Fisheries New Zealand
Tini a Tangaroa

The Eastern Tarakihi Management Strategy and Rebuild Plan – Progress Report

Quarterly Report: 1 October – 31 December 2020

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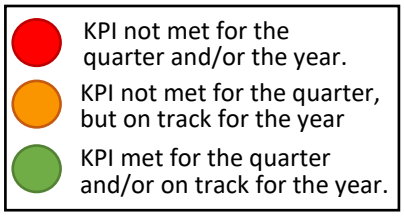
1. Introduction

The East Coast tarakihi stock (TAR 1 (east), TAR 2, TAR 3, and the Cook Strait portion of TAR 7) is currently undergoing a rebuild. As part of his decisions on the October 2019 Sustainability Round, the previous Minister of Fisheries decided to implement the industry and Te Ohu Kaimoana led *Eastern Tarakihi Management Strategy and Rebuild Plan* (the Rebuild Plan).

The Rebuild Plan is designed to rebuild East Coast tarakihi through two concurrent workstreams; Management Measures and Enhancing Science. The Rebuild Plan, developed by Fisheries Inshore New Zealand, Te Ohu Kaimoana, and Southern Inshore Fisheries represents a commitment to the sustainable management of the East Coast tarakihi fishery.

As part of the Rebuild Plan, industry and Te Ohu Kaimoana are committed to quarterly reporting outlining progress towards meeting Key Performance Indicators (KPIs) in their plan. To assist industry with reporting and ensure transparency, Fisheries New Zealand has prepared this report to document industry progress towards meeting the KPIs outlined in their plan. As a result, this quarterly report should be read in conjunction with the Rebuild Plan.

To allow for monitoring of the initiatives in the Rebuild Plan, a framework to report on progress and adherence to measures is outlined in the table below. Please note that this report only reports on progress to date on the KPIs for each of the management measures. Most of the KPIs can only be measured at the end of the fishing year. This report provides a 'progress' indication using the following 'traffic light' system.



2. Summary of Key Performance Indicators

Four of the six KPIs have been met for the quarter and five out of six are on track for the year.

Management Measure	Milestones	KPI progress	
		1st Quarter	Fishing year
Catch Reduction	• Catch reduction progress & monitoring reporting.	Milestone met	On track
Catch Spreading	• Cumulative reporting of TAR 1 & 7 E/W catches against voluntary catch spreading limits. • Cumulative reporting of individual ACE allowances for TAR 1 & 7 E/W.	Milestone met	On Track
Reporting sub-MLS	• Summary reporting of the proportion of sub-minimum legal size tarakihi (sub-MLS TAR) by Quota Management Area (QMA).	Milestone met	On Track
Move-on rule	• Reporting of the number of move-on rule triggers by QMA, actions taken by fishers following the triggers & any follow-up actions taken.	Not Met	On Track
Voluntary Closed Areas	• Reporting of the number of incidents of vessels crossing closed area boundaries while fishing & any follow-up actions taken.	Not Met	Not Met
Selectivity Trials	• Quarterly progress reports.	Milestone met	On Track

Industry are committed to using on-board cameras to give greater confidence in reporting, and releases of undersized tarakihi. On-board cameras will be used to monitor the significant majority of the catch in TAR 2 and TAR 3, the Quota Management Areas with the highest level of juvenile tarakihi, by the end of 2020.

Additional measure	Milestones	KPI progress
On-board Camera Project	• On-board camera monitoring of majority of the catch in TAR 2 & TAR 3.	Reporting to commence in 2021

Quarterly Reporting for 1 October 2020 – 31 December 2020

3. Regional Monitoring and Management Plans (RMMP)

Regional management and monitoring plans apply to both operational measures and research projects for the relevant regions. They bring measures together and promote the implementation of work streams to ensure regional management action is taken in a timely and effective manner.

Implementing measures regionally will better reflect the nature of the specific area as a part of the overarching Rebuild Plan and improve the ability to manage the complexity of the fishery as a whole.

Key Performance Indicator (KPI): 90% of quota share signatories (all regions/sub-stock areas)	1 Oct – 31 Dec 2020	Fishing year
TAR 1	●	●
TAR 2	●	●
TAR 3	●	●
TAR 7	●	●
Total	●	●

Supporting information:

	Number of quota holder signatories/total quota holders	% of total quota shares
TAR 1	31/86	90.30%
TAR 2	17/38	91.39%
TAR 3	17/34	96.90%
TAR 7	20/49	90.03%
Total	**81/207**	**91.88%**

4. Catch Reduction

In October 2019, the Minister of Fisheries decided to reduce the total allowable commercial catch (TACC[1]) for TAR 1, TAR 2, TAR 3 and TAR 7 for the second consecutive year. The TACCs for the 2018/19 and the 2019/20 fishing years following the Minister's decisions are:

	2018/19 TACC (tonnes)	2019/20 TACC (tonnes)
TAR 1	1,097	1,045
TAR 2	1,500	1,350
TAR 3	1,040	936
TAR 7	1,042	1,024
Total	**4,679**	**4,355**

A comparison of the catch to date versus TACC by month across the relevant tarakihi stocks is provided in the sections below. In addition, the cumulative percentage of the Annual Catch Entitlement (ACE[2]) caught by month is compared to the available ACE, which allows for monitoring and analyses of any discrepancies. For tarakihi, and most other stocks, if a fisher doesn't catch their full ACE amount during the fishing year, they will get a certain amount of it issued to them the following year – this is called an under-fishing allocation. Therefore, it is possible that the 'available' ACE for a fish stock could exceed the TACC in a given fishing year.

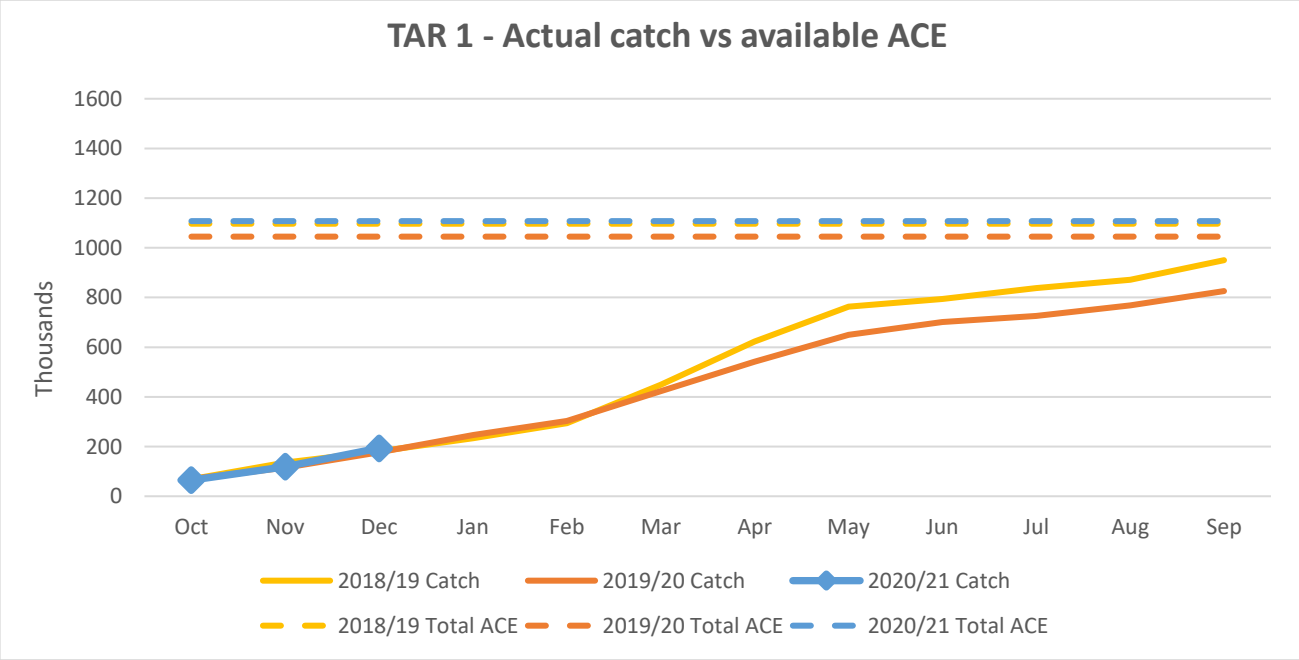
[1] TACC is the quantity of each fish stock that the commercial fishing industry can catch in a given year.

[2] ACE is the right to catch a certain amount of a fish stock during the fishing year.

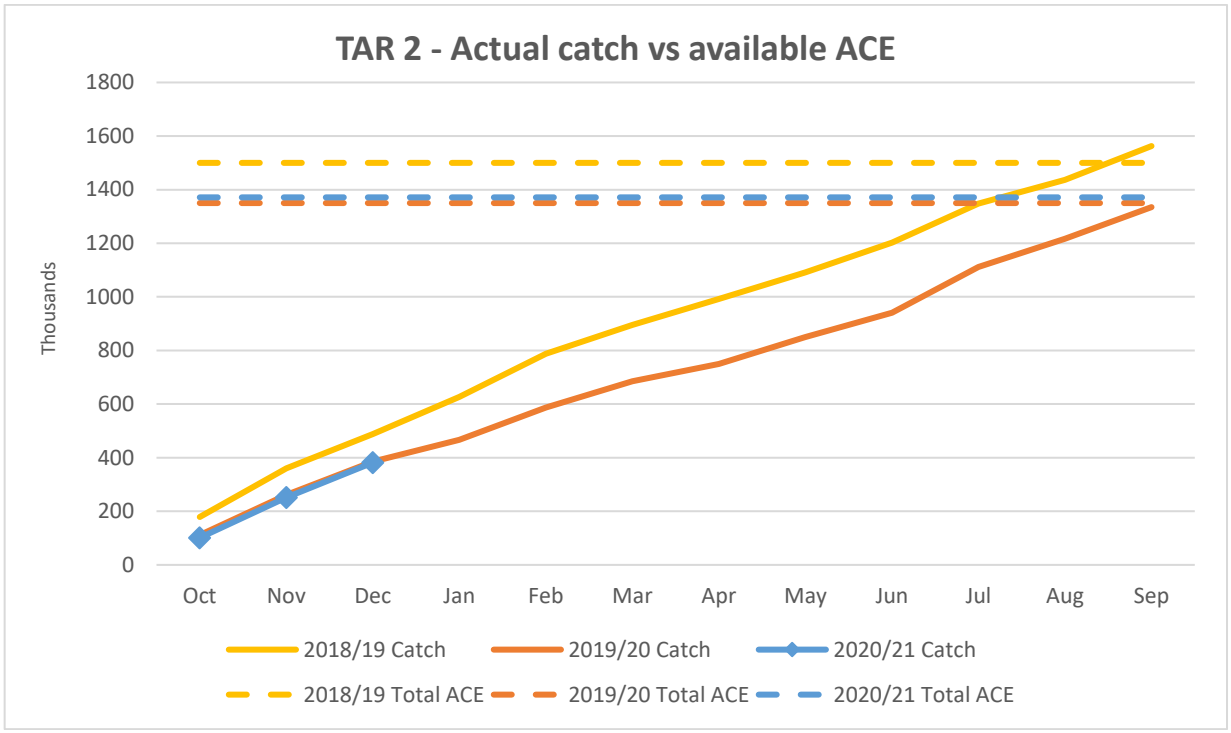
Key Performance Indicator (KPI)	1 October – 31 Dec 2020	Fishing year
Fish within the allocated ACE	●	●

Supporting Information:

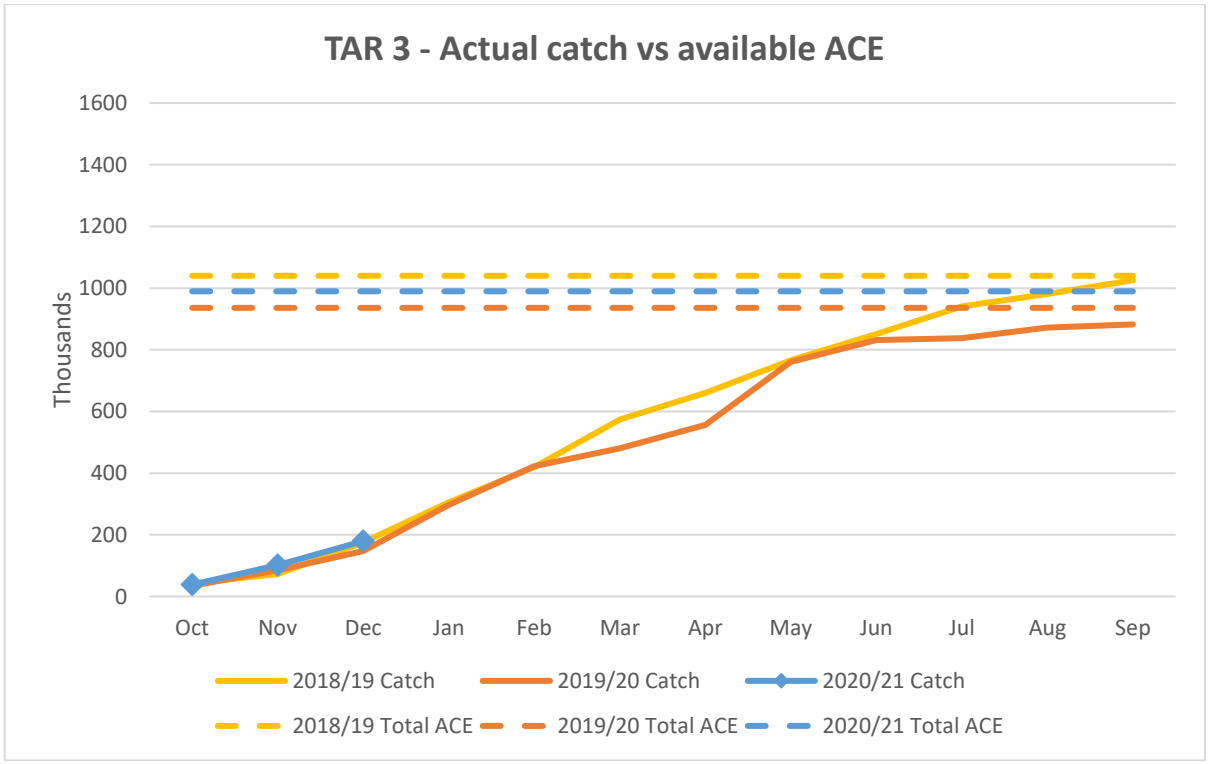
TAR 1 - Actual catch vs. TACC		Oct '20	Nov '20	Dec '20
2020/21	Catch per Month (kg)	64,865	54,544	74,197
	Cumulative % TACC caught	6.21%	11.43%	18.53%
2019/20	Catch per Month (kg)	69,574	45,685	61,407
	Cumulative % TACC caught	6.66%	11.03%	16.91%
2018/19	Catch per Month (kg)	69,011	66,970	44,179
	Cumulative % TACC caught	6.29%	12.40%	16.42%



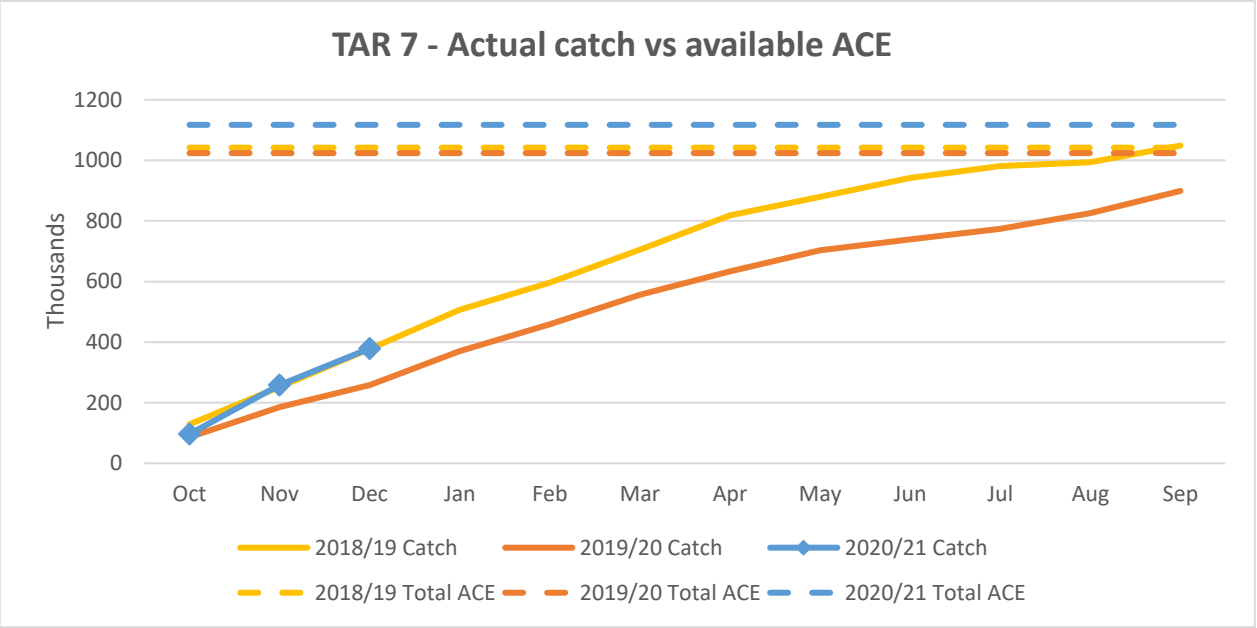
TAR 2 - Actual catch vs. TACC		Oct '20	Nov '20	Dec '20
2021/21	Catch per Month (kg)	101,160	150,096	130,445
	Cumulative % TACC caught	7.49%	18.61%	28.27%
2019/20	Catch per Month (kg)	111,271	150,109	123,678
	Cumulative % TACC caught	8.24%	19.36%	28.52%
2018/19	Catch per Month (kg)	178,778	181,388	128,476
	Cumulative % TACC caught	11.92%	24.01%	32.58%



TAR 3 - Actual catch vs. TACC		Oct '20	Nov '20	Dec '20
2021/21	Catch per Month (kg)	38,269	63,937	77,251
	Cumulative % TACC caught	4.09%	10.92%	19.17%
2019/20	Catch per Month (kg)	34,686	50,592	61,718
	Cumulative % TACC caught	3.71%	9.11%	15.70%
2018/19	Catch per Month (kg)	42,688	30,314	102,744
	Cumulative % TACC caught	4.10%	7.02%	16.90%



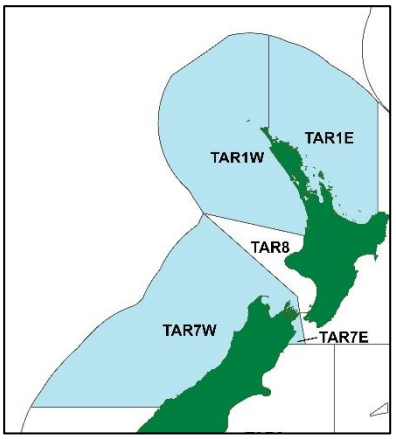
TAR 7 - Actual catch vs. TACC		Oct '20	Nov '20	Dec '20
2021/21	Catch per Month (kg)	96,348	16,1407	121,288
	Cumulative % TACC caught	9.41%	25.17%	37.02%
2019/20	Catch per Month (kg)	86,255	99,122	72,518
	Cumulative % TACC caught	8.42%	18.10%	25.19%
2018/19	Catch per Month (kg)	128,671	123,730	125,029
	Cumulative % TACC caught	12.35%	24.22%	36.22%



5. Catch Spreading

The East Coast tarakihi stock includes the eastern portions of both TAR 1 and TAR 7 (referred to as TAR 1E and TAR 7E). The catch spreading measures relate to the division of catch through non-regulated measures within these two Quota Management Areas (QMAs)[3] to:

- Restrict the take from each of the sub-QMAs to prevent a disproportionate amount of the TACC being taken out of the East Coast portion of TAR 1 and TAR 7; and
- Ensure that the TACC reductions are effectively aimed at increasing the East Coast stock.



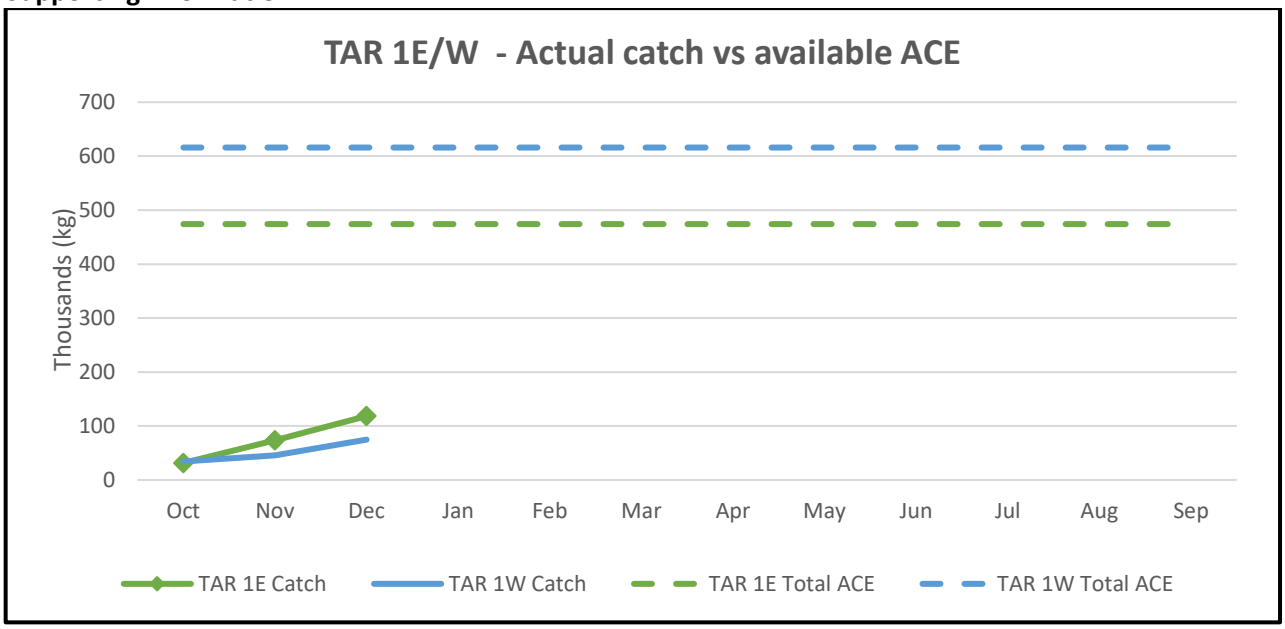
	Total ACE (tonnes) 2020/21	Total Eastern ACE (tonnes) available 2020/21	Eastern sub-area % cumulative ACE caught at the end of first quarter[4]	Total Western ACE (tonnes) available 2020/21	Western sub-area % cumulative ACE caught at the end of first quarter[4]
TAR 1	1,090	474	31.5%	616	19.2%
TAR 7	1,117	168	59%	948	38.4%

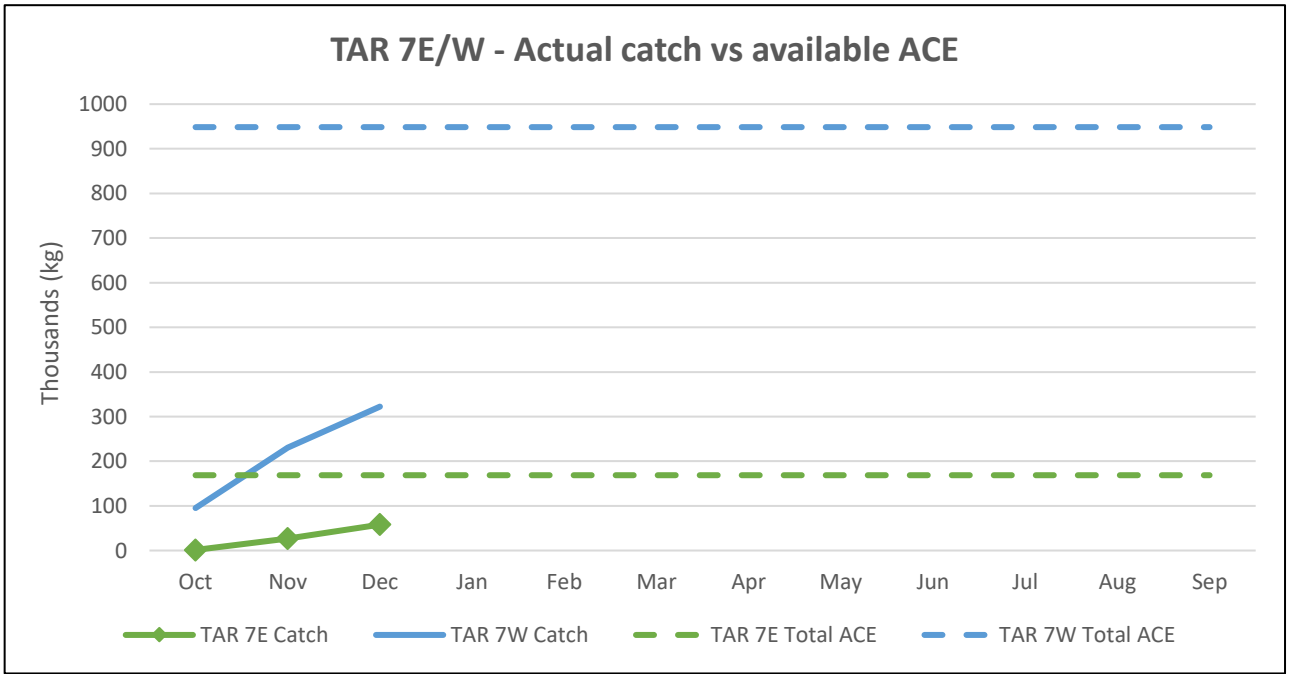
[3] TACC is usually for a single stock across an entire QMA. However, in the case of TAR 1 and TAR 7, the geographical area of these QMAs include both the West Coast tarakihi stock (TAR 1W and TAR 7W) and the East Coast stock (TAR 1E and TAR 7E).

[4] From 1 October 2020 to 31 December 2020.

Key Performance Indicator (KPI):	1 Oct – 31 Dec 2020	Fishing year
TAR 1		
90% of quota shares sign to voluntary split east/west for TAR 1	●	●
80% adherence to providing east/west catch reports for TAR 1 in line with east/west split arrangements	●	●
TAR 7		
90% of quota shares sign to voluntary split east/west for TAR 7	●	●
80% adherence to providing east/west catch reports for TAR 7 in line with east/west split arrangements	●	●

Supporting information:





6. Reporting undersized tarakihi

Reducing catch of undersize tarakihi (sub-MLS TAR) ensures that a greater portion of the juvenile tarakihi remain in the fishery and subsequently contribute to a faster rebuild. Recording information on undersize tarakihi catch is essential to develop effective selectivity measures such as: mesh size, orientation, move-on rules, and spatial and temporal management measures.

Key Performance Indicator (KPI)	1 Oct – 31 Dec 2020	Fishing year
100% compliance with undersize tarakihi reporting	●	●

Supporting information:

The table below provides summaries of the number of events that reported landings of TAR 1, 2, 3 or 7, and the proportion of juvenile tarakihi by area and method. Data from area-method strata with less than three vessels or clients have been omitted from tables to ensure privacy of individual fishers. The data provided shows that the total sub-MLS TAR catch as a proportion of the total TAR catch during this reporting period was less than 0.2%.

	Method	Number of events	Number of vessels	Total TAR catch (kg)	Total sub-MLS[5] TAR catch (kg)	% sub-MLS TAR/TAR
TAR 1	Bottom longline	804	47	23,018	4	0.02
	Bottom trawl	863	19	133,857.8	36.93	0.03
	Danish seine	121	3	3,814	0	0.00
	Trawl other	246	4	24,825	2	0.01
	Other methods	45	11	316.5	0	0.00
TAR 2	Bottom longline	168	11	1,656	0	0.00
	Bottom trawl	1,025	20	341,102	140.12	0.04
	Set net	13	4	81	0	0.00
	Other methods	19	5	6735	4	0.06
TAR 3	Bottom longline	51	2	468	0	0.00
	Bottom trawl	586	28	158,482	1,857.28	1.17
	Set net	239	7	38,072	9	0.22
	Other methods	123	12	14,118	32	
TAR 7	Bottom longline	100	10	1,088	0	0.00
	Bottom trawl	1,614	29	371,769	101	0.03
	Other methods	19	10	80	0	0.00

7. Move-on rule

The East Coast tarakihi fishery is operating move-on rules where high concentrations of undersize tarakihi are found. These are also included in the RMMP. The move-on rule applies when both of the following triggers are met:

- Tarakihi is greater than 10% of the total catch in any haul; and
- Undersize tarakihi is greater than 15% of the tarakihi catch by weight.

If a move-on rule is triggered, the fisher is required to move at least one nautical mile (NM) horizontally, or 10 meters deeper than all parts of the line where the small fish were encountered.

[5] fish below the minimum legal size.

Key Performance Indicator (KPI)	1 Oct – 31 Dec 2020	Fishing year
90% of quota shares as signatories to Regional Management and Monitoring Plans (RMMP)	●	●
90% adherence to move-on rule	●	●

Supporting Information:

In the period from 1 October to 31 December 2020 there were 586 trawl events. During that period there were three official triggers to the move-on rule, with the move-on rule being adhered to twice and not adhered to once. Additionally, there were five trigger events by a vessel that was conducting pre-approved fishing gear trials as part of the rebuild strategy. These were not considered non-adherence events.

The non-adherence occurred because the following event, after the rule was triggered, occurred within 1 Nautical Mile of any point of the previous tow. As the move-on rule was officially triggered three times and had one case of non-adherence by a signatory of the RMMP it didn't achieve the 90% adherence required to pass the KPI for the quarter. However, as 66% adherence was achieved this KPI still has the potential to be achieved for the fishing year.

The operator of the vessel was contacted and reminded of the Rebuild Plan and voluntary measures in place. Industry will continue to engage with fishers about the Rebuild Plan and implementation of the voluntary measures.

Month	Sub-stock	# move-on rule triggers (events)	Signatory to RMMP (Y/N)	Adherence (Y/N)	Action
October	TAR 3	2 (official) 1 (pre-approved research)	Y/Y/Y	Y/Y/N	Vessel operators contacted and informed of the voluntary measures in place as a part of the rebuild strategy. One non-adherence event was associated to preapproved research.
November	TAR 3	1 (official) 4 (pre-approved research)	Y/Y/Y/Y/Y	N/Y/N/N/N	Four non-adherence events were associated to preapproved research. For the remaining non-adherence event the vessel operator was contacted and informed of the voluntary measures in place as a part of the rebuild strategy.

8. Voluntary closed areas

The RMMP for TAR 2 includes four voluntary closed areas where high abundance of juvenile tarakihi has been identified (refer Appendix One). Voluntary compliance by all signatories to not trawl in those areas for tarakihi will be monitored and reported on a quarterly basis.

Of the 1037[6] trawl events that occurred in TAR this quarter there were eight breaches of the voluntary closed areas by signatories of the RMMPs. This equates to over 99 % adherence to this rule. All non-adherence that occurred in this quarter is considered to represent minor incidents with the majority of industry successfully adhering to the closures. These events were either along the edge of, or slightly crossed the corner of a closed area, with majority of each tow conducted outside of the area. Communication will continue throughout the fishing year to ensure the importance of avoiding these areas is understood by all relevant parties. This includes phone calls to operators to let them know when they have breached a voluntary closed area.

[6] Total trawl events in TAR 2 = 1037. 1025 Bottom trawl events and 12 Precision Bottom Trawl (PBT). PBT is included is included in 'other methods in the table in section 6 above to protect fisher privacy due to the low numbers of vessels participating in this fishery.

During this quarter, analysis of adherence to the voluntary closed areas resulted in the identification of some technical errors associated with the Geospatial Position Reporting (GPR). These include:

- GPR data not transmitted to the service provider due to device failure or limited mobile reception;
- GPR data transmitted to the GPR service provider, but not to MPI;
- GPR data transmitted, but several data points were missing due to limited mobile reception ('broken event track'); and
- Incidental reporting error for the start and/or end of event.

These errors have the potential of showing false 'adherence' or 'non-adherence'. All events have been manually reviewed to identify any potential errors to ensure correct reporting of the KPI.

Key Performance Indicator (KPI)	1 Oct – 31 Dec 2020	Fishing year
90% of quota shares signatories to Regional Management and Monitoring Plans (RMMP) in TAR 2	●	●
100% adherence by signatories	●	●

Supporting information:

Month	Voluntary closed area (Map Number)	# of trawl events crossing/within voluntary closed area	Was sub-MLS TAR caught? (Y/N)	Signatory to RMMP (Y/N)
October 2020	2	2	Y/N	Y/N
November 2020	2	2	N/N	N/N
December 2020	4	7	N/Y/N/N/N/Y/N	Y/Y/Y/Y/Y/Y/Y

9. Improved selectivity of nets

As a part of an ongoing commitment to gear innovation, the Rebuild Plan includes a three-phase process to improve selectivity of nets in East Coast tarakihi ("how we fish"). The work involves research into fishing gear modifications, particularly trawl nets, to reduce the amount of undersize tarakihi caught. This will be achieved by adjusting nets so larger fish are retained while undersize tarakihi are not.

Progress to date:

- The 2019/20 selectivity trial plan has been provided to the Minister and FNZ.
- TAR 2 trials were completed in August/September 2020.
- TAR 3 trials were completed in October/November 2020.
- Analysis of the data from these trials is currently underway and the results will be presented to the FNZ scientific working groups for scientific peer review of the results.

10. On-board camera project

The purpose of the on-board camera project is to provide verification of the scale of juvenile tarakihi catches in TAR 2 and TAR 3.

Progress to date:

- Industry submitted its proof of concept to the Minister in December 2019.
- Minister responded to industry proof of concept proposal on 9 March 2020.
- Industry progressing this work and working with FNZ on the project approach.

11. Enhancing Science

11.1. Automated identification and measurement of legally released fish[7]

[7] Formally referred to as the 'Discard chute work (Sub-Minimum Legal Size)'.

Fish below minimum legal size are required to be returned to the water, so small tarakihi are rarely measured. This means the age-structure of smaller fish below the minimum legal size is not well known.

A Chute for Automated Measuring will provide an efficient way of measuring all fish on deck, including sub-MLS fish, in an accurate manner that does not require additional personnel on a vessel, which is ideal for small inshore vessels.

The outcome will be a more well-informed distribution of lengths for the whole size range of tarakihi. This will better inform stock assessments and provide information on future recruitment into the fishery. This can then be used to inform projections of how the fishery is rebuilding.

Progress to date:

- Proposal approved for SFFF[8] funding in July 2020.
- Contracting arrangements are being finalised and the project will be starting in March / April this year.
- Proposal includes working with international experts and collaborating with range of government and non-government stakeholders.
- Field work to be conducted on vessels will most likely involve training feature recognition software and determining any issues with the placement of equipment on small vessels.

11.2. East Coast South Island (ECSI) trawl survey

The ECSI trawl survey is considered to provide the most accurate measure of abundance for many South Island inshore species. A long-term time series of fishery-independent relative abundance indices is a useful tool to monitor fish stocks, including tarakihi. This data also supports analyses of commercial catch per unit effort (CPUE) as an input into stock assessments for these stocks.

In addition, surveys provide early indications of year-class strength, changes in maturity-at-age, growth and mortality. The information collected provides indications of any potential changes to the productivity of the stock that should be considered when making management decisions.

Progress to date:

- The latest ECSI trawl survey was conducted in 2018, with the next survey scheduled for 2021. The timing of this survey has been delayed due to COVID-19.

11.3. Catch sampling

The stock assessment is strongly informed by the age composition data from the commercial fishery catch sampling as it informs stock structure and provides information on cohort and recruitment strength. The National Institute of Water and Atmospheric Research (NIWA), contracted by MPI, is conducting a two-year catch sampling project to obtain this information.

Progress to date:

- Current catch sampling has been conducted since October 2018.
- The results of this important work will be presented for scientific peer review in March 2021.
- Results will be included in the new stock assessment for tarakihi.

11.4. Genetic research

The objective of the genetic research is to better understand the connectivity of tarakihi through genetics in order to determine the structure of the New Zealand tarakihi stock.

Progress to date:

[8] The Ministry for Primary Industries 'Sustainable Food and Fibre Futures Fund'.

- Preliminary genetic research focused on investigating mitochondrial DNA has concluded that New Zealand tarakihi is a single genetic population, and that Australian tarakihi and New Zealand king tarakihi are genetically different.

- Research is now underway to analyse the entire tarakihi genome to provide a more detailed assessment of tarakihi connectivity within New Zealand.

- To date 1,400 specimens from 19 regions, 60 fish from Australia and four king tarakihi have been collected. The samples were processed to collect genetic material and length, weight and sex data.

- Results of this research are scheduled for mid-2021 and will be incorporated as appropriate, into the new stock assessment for tarakihi.

11.5. Stock assessment

The next stock assessment is currently underway with results due for completion by November 2021. The stock assessment will bring together best available peer reviewed information on East Coast tarakihi, provide an up to date assessment of stock abundance and provide the first insights on the level of success of the rebuild of East Coast tarakihi.

Appendix 1 – Voluntary Closed Areas