



Supporting a Sustainable Fishery

Eastern Tarakihi Management
Strategy and Rebuild Plan



What does tarakihi mean to Aotearoa New Zealand?



Available for harvest year round and caught along entire East Coast



90%

Catch sold to local market



>80% of Kiwis eat fish once a month: <11% of us annually catch our own fish



Tarakihi | *Nemadactylus macropterus*



Major part of inshore mixed trawl fishery



38%

Iwi owned quota with other quota owners also providing a significant investment



Supports a diverse inshore fishing community





Our objective

Tarakihi is an important fishery for all New Zealanders; it is a staple fish supporting local markets and recreational interests. We aim to develop an effective strategy to rebuild and maintain a healthy fishery for our future generations.

Goal: *To rebuild and maintain the stock at or above the biomass that achieves maximum sustainable yield.*

Action: *Engaged and active management throughout entire rebuild timeframe and beyond.*

In this document we briefly outline the process to achieve our objective.

This paper is an executive summary of the full Eastern tarakihi management strategy and rebuild plan, which is available on the Fisheries Inshore New Zealand website - www.inshore.co.nz

CONTENTS

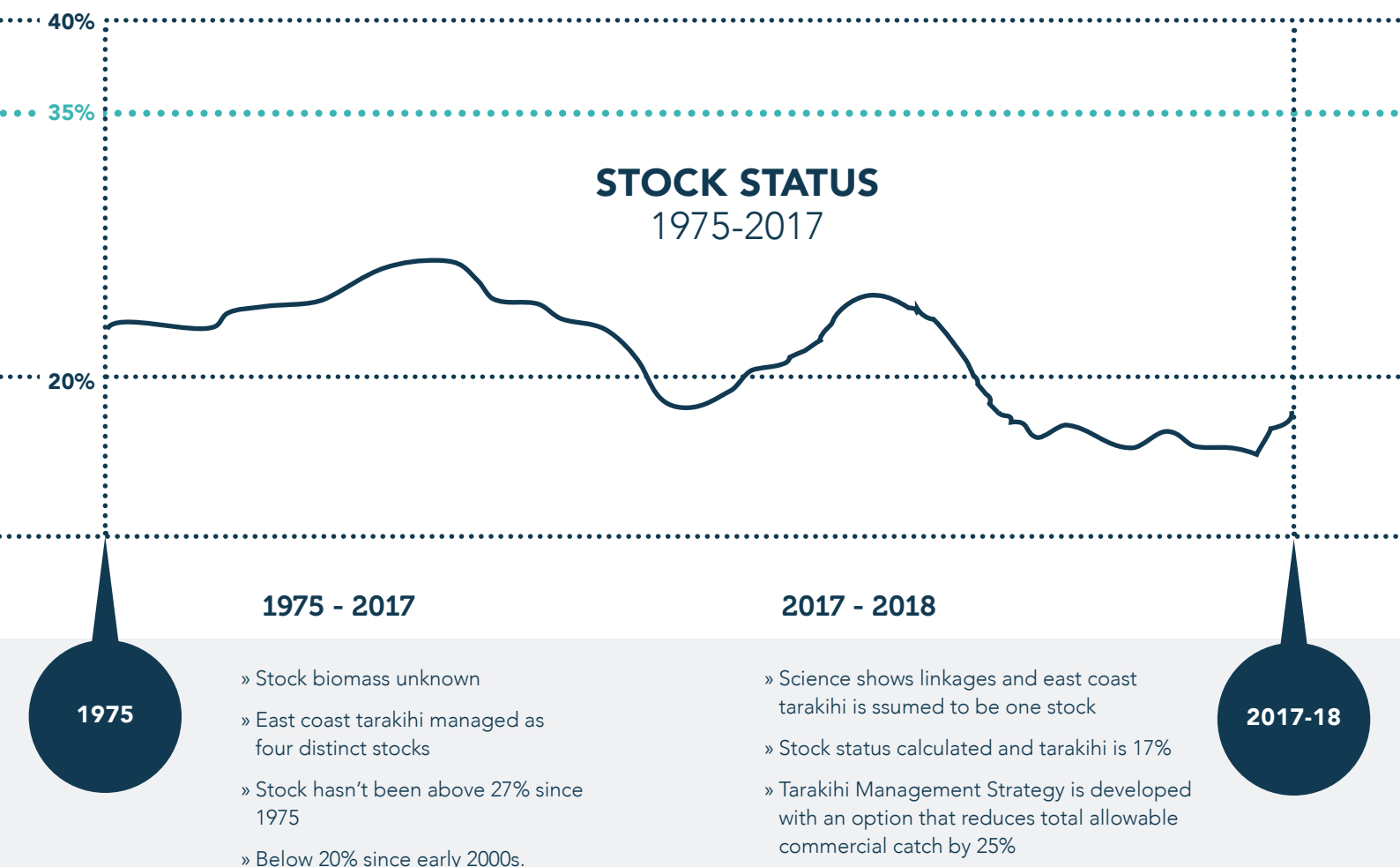
- 3-4** Why we need a Rebuild Plan
- 5-6** Workstream 1: *Improving Operations*
- 7-8** Workstream 2: *Supporting Science*
- 9-10** Assessing Approaches
- 11** How we can do it
- 12** Summary



Why we need a Rebuild Plan

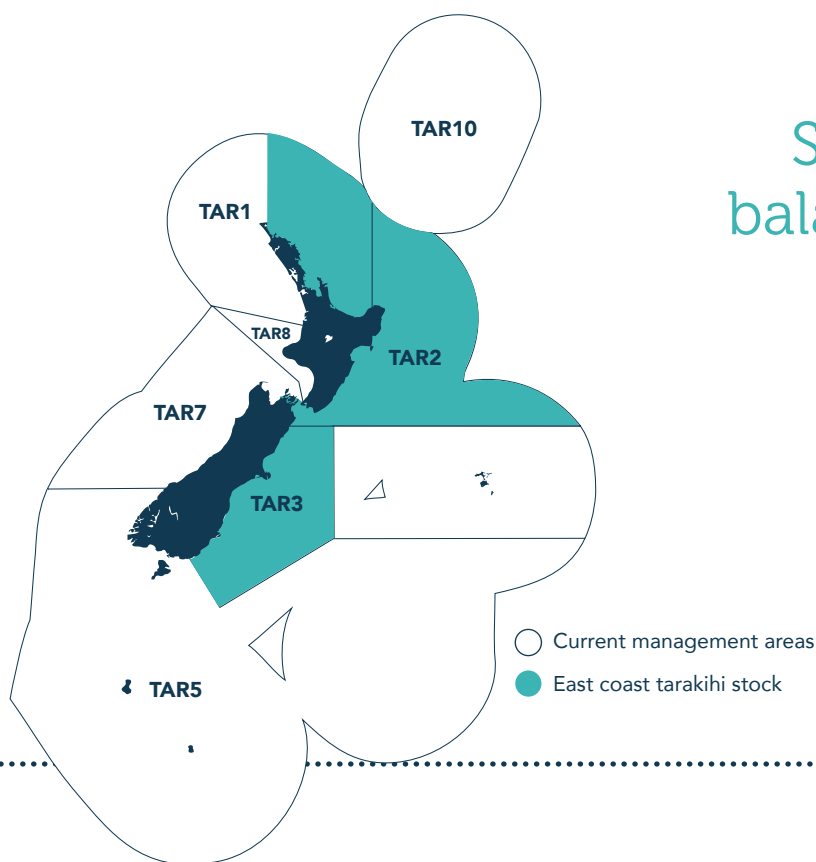
Best available science has shown a long-term gradual decline of tarakihi on the east coast of New Zealand. We need to rebuild the tarakihi stock while ensuring minimal loss to livelihoods.

The first full stock assessment of east coast tarakihi in 2017-18 gave a new understanding about the nature of our tarakihi fishery. Tarakihi in the areas shown on the map to the right have been managed as four stocks since 1986. Research has indicated that these stocks have connections and are currently assumed to be one stock. The stock assessment showed this east coast stock to be below the level of biomass at which immediate action should be taken to reduce fishing mortality so the stock can recover (20% unfished biomass); consequently as 25% reduction in commercial catch was implemented 2018-19. The stock assessment showed that this stock has been near this limit since 1975 as shown below.

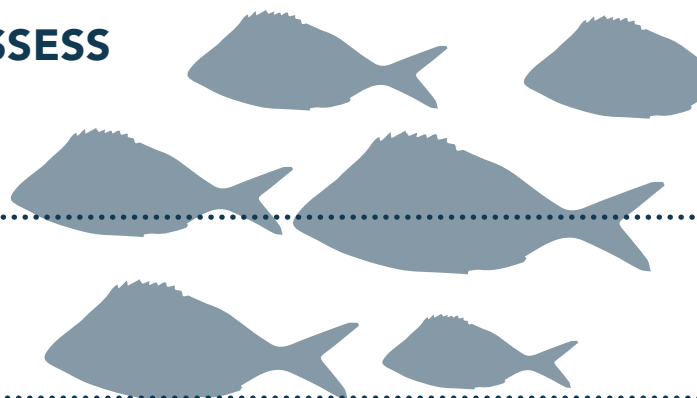




Sustainable fisheries
balance the biological,
social, cultural and
economic needs of
Aotearoa NZ.



RESPOND - RESEARCH - REASSESS



2018-19

2018 - 2019

- » Minister chooses to reduce catch in line with Management Strategy
- » Tarakihi Management Strategy commenced to rebuild and manage the fish stock in a manner that benefits all New Zealanders
- » Research and measures to rebuild stock
- » Range of management (**Workstream 1**) and Research measures (**Workstream 2**) underway.

2019

2019 - onwards

- » Tarakihi Management Strategy continues research, monitoring and management measures to rebuild and maintain stock and the fishery
- » Improving and adopting selectivity measures to improve stock rebuild in addition to 2018 catch reduction
- » Management procedure – flexible, timely decision making to rebuild and maintain the stock at or above the long term target.



WORKSTREAM 1

Improving Operations

Our inshore fisheries are diverse in terms of where species are found as well as the techniques used to harvest them. This makes management complex. A rebuild can be enhanced by a variety of measures that are appropriate for the boat and where it is fishing.

New Zealand fishers know their fishery well. They understand where certain fish are and the best ways to catch them. Tarakihi has a wide depth range so it is regularly caught when targeting other fish such as snapper (North Island) and red cod (South Island). For this reason it is paramount to work with fishers to understand what happens on the water to support best measures for them to avoid tarakihi. A one size fits all approach won't work here so we are committed to providing and supporting a full suite of measures that reflect the complexity and importance of the fishery.

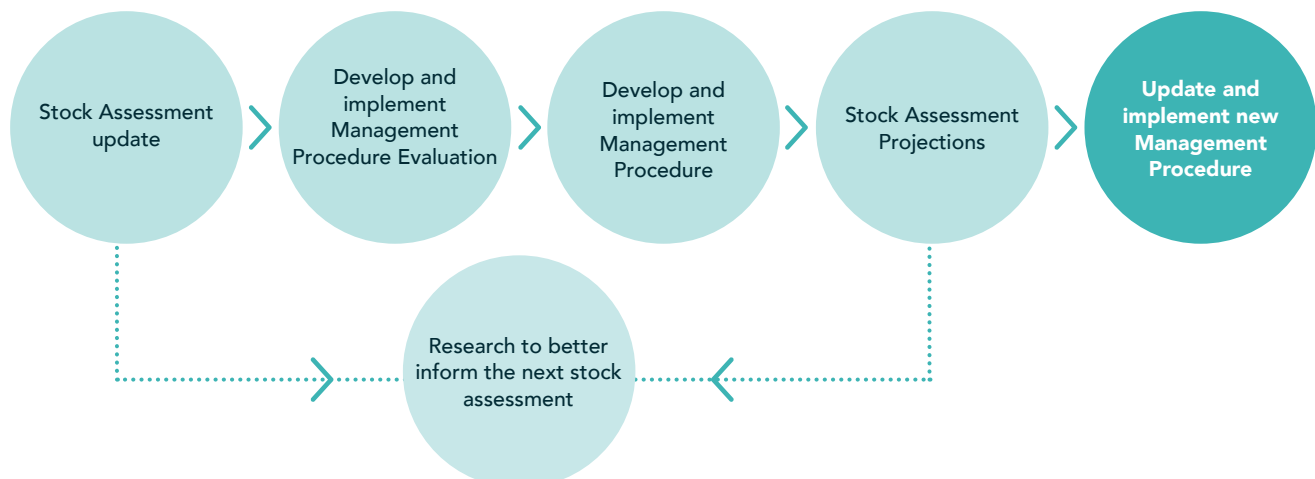
Catch reduction & catch spreading

- » Total Allowable Catch reduction to allow recovery - 25% reduced in 2018
- » Industry-led and implemented catch spreading further reduces pressure on the east - commenced 2018
- » Commitment to maintaining catch reductions through selectivity and non-targeting.

Development and use of a management procedure

A management procedure is designed to identify fishery rebuild strategies and ongoing harvest strategies that are robust to both uncertainty and natural variation while balancing biological and socio-economic factors. Plan to develop an east coast tarakihi management procedure informed by 2020-21 stock assessment.

- » Development of a management procedure to ensure the rebuild of the stock within defined management timeframes
- » Management procedure to be informed by science and our improved knowledge of the fishery
- » Provides feedback loop to ensure continued effective informed management
- » Commitment to use of ongoing timely, effective decisions rules to manage the fishery.



Reporting sub-minimum legal size (MLS) catches

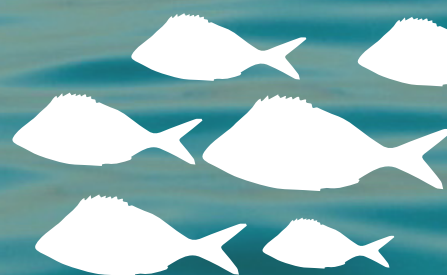
- » Reporting of sub-MLS - commenced November 2018
- » Reporting reveals areas and times of high sub-MLS abundance
- » Commitment to, avoid these where possible and use move-on rules to reduce small tarakihi catch
- » Contributes to a faster rebuild.

Regional management and monitoring plans

- » Implement regional solutions to fix regionally complex issues
- » Actively avoid overcatching tarakihi by changing fishing behaviour and location
- » Collective agreement to support management strategy and rebuild initiatives
- » Regional Plans support the wider management strategy and maximise the rebuild for all New Zealanders.
- » Active progress reporting within regions to track catch against total allowable catch

Selectivity measures

- » Modelling indicates that improved selectivity from commercial gear can increase the rate of rebuild significantly.
- » As part of the overarching strategy and specified in regional plans is a commitment to:
 - » Selectivity research
 - » Move-on rules to avoid juvenile tarakihi
 - » Not fishing tarakihi as a target species
 - » Spatial measures – voluntary closed areas
- » Industry has set aside portion of tarakihi catch to use for experimental purposes of improving selectivity
- » TAR3 conducted a selectivity trial in April
- » TAR2 conducting trials May – June.





WORKSTREAM 2

Enhancing Science

Best management decisions come from robust and comprehensive information. The rebuild plan strives for research that improves our knowledge and reduces uncertainty around the eastern tarakihi stock.

The sustainability of New Zealand fisheries is supported by high quality science carried out each year. There is a robust process to ensure we make decisions with best available information. Developing a management strategy and rebuild plan for tarakihi requires a long-term research plan that provides us with the appropriate information we need to make wise decisions.

Improved understanding of fisheries data

- » Inshore management of fisheries uses fisheries dependent data
- » By use of complex calculations and modelling, data informs catch per unit effort. (e.g. *How many fish you catch per hour*)
- » Incorporating information on changes in fishing gear and fisher behaviour improves this estimate. We are working alongside FNZ to collate this
- » Valuable for wider fisheries management.

Catch sampling

- » Tarakihi catch from commercial fishing is sampled and measured
- » More detailed estimate of the population
- » Provides data on size and year classes
- » Key information source for demographics predicting future abundance.

Management Strategy Evaluation

- » A Management Strategy Evaluation (MSE) is the process carried out in order to develop a Management Procedure (Workstream 2)
- » MSEs run thousands of simulations which enable the model to best deal with uncertainty
- » One output of an MSE is the real-world biomass target for a stock. For east coast tarakihi this is 35%
- » The 35% model runs included making sure the risk of the stock crashing was less than 2%.

Fisheries Independent Surveys

- » Fishery independent data supports and ground truths commercial fisheries data
- » Currently conducted in the East Coast South Island
- » Industry is committed to developing a survey design that can be used for East Coast North Island tarakihi
- » Provides better, more comprehensive information for robust management
- » Valuable for wider fisheries management.



Genetics study

- » Supporting researchers to better understand the connectivity of tarakihi through genetics
- » Will inform our understanding of stock structure for management purposes.

Fish behaviour

- » Developing research to use cameras to assess fish behaviour in fishing gear
- » Understanding behaviour is essential to inform how we manage fisheries
- » Valuable for wider fisheries management.

Collection of charter vessel catches

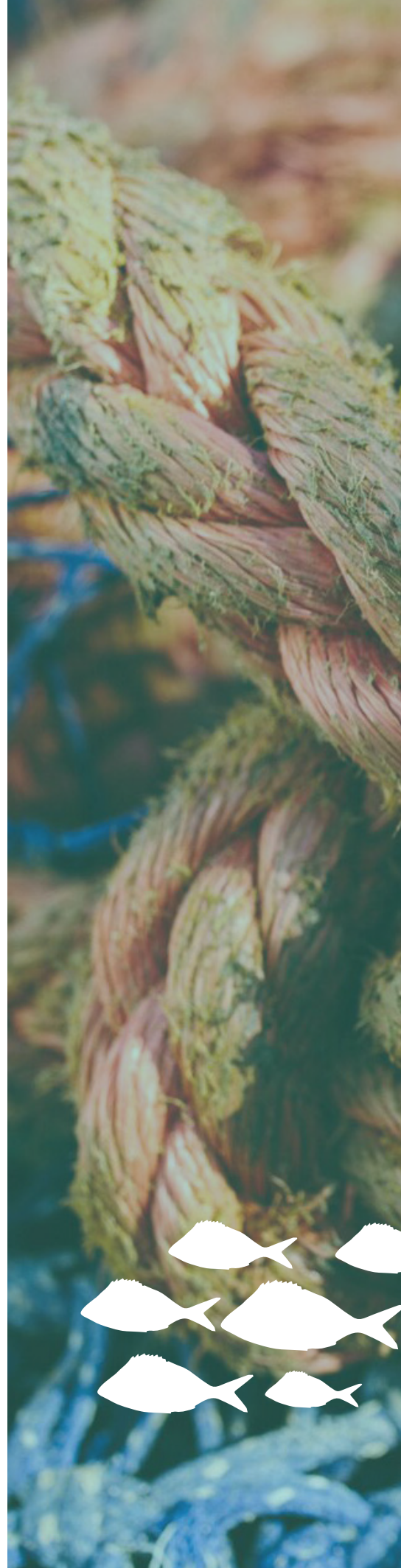
- » Wider stakeholder engagement highlighted the potential for collaborative data collection.

Assessing impacts of changing environmental conditions

- » Climate change is an ever increasing issue
- » Research has started to understand the impacts of temperature change on species distribution
- » Industry developing research to better understand this.

Collection of charter vessel catches

- » Wider stakeholder engagement highlighted the potential for collaborative data collection.





Assessing Approaches

Ensuring tarakihi is sustainable for future generations is the purpose for developing and implementing a management strategy and rebuild plan. There are many approaches that can be taken to rebuild a stock, although careful consideration needs to be taken in order to sustain the fishing community and associated local economy while moving the stock towards maximum sustainable yield.

One approach to the rebuild is to apply the default timeframes and targets that are set out in the harvest strategy guidelines (V). This approach is the status quo, instead, based on all available information we propose a tarakihi specific target with yearly management decisions that balance biological, social and economic factors (U). The latter approach has been used successfully in New Zealand and internationally to rebuild certain snapper and crayfish stocks.

Default Approach

The harvest strategy guidelines provide target and timeframe defaults from five ranks of biological characteristics. For tarakihi these defaults translate to a target of 40% in 10 years. This would mean cutting the current allowable commercial catch by 50% and in ten years the stock should be at 40%. This would mean fishers losing their livelihoods and for small fishers it would not be possible to return to the fishery after the rebuild, reducing the diversity of New Zealand's fishing community.

Respond - Research - Reassess approach

The management strategy evaluation (Workstream 2) for tarakihi produced a stock specific target of 35%. While committing to ensure a rebuild to this target, our approach is to actively manage on an annual basis, while monitoring progress from the measures taken in Workstream 1 and 2. This approach ensures the stock is rebuilt but minimises the negative effect on the fishing community and local markets.



Trade-offs



Sustains biological needs

- » Meets requirements of the Fisheries Act
- » Tarakihi stock is rebuilt
- » Time for rebuild is reduced
- » Less expensive and complicated for fisheries managers (cost is on fishers).

Minimises utilisation, impacting on livelihoods, local markets and progress

- » Short term rebuild causes fishers to lose their livelihoods, with impacts worse for small regional companies and operators. Potentially reducing diversity of inshore fishery
- » Tarakihi management target is set with no long-term strategy in place
- » Using default options inhibits innovative and progressive management tools
- » Less resources available for research due to loss of fisher economy
- » Strain on local market (90% of tarakihi sold in Aotearoa NZ)
- » Top down management – stick approach
- » Doesn't account for the management measures from 2018; only accounts for allowable catch reduction not other measures
- » Set and forget approach
- » Potential loss of voluntary industry measures.
- » Uncertainty in long-term (10 year) projections not managed



Sustains biological, social, economic and cultural needs

- » Meets requirements of the Fisheries Act
- » Tarakihi stock is rebuilt
- » Active and engaged fisheries management is maximised
- » Tarakihi is closely monitored throughout rebuild and beyond with long-term strategy
- » Enables fishers to adapt and retain their livelihoods
- » Ensures managers are making more informed decisions frequently, mitigating effects of uncertainty of long-term projections
- » Creates space for innovative fisheries management; accounts for and supports all measures to increase rebuild rate
- » Resources invested into long-term management and research that contributes to tarakihi and progresses wider fisheries management
- » Impact on local market minimised
- » Encourages responsibility and engagement from all stakeholders.
- » Inclusive bottom up approach
- » Continued management and ability to react to unforeseen changes.

Time and money for management

- » Management strategy more expensive and time consuming to implement than default
- » Time for rebuild longer than default.



How we can do it

A fishery as important to New Zealand as tarakihi deserves/requires a close, active and informed rebuild plan in order to sustain the biological, social, economic and cultural factors associated with it.

Goal: *To maintain the stock at or above maximum sustainable yield.*

Action: *Engaged and active management throughout entire rebuild timeframe and beyond.*





Sustainable fisheries balance the biological social, cultural and economic needs of Aotearoa NZ.

Engagement

We provided opportunities for wider stakeholders to engage with the Management Strategy and rebuild plan in April 2019.

Further engagement opportunities expected in May-June

Open to building collaborative relationships for better management.

Summary

Tarakihi is an important fishery for all New Zealanders. It is truly a national fish being caught throughout New Zealand with the East Coast being the focus of this rebuild plan. It forms a significant part of the catch plan of many of our inshore vessels. More than 80% of us eat fish at least once a month but annually less than 12% of us catch our feed. For tarakihi more than 90% caught commercially is sold to Kiwis. We are implementing an effective strategy to rebuild and maintain the fishery for this and future generations.



Respond - Research - Reassess



Supporting a Sustainable Fishery | Tarakihi Management Strategy and Rebuild Plan