective BIO.3 – Enhance** Enhance the range, extent and condition of indigenous biodiversity in Southland, with a particular emphasis on those areas most at risk to further loss or degradation. **Chapter 7: Coast** **Objective COAST.1 – Direction on activities within the coastal environment** **Provide clear direction on appropriate and inappropriate subdivision, use and development activities, the cumulative effect of an activity, and precedent effects of a decision, within the region's coastal environment.** **Objective COAST.2 – Activities in the coastal environment** **Infrastructure, ports, energy projects, aquaculture, mineral extraction activities, subdivision, use and development in the coastal environment are provided for and able to expand, where appropriate, while managing the adverse effects of those activities.** **Objective COAST.3 – Coastal water quality and ecosystems** **Coastal water quality and ecosystems are maintained or enhanced.**
	The Regional Coastal Plan for Environment Southland	**Section 1.2 – Principal Reasons** The principal reasons for adopting the objectives, policies and methods of implementation in this Plan, are: (i) to promote the sustainable management of the coastal marine area; (ii) to minimise conflicts between the users of the coastal marine area; (iii) to provide for the communities social, economic and cultural wellbeing; and, (iv) to maintain, or enhance the opportunity for future generations to enjoy and utilise the coast. **Section 5.4.1 Ecosystems** **Objective 5.4.1.1 Protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna** To protect areas of significant indigenous vegetation and significant habitats of indigenous fauna within the coastal marine area. **Objective 5.4.1.2 - Protect intrinsic values of ecosystems** To protect the intrinsic values of ecosystems in the coastal marine area. **Section 5.8 Efficient use of natural and physical resources** **Objective 5.8.1 - Efficient use and development of natural and physical resources** To provide for efficient use and development of natural and physical resources in the coastal marine area where adverse effects are avoided, remedied or mitigated

Regional Council	Document	Relevant sections
		Section 5.10 Social, economic and cultural issues **Objective 5.10.1 - Social, cultural and economic reliance on the coastal marine area** To recognise the need for social and economic utilisation of the coastal marine area in a manner that enables people and communities to provide for their social, cultural and economic well-being and for their health and safety.
Chatham Islands	**Chatham Islands Resource Management Document**	**1.1 Overview** The Chatham Islands Resource Management Document (referred to as "the document" or "the CIRMD") provides a framework for the integrated management of natural and physical resources of the islands including the sea area out to the 12 nautical mile territorial limit. The CIRMD is a unique one in the New Zealand context, containing aspects of a regional policy statement, a district plan, a coastal plan and regional plans in one document administered by the Chatham Islands Council, rather than separate plans administered by different authorities. **Part 4: Territory wide objectives and policies** **4.1 The Imi/iwi** **4.1.1 Objective – Management of Resources** (i) The management of natural and physical resources that takes into account the principles of the Treaty of Waitangi/Te Tiriti o Waitangi and that recognises the relationship, culture and traditions of imi/iwi with their ancestral lands, water, sites, wāhi tapu and other taonga. **4.2 Water Resources** **4.2.4 Objective – Te Whanga** (i) The maintenance and enhancement of Te Whanga as a significant natural ecosystem and community resource in respect of: (a) food gathering and recreation, (b) the functioning of ecosystems, (c) imi/iwi values and relationships. **4.3 Coastal Environment** **4.3.1 Objective - Natural Character** (i) Preserve the natural character of the Chatham Island's through the control of inappropriate use, development and subdivision where it may adversely affect the natural character of the coastal environment. **Part 5: Zones** **5.6 Coastal Marine Area** **5.6.3 Objective – Life Supporting Capacity** (i) To safeguard the life-supporting capacity of coastal ecosystems. **5.6.4 Objective – Vegetation, Habitat and Natural Features** (i) The protection of areas of significant indigenous vegetation, significant habitats of indigenous fauna and outstanding natural features within the Coastal Marine Area. **5.6.6 Objective – Coastal Processes** (i) Natural coastal processes are not adversely affected by activities on the foreshore or seabed.

Regional Council	Document	Relevant sections
		5.7 Off Shore Islands Zone **5.7.2 Objective – Retention of Natural Values** (i) To retain the values associated with the offshore islands including: • landscape features • indigenous vegetation and habitats of fauna • cultural and spiritual values