Bob Gutsell
President
NZ Sport Fishing Council
PO Box 54242, The Marina
Half Moon Bay, Auckland 2144
secretary@nzsportfishing.org.nz

Fisheries Management Team
Ministry for Primary
Industries
PO Box 2526
Wellington 6140
FMSubmissions@mpi.govt.nz

12 July 2022

Submission to the review of sustainability measures for East Coast Tarakihi (TAR 1E, 2, 3 and 7E) for 2022–23

Recommendations

The Minister -

1. **Sets a combined Total Allowable Catch to rebuild the eastern tarakihi in a time appropriate to the stock** by reducing the combined Total Allowable Commercial Catch for east coast tarakihi and achieving the following combined outcomes –
    a. A 27% reduction of the Total Allowable Catch (TAC) in TAR 1, 2, 3 and 7 (FNZ option 1);
    b. A 40% reduction of the Total Allowable Commercial Catch (TACC) in eastern tarakihi areas of TAR 1, 2, 3, and 7 (FNZ option 1);
    c. Ignores attempts to reset the rebuild start clock and accepts that 2018 was the first year of the rebuilding plan; and
    d. Rebuilds the eastern tarakihi stock to 40% of estimated unfished biomass by 2032.
2. **Divides TAR 1** at North Cape to create two separate Quota Management Areas, one spanning the east coast down to Cape Runaway, the other from North Cape to Tirua Point, south Waikato.
3. **Designates** the two main eastern spawning areas as 'habitats of particular significance for fisheries management' which must be protected in accordance with the environmental principles of the Fisheries Act 1996, and they must be closed to fishing methods that can both disrupt spawning behaviour and significantly reduce the number of fish spawning.
4. **Acknowledges** the need to use both the best available science and the current Fisheries New Zealand policy on rebuilding stocks that are below the soft limit.

5. **Acknowledges** our objection to the commercial fishing industry's sponsored management proposal which has not, and will not, deliver a time bound rebuild of the eastern tarakihi stock.

6. **Acknowledges** our support for the Government's Ocean Vision and the need for the Government to take action to ensure more ecosystem-based research, monitoring and effective management. This will help New Zealand align with international best practice that promotes management targets of 50% of the unfished biomass to help achieve more resilient ecosystems.

The submitters

7. The New Zealand Sport Fishing Council (NZSFC) appreciates the opportunity to submit on the proposals for the future management of east coast Tarakihi 1, 2, 3, & 7. Fisheries New Zealand (FNZ) advice of consultation was received on 7 June 2022, with submissions due by 12 July 2022.

8. The NZ Sport Fishing Council is a recognised national sports organisation of 55 affiliated clubs with around 35,000 members nationwide. The Council has initiated LegaSea to generate widespread awareness and support for the need to restore abundance in our inshore marine environment. Also, to broaden NZSFC involvement in marine management advocacy, research, education and alignment on behalf of our members and LegaSea supporters. www.legasea.co.nz.

9. The New Zealand Angling & Casting Association (NZACA) is the representative body for its 35 member clubs throughout the country. The Association promotes recreational fishing and the camaraderie of enjoying the activity with fellow fishers. The NZACA is committed to protecting fish stocks and representing its members' right to fish.

10. The New Zealand Underwater Association is comprised of 43 clubs nationally who represent a cohort of approximately 160,000 participants in underwater activities in New Zealand. These activities include diving, snorkelling, freediving, fin swimming, underwater hockey, spearfishing, underwater photography, underwater rugby, ghost diving marine clean up and Experiencing Marine Reserves. Through our membership we are acutely aware that the depletion of inshore fish stocks has impacted on the marine environment and our members' wellbeing.

11. Collectively we are '*the submitters*'. The submitters are committed to ensuring that sustainability measures and environmental management controls are designed and implemented to achieve the Purpose and Principles of the Fisheries Act 1996, including "maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations…" [s8(2)(a) Fisheries Act 1996].

12. Our representatives are available to discuss this submission in more detail if required. We look forward to positive outcomes from these reviews and would like to be kept informed of future developments. Our contact is Helen Pastor, secretary@nzsportfishing.org.nz

Background

13. Tarakihi has long been an important component of catch for customary Māori, commercial and recreational fishers. Tarakihi are distributed around New Zealand preferring cooler, deeper waters in the north and wide distribution in southern areas. Tarakihi are long lived,

relatively slow growing, and tagging studies show some long distance movement. Generally, there are more young fish in the south and more older fish in the north.

14. When tarakihi were introduced to the Quota Management System in 1986 the combined Total Allowable Commercial Catches (TACCs) for TAR 1, 2, 3 & 7 was 4,520 tonnes. This increased to 5,286 t (up 17%) following Quota Appeal Authority hearings. Area based increases in the 2000s brought the total to 5734 t. In 2017-18 the combined TACC for the four Quota Management Areas was close to the highest catch years in the 1970s, but not quite as high as the peak years in the 1960s when the stock was being fished down.

15. Most of the information used in the stock assessment comes from catch, effort and population age structure from the commercial fishery, with trawlers taking the majority of catch. Integrated stock assessment models combined all available information on tarakihi in each Quota Management Area (QMA) but worked best when all of the east coast of the North and South Islands were considered as one stock, with separate fisheries operating in each QMA. The model estimated the tarakihi spawning stock biomass (total weight of mature fish) had been below 20% of the unfished biomass since 2005 (0.2 grey dotted line in Figure 1). The assessment using 2016–17 catch and CPUE with the base case estimating a slight increase in spawning stock biomass to 17.3%. The fishing industry funded another update in 2019 which estimated the spawning stock biomass had declined to 15.9% of the unfished biomass in 2018. The most recent assessment is the eastern tarakihi stock is at 19.3% of unfished biomass.

16. Fisheries New Zealand has a policy on rebuilding fish stocks which are below a limit reference point to a target harvest level. The Harvest Strategy Standard Guidelines for tarakihi are that a time constrained rebuild plan is required for a stock below 20% and the Minister has confirmed that the current management target is 40% of the unfished biomass. The Minister received advice from officials and submissions from all sectors and tangata whenua in 2018 on the rebuild strategy and timeline. The submitters developed a comprehensive submission in 2018 emphasising the need for an effective rebuild given the excess exploitation of the eastern stock over decades.

17. Minister Nash's directives for the rebuild of this fishery in his 2018 decision letter included:

    - A biomass target of 40% SB_0 (40% of unfished spawning stock biomass) was considered robust and to constitute best available information, noting that an alternative target maybe considered if supported by scientifically robust and peer-reviewed information;
    - Support for a rebuild timeframe of 10 years; and
    - Acknowledgement that a 20% reduction (in 2018) will begin the process of rebuilding the stock, but will not rebuild the stock at the rate and to the target agreed without significant further measures.

18. The decision letter also stated, "in the absence of additional measures from a carefully considered and approved rebuild plan, a further 35% reduction in commercial catch from the 2017/18 catch level would most likely be required".

19. In 2019, the Minister implemented the second stage of the plan, which included a further 10% reduction to the TACC. During the 2019 review, the Minister also agreed to the implementation of the Eastern Tarakihi Management Strategy & Rebuild Plan 2019 (the Industry Rebuild Plan). The Industry Rebuild Plan consisted of a series of voluntary measures aimed at reducing the rebuild timeframe, and committed to a shorter rebuild period of 20 years with an interim target of 35% SB_0.

20. In December 2019, Forest and Bird filed proceedings seeking a judicial review of the Minister's 2019 decision, arguing that the catch limit reductions were not sufficient to allow East Coast tarakihi to rebuild within a "period appropriate to the stock".

21. In June 2021, the High Court found in favour of Forest and Bird and directed the Minister to review the Total Allowable Catch (TAC) and TACC settings for East Coast tarakihi in 2021, having regard to findings in the judgment.

22. In light of the planned November 2021 stock assessment, the High Court granted a stay of its decision until 1 October 2022 to enable the Minister to consider this assessment for the October 2022 review.

23. Following the High Court decision, Fisheries Inshore New Zealand (an organisation representing the inshore commercial fishing industry) filed an appeal of the June 2021 High Court decision. This appeal was heard in March 2022 by the Court of Appeal, which is yet to issue its decision.

Proposals to rebuild the eastern tarakihi stock

24. The ruling from the High Court in June 2021 found that a "period appropriate to the stock" should be assessed before deciding the way and rate a fish stock is rebuilt to its management target. FNZ has undertaken a review of tarakihi biology and international approached to setting rebuild periods, which concluded that any time period in the range of 10 –19.7 years would be appropriate for rebuilding the East Coast tarakihi stock. This does not match with the current Harvest Strategy Standard which is a mandatory consideration according to the High Court.

25. The submitters are resolute that the best available science and international standards support rebuilding to target should be no longer than twice T_{min} ($2*T_{min}$) in cases where T_{min} can be estimated from a quantitative stock assessment. (T_{min} is the minimum time to achieve rebuild to target in the absence of all fishing related mortality.)

26. Most fish stocks are able to rebuild quickly, even from an overfished state, when conditions are right. We have seen that in SNA 7 and SNA 8. With eastern TAR, recent recruitment has been low and future average recruitment is a major uncertainty affecting model projections.

27. The submitters note that the eastern TAR population has been slow to respond to the 20% reduction in TACC in 2018, plus the 10% reduction in the TACC and the industry rebuild plan in 2019. National Panel Survey estimates show recreational harvest declined between 2012 and 2018. In 2018 the combined allowance for recreational fishing interests in eastern TAR was reduced from 652 t to 221 t (-66%).

28. The most recent assessment is the eastern tarakihi stock is at 19.3% of unfished biomass. Given the slow rebuild since 2018, the high exploitation rate, and the ongoing targeting of spawning aggregations, it is clear that reaching the current management target will take longer than 2 times T_{min}.

29. As we advocated in our 2018 submission, had more decisive action been taken at the completion of the 2017 stock assessment the rebuild would be well under way by now. Instead, **the stock assessment projections have eastern TAR declining for the next two years,** falling below where it was in 2017 and finally reaching 20.6% of unfished biomass by 2026 (Figure 1).

30. Considering the projections in Figure 1 it is a warning to all concerned that the target spawning stock biomass of 40% ($SB/SB_0 = 0.40$) is off the chart, and the projected median value in 2032 is 27% of the unfished biomass. **Management tinkering is not working.**

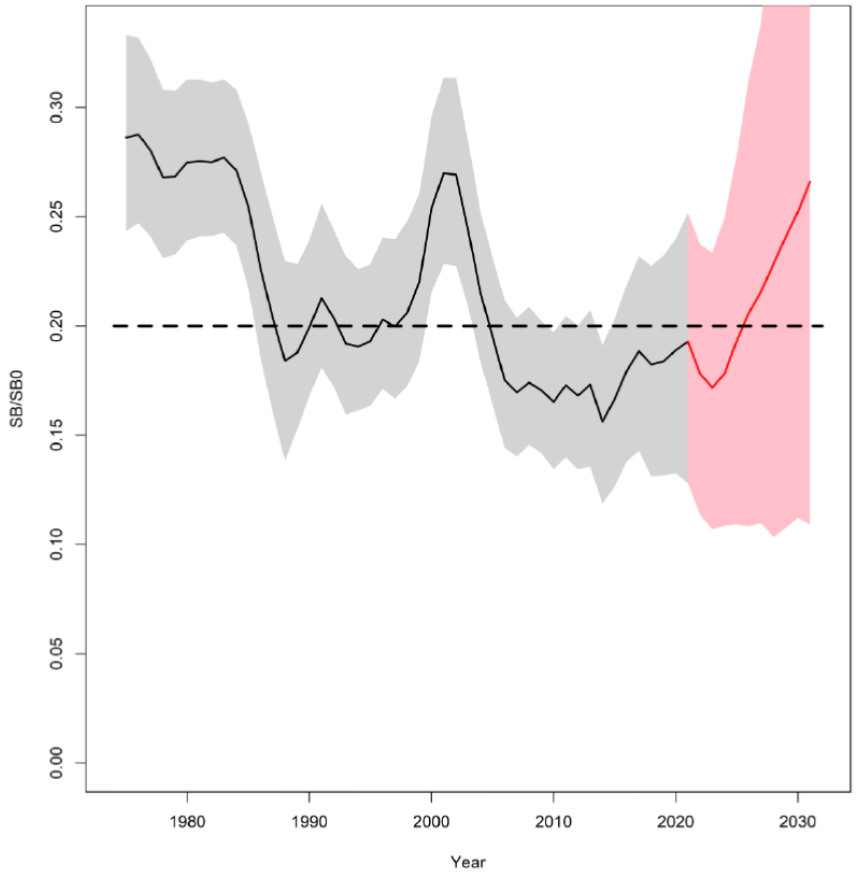


Figure 1: Annual trend in eastern tarakihi spawning biomass since 1975 relative to the 20% soft limit reference level (dashed line) with projections from 2022 at current catch levels (red line) and model uncertainty (grey and pink areas). (Source: 2021 stock assessment, November TAR plenary FNZ).

31. The pink area in Figure 1 (above) demonstrates the high level of uncertainty related to the eastern tarakihi spawning biomass. The projections after five years are scary to contemplate.

32. Given the widely uncertain biomass projections it is incumbent on the Minister to invoke sections 8, 9 and 10 of the Fisheries Act (1996) and take a precautionary approach when next setting the TAC and TACCs for eastern tarakihi.

33. Fisheries New Zealand has presented three options to set the Total Allowable Catch (TAC) and Total Allowable Commercial Catch (TACC). The allowances for Māori customary fishing and recreational fishing were reviewed in 2018 and no changes are proposed this year. The most recent stock assessment model was used to predict the rebuild times for each proposal.

Table 1: Summary of options proposed for East Coast tarakihi from 1 October 2022. Numbers are all in tonnes.

Stock	Option	TAC	TACC	Customary	Recreational	Other mortality
East Coast TAR Combined	Current setting	5205	4355	193	221	436
	Option 1	3803 ↓ (1402 t)	3081 ↓ (1274 t)	193	221	308 ↓ (128 t)
	Option 2	4561 ↓ (644 t)	3770 ↓ (585 t)	193	221	377 ↓ (59 t)
	Option 3	4864 ↓ (341 t)	4045 ↓ (310 t)	193	221	405 ↓ (31 t)
TAR 1*	Current setting	1333	1045	73	110	105
	Option 1	1137 ↓ (196 t)	867 ↓ (178 t)	73	110	87 ↓ (18 t)
	Option 2	1259 ↓ (74 t)	978 ↓ (67 t)	73	110	98 ↓ (7 t)
	Option 3	1308 ↓ (25 t)	1023 ↓ (22 t)	73	110	102 ↓ (3 t)
TAR 2	Current setting	1658	1350	100	73	135
	Option 1	1030 ↓ (628 t)	779 ↓ (571 t)	100	73	78 ↓ (57 t)
	Option 2	1387 ↓ (271 t)	1104 ↓ (246 t)	100	73	110 ↓ (25 t)
	Option 3	1529 ↓ (129 t)	1233 ↓ (117 t)	100	73	123 ↓ (12 t)
TAR 3	Current setting	1060	936	15	15	94
	Option 1	569 ↓ (491 t)	490 ↓ (446 t)	15	15	49 ↓ (45 t)
	Option 2	793 ↓ (267 t)	694 ↓ (242 t)	15	15	69 ↓ (25 t)
	Option 3	883 ↓ (177 t)	775 ↓ (161 t)	15	15	78 ↓ (16 t)
TAR 7*	Current setting	1154	1024	5	23	102
	Option 1	1068 ↓ (86 t)	945 ↓ (79 t)	5	23	95 ↓ (7 t)
	Option 2	1121 ↓ (33 t)	994 ↓ (30 t)	5	23	99 ↓ (3 t)
	Option 3	1143 ↓ (11 t)	1014 ↓ (10 t)	5	23	101 ↓ (1 t)

* *Catch limit reductions are proposed to come exclusively from the eastern portions of the TAR 1 and TAR 7 stocks, the proposed reductions for these areas are outlined in below*

Stock	Option	TAC	TACC	QMA Split^	
				East	West
TAR 1	Current setting	1333	1045	466	579
	Option 1	1137 ↓ (196 t)	867 ↓ (178 t)	288 ↓ (178 t)	579
	Option 2	1259 ↓ (74 t)	978 ↓ (67 t)	399 ↓ (67 t)	579
	Option 3	1308 ↓ (25 t)	1023 ↓ (22 t)	444 ↓ (22 t)	579
TAR 7	Current setting	1154	1024	161	863
	Option 1	1068 ↓ (86 t)	945 ↓ (79 t)	82 ↓ (79t)	863
	Option 2	1121 ↓ (33 t)	994 ↓ (30 t)	131 ↓ (30 t)	863
	Option 3	1143 ↓ (11 t)	1014 ↓ (10 t)	151 ↓ (10 t)	863

^ *The proportions by which the east and west zones are split have been calculated based on historical catch.*

Source: Fisheries NZ Discussion Paper No: 2022/04

Discussion

34. **The submitters support using the best available science and the application of the current Fisheries New Zealand policy on rebuilding stocks which are below the soft limit.** There has been significant investment by the Crown and commercial fishers collecting new catch-at-age data from trawl catch from all eastern TAR Areas in 2019 and 2020. This provided valuable data on recruitment, year class strength and total mortality for use in the stock assessment and model projections.

35. The only representation of existing and future trends for the eastern TAR stock in the Discussion Document (page 6) is out dated and provides a misleading impression of what the stock rebuild rate would be based on 2018–19 catch levels. The 2021 stock assessment provides the best available information on current status of the stocks and projections (Figure 1). The Minister, Treaty partners and stakeholders deserve to have the best available information clearly presented in figures and tables that help define the current situation, and rebuild trajectories over the time period appropriate for the stock.

36. The submitters are concerned the revision of the rebuild time appropriate for the eastern TAR stock weakens the Harvest Strategy Standard and could be applied to any other stocks (such as orange roughy) that has long regeneration times. It appears to have been adopted to justify the management approach to eastern TAR following the High Court case and not based on first principles.

37. In the past, submitters have been able to propose alternate management options based on the information in the plenary report and discussion document. The lack of any usable tables of projections provided is concerning.

    a. **Is the intention of Fisheries New Zealand to withhold that data and to limit the analysis and options available to the Minister?**

38. Another extremely concerning aspect of the current discussion document is the shifting baseline of the year that the rebuilds of eastern TAR starts from. Clearly Minister Nash and FNZ at the time intended the time-constrained rebuild plan to start in 2018. **This must not be changed.** Our evaluation of available options are based on the 2018 start date (Table 2).

39. Tarakihi is a low productivity stock and a move from below the soft limit to target will require significant catch reductions. The temptation to extend the rebuild time to mitigate the effects on fishers simply extends the misery. The Fisheries Act 1996 is clear (s13), “The Minister shall set a TAC that – Maintains the stock at or above the level that can produce the maximum sustainable yield, having regard to the interdependence of stocks”. That is the target. Nothing less.

40. The eastern tarakihi stock has been below the soft limit for 20 years, during that time commercial fishers have continued to remove and sell tarakihi, maintaining the stock below a level that now requires serious intervention – a state of sustainable depletion.

41. **The submitters support option 1 for the eastern tarakihi stock noting the corrected start of the time-constrained rebuild is 2018** (65% from the 2017 TACC) to rebuild the stock to 40% of unfished biomass in 10 years.

Impact on commercial fishers

42. The submitters are not oblivious to the impacts of rebuilding the eastern tarakihi stock. We have sympathy for the inshore commercial ACE fishers who work hard and bear the lion's share of personal and financial risk to catch fish, while the profits are taken by the quota owners. The incentives for investors to aggregate quota means fishers shift to using least-cost fishing techniques. This has stifled innovation in fishing methods and marketing for many years. The industry's 2019 Rebuild Plan has not helped.

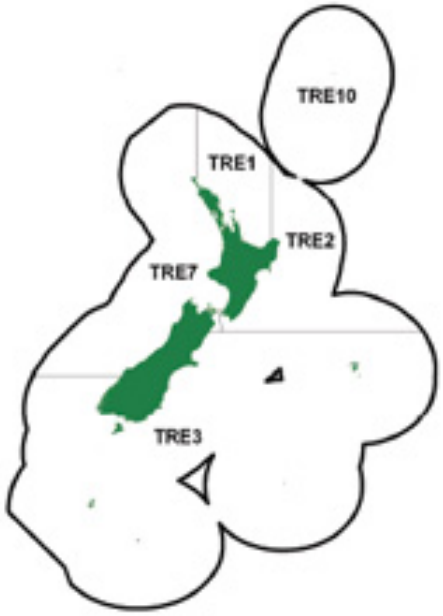
43. Currently, change is driven by a few dedicated innovators and is long overdue. However, high value, higher quality tarakihi catch using more selective fishing methods only becomes viable with biomass at higher levels. The transition from indiscriminate bulk harvesting methods, such as towing trawl nets for 4 hours or more will not be easy, but is necessary in a 21st century decarbonised fishing industry under New Zealand's Emissions Reduction Plan (2022). There are other significant changes coming for inshore commercial fishing that may be the last straw for some fishers, but opportunities for new entrants and innovators will arise.

Table 2: The tarakihi rebuild options proposed by Fisheries New Zealand adjusted by the submitters to conform to the Harvest Strategy Standard at the 2017 stock assessment that required the Minister to implement a time constrained rebuild plan in 2018.

	Option 1	**Option 2**	**Option 3**
Target	40% SSB_0 by 2032	40% SSB_0 by 2037	35% SSB_0 by 2042
Rebuild timeframe and rate from 2018	15 years 3 x T_{min}	20 years 4 x T_{min}	25 years 2 x T_{min} plus one generation time
Method of achieving target	A 40% reduction of the eastern TACC	A 15% reduction of the eastern TACC	A 5% reduction of the eastern TACC
Probability of achieving target	Possible	Remotely possible	Not foreseeable

44. Most tarakihi, by far, are caught by fishers who record TAR as their target species. The plots below were published in the New Zealand Fisheries Assessment Report 2017/44 in August 2017 in the lead up to the first eastern TAR stock assessment in 2017. They show that:

    - Most of the tarakihi trawl catch in TAR 1 was taken in the 130–220 m depth range by the target fishery (Figure 2). The tarakihi bycatch from the inshore trawl fisheries was taken in the 30–140 m depth range.
    - Most of the target tarakihi trawl catch in TAR 2 was taken in the 40–160 m depth range (Figure 3), while the relatively small proportion of the tarakihi catch taken by the red gurnard trawl fishery was predominantly taken in the 30–80 m depth range.
    - Most of the tarakihi trawl catch was taken in the 50–140 m depth range, predominantly from the target fishery (Figure 4). The red cod and barracouta trawl fisheries caught tarakihi over a similar depth range to the target trawl fishery.



45. While tarakihi have been an important species taken in the mixed inshore trawl fishery the data shows that most is taken when tarakihi is the target species and relatively little as bycatch when targeting other species. Fishing depth of over 120 m is where most tarakihi is caught in TAR 1, or over 60 metres in TAR 2 and TAR 3. Trawl fishers can avoid large catches of tarakihi though it may be harder in TAR 2.

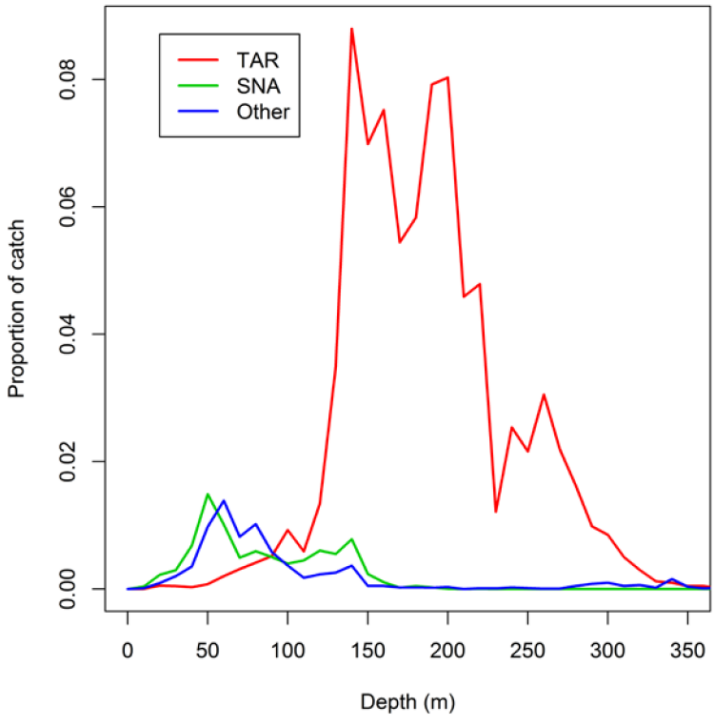


Figure 2: Proportional depth distribution of tarakihi single trawl catch from the Hauraki Gulf – East Northland fishery by bottom depth (10 metre depth intervals) and target species from 2007/08 to 2015/16 for the main bottom trawl target species. (Source: Fisheries NZ)

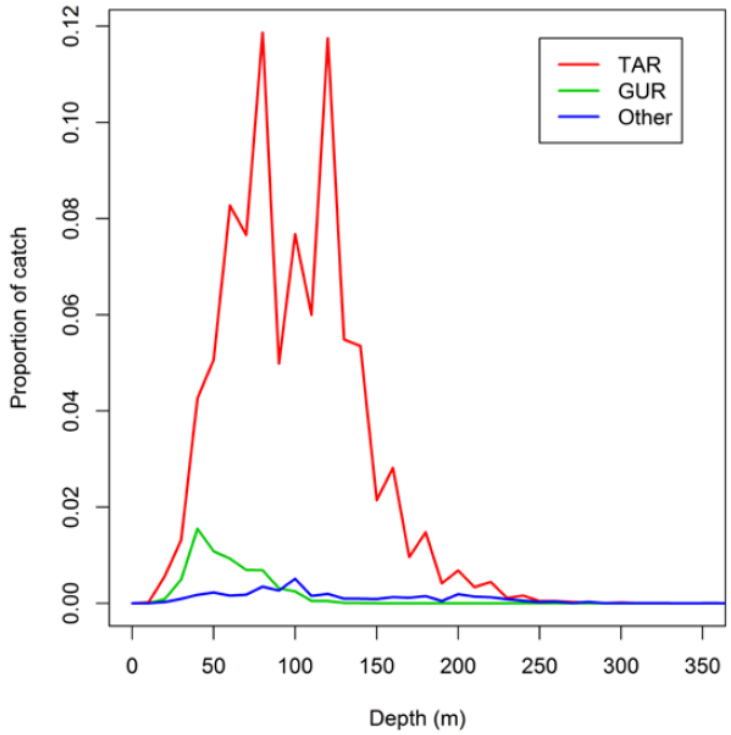
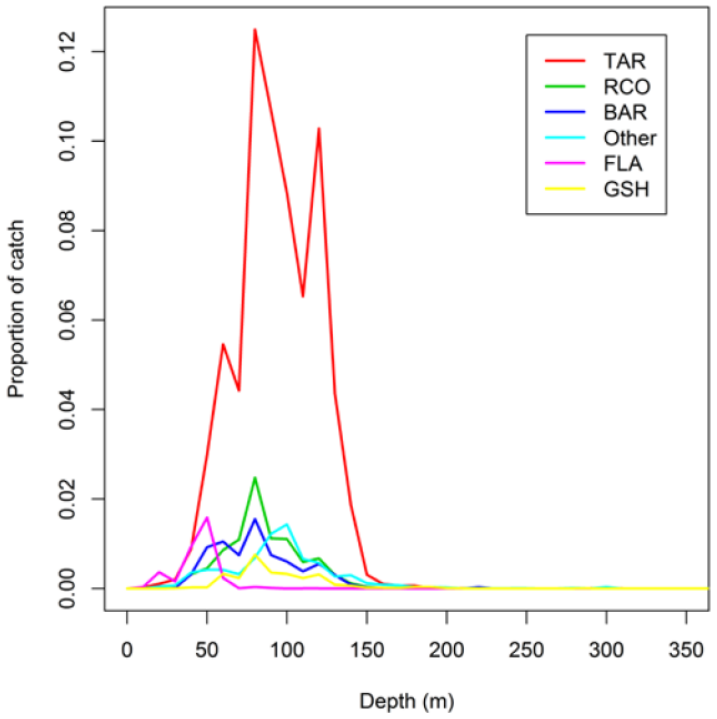


Figure 3: Proportional depth distribution of tarakihi single trawl catch from the central ECNI (TAR 2) fishery by bottom depth (10 metre depth intervals) and target species from 2007/08 to 2015/16 for the main bottom trawl target species. (Source: Fisheries NZ)



Target species
Tarakihi
Red cod
Barracouta
Flatfish
Ghost shark

Figure 4: Proportional depth distribution of tarakihi single trawl catch from the east coast South Island (TAR 3) fishery by bottom depth (10 metre depth intervals) and target species from 2007/08 to 2015/16 for the main bottom trawl target species. (Source: Fisheries NZ)

Precautionary management

46. **The exploitation rate of tarakihi is still too high.** The 2021 stock assessment estimates that fishing mortality is 61% over the level that would support Maximum Sustainable Yield (MSY). That will come down as the stock rebuilds but the predicted rebuild rate is far too slow at current catch levels. No projections of fishing mortality rates at other catch settings have been supplied by officials.

47. **Maintaining an annual fishing mortality rate about equal to the natural mortality rate (10%) is generally considered to be good management for stocks at their target biomass.**

48. The submitters support the Government's Ocean Vision's commitment to more Ecosystem Based Fisheries Management (EBFM) and to meet its international commitments, and recent policy goals but there are risks that this will become stalled by complexity.

49. An ecosystem approach can take many forms. In our view the best initial approach is to implement management targets that will promote healthier ecosystems with more resilience to environmental change and natural disasters.

50. Stock abundance targets of 40% unfished biomass are intended to manage risk while maximising yield. This target is promoted in the Harvest Strategy Standard developed by officials and published in 2008.

51. More recent literature supports higher targets. Australia is investing in rebuilding their stocks to 60% of the unfished biomass. The submitters are now promoting ecosystem based fisheries management based on setting stock abundance targets of 50% unfished biomass, and reducing the external impacts of bottom contact fishing and sedimentation from land based sources. Under this precautionary approach, the hard limit would increase from 10% to 20% of the unfished biomass. The moderate loss in tonnage taken would be offset by selling only premium product to the most discerning markets. Many of our deep water stocks already have stock abundance targets around 50% B_0.

52. There will be plenty of time in the future to refine an ecosystem based assessment methodology that suits New Zealand, but in the interim we must strive for higher abundance in the knowledge that it will boost ecosystem resilience. Over time this approach will improve the catchability of fish, an important aspect given rising fuel prices.

53. Tarakihi recruitment is variable. The trend is that tarakihi more north as the age, the oldest fish are found off the northeast coast of the North Island. Precautionary management of the depleted eastern tarakihi stock requires the two (known) main spawning areas to be closed.

54. The known spawning grounds from Cape Runaway to East Cape (North Island), and the other from Cape Campbell to Pegasus Bay (South Island) have been heavily fished in the past (Figure 5). Trawling these aggregations can disrupt spawning behaviour and reduce the number of fish spawning. Given the depleted state of the stock it is important we protect spawning fish so the stock can rebuild.

55. The submitters request the Minister to designate the two main spawning areas on the east coast as 'habitats of significance for fisheries management' which means they must be protected in accordance with the environmental principles of the Fisheries Act 1996.

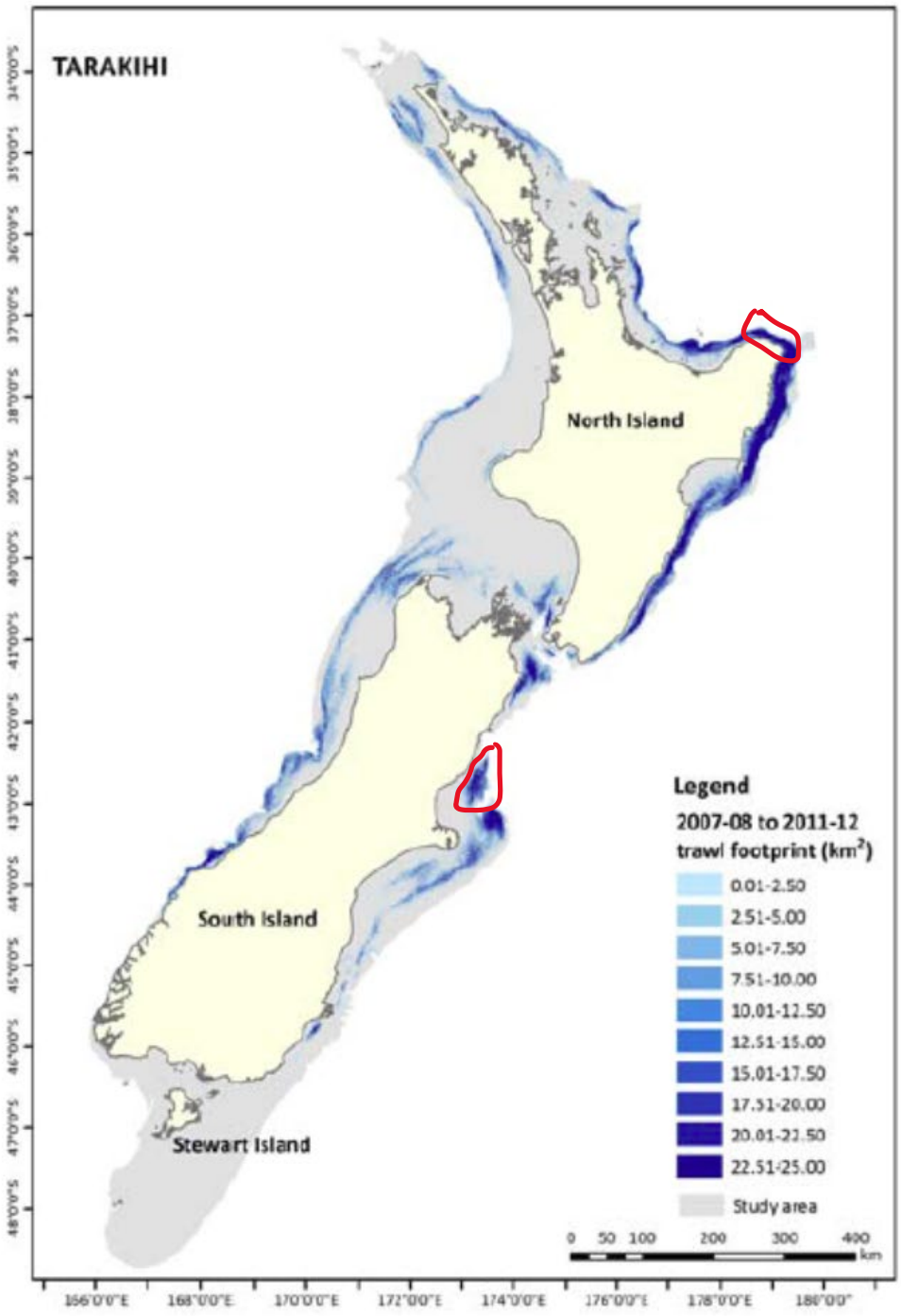


Figure 5: The trawl footprint for tarakihi targeting in the trawl fishery 2007–08 to 2011–12, spawning grounds highlighted in red.