



Fisheries New Zealand

Tini a Tangaroa

Review of Sustainability Measures for Gemfish (SKI 1 and 2) for 2020/21

Fisheries New Zealand Discussion Paper No: 2020/12

ISBN No: 978-1-99-002518-1 (online)
ISSN No: 2624-0165 (online)

May 2020

Disclaimer

While every effort has been made to ensure the information in this publication is accurate, Fisheries New Zealand does not accept any responsibility or liability for error of fact, omission, interpretation or opinion that may be present, nor for the consequences of any decisions based on this information.

© Crown Copyright – Fisheries New Zealand

| Contents | | Page |
|-----------------|---|-------------|
| 1 | Stocks being reviewed | 1 |
| 2 | Summary | 1 |
| 3 | Quota Management System | 2 |
| 4 | Legal basis for managing fisheries in New Zealand | 3 |
| 5 | Treaty of Waitangi obligations | 3 |
| 5.1 | Input and participation of tangata whenua | 3 |
| 5.2 | Kaitiakitanga | 4 |
| 6 | Relevant acts, plans, strategies, statements and context | 5 |
| 7 | Current state of the stocks | 6 |
| 8 | Recent catch levels and trends | 7 |
| 9 | Current TAC, TACC and allowances | 9 |
| 10 | Current other controls | 9 |
| 11 | Options | 9 |
| 11.1 | Options to vary the TACs, TACCs, and allowances | 9 |
| 11.2 | Options to address other management controls | 10 |
| 11.3 | Total Allowable Catch | 10 |
| 11.4 | Allowances | 11 |
| 11.5 | Total Allowable Commercial Catch | 11 |
| 12 | Uncertainties and risks | 12 |
| 13 | Environmental interactions | 12 |
| 13.1 | Marine mammals | 12 |
| 13.2 | Seabirds | 13 |
| 13.3 | Fish bycatch | 13 |
| 13.4 | Benthic impacts | 13 |
| 13.5 | Habitats of Particular Significance for Fisheries Management | 13 |
| 14 | Preferential allocation rights (28N rights) | 14 |
| 15 | Questions for submitters on options for varying TACs, TACCs and allowances | 14 |
| 16 | Deemed values | 14 |
| 17 | Referenced reports | 14 |
| 18 | How to get more information and have your say | 15 |

1 Stocks being reviewed

Gemfish (SKI 1 & SKI 2)

Rexea solandri; Maka-tiaki

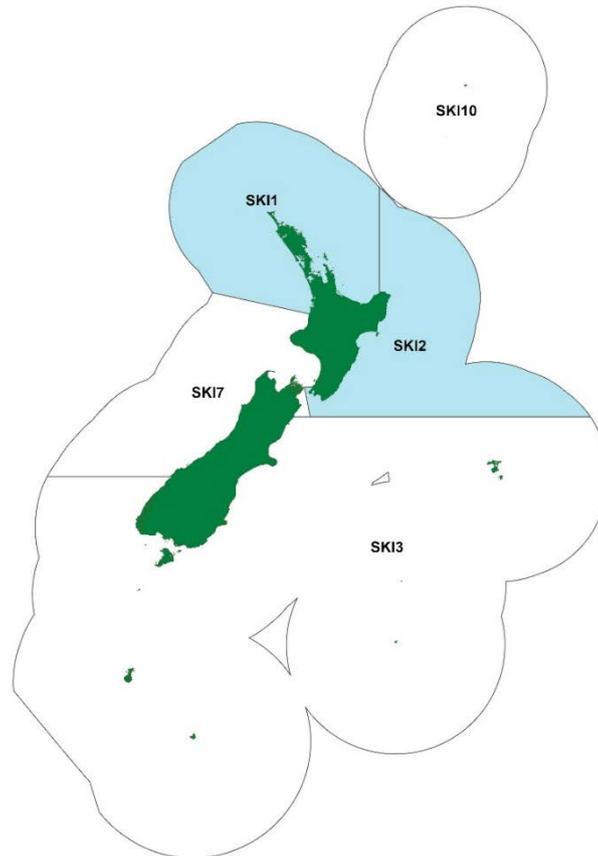


Figure 1: The Quota Management Areas (QMA) for gemfish (SKI 1 and SKI 2)

2 Summary

1. Fisheries New Zealand is reviewing the sustainability measures for gemfish in Quota Management Areas 1 and 2 (SKI 1 and SKI 2) for the 1 October 2020 fishing year.
2. Gemfish is a commercial target and bycatch species that is taken by trawling. SKI 1 in particular is also of importance to recreational fishers.
3. SKI 1 and SKI 2 are managed as a single biological stock, particularly the eastern portion of SKI 1 (SKI 1 E) and SKI 2.
4. The Total Allowable Catch (TAC) for SKI 1 and SKI 2 were last reviewed in 2001 when information from a quantitative stock assessment indicated abundance in these fisheries was low. At that time the TACs for SKI 1 and SKI 2 were reduced by 53.4 and 53.0 percent respectively.
5. The reduced catch levels in these fisheries since 2001 were intended to allow stock abundance to rebuild. Updated commercial catch per unit effort (CPUE) information is indicating that these actions have been successful in improving abundance of gemfish, and as a result, Fisheries New Zealand is considering whether there is potential for increased utilisation.

6. The 2020 CPUE analysis found that biomass is increasing as indicated by the recent threefold increase in CPUE for the sub-adult/adult gemfish taken in the tarakihi (TAR) target trawl fishery. The strong increase in CPUE also suggests that biomass will continue to increase over the next few years.
7. The TAC of SKI 1 is currently 218 tonnes, of which the TACC makes up 210 tonnes. The TAC of SKI 2 is currently 248 tonnes, of which the TACC makes up 240 tonnes. Three options are proposed for both stocks as set out in Table 1 below:

Table 1: Options for varying TAC, TACC and allowances (all in tonnes) for SKI 1 and SKI 2

| Stock | Option | Total Allowable Catch | Total Allowable Commercial Catch | Allowances | | |
|-------|-----------------------------------|-----------------------|----------------------------------|-----------------|--------------|--|
| | | | | Customary Māori | Recreational | All other mortality to the stock caused by fishing |
| SKI 1 | Option 1 (<i>Status quo</i>) | 218 | 210 | 3 | 5 | 0 |
| SKI 1 | Option 2 | 284 ↑ (30%) | 231 ↑ (10%) | 3 | 27 ↑ | 23 ↑ |
| SKI 1 | Option 3 | 307 ↑ (41%) | 252 ↑ (20%) | 3 | 27 ↑ | 25 ↑ |
| SKI 2 | Option 1 (<i>Status quo</i>) | 248 | 240 | 3 | 5 | 0 |
| SKI 2 | Option 2 | 298 ↑ (20%) | 264 ↑ (10%) | 3 | 5 | 26 ↑ |
| SKI 2 | Option 3 | 325 ↑ (31%) | 288 ↑ (20%) | 3 | 5 | 29 ↑ |

8. Option 1 makes no changes to the current settings. This option carries the least sustainability risk by putting the most weight on uncertainty regarding the stock status of SKI 1 and SKI 2.
9. Options 2 and 3 provide for a potential utilisation opportunity in SKI 1 by increasing the TAC by 30% and 41% respectively and in SKI 2 by increasing the TAC by 20% and 31% respectively to reflect the increase in abundance suggested by the updated 2020 CPUE analysis. The options also seek to address the best available information on recreational catch reported by the 2017/18 National Panel Survey.
10. Both options for increases carry a degree of risk to sustainability, with Option 3 reflecting the greatest risk. However, the recent CPUE analysis indicates that biomass is increasing and greater catch is available. This is supported by yield estimates from the 2008 quantitative stock assessment which are greater than the proposed limits.
11. Fisheries New Zealand is seeking feedback and submissions on whether increases to the TAC for SKI 1 and SKI 2 should be considered in light of the increased abundance, and what these increases should be.

3 Quota Management System

12. Gemfish entered the Quota Management System (QMS) on 1 October 1986 and has a 1 October to 30 September fishing year. The TAC was last reviewed in October 2001 at which time the TACs for SKI 1 and SKI 2 were reduced by 53.4 percent and 53.0 percent respectively.
13. For more information about the QMS go to <https://www.mpi.govt.nz/law-and-policy/legal-overviews/fisheries/quota-management-system/>.

4 Legal basis for managing fisheries in New Zealand

14. The Fisheries Act 1996 provides the legal basis for managing fisheries in New Zealand, including the Minister's responsibilities for setting and varying sustainability measures. See the separate document *Overview of legislative requirements and other considerations* at <https://www.fisheries.govt.nz/dmsdocument/40502> for more information.

5 Treaty of Waitangi obligations

5.1 Input and participation of tangata whenua

15. Input and participation into the sustainability decision-making process is provided through Iwi Fisheries Forums, which have been established for that purpose. Each Iwi Fisheries Forum has developed 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 these fisheries. Particular regard must be given to kaitiakitanga when making sustainability decisions.
16. Iwi Fisheries Forums may also be used as entities to consult iwi with an interest in fisheries.
17. Due to COVID-19 travel restrictions, input and participation from Iwi Fisheries Forums was sought through remote mechanisms. In late April 2020, a two-page document with information on the proposed changes for SKI 1 and SKI 2 was provided to Iwi Fisheries Forums, and input sought. Table 2 identifies the Iwi Fisheries Forums that were provided with this document and summarises the input received.

Table 2: Iwi Fisheries Forums provided with SKI 1 and SKI 2 input and participation document.

| Iwi Fisheries Forum | Rohe (Area represented) | Input received |
|------------------------------------|---|--|
| Te Hiku o Te Ika | Far North (Muriwhenua) | <ul style="list-style-type: none"> Input relevant to SKI 1 and SKI 2 not provided |
| Mid-North | Mid-North | <ul style="list-style-type: none"> Prefer a precautionary approach in management of stocks with low information |
| Nga Hapu o Te Uru o Tainui | Waikato, particularly coastal | <ul style="list-style-type: none"> Prefer a precautionary approach in management of stocks with low information Concern for TACC increases due to their role as kaitiaki, concern over large amounts of fish being taken |
| Mai i ngā Kuri a Whārei ki Tihirau | Bay of Plenty | <ul style="list-style-type: none"> Some members stated that they did not yet have a position on proposals |
| Ngāti Porou | East Cape | <ul style="list-style-type: none"> One member considers that due to the lack of a stronger Fish Plan they are at a disadvantage around proposals Require more in-depth knowledge before making a judgement Prefer to take a cautious approach |
| Mai Paritu tae atu ki Turikirae | East Coast from Paritu (immediately north of Mahia) to Turakirae (just north of Wellington) | <ul style="list-style-type: none"> Input relevant to SKI 1 and SKI 2 not provided |

18. The options presented within this paper aim to ensure that the rights and interests of Māori are provided for with regard to SKI 1 and SKI 2. However, Fisheries New Zealand welcomes further input from tangata whenua so as to inform final advice on the management of SKI 1 and SKI 2.

5.2 Kaitiakitanga

19. Gemfish is identified as a taonga species by the Te Hiku o te Ika Fisheries Forum (Far North), Ngā Hapu o Te Uru o Tainui Forum (West coast of Waikato Tainui), and Mai i Nga Kuri a Whareki ki Tihirau Fisheries Forum (Bay of Plenty).
20. Each of these forums have Iwi Fisheries Forum Plans that contain management objectives relevant to the proposal to review the SKI 1 stock. These are summarised in Table 3 below. The Mid-North Forum is a newly established forum who are yet to develop an Iwi Fisheries Forum Fisheries Plan. Hauraki Iwi Fisheries Forum have yet to begin meeting formally and as such don't have a forum fisheries plan.

Table 3: SKI 1 and relevant Iwi Fisheries Forum Plan management objectives.

| Iwi Fisheries Forum | Relevant Management Objectives contained in Iwi Fisheries Forum Plan |
|---|---|
| Te Hiku o te Ika Fisheries Forum | <ul style="list-style-type: none"> • Fish stocks are healthy and support the social, cultural and economic prosperity of Te Hiku iwi and Hapu |
| Ngā Hapu o Te Uru o Tainui Forum | <ul style="list-style-type: none"> • Nga Hapu o Te Uru kaitiaki are able to participate in and influence fisheries decision-making. • Relationships and partnerships with key stakeholders, managers and agencies are established and maintained. |
| Mai i Nga Kuri a Whareki ki Tihirau Fisheries Forum | <ul style="list-style-type: none"> • Iwi are actively engaged with others to increase their fisheries potential within environmental limits. • The fisheries environment is healthy and supports a sustainable fishery. |

21. In SKI 2, the Mai Paritu tae atu ki Turakirae Fisheries Forum (Mahia to Wairarapa) is a newly established forum who are in the process of developing an Iwi Fisheries Forum Fisheries Plan. Likewise, Ngāti Porou (East Coast) are in the process of establishing an Iwi Fisheries Forum.
22. Some iwi in the Te Tai Hauāuru fisheries forum have interests in the SKI 2 fishery, and the associated forum Plan contains management objectives relevant to the proposal to review the SKI 2 stock. Rangitaane (North Island) iwi have an Iwi Fishery Plan for FMA 2 that also contains relevant management objectives. These management objectives are summarised in Table 4 below.

Table 4: SKI 2 and relevant Iwi Fisheries Forum Plan management objectives.

| Iwi Fisheries Forum | Relevant Management Objectives contained in Iwi Fisheries Forum Plan |
|---------------------------|---|
| Te Tai Hauāuru | <ul style="list-style-type: none"> • 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. |
| Iwi | Relevant Management Objectives contained in Iwi Fisheries Plan |
| Rangitaane (North Island) | <ul style="list-style-type: none"> • 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

23. Mātaimitai reserves, Taiāpure and temporary closures are customary management tools that also provide for kaitiakitanga. The Minister is required to take these into account when making allowances for customary non-commercial fishing interests. These are identified in Table 5 below.
- Commercial fishing is not permitted within mātaimitai reserves, but recreational and customary fishing is allowed.
 - Section 186A temporary closures generally prevent recreational and commercial fishing for either all or certain species
 - All types of fishing are allowed in a taiāpure unless its management committee recommends changes to the fishing rules and the Minister of Fisheries approves them. At this point in time no taiāpure in the two FMAs prohibit the harvest of gemfish.

Table 5: SKI 1 and SKI 2 customary fisheries

| SKI 1 | Management type |
|---|------------------------|
| Aotea Harbour Mātaimitai | Mātaimitai |
| Marokopa Mātaimitai | Mātaimitai |
| Raukokere Mātaimitai | Mātaimitai |
| Te Maunga o Mauao Mātaimitai | Mātaimitai |
| Te Puna Mātaimitai | Mātaimitai |
| Te Rae o Kohi Mātaimitai | Mātaimitai |
| Maunganui Bay Temporary Closure – all species except kina | S186 Temporary Closure |
| Marsden Bank and Mair Bank Temporary Closure – shellfish only | S186 Temporary Closure |
| Te Mata and Waipatukahu Temporary Closure – pipi, cockles, and mussels only | S186 Temporary Closure |
| Umupuia Beach Temporary Closure – cockles only | S186 Temporary Closure |
| Kawhia Aotea Taiāpure | Taiāpure |
| Maketu Taiāpure | Taiāpure |
| Waikare Inlet Taiāpure | Taiāpure |
| SKI 2 | Management type |
| Hakihea Mātaimitai | Mātaimitai Reserve |
| Horokaka Mātaimitai | Mātaimitai Reserve |
| Toka Tamure Mātaimitai | Mātaimitai Reserve |
| Te Hoe Mātaimitai | Mātaimitai Reserve |
| Moremore Mātaimitai(a) | Mātaimitai Reserve |
| Moremore Mātaimitai(b) | Mātaimitai Reserve |
| Porangahau Taiāpure | Taiāpure |
| Palliser Bay Taiāpure | Taiāpure |

6 Relevant acts, plans, strategies, statements and context

24. The Draft National Inshore Finfish Fisheries Plan (2019) provides guidance on management objectives and strategies for finfish fisheries and the operational management of inshore finfish fisheries for the next five years. Public consultation on the draft plan closed on 19 February 2020. Thirty-nine submissions, ranging across a number of themes were received, which Fisheries New Zealand is currently considering before finalising the Plan.

7 Current state of the stocks

25. Gemfish are found in coastal waters around New Zealand with a wide depth range of between 50 and 550 metres. SKI 1 and SKI 2 are thought to comprise a single biological stock, particularly the eastern portion of SKI 1 (SKI 1 E) and SKI 2. Commercial catches in SKI 1 and SKI 2 typically occur in spring and summer consistent with pre- and post-spawning migrations, but catches are recorded year round.
26. The most recent fully quantitative stock assessment for the combined SKI 1 and SKI 2 stocks was conducted in 2008. The stock assessment presented three model results based on differing assumptions around year class strength. No single model was preferred and as a result, the biomass of the combined SKI 1 and SKI 2 stock was estimated in 2006 to be at 32% B_0 (2006_{YCS2000}) and 26% B_0 (2006_{YCS2001}), and in 2007 to be at 22% B_0 (2007_{YCS2003}) based on the three models used.
27. Trends in stock abundance subsequent to the 2008 stock assessment have been monitored through combined CPUE indices for SKI 1 and SKI 2 with the most recent update in 2020.
28. The 2020 CPUE analysis of mixed sub-adult/adult gemfish taken by the tarakihi target trawl fishery indicates that relative abundance of young gemfish has increased at least threefold since 2007. This is reflected in increases in catch seen in both commercial and recreational fisheries.
29. Recent large increases in the CPUE for sub-adult/adult gemfish taken in the TAR target trawl fishery also indicate that the spawning stock will continue to increase over the next few years. Figure 2 below indicates that CPUE has increased steeply since 2015.

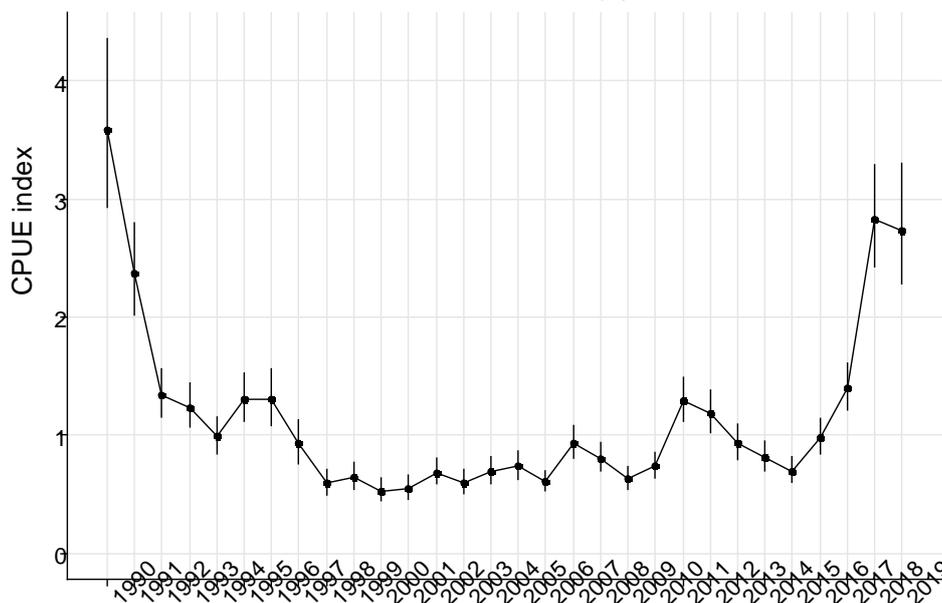


Figure 2: Standardised catch per unit effort (CPUE) index for mixed sub-adult/adult SKI 1 and SKI 2 from bottom trawling targeting tarakihi (BT-TAR trip index)

30. While it is not known whether the stock has reached or exceeded the target biomass of 40% B_0 , the 2020 CPUE analysis found SKI 1 and SKI 2 unlikely to be below the soft limit (20% B_0) and concluded that biomass is increasing.
31. A TAC review was undertaken for the gemfish stocks SKI 3 and SKI 7 in 2019, to which the Minister of Fisheries agreed to increase the TAC of each stock by 102% from 300 tonnes to 606 tonnes. While this is a separate biological stock, it may indicate that environmental conditions have favoured good recruitment all around the country.

8 Recent catch levels and trends

32. The best available information on the SKI 1 and SKI 2 stocks is from commercial reporting, which includes catch estimates, effort data and landing information.
33. Gemfish is caught in target fisheries off the eastern and northern coasts of the North Island, largely through trawl fisheries. Since the TACC reductions in 2001, a previous west coast fishery in SKI 1 has virtually ceased. SKI 1 and SKI 2 are mainly taken as bycatch in other trawl fisheries targeting tarakihi, rubyfish, scampi, and hoki.
34. From 1997 to 2001, the TACC was reduced from 1,151.8 tonnes to 210 tonnes in SKI 1 and from 1,300.4 tonnes to 240 tonnes in SKI 2. This occurred through three TACC reviews as indicated by Table 6 below.

Table 6: Changes to TAC in SKI 1 and SKI 2 (tonnes)

| | Year | TAC | Reduction | % Change |
|-------|------|---------|-----------|----------|
| SKI 1 | 1986 | 1,151.8 | / | / |
| | 1997 | 753 | 398.8 | -34.6% |
| | 1998 | 468 | 285 | -37.8 |
| | 2001 | 218 | 250 | -53.4% |
| | Year | TAC | Reduction | % Change |
| SKI 2 | 1986 | 1,300.4 | / | / |
| | 1997 | 850 | 450.4 | -34.6% |
| | 1998 | 528 | 322 | -37.9% |
| | 2001 | 248 | 280 | -53.0% |

35. Since 2001, catch has been near or above the TACC in most years with a trend of increasing catch as shown in Figures 3 and 4. Since 2014, catch has been increasing steadily and has exceeded the TACC consistently since 2016 in SKI 1 and 2017 in SKI 2.

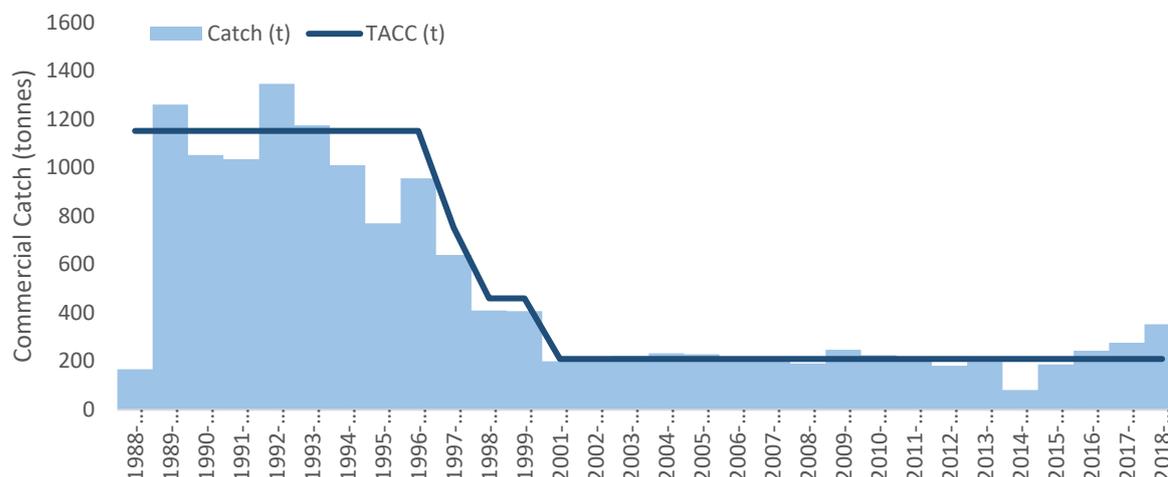


Figure 3: Landings for SKI 1

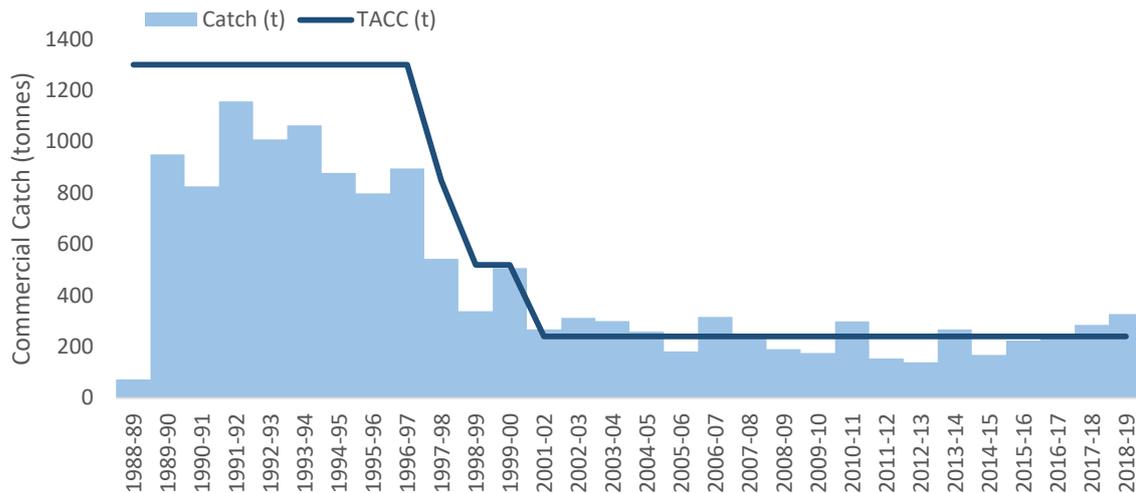


Figure 4: Landings for SKI 2

36. There is less information available about levels and trends in customary and recreational catches. The current allowances for customary and recreational fishing were set based on best available information at the time.
37. Customary catch in SKI 1 and SKI 2 is highly uncertain. Fisheries New Zealand does not hold any reports of customary permits issued for gemfish in the last 10 years. However, we recognise that this information is incomplete and unlikely to reflect current customary use. One of the reasons for this is because parts of the North Island are not gazetted under the Fisheries (Kaimoana Customary Fishing) Regulations 1998 and therefore customary catch may be occurring under the Amateur Regulations, for which there is no requirement to report catch.
38. Given uncertainty regarding the customary harvest of gemfish, Fisheries New Zealand seeks input from tangata whenua so as to inform final advice to the Minister on the provision of an allowance for customary Māori fishing.
39. The most reliable estimate of recreational harvest comes from the National Panel Survey of Marine Recreational Fishers 2017/18, which estimates that 7,023 gemfish were taken from SKI 1 and 1,299 from SKI 2 between 1 October 2017 and 30 September 2018. However, the amount of recreational fishing effort is likely to vary from year to year depending on factors such as weather, and the condition of the gemfish. The same survey methods were also undertaken in 2011/12, but the result in that year (an estimate of 2,539 gemfish taken in SKI 1 and none in SKI 2) was considered highly uncertain. Although uncertain, this data suggests that an increase in recreational catch has occurred in both SKI 1 and SKI 2.
40. A weight estimate is available for gemfish using fishery observer data. Using this data, the average weight is approximately 3.78 kilograms in SKI 1 and 3.54 kilograms in SKI 2. Assuming the gemfish taken by recreational fishers were of these average weights, the 2017/18 estimate translates to approximately 26.547 tonnes of recreational catch from SKI 1, and 4.598 tonnes of recreational catch from SKI 2.

9 Current TAC, TACC and allowances

Table 7: SKI 1 and 2 current TAC, TACC and allowances (all in tonnes)

| | Total Allowable Catch | Total Allowable Commercial Catch | Allowances | | |
|-------|-----------------------|----------------------------------|-----------------|--------------|--|
| | | | Customary Maori | Recreational | All other mortality to the stock caused by fishing |
| SKI 1 | 218 | 210 | 3 | 5 | 0 |
| SKI 2 | 248 | 240 | 3 | 5 | 0 |

10 Current other controls

41. There is no commercial or recreational minimum legal size for gemfish in either SKI 1 or SKI 2.
42. There is a minimum commercial net mesh size of 100mm, with the exception of trawl nets if a fishing permit authorises the use or possession of a smaller mesh, in both SKI 1 and SKI 2. There is also a minimum recreational set net mesh size of 100 mm for both SKI 1 and SKI 2, and SKI 1 additionally has a minimum recreational dragnet mesh size of 100mm.
43. There is no recreational maximum daily bag limit for gemfish in either SKI 1 or SKI 2.

11 Options

11.1 Options to vary the TACs, TACCs, and allowances

44. Three options are proposed for the TAC, TACC and allowances for each stock. Option 1 retains the status quo while options 2 and 3 represent the general range of increases to catch settings being considered. Feedback is sought on these options, or alternatives within this range.

Table 8: Options for varying TAC, TACC and allowances (all in tonnes) for SKI 1 and SKI 2

| Stock | Option | Total Allowable Catch | Total Allowable Commercial Catch | Allowances | | |
|-------|-----------------------------------|-----------------------|----------------------------------|-----------------|--------------|--|
| | | | | Customary Māori | Recreational | All other mortality to the stock caused by fishing |
| SKI 1 | Option 1 (<i>Status quo</i>) | 218 | 210 | 3 | 5 | 0 |
| SKI 1 | Option 2 | 284 ↑ (30%) | 231 ↑ (10%) | 3 | 27 ↑ | 23 ↑ |
| SKI 1 | Option 3 | 307 ↑ (41%) | 252 ↑ (20%) | 3 | 27 ↑ | 25 ↑ |
| SKI 2 | Option 1 (<i>Status quo</i>) | 248 | 240 | 3 | 5 | 0 |
| SKI 2 | Option 2 | 298 ↑ (20%) | 264 ↑ (10%) | 3 | 5 | 26 ↑ |
| SKI 2 | Option 3 | 325 ↑ (31%) | 288 ↑ (20%) | 3 | 5 | 29 ↑ |

11.2 Options to address other management controls

Table 9: Options to address a recreational bag limit

| Stock | Option | Recreational bag limit |
|---------------|-----------------------------------|---|
| SKI 1 & SKI 2 | Option 1 (<i>Status quo</i>) | No change |
| SKI 1 & SKI 2 | Option 2 | Consider introducing a recreational bag limit |

45. In addition to changing the TACC, we also seek initial feedback on a proposal to introduce a recreational bag limit for gemfish. The outcome could be a recommendation to the Minister to agree to a review. Following agreement, formal consultation would then need to be undertaken before any final decisions are made on a recreational bag limit for SKI 1 and SKI 2.
46. Fisheries New Zealand are interested in receiving suggestions on what an appropriate bag limit might be, as this would help to inform future consultation, subject to the Minister's agreement.

11.3 Total Allowable Catch

47. Option 1 is the status quo TAC of 218 tonnes for SKI 1, and 248 tonnes for SKI 2. Option 1 is the most conservative option and carries the least sustainability risk by putting the most weight on uncertainty regarding the stock status of SKI 1 and SKI 2.
48. Option 2 proposes an increase to the TACs from 218 tonnes to 284 tonnes (SKI 1) and 248 tonnes to 298 tonnes (SKI 2), which is a 30% increase in SKI 1 and 20% increase in SKI 2. This TAC increase for both stocks is comprised of a 10% increase in TACC as well as setting an allowance of sources of other mortality. An increase to the recreational allowance is also proposed in SKI 1, but not in SKI 2, hence why the percentage of the TAC increases differs between the stocks.
49. Option 3 proposes to increase the TACs from 218 tonnes to 307 tonnes (SKI 1) and 248 tonnes to 325 tonnes (SKI 2), which is an approximate increase of 41% in SKI 1 and 31% in SKI 2. This is the least cautious option and the sustainability risk associated with this option is higher, while noting that the commercial fishery will be monitored at a fine scale, and that TACs would be reviewed again if this monitoring suggests this is appropriate. Similarly to option 2, the percentage of the TAC increases differs between stocks, this is due to the proposed increase to the recreational allowance in SKI 1.
50. Both Options 2 and 3 take into account that the biomass of SKI 1 and SKI 2 has increased at least threefold since 2007, and is expected to continue to increase over the next few years. This suggests that there exists potential for greater utilisation of gemfish in SKI 1 and SKI 2.
51. The main difference between Options 2 and 3 is the level of risk associated with each increase. The greater the increase and utilisation of the stock, the greater the potential for sustainability risk in the future.
52. Fisheries New Zealand considers that all options are likely to continue to move the stock towards the target biomass as the 2020 CPUE analysis found SKI 1 and SKI 2 unlikely to be below the soft limit (20%) and the biomass of sub-adult/adult gemfish taken in the TAR trawls has increased at least threefold since 2007.
53. Additionally, the proposed options for TAC increase are below the estimates of sustainable yield given in the 2008 assessment. Three model runs exploring different recruitment information produced the following yield estimates for the combined SKI 1 and 2 stock in 2007 – MCY (Maximum Constant Yield) of 995 tonnes, 865 tonnes, and 816 tonnes and CAY (Current Annual Yield) of 1305 tonnes, 925 tonnes, and 755 tonnes.

54. The proposed increases are not inconsistent with the requirement under s13 of the Fisheries Act 1996 to set a TAC that moves a stock towards or above the *Bmsy*¹.
55. In each case, ongoing monitoring of the stock use through CPUE updates will enable responsive management and appropriate adjustments to address changes in abundance in the future.

11.4 Allowances

56. Information about customary and recreational catches and all other mortality to the stock caused by fishing is uncertain.
57. Fisheries New Zealand proposes that the customary allowances be retained. We consider that an allowance of 3 tonnes in both SKI 1 and SKI 2 is likely to provide for current take and aspirational use. In 2019, two other gemfish stocks were considered for TAC review (SKI 3 and SKI 7) and a customary allowance for these stocks was introduced at 1 tonne (previously set at 0 tonne). The proposal to retain the customary allowance for SKI 1 and SKI 2 is broadly consistent with the approach adopted for SKI 3 and SKI 7 whilst acknowledging that gemfish a more commonly targeted in North Island fisheries.
58. As gemfish abundance has increased, information from the Recreational Panel Survey has shown increased utilisation from the recreational sector. We consider it appropriate to allow for this utilisation and are proposing to increase the recreational allowance in SKI 1 to be consistent with the results of the Recreational Panel Survey. Under both options 2 and 3, the recreational allowance in SKI 1 would increase from 5 to 27t. There is no proposal to change the SKI 2 recreational allowance because the current setting is already consistent with Recreational Panel Survey estimates.
59. As an additional recreational control measure, we are considering whether a recreational bag limit be set for SKI 1 and SKI 2. The proposal to introduce a recreational bag limit aims not to restrict current recreational catch, but rather to allow for the best current estimate of recreational catch while ensuring that gemfish is able to continue to be readily accessed by the recreational sector in future years.
60. At this stage we are seeking feedback on possible options for this bag limit, or other possible recreational controls, with formal consultation on options to commence after the Minister has agreed to a review.
61. The allowance for all other mortality to the stock is proposed to be adjusted in conjunction with the TAC increase. These allowances are to be set at a minimum of 10% of the TACC for inshore stocks that are taken by trawl². Increases to the allowance for all other mortality to the stock is therefore proposed under options 2 and 3 for both stocks.

11.5 Total Allowable Commercial Catch

62. Under Option 1, there will be no increase to the respective TACCs for both SKI 1 and SKI 2, which are reportedly constraining commercial catches. This option does not provide for increased use at a time when CPUE information suggests abundance is high.
63. Options 2 and 3 propose to increase the TACC of SKI 1 and SKI 2 to varying degrees. Option 2 proposes a 10% increase and Option 3 proposes a 20% increase to the TACC for both SKI 1 and SKI 2.

¹ The average stock biomass (or size) that results from taking average catch of maximum sustainable yield under various types of harvest strategies.

² For further rationale on the setting of allowances for all other sources of mortality caused by fishing please see the Minister of Fisheries [Decision Letter for the 2018 October Sustainability Round](#).

64. These options provide for increased use opportunities for commercial fishers which provide additional economic benefits. Based on the reported port price (which does not reflect the total economic benefit), the approximate increase in revenue from each of the options is provided in Table 10.

Table 10: Predicted changes to commercial revenue for the proposed options, based on recommended port prices of \$1.98/kg for SKI 1, and \$ 2.10/kg for SKI 2 in the 2019/20 fishing year.

| Stock | Option | Change from current setting (tonnes) | Predicted revenue changes (\$p.a.) |
|-------|-----------------------|--------------------------------------|------------------------------------|
| SKI 1 | Option 1 (status quo) | NA | NA |
| SKI 1 | Option 2 | 21↑ | \$41,583.51↑ |
| SKI 1 | Option 3 | 42↑ | \$83,167.01↑ |
| SKI 2 | Option 1 (status quo) | NA | NA |
| SKI 2 | Option 2 | 24↑ | \$50,519.15↑ |
| SKI 2 | Option 3 | 48↑ | \$101,038.30↑ |

12 Uncertainties and risks

65. The Plenary notes that:
- Avoidance of gemfish in the tarakihi target trawl fishery may bias the tarakihi bottom trawl CPUE index downwards.
 - The tarakihi target fishery does not sample the full depth distribution of gemfish and, based on limited data, appears to catch mostly sub-adult fish.
 - The target gemfish fishery is now small and CPUE from this fishery does not currently provide an index of adult biomass after 2005.

13 Environmental interactions

66. SKI 1 and SKI 2 are largely taken as bycatch in other fisheries, predominantly hoki, tarakihi and ling, but are also caught in a small target fishery. 22.8% of SKI 1 and 31.3% of SKI 2 catch is taken in the target fishery.
67. Gemfish is taken predominantly (69.2% in SKI 1 and 77.2% in SKI 2) by the method of bottom trawl, with small amounts taken by midwater trawl, bottom long line, and precision bottom trawl.
68. Fisheries New Zealand does not anticipate any significant increase in the environmental effects of fishing associated with this fishery with key environmental interactions for SKI 1 and SKI 2 outlined in the section below.

13.1 Marine mammals

69. The SKI 1 fishery rarely interacts with marine mammals and has no reported captures of marine mammals in the last 5 fishing years (2014/15-2019/20). In SKI 2 interactions with New Zealand fur seals do occur, based on reported interactions in the last five fishing years it is estimated that a mean of 4.8 New Zealand fur seals were caught annually, as well as an additional unspecified seal or sea lion in 2019. New Zealand fur seals have a New Zealand Threat Classification of Least Concerned.
70. Marine mammal interactions in these fisheries are not expected to change as the proposed increases are unlikely to see an increase in overall trawl effort, but rather more targeted effort of fisheries that take gemfish as bycatch.

13.2 Seabirds

71. Seabirds have been caught where gemfish in SKI 1 and SKI 2 have been reported as taken. The majority these are unspecified petrels, prions and shearwaters, Black (Parkinson's) petrel, sooty shearwater, unspecified albatrosses, and flesh footed shearwater.
72. The two seabird species that are of most concern are black petrels and flesh footed shearwaters. Both seabirds' at-sea distribution overlaps with the SKI 1 QMA and both have a New Zealand Threat Classification of 'Vulnerable'. Where gemfish in SKI 1 has been reported as taken over the last five fishing years, it is estimated that a mean of 6.8 black petrels and flesh footed shearwaters were caught annually.
73. The management of seabird interactions with New Zealand's commercial fisheries is guided by the National Plan of Action to Reduce the Incidental Captures of Seabirds in New Zealand Fisheries (NPOA-Seabirds) with a 2020 update expected to be released soon, following consultation earlier this year.
74. The NPOA-Seabirds establishes a risk-based approach to managing fishing interactions with seabirds and the most recent update to the seabird risk assessment that underpins the NPOA-Seabirds identified black petrels in the 'Very High Risk' category from fishing and flesh footed shearwaters as 'High Risk.' The updated NPOA-Seabird is targeting management actions at the species most at risk as a priority and Fisheries New Zealand will continue to monitor the SKI 1 and SKI 2 fishery and any interactions with seabirds.

13.3 Fish bycatch

75. The main QMS bycatch species of the target SKI 1 fishery include hoki, tarakihi, and rubyfish. SKI 1 and SKI 2 landings also occur as a bycatch in a range of trawl fisheries, including tarakihi, hoki, rubyfish and ling.
76. Consideration of fish bycatch interactions is particularly important for East Coast tarakihi, as it is currently undergoing a rebuild due to low abundance. Tarakihi has a wide depth profile that includes many species including gemfish. Increasing the TACC in SKI 1 and SKI 2 will allow fishers to move into deeper waters, away from traditional tarakihi habitat and undertake more targeted fishing of gemfish, reducing the bycatch of East Coast tarakihi and improving the rate of rebuild.
77. Fisheries New Zealand continues to actively monitor the rebuild of the East Coast tarakihi fishery and will take further action if changes in fishing activity leads to increased pressure on this stock.

13.4 Benthic impacts

78. Bottom trawling can directly impact on the benthic habitats and biodiversity; however, the proposed increases are modest and are not likely to significantly increase bottom trawl effort as they reflect increased fish abundance and CPUE. Trawling in this fishery is also typically confined to areas that have been consistently fished over time (rather than areas of high biodiversity).
79. Research has characterised both New Zealand's benthic environment and the level of benthic impact from fisheries activity (Aquatic Environment and Biodiversity Annual Review 2018). The environmental impacts of fishing are summarised annually by Fisheries New Zealand. Fisheries New Zealand will continue to monitor the bottom trawl footprint of fisheries.

13.5 Habitats of Particular Significance for Fisheries Management

80. Habitats of particular significance for fisheries management have not been identified in the area covering SKI 1 and SKI 2 fisheries.

14 Preferential allocation rights (28N rights)

81. There are 46.8 tonnes of preferential allocation ('28 N') rights associated with the SKI 2 stock. Any change to the TACC as part of the October 2020 Sustainability Round will have an impact on those rights.
82. When 28N rights are triggered in a fishery through an increase to the TACC, they are honoured by reallocating quota shares from other quota holders in the fishery to 28N rights holders – in this case the tonnage held may increase but the percentage share of other quota holders in the fishery decreases. 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.

15 Questions for submitters on options for varying TACs, TACCs and allowances

- Which option(s) do you support for revising the TACs and allowances? Why?
 - If you do not support any of the options listed, what alternative(s) should be considered? Why?
 - Are the allowances for customary fishing appropriate? Why?
 - We ask tangata whenua to provide any additional information you may have on customary catch.
 - Are the allowances for recreational fishing appropriate? Why?
 - Do you agree with the proposal to consider introducing a recreational bag limit for SKI 1 & SKI 2? Why?
 - Do you have any suggestions on options that should be considered for the bag limit?
 - Are the allowances for other sources of mortality appropriate? Why?
83. Please provide detailed, verifiable information and rationale to support your views.

16 Deemed values

84. Fisheries New Zealand is also proposing the deemed value rates for SKI 1 and SKI 2 be changed. For further information on this please refer to the paper titled *Review of Deemed Value Rates for Selected Stocks October 2020*, on the consultation webpage: <https://www.fisheries.govt.nz/news-and-resources/consultations/review-of-sustainability-measures-for-1-october-2020/>.
85. This proposal suggests the following:
 - a. For SKI 1 we are proposing to increase the deemed value rates to better reflect the increase in landed price.
 - b. For SKI 2 we proposing to adjust the differential schedule of SKI 2 to the standard schedule applicable to most stocks.

17 Referenced reports

Aquatic Environment and Biodiversity Annual Review 2018:
<https://www.mpi.govt.nz/dmsdocument/34854-aquatic-environment-and-biodiversity-annual-review->

[aebair-2018-a-summary-of-environmental-interactions-between-the-seafood-sector-and-the-aquatic-environment](#)

National Panel Survey of Marine Recreational Fishers 2011–12: Harvest Estimates: <https://www.mpi.govt.nz/travel-and-recreation/fishing/national-survey-of-recreational-fishers/>

National Panel Survey of Marine Recreational Fishers 2017–18: <https://www.mpi.govt.nz/travel-and-recreation/fishing/national-survey-of-recreational-fishers/>

Fisheries Assessment Plenary May 2020: <https://www.fisheries.govt.nz/news-and-resources/science-and-research/fisheries-research/>

Minister of Fisheries Decision Letter for the 2018 October Sustainability Round.: <https://www.mpi.govt.nz/news-and-resources/consultations/review-of-sustainability-measures-for-1-october-2018/>

National Plan of Action for Seabirds 2020 Consultation Page: <https://www.fisheries.govt.nz/news-and-resources/consultations/national-plan-of-action-for-seabirds-2020/>

18 How to get more information and have your say

86. Fisheries New Zealand invites you to make a submission on the proposals set out in this discussion document. Consultation closes at 5pm on 1 July 2020.
87. Please see the Fisheries New Zealand sustainability consultation webpage (<https://www.fisheries.govt.nz/news-and-resources/consultations/review-of-sustainability-measures-for-1-october-2020/>) for related information, a helpful submissions template, and information on how to submit your feedback. If you cannot access to the webpage or require hard copies of documents or any other information, please email FMSubmissions@mpi.govt.nz.