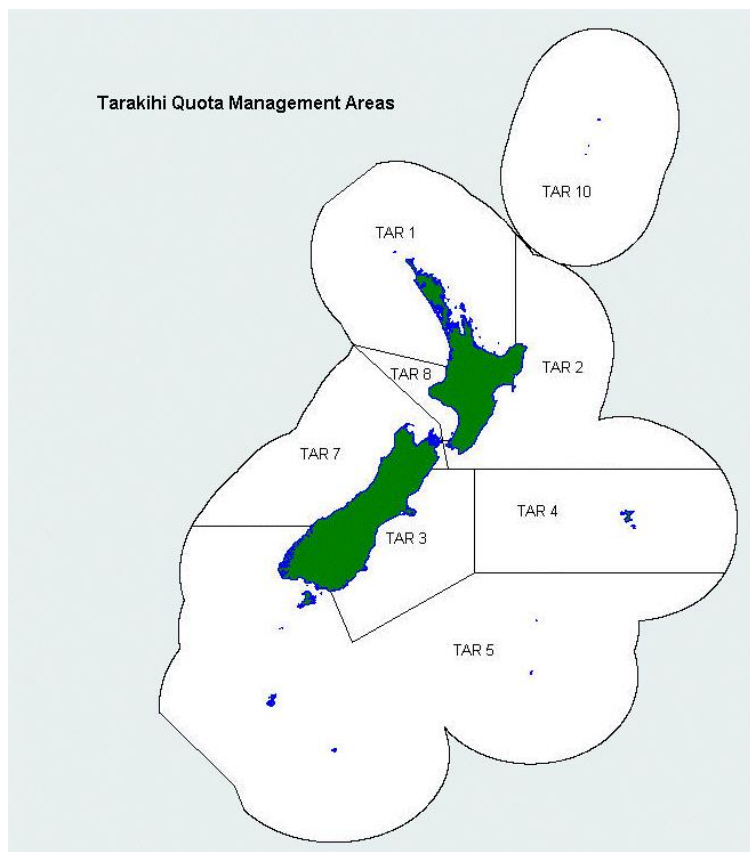


# TARAKIHI (TAR 1) AMP REVIEW

Figure 1. Map showing the boundaries of TAR 1



## Key issues to be considered

- 1 The key issues to be considered for the TAR 1 proposal are:
  - a) MFish has received a proposal from the Northern Inshore Fisheries Company Limited to increase the TACC for TAR 1 for a five-year period under the adaptive management programme;
  - b) The 2002 fishery assessment plenary agreed that the same proposal satisfied the fishery assessment requirements of the adaptive management programme;
  - c) In 2002, the Minister declined the proposal, primarily because of concerns about the possibility of an increased TACC affecting non-commercial interests in the TAR 1 fishery; and
  - d) However, the Minister noted that the proposal held promise if there was further discussion and development of appropriate arrangements to address the possibility of affecting non-commercial interests in the fishery.

## List of management options

- 2 Only one option is proposed. The proposal from the Northern Inshore Fisheries Company Limited is to establish a new five-year AMP for tarakihi in TAR 1 that will:
  - a) increase the TACC from 1,398 tonnes to 1,997 tonnes;
  - b) assume responsibility for updating standardised CPUE analysis for the TAR 1 fishery; and
  - c) implement catch effort splitting arrangements to avoid localised depletion.
- 3 MFish proposes that the proposal should include the following measures:
  - a) increase the TAC to 2,567 tonnes;
  - b) increase the allowances for the customary Māori catch to 70 tonnes, and for the recreational catch to 470 tonnes;
  - c) increase the allowance for unreported catch and incidental mortality to 30 tonnes to account for the increased commercial catch;
  - d) monitor the performance of the commercial fishery CPUE index under the AMP with the AMP proponents responsible for collecting and analysing data for annual review by the relevant working group;
  - e) workable tools for monitoring any effect that the increased TACC might have on the non-commercial interests in the fishery; and
  - f) the proponents provide the detail of how they will provide for their commitments to restrict fishing areas to existing tarakihi target trawl grounds, and spread catch under the increased TACC appropriately over those areas, to be evaluated and monitored annually.

## Rationale

### TAC

- 4 When deciding to decline the proposal in 2002, the Minister set a TAC of 1,773 tonnes for TAR 1 (and retained the TACC of 1,398 tonnes). The current proposal is to increase the TAC to 2,567 tonnes.
- 5 Commercial catches in TAR 1 have been relatively stable at or above the TACC since the 1991–92 fishing year. A recent analysis of commercial catch per unit effort (CPUE) data for TAR 1 suggested that the abundance (as inferred from CPUE) of tarakihi has remained stable or has possibly increased over the past 10 years.
- 6 No quantitative assessment of the status of the TAR 1 stock relative to the stock level that would produce the MSY is available. However, the 2002 fishery assessment plenary reported that although the stock size for TAR 1 is uncertain, the available information suggests that there is a reasonable probability that the biomass is greater than the size that will produce MSY. The plenary concluded that a TAC of about 2,500 tonnes would be likely to allow the stock to move towards, or remain above, the level that would produce the MSY over the five-year programme.

- 7 In contrast to the plenary information, anecdotal information (from previous submissions by recreational fishing interests) suggests that tarakihi stocks have shown a marked decline in both number and size in the inshore areas (specifically in the Bay of Islands area).
- 8 The proponent of the AMP proposal is the Northern Inshore Fisheries Company Limited. The Company claims to have a mandate to represent TAR 1 quota holders. This claim to a mandate will need to be confirmed as part of the MFish consultation process. Establishing a clear mandate is necessary, because the proposal carries implied obligations for the proponents to implement elements of the proposal, such as research provision and effort split arrangements.
- 9 The proponents note that 62 % of the trawl catch of TAR 1 is from the west coast and east Northland, where only a small proportion of the recreational catch was reported. They conclude that there does not seem to be a significant overlap of harvest by the recreational and commercial sectors. However, MFish notes that the remaining 38% of trawl catch of TAR 1 comes from the Bay of Plenty area, where the greatest non-commercial interest in the species has been reported. An additional level of commercial catch in that area could result in disputes between the sectors if any adverse effects on non-commercial interests result.
- 10 The AMP proposal stipulates that catches will be spread throughout existing fished areas in TAR 1, rather than the additional catch being taken within any localised fishery or single statistical area. Spreading catches has the potential to mitigate risks of localised depletion that can lead to conflict and disputes between sectors. However, management measures to achieve this are not specified in the proposal. MFish requests that such measures be discussed between the sectors during the consultation process. The results of any agreement for catch spreading can then be specified in the submissions on this proposal for the Minister to consider.

## **TACC**

- 11 The proposal is to increase the TACC to 1,997 tonnes. The extent of the proposed TACC increase is intended to allow for contrast in the relative abundance indices (CPUE) to be detectable, and so provide information to enable a stock assessment to be carried out. If the level of catch is set too low, it may not be possible to detect changes in relative abundance that will assist in monitoring the status of the fishery, and ultimately providing for a stock assessment. With catch limits at an appropriate level, the monitoring under the AMP should ensure that changes in the performance of the commercial fishery would be detected. In addition, the research trawl survey abundance indices for the west coast will be available as a fishery-independent source of comparative information. The TAC/TACC levels can be revised appropriately if, on the balance of probabilities, it is detected that the catches under the AMP are causing the stock size to move below the level that will produce the MSY.
- 12 MFish considers that monitoring (as provided under the AMP) of the data collection scheme and catch spreading reported on TCEPRs across existing trawled areas under the AMP may mitigate any risks (sustainability and impacts on associated fisheries) at the increased TACC level. The AMP proponents will be responsible for annually monitoring and reporting the CPUE index, and the commitment to spreading catch and effort and not expanding effort into new areas. An annual fishery management

review by MFish would evaluate the performance of the fishers with regard to those commitments. In a shared fishery, the CPUE index must be monitored on an annual basis to provide the earliest possible indication of any significant change in stock abundance.

### ***Recreational and Customary***

- 13 The Minister noted submissions in 2002 that indicated the importance of the fishery to non-commercial fishers in the Bay of Plenty and Northland regions. The 1995-96 estimate of recreational harvest of 310 tonnes for TAR 1 represents about 20% of the total commercial landings. The results of the 1999-2000 survey of recreational catches provide an estimate of 636 tonnes.
- 14 The results of the 2000 recreational fishing survey were contentious, and raised concerns about the reliability of the results from both recreational surveys. The methodology used for both surveys was reviewed in late 2002 – early 2003. As a result of the review, MFish now considers for most species that the estimates from the 1996 survey are likely to be too low, while the 2000 estimates are thought to be too high. MFish considers that the best available estimate of the recreational catch is derived from the average of the 1996 and 2000 estimates. For TAR 1, this represents a recreational catch estimate of 473 tonnes.
- 15 MFish acknowledges that there is potential for the additional commercial catch under the proposed increased TACC to affect the size and availability of tarakihi for non-commercial fishers. The nature and extent of any effect will depend on the (unknown) current status of the stock. If the increased commercial catch moves the stock below the level that would produce the MSY, then theory says that the size and availability of tarakihi to non-commercial fishers would probably decline. However, if the stock is above the MSY level and were to be moved towards that level, theory says that the availability of tarakihi might increase, although the average size of fish might decline. Effects on the non-commercial sector's interests will be difficult to determine.
- 16 MFish considers that in line with the intent of the proposal, the AMP proponents should include appropriate measures to implement and monitor their commitments to restrict fishing areas to existing tarakihi target trawl grounds, and spread catch under the increased TACC appropriately over those areas. This will assist in ensuring that direct impacts on or conflict with non-commercial interests are avoided. The management measures could be monitored either by using independent fisheries observers on board the trawlers, or installing MFish's satellite-based Vessel Monitoring System (VMS) to track the trawlers involved in the AMP. In addition, tools to monitor any effect on the other sectors' interests and catch rates should also be specified.
- 17 No quantitative information on the level of customary Māori catch is available. Tarakihi, however, are known to be of importance to customary fishers. When deciding to decline the proposal in 2002, the Minister made allowances (within the TAC) of 45 tonnes for Māori customary non-commercial catch, and 310 tonnes for recreational catch.

- 18 Consideration of the adaptive management proposal for TAR 1 should include increasing the allowances made for non-commercial access, to reflect the best available information about the estimated recreational catch. MFish proposes that the allowance for recreational catch be increased to 470 tonnes, and that for customary catch increased to 70 tonnes.

### ***Other Sources of Mortality***

- 19 No quantitative information is available on the level of illegal catch or other sources of mortality. Since the target fishery uses bottom trawl gear, it will have an element of mortality associated with tarakihi that might escape through the net, but be fatally injured. A minimum legal size applies to tarakihi, so some mortality must be associated with the capture and release of undersized fish, particularly given the greater depths from which tarakihi are generally taken compared to snapper. In 2002, the Minister set an allowance of 20 tonnes within the TAC for other sources of mortality for all sectors. The allowance includes unreported or illegal catch.
- 20 MFish considers that an allowance should be made for increased incidental mortality under an increased TACC and allowances. MFish proposes that, under the proposed adaptive increase to the TAC and TACC, the allowance for other sources of mortality caused by fishing be set at 30 tonnes, in proportion to the proposed increase in the TACC.

### ***Statutory Considerations***

- 21 In forming the management options the following statutory considerations have been taken into account:
- a) The purpose of the Act (s 8) is to provide for the utilisation of fisheries resources while ensuring sustainability. Utilisation is defined in the Act as including development. The adaptive management proposal for TAR 1 is intended to provide a structured and monitored way to explore the development opportunities of the fishery, while ensuring sustainability. The increased TAC, TACC, and allowances will provide for development of the fishery, and create the potential for people to provide better for their social, cultural, and economic wellbeing. There would be economic benefits that extend to the cost-effective gathering of information from the fishery that could result in improved assessments of the stock status relative to the level that would produce the MSY. If a quantitative assessment of the stock and yields at the successful conclusion of the programme were possible, that would enhance the long-term sustainable utilisation of the fishery;
  - b) The Act includes obligations to avoid, remedy, or mitigate any adverse effects of fishing on the aquatic environment, and that those effects and management measures are taken into account when decisions are made about the sustainable utilisation of fishery resources. Tarakihi are taken in substantial quantities as a bycatch of target trawling for other inshore species including snapper. Tarakihi are also taken by various commercial fishing methods, but bottom trawl accounts for most of the catch. Bottom trawl gear is used to harvest a range of inshore species, and by its very action affects the physical structure of the substrate and the benthic community structure. Target trawling occurs

throughout TAR 1, largely between the 100 and 200 metre depth contours. The AMP proponents have undertaken to limit fishing to existing grounds, and so restrict effects to areas that have been trawled previously. MFish considers that mitigating adverse effects of fishing in that way is likely to be consistent with the obligation to provide for the utilisation of fishery resources while ensuring sustainability. Despite constraining any increased effort to take the increased catch to existing trawl grounds, the additional effort might have adverse effects. The extent of those effects is not known;

- c) The TAC under s 13 should be set to move the stock towards or above the level that can produce MSY. That level is currently not known for TAR 1, but catches and catch per unit effort have been stable over a long period. The fishery assessment plenary (2002) reported that, although the stock size for TAR 1 is uncertain, the available information suggested that there is a reasonable probability that the biomass is greater than the size that will produce MSY. The plenary concluded that a TAC of about 2,500 tonnes would be likely to allow the stock to move towards, or remain above, the level that would produce the MSY over the five-year programme. Annual monitoring and review under the adaptive management programme will mitigate the risks to sustainability under the proposed increased catch levels;
- d) The proposed TAC includes consideration of the following factors:
  - i) No specific environmental conditions have been identified as affecting the stock;
  - ii) The biological characteristics of the stock were considered by the working group in concluding that there is a reasonable probability that the stock is currently above the MSY level, and that, on balance, the proposed TAC would move the stock towards, or retain it above, the MSY level over the five year programme; and
  - iii) A range of species is likely to be caught in the target trawl fishery for TAR 1. The three most significant commercial bycatch species in the TAR 1 target bottom trawl fishery in 2000–01 were snapper, barracouta, and school shark, all of which are managed under the QMS with strong incentives to balance catches to the available ACE. There is no information to suggest that the interdependence of stocks should affect the level of the TAC set for TAR 1 at this time.
- e) Increasing the TAR 1 TACC as proposed will have economic benefits in the short term, but longer-term benefits will be dependent on stock status. Earnings from the fishery are likely to increase with greater catches, with additional positive downstream implications for the industry possible. Tarakihi are also taken as a bycatch in other target trawl and bottom longline fisheries. A higher TACC for TAR 1 might make it easier for fishers to obtain the ACE to cover their bycatch of tarakihi;
- f) It is not known if tarakihi are prone to significant fluctuations in biomass. Recruitment is not known to vary much;
- g) The Act (s 9(a)) requires that associated or dependent species (non-harvested species) should be maintained above a level that ensures their long-term viability. There are no known interactions between the existing TAR 1 fishery

and non-harvested species that are of concern or specific to the fishery. The fishery does not dispose of any significant amount of fish waste or offal at sea, so the potential for interactions with seabirds is reduced. The draft Seabird Interaction with Fisheries in the New Zealand Exclusive Zone - A Review and National Plan of Action 2000 (NPOA) document does not list tarakihi as one of the fisheries with seabird interactions that are of concern;

- h) The Act also requires (s 9(b)) that the biological diversity of the aquatic environment should be maintained. MFish notes that an area off Spirits Bay in the far north is closed to trawling generally as a measure to avoid the adverse effects of fishing on the unique biodiversity there. There are no other known impacts on biodiversity that would be specific to the TAR 1 trawl fishery. Reporting of bycatch and protected species will allow for information to be collected to advance our knowledge of potential impacts;
- i) Section 9(c) of the Act requires that habitats of particular significance to fisheries management should be protected. No habitats of particular significance to fisheries management are known that might be affected by tarakihi trawling in TAR 1, and none are specifically protected from the effects of trawling for tarakihi;
- j) There is a wide range of international obligations relating to fishing (including sustainability and utilisation of fishstocks and maintaining biodiversity). MFish considers that there are no issues arising under international obligations and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 that are not adequately addressed in the management options proposed for TAR 1;
- k) Apart from the existing TAC, TACC, and allowances, other important existing fisheries management controls for TAR 1 include the following:
  - A minimum legal size of 25 cm fork length and a minimum net mesh size of 100 mm apply in TAR 1;
  - Tarakihi is one of the species that is subject to the recreational fishing combined finfish daily bag limit of 20 fish in the Auckland and Kermadec Fishery Management Areas; and
  - Trawling is prohibited by fisheries regulation in large areas of the inshore zone within TAR 1. These areas include the waters in and adjacent to specified harbours, bays, and the inner Hauraki Gulf (see the Fisheries (Auckland and Kermadec Areas Commercial Fishing) Regulations 1986). On the west coast, trawling is excluded within 1 nm of the coast from Tirua Point northwards to Scott Point at the northern end of 90 Mile Beach. At harbour entrances and major river mouths on the west coast, trawling is also excluded from 'bubbles' of a 2 nm radius around the entrances/mouths. In the Bay of Plenty, trawling is excluded from an area within 2 nm of the coast from Homunga Bay to Cape Runaway. These measures already provide a high degree of protection for non-commercial fishing interests.

- l) A fishery plan could provide another mechanism through which to explore the potential of the TAR 1 fishery, however, a fishery plan has not been developed or approved to date;
- m) Before setting or varying any sustainability measure the Minister must take into account any conservation or fisheries service, or any decision not to require such services. MFish does not consider that existing or proposed services materially affect this proposal for TAR 1. No decision has been made not to require a service in this fishery;
- n) There are no provisions applicable to the coastal marine area known to exist in any policy statement or plan under the Resource Management Act 1991, or any management strategy or plan under the Conservation Act 1987, that are relevant to the setting or varying of any sustainability measure for TAR 1;
- o) Very little target fishing for tarakihi occurs within the boundaries of the Hauraki Gulf Marine Park. Nevertheless, the proposals are considered to meet the requirements of sections 7 & 8 of the Hauraki Gulf Marine Park Act 2000;
- p) The nature of the fishery and the interests of the respective fishing sectors have been considered in setting the TACC and allowances for recreational and customary interests and all other mortality to the stock caused by fishing. No mātaimai exists in the QMA. No area has been closed or fishing method restricted (that affects the fishery within TAR 1) under the customary fishing provisions of the Act. No restrictions have been placed on fishing in any area within the QMA for recreational interests using the provisions in s 311; and
- q) The information principles of the Act require that decisions be based on the best available information, taking into account any uncertainty in that information, and applying caution when information is uncertain, unreliable, or inadequate. The Act also requires that the absence or uncertainty of information should not be used as a reason to postpone, or fail to take, any measure to achieve the purpose of the Act. MFish considers that the information used to support the TAR 1 proposal is the best available. While it is recognised that the current status of the stock is uncertain, the monitoring criteria for the proposal will allow for improved information to be obtained, and for caution to be applied using that new information.

## **Future Management**

- 22 The AMP programme for TAR 1 is proposed to run for 5 years. Since TAR 1 is a shared fishery between the commercial and non-commercial sectors, the programme will be reviewed and monitored annually. At the end of the five-year period, the results of the proposal will be reviewed in detail. Depending on the information derived, it might be possible to undertake a formal stock assessment of TAR 1. That could be done directly by industry, or through the MFish-managed research services procurement process.
- 23 MFish will be undertaking further surveys to determine the levels of recreational catch (including TAR 1) over the next five years, and estimates of customary Māori catch might also be available from reporting under the Kaimoana regulations.



- 24 Depending on the outcome of the programme, stock assessment, and revised estimates of non-commercial catches, MFish would propose the reconsideration of sustainability and utilisation measures for TAR 1. Such consideration could allow the different management objectives of the sectors to be taken into account when allocating access to the respective sectors under any revised estimate of sustainable yield.
- 25 A key consideration at the completion of the five-year period will be whether or not the TACC should revert back to the current level. The AMP is primarily intended as an information gathering mechanism to assess whether or not a stock is capable of providing a greater yield. The alternative to the AMP is that conventional stock assessment techniques are employed to assess the fisheries yield – these techniques do not necessarily involve an increase in the TAC and TACC.

## **Conclusion**

- 26 The Northern Inshore Fisheries Company Limited has proposed that the TACC for TAR 1 be increased under a new five-year programme under the AMP.
- 27 The relatively stable catches at or above the TAR 1 TACC since the 1991–92 fishing year, and the relatively stable commercial CPUE indices for TAR 1, suggest that current catch levels and TACCs are sustainable. However, the 2002 fishery assessment plenary reported that although the stock size for TAR 1 is uncertain, the available information suggests that there is a reasonable probability that the biomass is greater than the size that will produce MSY. The plenary concluded that a TAC of about 2,500 tonnes would be likely to allow the stock to move towards, or remain above, the level that would produce the MSY over the five-year programme.
- 28 The main objective of the proposal is to provide contrast in the abundance indices so that they can be used to carry out a stock assessment of TAR 1. The extent of the TACC increase proposed is considered to be sufficient to provide the contrast in the abundance indices that will enable a determination of current biomass and long-term yields from the stock. MFish considers that annual monitoring and review of the commercial fishery performance in the AMP will be adequate to detect and manage the commercial fishery and any sustainability issues that might arise during the programme.
- 29 The proposed increase in the TACC could affect non-commercial interests in the fishery by reducing the average size and/or the availability of tarakihi. The proponents consider there to be relatively little overlap in the spatial occupation of the fishery by the commercial and non-commercial sectors. However, there is substantial commercial catch in the Bay of Plenty, where the greatest level of non-commercial interest has been reported, and therefore issues of inter-sector access may well arise under this proposal.
- 30 The proposal undertakes to constrain fishing to existing areas, so mitigating any adverse effects on the environment, and the potential for spatial conflict. The proposal further requires that catches are apportioned throughout the QMA, and that will mitigate the potential for localised depletion. However, MFish considers that specific measures to address the possibility of adverse effects on recreational interests will need to be implemented under the AMP.

- 31 No specific concerns exist regarding associated or dependent species, and standard requirements are in place to report interactions with seabirds and marine mammals.

## **Preliminary recommendations**

- 32 MFish proposes, under the Adaptive Management Programme, to include a new five-year programme for tarakihi in TAR 1 that will:
- a) set the TAC at 2,567 tonnes;
  - b) make allowances of 70 tonnes for customary Māori and 470 tonnes for recreational catch;
  - c) make an allowance of 30 tonnes for unreported catch and incidental mortality;
  - d) increase the TACC from 1,398 tonnes to 1,997 tonnes;
  - e) assign responsibility to the AMP proponents to implement measures (to be devised on the basis of submissions) to ensure that only existing tarakihi target trawl grounds are fished, that catch under the increased TACC is spread appropriately over those areas, to address the potential for adverse effects of the increased TACC on non-commercial interests in TAR 1, and to annually monitor and review these considerations; and
  - f) assign responsibility for updating standardised CPUE analysis for the TAR 1 fishery to the proponents of an approved AMP to be monitored annually.

## Appendix

**Table 1: Information from the 2002 fishery assessment plenary on TAR 1 is provided below.**

<b>Factors to Consider</b>	<b>Description</b>
Biological Information	<ul style="list-style-type: none"> <li>Tarakihi spawn during summer-autumn in several areas around New Zealand; postlarval stages appear to be pelagic; metamorphosis to juvenile stages occurs in spring-early summer at lengths of 7 – 9 cm (fork length - FL) and ages 7 – 12 months; juvenile nursery areas are in shallower, inshore areas, and juveniles move out to deeper water at about 25 cm FL and age 3 – 4 years.</li> <li>Sexual maturity is reached at 25 – 35 cm FL and age 4 – 6 years, after which growth rate slows.</li> <li>Best estimate of natural mortality M is 0.10; maximum age exceeds 40 years; there are generally 10 year classes in the fishery.</li> <li>Tagging experiments indicate that some tarakihi move long distances; the long pelagic larval phase suggests that larvae will be widely dispersed; there is no evidence of any genetic isolation; these factors suggest that tarakihi around the main islands of New Zealand consist of one continuous stock.</li> <li>A second species, King tarakihi (<i>Nemadactylus sp.</i>) has been described, and is managed together with tarakihi (<i>N. macropterus</i>).</li> </ul>
Commercial catch information	<ul style="list-style-type: none"> <li>Tarakihi are targeted by trawl, and quantities are also taken as a bycatch when targeting other inshore trawl species.</li> <li>The initial TACC for TAR 1 that was set upon entry into the QMS for the 1986–87 fishing year was 1,210 tonnes, and it increased incrementally as a consequence of quota appeal decisions until reaching its current level of 1,398 tonnes in 1994-95.</li> <li>Since that time the TACC has been met or slightly exceeded in each fishing year.</li> </ul>

**Table 2: Reported commercial landings (tonnes) in TAR 1**

<b>Fishing year</b>	<b>Landings (t)</b>	<b>TAC (t)</b>	<b>Fishing year</b>	<b>Landings (t)</b>	<b>TAC (t)</b>
1983-84	1326	-	1992-93	1477	1397
1984-85	1022	-	1993-94	1431	1397
1985-86	1038	-	1994-95	1390	1398
1986-87	912	1210	1995-96	1422	1398
1987-88	1093	1286	1996-97	1425	1398
1988-89	940	1328	1997-98	1509	1398
1989-90	973	1387	1998-99	1436	1398
1990-91	1125	1387	1999-00	1387	1398
1991-92	1415	1387	2000-01	1403	1398

Stock status	<ul style="list-style-type: none"> <li>No estimate of current absolute biomass is available.</li> <li>Commercial landings and CPUE have remained stable.</li> </ul>
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	<ul style="list-style-type: none"> <li>Given the long, stable catch history of the nationwide tarakihi fishery, it is thought that current catch levels and TACCs are sustainable.</li> <li>It is not known if the current TACCs and recent catch levels will allow the stock to move towards the size that will produce the MSY.</li> <li>The standardised CPUE analysis up to 1999 showed stable (slightly increasing) abundance for the west coast (TAR 1W) and east coast (TAR 1E) fisheries at current catch levels.</li> </ul>
Monitoring	<p>The 2002 plenary reports that the monitoring under the proposed AMP is satisfactory.</p> <p><i>Abundance Indices</i></p> <ul style="list-style-type: none"> <li>MFish catch and effort logs for which tarakihi is the target species will be used to derive the fishery performance indicators used in the decision rule (note plenary's view that the decision rule was not necessary*). CPUE analyses to be done separately for west and east coast trawl fisheries.</li> <li>Plenary noted that the west coast North Island trawl survey at 2 to 3 year intervals will provide fishery-independent information on abundance (a biomass index will be developed from the trawl survey over time).</li> </ul> <p><i>Biological Data</i></p> <ul style="list-style-type: none"> <li>A shed sampling programme will be implemented to determine the age structure of the fishery.</li> <li>The west coast North Island trawl survey will also provide population weighted length frequencies and sex ratios.</li> </ul> <p><i>Catch spreading</i></p> <ul style="list-style-type: none"> <li>The 2002 plenary considered that the proponents should make every effort to ensure that any increase in catch is apportioned throughout TAR 1, rather than be taken up in a localised fishery or a single statistical sub-area. MFish considers that the AMP will need to include specific controls for catch spreading and restricting effort to existing tarakihi target trawl grounds in TAR 1 before it can be approved.</li> </ul>
Stock assessment criteria	<p>The fishery assessment plenary reported that the inclusion of TAR 1 in the AMP was justified under the following 'New AMP' criteria for existing or established fisheries—</p> <ul style="list-style-type: none"> <li>The stock size is uncertain, but the available information and analyses suggest that there is a reasonable probability that current biomass is greater than the size that will produce the MSY, and, on balance, the new TACC and TAC level are likely to allow the stock to move towards a size that will produce the MSY, or remain at or above that level over the five-year period of the programme</li> <li>Stock abundance appears to have remained stable at current catch levels - landings have remained stable and CPUE has remained stable.</li> </ul>
Decision rule*	<p>The proposed decision rule for the TAR 1 AMP states that—</p> <ul style="list-style-type: none"> <li>If the standardised CPUE index for all vessels for TAR 1W falls by 30% or more from the 1989-99 average; or if the standardised CPUE index for all vessels for TAR 1E falls by 30% or more from the 1989-99 average level then the AMP is referred to the AMP Fisheries Assessment Working Group for review.</li> </ul> <p>* The 2002 plenary stated that the proposed decision rule was not considered necessary. The plenary noted that a full analysis of all information is a more effective way to review the performance of the stock. The plenary noted that there should be annual monitoring of the data collection scheme and catch spreading (TCEPRs), and a review after 2 years of all data on age distribution from catch sampling and abundance indices from the west coast North Island trawl survey, and catch rate analyses for east Northland, west coast, and Bay of Plenty.</p>
Current research	<ul style="list-style-type: none"> <li>The current research project for tarakihi contains an objective to age tarakihi otoliths collected from east coast North Island, west coast North Island, west coast South Island and east coast South Island <i>Kaharoa</i> trawl surveys.</li> <li>An objective to update the standardised CPUE indices for TAR 1 will be dropped as a MFish-purchased service if the AMP is approved. Instead, the objective will be taken up under the</li> </ul>

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	<p>AMP. The proponents will have responsibility for completing the work (within set standards).</p> <ul style="list-style-type: none"><li>• The age determination work will assist in stock assessment, and the CPUE analysis for TAR 1 will provide useful information on relative abundance.</li></ul>
Other relevant information	<p>The 2002 plenary considered that the proposed TAR 1 AMP is unlikely to have any additional adverse effect on the aquatic environment based on the available information because—</p> <ul style="list-style-type: none"><li>• No geographic expansion into new fishing grounds will occur</li><li>• There are no known adverse impacts from the tarakihi fishery on non-fish bycatch species.</li></ul> <p>The recreational involvement in this fishery in the Bay of Plenty was noted.</p>

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