



Ministry of

**Fisheries**

Te Tautiaki i nga tini a Tangaroa

# **FISHERIES PLAN**

## **FRESHWATER SPECIES**

<b>Lamprey</b>	<b>Kakahi (Freshwater mussel - 3 species)</b>
<b>Common smelt</b>	<b>Koura (Freshwater crayfish - 2 species)</b>
<b>Stokell's smelt</b>	<b>Freshwater shrimp</b>
<b>Galaxiids (9 species)</b>	<b>Brown bullhead catfish</b>
<b>Torrentfish</b>	<b>Grass carp</b>
<b>Common bully</b>	<b>Silver carp</b>
<b>Cran's bully</b>	<b>Koi carp</b>
<b>Redfin bully</b>	<b>Goldfish</b>
<b>Black flounder</b>	<b>Sailfin molly</b>
<b>Yelloweye mullet</b>	<b>Watercress (2 species)</b>

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# INTRODUCTION

## EXECUTIVE SUMMARY

1 The Freshwater Species Fisheries Plan applies to the main freshwater species in New Zealand (other than eels) that are utilised under the Fisheries Act 1996 (the Act). There are several different types of use under the Act which include harvest for food, recreation, fisheries and habitat enhancement, conservation, and a range of commercial uses including collection for broodstock, aquaculture, the ornamental fish trade and direct sale.

2 As well as the Ministry of Fisheries, other agencies have responsibilities for freshwater species under other legislation. For example, 'sports fish' and 'whitebait' are currently managed under the Conservation Act 1987, and some exotic species are managed under the Biosecurity Act 1993 as these are unwanted organisms. There are overlaps between the Fisheries and Conservation Acts in relation to some aspects of management of freshwater resources.

3 Freshwater species form an integral part of complex and diverse ecosystems that support biodiversity and ecological production in both fresh and salt water habitats. There are about 66 species of freshwater fish in New Zealand, 21 of which are introduced.

4 All freshwater species are important taonga species for Māori and lamprey has particularly high importance. Customary authorisations and other tools are available to recognise and provide for customary food gathering by Māori and the special relationship between tangata whenua and those places which are of customary food gathering importance. Iwi/hapu-based regional forums have been established around New Zealand to facilitate management for customary interest.

5 Several freshwater species are taken as bycatch in commercial eel fisheries, with small amounts taken as bycatch by set net fishers who are targeting grey and yelloweye mullet and flounder. Recreational fishers also take a significant amount of certain species.

6 Estimates of customary, recreational and commercial catch are uncertain as only limited information is available for some species.

7 The first section of this plan provides a summary of information on the main freshwater species used, on key stakeholders and their particular interests. This information will be used to devise management objectives for freshwater fisheries through an assessment and risk analysis. The plan will provide an outline of management measures that will ensure that the objectives are achieved.

## PURPOSE OF THE PLAN

8 The Freshwater Species Plan (the plan) will be developed through a collaborative approach between the Ministry of Fisheries (MFish), tāngata whenua, and stakeholders. The aim of the plan is that these groups will work together to develop management objectives for freshwater fisheries resources in New Zealand. It is recognised that collective agreement on management objectives may not be possible in all situations. In these cases MFish will perform an adjudicating role.

9 The plan is currently incomplete, because it only outlines the current situation and available information about the fishery from MFish’s perspective. To complete the plan, MFish will work with tāngata whenua and stakeholders, firstly to ensure the best available information on the current situation is included in the plan and then to:

- develop management objectives for the fishery
- assess the fishery against those objectives
- recommend management measures for the fishery, and
- propose an operational plan for the future management of the fishery.

10 The plan will propose measures to improve management of freshwater fisheries. These proposed measures will then be prioritised and decisions will be made about which measures to implement. Once the plan is in place, MFish, tāngata whenua and stakeholders will monitor and review it. The plan will be fully reviewed at appropriate times in the future to update the best available information, review objectives, re-assess the fishery, and develop new management measures.

## SCOPE OF THE FRESHWATER SPECIES PLAN

11 MFish manages freshwater species under the Fisheries Act 1996 (the Act). A full list of freshwater fish and shellfish, including their conservation status, is provided in **Appendix 1**. Freshwater species have customary value as taonga, and recreational and commercial value. Freshwater species also have intrinsic value and form an integral part of complex and diverse ecosystems that support biodiversity and ecological production in both fresh and salt water habitats.

12 As well as MFish, other agencies have responsibilities for freshwater species under other legislation. For example, the Department of Conservation (DOC) manages ‘sports fish’<sup>1</sup> and ‘whitebait’<sup>2</sup> under the Conservation Act 1987, and the Ministry of Agriculture and

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<sup>1</sup> ‘Sports fish’ being those species listed in the First Schedule to the Freshwater Fisheries Regulations 1983 – species taken in the North Island eel fishery include brown trout, rainbow trout, rudd (Auckland/Waikato district only), perch, and tench; and these are likely to be the same for freshwater fisheries targeting lamprey, yelloweye mullet and catfish.

<sup>2</sup> ‘Whitebait’ is defined in section 2 of the Fisheries Act 1996 as the species *Retropinna retropinna* (smelt) and juveniles of all species of the genus *Galaxias* – note that during the whitebait season whitebait may be taken with lawful authority. Similarly, the mesh size used in eel and catfish fyke nets is unlikely to result in catch of whitebait.

Forestry (MAF) manages biosecurity for some species declared as ‘unwanted aquatic life’<sup>3</sup> under the Biosecurity Act 1993.

13 There are overlaps between the Fisheries and Conservation Acts in relation to some aspects of management of freshwater fisheries. MFish is working with the DOC and Te Puni Kokiri (TPK) to review the current management regimes and identify the changes that need to be made to clarify responsibilities within the Fisheries and Conservation Acts.

14 The plan focuses on freshwater species that are currently managed under the Act. This management includes commercial take, recreational take, customary take, aquaculture, aquatic life transfers and special permits to take aquatic life for other purposes (eg. research, education and enhancement). In the future the plan may be expanded to include other species not currently utilised.

15 The species discussed in the Plan are:

- Lamprey *Geotria australis*
- Common smelt *Retropinna retropinna*
- Stokell’s smelt *Stokellia anisodon*
- Galaxiids (adults)
  - Inanga *Galaxias maculatus*
  - Koaro *Galaxias brevipinnis*
  - Giant kokopu *Galaxias argenteus*
  - Shortjaw kokopu *Galaxias postvectis*
  - Banded kokopu *Galaxias fasciatus*
  - Dwarf galaxias *Galaxias divergens*
  - Canterbury mudfish *Neochanna burrowsius*
  - Black mudfish *Neochanna diversus*
  - Brown mudfish *Neochanna apoda*
- Torrentfish *Cheimarrichthys fosteri*
- Common bully *Gobiomorphus cotidianus*
- Cran’s bully *Gobiomorphus basalis*
- Redfin bully *Gobiomorphus huttoni*
  - Black flounder *Rhombosolea retiaria*
  - Yelloweye mullet *Aldrichetta forsteri*
  - Kakahi (freshwater mussel) *Hyridella menziesi*, *Hyridella aucklandica* and *Cucumerunio websteri*
  - Koura (freshwater crayfish) *Paranephrops planifrons* and *Paranephrops zealandicus*
  - Freshwater shrimp *Paratya curvirostris*
  - Brown bullhead catfish *Ameiurus nebulosus*
  - Grass carp *Ctenopharyngodon idella*

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<sup>3</sup> ‘Unwanted aquatic life’ being:

- i. any species (including subspecies, hybrids, and variations of that species) listed in the Third Schedule to the Freshwater Fisheries Regulations 1983 (‘noxious fish’) – species taken in the North Island eel fishery include koi carp, and rudd (other than Auckland/Waikato district);
- ii. any species of fish, aquatic life, or seaweed that is determined by a chief technical officer under the Biosecurity Act 1993 to be an unwanted organism – species in the North Island include koi carp and gambusia (mosquito fish).

- Silver carp *Hypophthalmichthys molitrix*
- Koi carp *Cyprinus carpio*
- Goldfish *Carassius auratus*
- Sailfin molly *Poecilia latipinna*
- Watercress *Nasturtium microphyllum* and *Nasturtium officinale*

16 New Zealand has a rich and varied freshwater flora and fauna that inhabit the many rivers, streams, lakes and wetlands throughout the country. There are about 66 species of fish found in freshwater in New Zealand including 38 species of native freshwater fish, 7 species of native marine wanderers (marine wanderers are species that often enter freshwater but cannot stay in freshwater indefinitely), and 21 species of introduced fish. There are also 2 species of koura (freshwater crayfish), 1 species of freshwater shrimp and 3 species of kākahi (freshwater mussel). The plan does not go into detail for flora or shellfish other than koura, kākahi and watercress.

17 When Māori people arrived in New Zealand they developed techniques, such as fishing, to utilize the wide variety of natural resources to sustain their every day requirements. Early European settlers adapted Māori techniques for catching fish for food. Many of the freshwater species are endemic to New Zealand. Some are distributed throughout the country and its offshore islands (eg. koaro). However, some species only have limited distributions (eg. the tarndale bully is found in a few small sub-alpine tarns in the headwaters of the Clarence and Wairau Rivers in a remote part of Marlborough).

18 Interest from conservationists and anglers has increased along with our understanding of species, their distribution and behaviours. In recent years the taxonomy of galaxiids has been reviewed with new species being named, for example the Gollum galaxias was recognised as a distinct species in 1998.

19 In the 19<sup>th</sup> century European settlers began to introduce fish to New Zealand's rivers and lakes. This was largely for angling but also to add to food stocks of early settlers. Goldfish were introduced as an ornamental fish. As early as the 1860's brown trout, perch, and tench were established here and introductions have continued, mostly for angling and some for biological control of pests. Several exotic species have been brought to New Zealand both legally and illegally over the past 30 years (eg. koi carp). Most introduced species of fish are found in the North Island.

20 Several species of freshwater species are taken as bycatch in the commercial eel fishery with small amounts taken as bycatch by set net fishers who are targeting grey and yelloweye mullet and flounder.

21 Flatfish, yelloweye mullet and eels are managed in the quota management system (QMS) and have their own quota management areas (QMAs). Eels also have specific "eel statistical areas" (**Appendix 3, Maps 2 and 3**), defined around broad catchment areas because stock characteristics relate closely to catchment characteristics. In future a similar approach may be taken with other freshwater species when management measures need to be applied.

22 Some freshwater species are utilised to a higher degree than others and there are controls applied for managing these species. For other species the level of control is minimal and this provides more flexibility if the risks to sustainability are small.

23 This plan should be read in conjunction with the following other fish plans covering species relevant to this fish plan:

- The North and South Island fisheries plans for freshwater eels.
- The North West, North East and Southern finfish plans include the marine wanderers in this plan (that spend part of the time in freshwater and part of the time in the sea).



# SECTION 1: THE CURRENT SITUATION

24 The section outlines the current situation for freshwater aquatic life by providing the best available information about the three broad outcomes contained in the MFish ‘Statement of Intent’ document, as follows:

- a) health of aquatic environment protected;
- b) best value able to be realised;
- c) credible fisheries management.

## HEALTH OF AQUATIC ENVIRONMENT PROTECTED

### Effects of Fishing on the Freshwater Environment

25 Fishing activity can impact the health of the aquatic environment. This sub-section presents current information on:

- ◆ managing the effects of fishing on the aquatic environment for freshwater species; and
- ◆ setting sustainable catch limits for freshwater species.

Other human activities, such as land use, also affect the freshwater environment. Therefore this sub-section also looks at the impacts of non-fishing activity on the freshwater environment.

### Biodiversity

26 Fishing activities are likely to affect biodiversity both directly and indirectly. These effects can be taken into account when considering management activities under the Act.

27 The direct impact of use of the species covered in this plan on biodiversity is currently low. More significant is the modification of habitat for other purposes unrelated to fishing activities (e.g. farming, flood control, irrigation, drain clearance, hydro-electric dams and culverts). These impacts are not covered in any detail in this plan as they are managed under the Resource Management Act 1991 rather than the fisheries legislation.

### *Species interactions*

28 Eels are important when discussing biodiversity (although they have their own North and South Island fisheries plans), because as top predators they are very important in the trophic structure of the freshwater ecosystem. Eels are harvested extensively by commercial fisheries, and their population levels are considered depleted relative to earlier times, which in turn affects other species. Eel depletion may have resulted in proliferation of introduced species like catfish and trout which then prey on other native species.

## ***Measures to maintain biodiversity***

29 The government, as a signatory to the United Nations Convention on Biological Diversity, is committed to maintaining and preserving the natural heritage of both our lands and water and is doing so through the New Zealand Biodiversity Strategy. An aim of the strategy is that aquatic habitats and ecosystems will be maintained in a healthy functioning state, and degraded areas will be allowed to recover.

30 Under the New Zealand Biodiversity Strategy the New Zealand Threat Classification System was developed in 2002 by the DOC. Nineteen of New Zealand's freshwater fish are listed as threatened at various levels (eg. critical, endangered or vulnerable). One species of freshwater fish is Nationally Critical (lowland longjaw galaxias), two species are nationally endangered (Canterbury mudfish and Northland mudfish), two species are nationally vulnerable, ten species are in gradual decline and four species are considered range restricted or are sparse. Twenty one species are considered not threatened and five species have insufficient data to be classified. Although these species are listed as threatened they are not protected under any present legislation (conservation listings for New Zealand's freshwater fish are provided in **Appendix 1**).

31 There are a number of tools available under the Act that help maintain biodiversity. Section 11 of the Act sets out sustainability measures as the means available to catch limits, minimum and maximum size limits and customary tools help maintain biodiversity, although this is not their main function. Maintaining associated and dependent species above a level that ensures their long term viability is one of the three environmental principles set out in section 9 of the Act but also serves to maintain biodiversity.

## ***Risk associated with fishery use***

32 Levels of use of freshwater species are difficult to quantify. For example, it is not known how many adult lamprey are harvested or how harvest affects spawning escapement. This uncertainty means that there may be additional risks placed on fisheries that may be fished unsustainably.

33 Fishing in the freshwater environment has a range of risks that are different to those for marine fisheries. Introduced species of plants and animals caught in nets or hīnaki can be accidentally or deliberately transferred to new areas, although the Conservation Act 1987 prohibits the transfer or release of live aquatic life into freshwater without an appropriate authority.

34 MFish can reduce the risk of transfer of aquatic life between waterways. For example, from 1 April 2007 brown bullhead catfish must be killed on capture by recreational fishers, while commercial fishers will not be able to sell live brown bullhead catfish. This will ensure that live catfish are not made available to the market, and will reduce the risk that any excess catfish will be released to the wild.

35 There are other ways people can reduce the risk of freshwater species being released to the wild, for example, the cleaning of fishing gear in salt baths and the washing down of trailers before they are used in another catchment. MFish is developing a code of practice in consultation with fishery interests to be published on 1 October 2007 that serves to identify mitigation measures to be taken in the catfish fishery.

## **Benthic Impacts**

36 Freshwater fishing is a reasonably benign activity, the fishing methods having little direct impact on the aquatic environment. Most methods are by net or trap, and any bulk fishing methods are restricted for commercial fishers in freshwater environments.

## **Habitats of particular significance to fisheries management**

### ***Freshwater habitats and fish communities***

37 The freshwater species in this plan occupy a wide range of habitats and it is not possible to identify habitats of particular significance. What is important is the maintenance of the water quality, diversity and continuity of habitats. Obstructions to fish passage, thereby affecting the distribution of species within their natural range, and the reduction of habitat size and diversity, are significant threats to freshwater fisheries.

38 Eels, lamprey and many other freshwater fish are migratory and require unimpeded access to the sea for their spawning migrations. The placement of barriers across rivers and lakes is a major problem where these structures do not allow for fish passage. Fish passage issues are the responsibility of councils under the Resource Management Act 1991. Without adequate fish passage, eels and other species may not be able to enter a catchment when migrating upstream, and their downstream migrations will also be affected by obstructions. Obstructions to fish passage are likely to be a major cause of depletion in eel populations which in turn affects other species.

39 A variety of habitats can be distinguished at both macro level (rivers, lakes and swamps, etc) and micro levels (pools, riffles and backwaters) as listed below.

- Estuaries and tidal rivers
- Estuarine lakes
- Low-elevation rivers
- Lowland wetlands
- Low-elevation lakes
- Boulder/gravel rivers
- Inland wetlands and springs
- Small forest streams
- Small streams draining farmland
- Inland alpine rivers and streams
- Inland and mountain lakes and tarns
- Impoundments
- Drains and culverts
- Geothermal hot springs

40 A brief description of habitat types and common fish that are found in those habitats is shown in **Appendix 4**.

## **Associated and dependent species**

41 Associated and dependent species are any non-harvested species taken or otherwise affected by fishing.

### ***Protected species***

42 Protected species are a sub-set of associated and dependent species protected under New Zealand law or by obligations arising from international agreements.

43 There are no protected species typically found in freshwater fisheries.

### ***Other associated and dependent species***

44 There are a number of species that may be taken as a bycatch of freshwater fisheries, although data on bycatch is limited. For example, bycatch species of the eel fishery include koi carp, catfish, brown trout, rainbow trout, rudd, goldfish, flounder, grey mullet, yelloweye mullet, galaxiids and bullies.

45 In the eel fishery, cormorant or shag species, whether pied, black, or little black, are sometimes attracted to the movement of fish caught in fyke nets set in shallow water. These birds are partially protected under the Wildlife Act 1953, such that they may not be taken. Their known capture is mostly from northern waters of the North Island, but is likely to occur in suitable habitats elsewhere.

46 Commercial fisheries targeting grey mullet using set nets may occasionally take sports fish including brown trout. Sports fish may not be retained by a commercial fisher.

## **Impacts from Non-Fishing Activities**

47 Freshwater species are subject to significant sources of mortality due to non-fishing activities. The actual mortality from non-fishing activities has not been quantified for most freshwater species.

### ***Direct mortality***

48 On-going drain maintenance activities by mechanical means to remove weeds cause fish mortality through physical damage or by stranding and desiccation. This activity also has serious adverse effects on the habitat. After removal of vegetation fish have little cover and are more exposed to predation. Shading is also lost and fish are exposed to high water temperatures in stream where the riparian vegetation has been removed.

49 Direct mortality also occurs through damage by hydro-electric turbines and flood control pumping. The actual mortality for freshwater fish has been estimated for eels only, and the mortality of large longfin females, is estimated to be 100%. Given the large area of water in hydro lakes, this source of mortality could be significant and will reduce spawning escapement in eels and other migratory fish that may be affected.

## ***Indirect effects on freshwater species***

50 Land-based activities that impact fish stocks and the aquatic environment include construction and development, pulp mill discharges and water treatment works and flood defence constructions.

51 Where riparian vegetation or normal water flow characteristics have been modified at various levels of a catchment (for example, for hydroelectric power projects or other developments) the habitats will not support as much diversity or as many fish as an undisturbed habitat would.

52 Freshwater fish populations are likely to have been significantly reduced since European settlement from the 1840s by wetland drainage (wetland areas have been reduced by up to 90% in some areas), and habitat modification brought about by irrigation, channelling of rivers and streams and the reduction in littoral habitat.

53 The distribution of fish in some rivers may also be affected by a lack of protection of riparian vegetation, either through a lack of fencing on farms, or lack of adequate buffer zones near urban or forestry developments.

54 Water-based activities that impact on fish stocks and the aquatic environment include fish farming, oil/mineral extraction, gravel extraction, sand and gold mining, water extraction for irrigation, industry and public supply.

55 Migratory fish will also be affected by obstructions across waterways such as impoundments and hydroelectric dams in the same way that eels are affected. Efforts have been made to improve fish passage past manmade obstacles in recognition of the natural assemblage of indigenous species. However, the provision of adequate fish passage measures remains a significant problem in New Zealand.

56 Regional and district councils manage the impacts of land based activities on the aquatic environment. The Ministry of Economic Development manages oil/mineral extraction. Land and water resource users normally require consent for many of their activities under the Resource Management Act 1991. Alternatively, some activities are described as discretionary, and no consent is required. The consenting requirements, if any, will depend on the council's consideration of the importance of the issue.

57 Regional councils are beginning to impose conditions or consents to undertake work in freshwater environments to mitigate the effect of the work on freshwater species. MFish has issued special permits to allow the permit holder to take aquatic life, to move it elsewhere before the work commences.

## **Sustainable Harvesting**

### ***Biological Characteristics***

58 A brief description of the life cycles, habitat preferences and main uses for species in this plan is shown in **Table 1** below.

**Table 1: Life History and Main Fishing Uses of Species in this Fisheries Plan**

Species	Scientific name	Species code	Life history	Adult length	Age at maturity	Native/introduced	Use
Lamprey	<i>Geotria australis</i>	LAM	Adults migrate upstream in winter and spring. Ammocoete larvae metamorphose to adults after 4-5 yrs, goes to sea in winter and stays at sea 3-4 yrs.	450-750 mm	8-9 years	Native	Customary Recreational
Common Smelt	<i>Retropinna retropinna</i>	SME (group code)	Spawns in lower reaches of rivers in summer, adults die after spawning, larvae go to sea, return in summer. Spend most of life at sea.	90-120 mm	1 year	Native	Adults customary Recreational Aquarium trade Whitebait (adults and juveniles)
Stokell's Smelt	<i>Stokellia anisodon</i>	STK	Adults enter rivers in spring and summer to spawn. Do not feed there, adults die after spawning. Larvae move to sea for 1 yr before returning. Life mostly at sea.	70-85 mm	1 year	Native	Customary Recreational Commercial Aquarium trade Juveniles whitebait
Inanga	<i>Galaxias maculatus</i>	GMA	Autumn migrates downstream to estuaries on full or new moons, spawns upstream of tidal salt wedge, larvae go to sea for 21-23 weeks, return in spring as whitebait.	80-100 mm	1-2 years	Native	Adults customary Recreational Aquarium trade Juveniles (s2 of the Fisheries Act: defines whitebait as the juveniles of galaxiids) Fish farming
Koaro	<i>Galaxias brevipinnis</i>	KOU	Spawns autumn/winter, amongst gravel and litter during high flows, larvae go to sea for 17-20 weeks, return spring as whitebait.	160-288 mm	2-3 years	Native	Adults customary Recreational Aquarium trade Juveniles whitebait Fish farming
Giant kokopu	<i>Galaxias argenteus</i>	GKO	Spawns autumn/winter, larvae go to sea for 18 weeks and return as whitebait from November.	75 mm	2-3 years	Native	Adults customary Recreational Aquarium trade Juveniles whitebait Fish farming

Species	Scientific name	Species code	Life history	Adult length	Age at maturity	Native/introduced	Use
Shortjaw kokopu	<i>Galaxias postvectis</i>	SKO	Not well know may mature age 2 or 3, spawning autumn/winter, larvae go to sea and return spring as whitebait after 19 weeks.	150-350 mm	2-3 years	Native	Adults customary Recreational Aquarium trade Juveniles whitebait Fish farming
Banded kokopu	<i>Galaxias fasciatus</i>	BKO	Spawns in autumn/winter amongst forest litter during high flows, larvae go to sea for 13-17 weeks and return as whitebait mid spring.	200-260 mm	2 years	Native	Adults customary Recreational Aquarium trade Juveniles whitebait Fish farming
Dwarf galaxias	<i>Galaxias divergens</i>	GLX (group code)	Spawns spring/autumn, significant migrations unlikely, larvae and juveniles around stream margins in small shoals spring and summer.	70 mm	2 years	Native	Customary Recreational
Canterbury mudfish	<i>Neochanna borrowsius</i>	-	Spawns late winter/spring, fry open living, adults.	120-150 mm	1 year	Native	Customary Recreational
Black mudfish	<i>Neochanna diversus</i>	-	Not well known , spawns winter, fry open living, adults cryptic, no migrations.	90-157 mm	1 year	Native	Customary Recreational
Brown mudfish	<i>Neochanna apoda</i>	-	Spawns autumn, fry open living, adults cryptic.	100-130 mm	2 years	Native	Customary Recreational
Torrentfish	<i>Cheimarrichthys fosteri</i>	CHF	Little known, female occupies upper reaches, male lower reaches of rivers, spawning migration summer/autumn, larvae go to sea. Juvenile returns from sea spring/summer.	100-200	2-3 years	Native	Customary Recreational Aquarium trade
Common Bully	<i>Gobiomorphus cotidianus</i>	GCO	Spawns spring/summer, larvae go to sea, return after 3-4 months and enter rivers. Landlocked populations abandon marine life stage, completing life in lakes.	100 mm	1 year	Native	Customary Recreational Aquarium trade
Cran's Bully	<i>Gobiomorphus basalis</i>	BUL (group code)	Spawns spring/summer. No migrations are undertaken.	80-92 mm	1 year	Native	Customary Recreational Aquarium trade
Redfin Bully	<i>Gobiomorphus huttoni</i>	RFB	Spawns spring, larvae go to sea, return after several months and enter rivers sometimes in huge shoals	80-100 mm	1 year	Native	Customary Recreational Aquarium trade

Species	Scientific name	Species code	Life history	Adult length	Age at maturity (years)	Native/introduced	Use
Black Flounder	<i>Rhombosolea retiaria</i>	BFL	Not well known, migrates to sea to spawn, probably winter, larvae migrate into river estuaries. Whether post spawning adults return to freshwater or stay at sea is unknown.	200-450 mm	2 years	Native	Commercial Recreational Fish farming
Yelloweye mullet	<i>Aldrichetta forsteri</i>	YEM	Marine spawner summer/autumn. Natural mortality rate 0.76. Habits are mostly marine to estuarine but penetrates upstream in low elevation rivers and coastal/brackish lakes, seldom much beyond tidal influence. Cannot live permanently in freshwater.	50cm	2 years	Native	Customary Commercial Recreational
Kākahi (freshwater mussel 3 species)	<i>Hyridella menziesi</i> , <i>Hyridella aucklandica</i>  <i>Cucumerunio websteri</i>	HME HLA (Hyridella species) CWE	Larvae are brooded in the parent's gills and then parasitise on fish, attaching to the fish's fins or gills. Later they break free and drop to the bottom of the water. The mussel's only movements are vertical adjustments in response to changing environmental conditions. Short migrations occur if habitat is unsuitable.	100 mm	-	Native	Recreational Commercial Fish farming
Koura (freshwater crayfish 2 species)	<i>Paranephrops planifrons</i> and <i>Paranephrops zealandicus</i>	KOU	All koura are non-migratory, and carry their eggs and then their developing young under their tails between April and December, and most in May and June. Small koura hatch about 3 to 4 months later. They cling to their mothers with their pincers until they are nearly 4mm long, around December of their first year.	20-80 mm	4 years	Native	Customary/ Recreational Fish farming
Freshwater Shrimp	<i>Paratya curvirostris</i>	-	Exhibits protandry where sex is defined by the age and maturity of the individual rather than at development. All individuals undergo a male phase of development before transforming to adult female forms.	-	1 year	Native	Customary Aquarium trade



Species	Scientific name	Species code	Life history	Adult length	Age at maturity	Native/introduced	Use
Brown Bullhead Catfish	<i>Ameiurus nebulosus</i>	CAT	Catfish spawn in shallow depressions on the substrate. The male guards and fans the eggs during development and both parents guard larvae for about a week after hatching.	180-500 mm	2-3 years	Introduced	Customary Commercial
Grass Carp	<i>Ctenopharyngodon idella</i>	GRP	Highly specialised spawning requirements. Spawn into river flows and develop as they float downstream. Unlikely in New Zealand rivers and maintenance of stock depends on artificially stimulated breeding in captivity.	1000 mm	3-4 years	Introduced	Biological control Fish farming 'Restricted fish' under the Conservation Act
Silver Carp	<i>Hypophthalmichthys molitrix</i>	SRP	Highly specialised spawning requirements, eggs need to be suspended in water for several days. Rarely spawns outside its native rivers and not expected to in New Zealand. Artificially bred in captivity.	1000 mm	3-4 years	Introduced	Biological control Fish farming 'Restricted fish' under the Conservation Act 1987
Koi Carp	<i>Cyprinus carpio</i>	KOI	Spawns spring/summer. Larvae settle to bottom and then free swim at 8 mm.	250-1200 mm	2 years	Introduced	Commercial 'Unwanted organism' under the Biosecurity Act 1993
Goldfish	<i>Carassius auratus</i>	CAU	Eggs hatch in a week and young attach to aquatic plants for several days then become free swimming.	150-400 mm	1-2 years	Introduced	Ornamental trade
Sailfin Molly	<i>Poecilia latipinna</i>	-	Internal fertilisation. Young develop internally with up to 120 per brood, 12 mm long at birth.	60-120 mm	3 months	Introduced	Aquarium trade
Watercress 2 species	<i>Nasturtium microphyllum</i> and <i>Nasturtium officinale</i>	WAT (group code)	Fast-growing, aquatic or semi-aquatic, perennials native from Europe. The stems are floating and the leaves are pinnately compound. Watercress produce small, white and green flowers in clusters. As well as harvesting from the wild, watercress is suited to hydroponic cultivation, thriving best in water that is slightly alkaline.	Grows to 50-120 cm if left un-harvested	-	Introduced	Customary Recreational Fish farming

## ***Sustainability Indicators***

59 Sustainability indicators include indices of stock abundance relative/absolute biomass surveys, catch per unit effort (CPUE), or catch trends. For species in the QMS – black flounder and yelloweye mullet – there are data available. However the data are not representative of freshwater catch because the yelloweye mullet fishery is mostly marine and the black flounder data are grouped with other flatfish species that are marine. Sustainability indicators are not available for any other species in this plan.

## ***Information Status of Stocks***

60 There is little or no information on the stock status of the fisheries for the species listed. For most freshwater species there are no stocks identified for the purposes of fisheries management.

## ***Research***

61 MFish currently funds little research on freshwater fisheries other than for freshwater eels. More research will be carried out as this fish plan develops and information needs are identified.

62 Yelloweye mullet and flatfish fishstocks are monitored using a comparison of annual landings with total allowable commercial catch (TACCs). No research is identified for 2007/08 but basic biological information will be researched in the future. Yelloweye mullet and flatfish are highly fecund, fast growing and short lived. Consequently, these stocks can vary considerably in size from year to year and are likely to be less vulnerable to fishing.

63 Although MFish funds little freshwater fisheries research at present (apart from eels) there is research funded by other agencies. Te Wai Maori Trust is a Freshwater Fisheries Trust that has been established under the Maori Fisheries Act 2004 to advance Maori interests in freshwater fishing. It undertakes and funds research and development projects as part of its strategic plan.

64 The Foundation for Research, Science and Technology funds freshwater research throughout the country through different agencies, including the National Institute of Water and Atmospheric Science (NIWA), and Waikato University.

65 NIWA maintains the New Zealand Freshwater Fish Database (NZFFD) for research and recording purposes. The database records the occurrence of fish in fresh waters of New Zealand, including major offshore islands. Data are contributed voluntarily by NIWA, MFish, fish and game councils, DOC, regional councils, environment consultants, universities and interested individuals. Access to the data requires registration and users are encouraged to contribute data.

## **Total allowable catch**

66 Most freshwater species are not used to a high degree commercially, therefore the only TACs, TACCs and allowances set for the fish in this plan are flatfish (which includes black flounder) and yelloweye mullet.

67 Flatfish stocks were introduced into the QMS in 1986 and most of their TACCs have

not subsequently been reviewed. Therefore no recreational or customary allowances have been set for flatfish except for in FLA 1, see **Table 2** below. Non-commercial fishing occurs for these stocks, under the relevant provisions in the amateur regulations. Flatfish stocks are comprised of eight species including black flounder, therefore the TACCs for flatfish are not a reflection of the amounts of black flounder caught in freshwater.

**Table 2: TACs, TACC's and allowances for flatfish stocks.**

Stock	TAC	TACC	Cust Allowance	Rec Allowance	Other Mortality
FLA1	1,762	1,187.3	270	270	35
FLA2	-	725.9	-	-	-
FLA3	-	2,681.5	-	-	-
FLA7	-	2,065.6	-	-	-
FLA10	-	10	-	-	-

68 Yelloweye mullet is also in the QMS and TACs have been set. These TACs are similarly not reflective of those fish caught in freshwater as yelloweye mullet is primarily a marine species that wanders into freshwater. See **Table 3** below.

**Table 3: TACs, TACC's and allowances for yelloweye mullet stocks.**

Stock	TAC	TACC	Cust Allowance	Rec Allowance	Other Mortality
YEM1	50	20	15	15	-
YEM2	14	2	4	8	-
YEM3	14	8	2	4	-
YEM5	2		1	1	-
YEM7	20	5	5	10	-
YEM8	18	3	5	10	-
YEM9	38	30	4	4	-

**PEOPLE ARE ABLE TO REALISE THE BEST VALUE FROM**

# THE SUSTAINABLE AND EFFICIENT USE OF FISHERIES

## Allocation

69 The only freshwater species that have been introduced into the QMS are flatfish, yelloweye mullet and eels as already described in the previous section.

## Use

70 Lamprey, smelts, galaxiid adults, black flounder, kākahi and koura are principally taken for customary and recreational use and also the aquarium trade. Yelloweye mullet are harvested commercially at Lake Ellesmere and around Auckland, catfish and koi carp are harvested commercially as both a target species and bycatch, mostly from eel fisheries. Silver carp and grass carp are both utilised for biological control of unwanted algae and aquatic plants. Watercress is harvested as an important food source.

71 Estimated catch weights of freshwater species for the 2005-2006 fishing year are shown in **Appendix 5**. The data are largely incomplete due to non-reporting and misreporting of catch. The majority of freshwater take is through bycatch in the eel fishery with small amounts taken as bycatch by set netters who are targeting grey and yelloweye mullet and flounder. Bycatch is often discarded without reporting. Much of the reported catch is from the upper North Island as many introduced species are found in this area.

## Profile of Sectors

### *Commercial Profile*

#### Target Fisheries

72 There are target set net fisheries for yelloweye mullet and flatfish (these include black flounder but are primarily for sand flounder and yellow-belly flounder).

73 As previously mentioned the other fish species covered in this plan are caught mainly as bycatch species in the eel, yelloweye mullet, grey mullet and flounder commercial fisheries. Some are also taken as brood stock for fish farms and the ornamental trade.

74 All fish landed must be reported by commercial fishers. The Fisheries (Commercial Fishing) Regulations 2001 provide a minimum legal size (MLS) of 25 cm for black flounder and a minimum net mesh size of 100 mm. For yelloweye mullet there is no MLS and there is a 25 mm minimum net mesh size.

#### Aquarium and Ornamental Trade

75 Goldfish are one of the mainstay species found in pet shops, and many households will have pet goldfish in bowls, tanks or ponds on the premises. These are mostly ornamental varieties, the most common varieties being comets, shubunkins and fantails. Occasionally, feral goldfish are harvested and sold through pet shops as ornamental fish or to control mosquitoes. They are often too large for backyard ponds and are usually purchased by owners of farm ponds, or other large ponds where their large size and camouflage colour

makes them less susceptible to predation.

76 Some adult galaxiid species have been harvested and exported to assess their value internationally as an aquarium species. However, mortalities were high and the surviving fish were purchased by fish enthusiasts who have an interest in rare and unusual species.

77 Bullies, particularly redfin bullies (because of their striking colours) and adults of the galaxiid species are offered for sale for native fish fanciers. Occasionally, torrentfish are sold in pet shops. While torrentfish prefer fast-flowing water and rocky habitats, they can tolerate aquarium life and are an attractive species in an aquarium.

78 Freshwater shrimps are sold to adorn aquaria or are used as live food for large ornamental freshwater fish. A small quantity of freshwater invertebrates are harvested and sold to pet shops to feed fish (e.g. daphnia, mosquito larvae and tubifex worms).

### **Fish Farming**

79 In 2006 MFish released a gazette notice specifying fish and shellfish species which may be farmed under the Freshwater Fish Farming Regulations 1983. See **Appendix 6**.

80 Although several fish farms are licensed to farm whitebait (galaxiid) species, only one farm actually raises them to adult size. These are taken from the wild as whitebait and when raised to adults they are sold to pet shops or to other fish farms. Some have been used to restock streams that have become depleted. There is an increasing demand by fish enthusiasts for farm-raised adult giant kokopu because of their unusually large size.

81 There are many goldfish farms throughout New Zealand ranging from back-yard operations to farms many hectares in size with many ponds. Most large goldfish farms are in the Waikato region due to cheap land, warm weather and large nearby markets. Goldfish farming was probably the first form of aquaculture in New Zealand and continues to be a major aquaculture industry in New Zealand providing goldfish for a market estimated to be worth \$10 million a year. Goldfish are not a gazetted species, so they are not covered by the Freshwater Fish Farming Regulations 1983. Goldfish farms do not obtain feral goldfish from the wild, as they are large, drab and stocky in build. They can also introduce disease onto the fish farm. Ornamental goldfish are small, colourful, with elaborate body shapes and fins.

82 Koura farms have been established for some time, although they are only now beginning to produce commercial quantities of koura, usually for up-market restaurants. There is also an increasing demand to produce these for the aquarium industry. There is a lot of interest in farming koura, but it is likely to remain a relatively small industry supplying a niche market, as koura are generally slow growing and cannibalistic.

83 Grass carp farming is increasing to produce enough stock for weed control and for the restaurant trade, particularly for Asian restaurants where they are considered to be a delicacy. While they are hardy and easy to feed, grass carp require hormone injections to breed in New Zealand, which is expensive and not always successful. Interest in farming silver carp is also increasing for similar reasons, but stocks of silver carp are low, as they have proved difficult to breed until recently.

84 There is a large fish farm in Taupo rearing the tropical freshwater Malaysian prawn, *Macrobrachium rosenbergii*. Most of the prawns produced on the farm are for human consumption on the premises, particularly for tourists visiting the geothermal area. These

prawns require warm water, so there is little prospect of viable populations occurring in the wild. There have been proposals to develop prawn farms elsewhere in geothermal areas, but none has come to fruition.

85 There are a few large facilities cultivating watercress for human consumption. Some of this is carried out using hydroponics to produce a high quality product.

86 There has been a proposal to cultivate freshwater mussels to release into lakes affected with algal blooms (e.g. some Rotorua lakes) but this proposal was deferred due to concerns that the public would cut their feet on the shells.

87 Although ornamental fish are not the main species in this plan, it should be mentioned that there are some reasonably large facilities breeding exotic ornamental fish. These are warm-water species, which are reared in ponds heated by geothermal water. These are mostly cichlids or cyprinodonts that are commonly seen in pet shops. There are no viable wild populations of these species in New Zealand waters (except for sailfin mollies), but occasionally, some escape and form transient populations. Some high-priced species are sold for \$100 a fish or more and these are farmed in insulated buildings. Examples are the discus fish and the angel fish.

### **Watercress**

88 Watercress is harvested from the wild, packaged and sold in specialised food outlets. As already mentioned there are some large facilities cultivating watercress with hydroponics. Watercress leaves are also used as packaging for freighting some aquatic organisms that can survive chilled and out of water (e.g. koura).

## ***Commercial Use and Value Indicators***

### **Use**

89 Apart from the black flounder and yelloweye mullet target fisheries most of the commercial activity for species in this plan relate to the aquarium trade and fish farming as described above.

### **Value Indicators**

90 Commercial operators have options for maximising value including:

- maximising the value from the harvest right – the quota share and annual catch entitlement
- maximising the value from the product caught

91 MFish do not have the information to indicate the value of commercial use of freshwater fisheries.

## ***Recreational Fishing Profile***

92 The Fisheries (Amateur Fishing) Regulations 1986 provide restrictions for some freshwater species. For yellow eyed-mullet is no minimum legal size (MLS or daily bag

limit, but there is a minimum net mesh size of 25 mm. For black flounder there is a MLS of 25 cm and a minimum net mesh size of 114 mm.

93 Lamprey have a daily bag limit of 30 in Southern and Fiordland areas, through the Amateur Fishing Regional Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991.

94 There is a daily combined bag limit of 50 that applies to shellfish that do not have specific limits, such as freshwater crayfish, freshwater mussels and freshwater shrimp.

95 The taking of freshwater species for non-commercial use is classed under the recreational catch category for the purposes of the Minister's consideration of an allowance before setting a TACC for a stock. This harvest differs from that categorised in law as applying to the North Island (and Chatham Islands) for customary purposes (i.e. traditional hui and tangi only).

96 Koura are taken from lakes by the public for consumption. Small traps may be set much like lobster pots, and many are taken by hand or dip nets at night using torches. Children in rural areas collect freshwater species including koura and watercress when fishing for eels.

97 Juvenile galaxiids (whitebait) support seasonal recreational fisheries around New Zealand. In some locations whitebait fisheries are very important to communities (eg. the west coast of the South Island and Mokau in northern Taranaki).

98 Watercress is taken extensively for food.

99 Some recreational fishers utilise introduced freshwater species (e.g., brown bullhead catfish, koi carp and goldfish) for ornamental and food purposes.

100 Grass carp have been released into small water bodies for controlling problem aquatic weeds; some carp are fished out for human consumption. Some sites where grass carp have been employed to control aquatic weeds have had to be abandoned because of significant losses through recreational fishing. A similar trend is likely to be seen with silver carp as they are now being used increasingly for algal control. Because they grow to a large size, grass carp are becoming a top trophy fish for bow hunters, along with koi.

101 Small quantities of other species are taken for personal use, mostly for home aquaria or back yard ponds and also for consumption. Examples are large galaxiids, freshwater mussels, koura, feral goldfish and koi. Freshwater mussels are a desirable species because of their ability to filter out large amount of algae in ponds and many pond enthusiasts recommend adding a few mussels into the pond for that purpose.

102 Yellow eyed mullet and black flounder are popular recreational species. Recreational fishers take yellow eyed mullet around northern New Zealand while black flounder are occasionally caught further south in Wairarapa, Onoke and Canterbury.

### ***Recreational Use and Value Indicators***

103 A survey made available to the Waitangi Tribunal for the Mohaka River Report (1992) concluded that fishing from the river (principally eels and kahawai) was worth about \$62,000 per year, with families fishing on average 2.8 times per week, although survey participants

noted that they viewed the fishery resources as gifts from the river, rather than as commodities to be expressed in monetary terms.

104 Factors that recreational fishers value from the fishery need to be discussed with the recreational sector, but are likely to include the following:

- favoured fish species
- good catch rates
- good sized fish
- available in good quantities in accessible places, particularly shellfish
- good condition fish (not affected by pollution)
- easy access
- good fishing for food
- outdoor experience
- low participation costs

### **Customary Fishing Profile**

105 Māori in the North Island manage non-commercial customary food gathering in freshwater under regulation 27A of the national amateur fishing regulations, the Taupo Fishing Regulations in Lake Taupo or authorisations under the Te Arawa Lakes (Fisheries) Regulations 2006. South Island Māori use regulation 27A or the Fisheries (South Island Customary Fishing) Regulations 1999.

106 Māori carry out kaitiaki duties over waterways within their rohe for their sustenance and benefit. Traditionally fishing locations were highly prized and often linked to the occupation or use of adjacent land. The waterways and aquatic life are said to be integral to the mana of Māori.

107 There are currently no estimates of freshwater fish catch for customary fishing purposes. However, freshwater fishing for customary purposes is of ongoing significance in most areas around New Zealand. For example, Māori consider lamprey a delicacy. The traditional lamprey fishery still occurs on a small scale in the Wanganui River near Pipiriki and in other parts of Taranaki. In Southland hand-picking of lamprey at the Mataura Falls has been the traditional way of catching these oil-rich fish as they head towards their spawning grounds. They are an important source of food to Southland iwi.

108 The association between some iwi and different freshwater fish species is documented through individual iwi Treaty settlements.

109 The Crown recognises that the following iwi have a customary non-commercial interest in and a special relationship with *all* species of fish, aquatic and seaweed within their respective protocol area and managed by the Ministry of Fisheries under fisheries legislation: Ngaa Rauru Kiiitahi; Ngati Mutunga; Ngati Tuwharetoa (Bay of Plenty); Ngati Awa; Ngati Tama; Ngati Ruanui; Te Uri o Hau; Te Arawa Lakes and Te Roroa.

110 For freshwater the following iwi have certain freshwater species listed as taonga



species in their fisheries protocol:

- Ngati Ruanui and Te Uri o Hau (longfin eel and shortfin eel)
- Te Arawa Lakes (means the lakes but not the streams and rivers flowing into the lakes)
- All freshwater species defined in the Te Arawa Lakes Settlement Act 2006 as ‘fish and aquatic life managed and administered under the fisheries legislation and excludes whitebait, sports fish, or unwanted aquatic life but includes whitebait, any specific whitebait species, or any other species if, at any time, they are managed and administered under the Fisheries Act 1996.
- Te Roroa (freshwater crayfish and eel)

111 While MFish does not have a fisheries protocol with Ngai Tahu there are provisions under the Deed of Settlement and subsequent Ngai Tahu Claims Settlement Act 1998 that states that the Crown acknowledges the cultural, spiritual, historic and traditional association of Ngai Tahu with the taonga fish species.

112 Freshwater taonga species are listed in the Ngai Tahu Claims Settlement Act as:

- a) Kokopu/Hawai – Giant bully (*Gobiomorphus gobioides*)
- b) Kowaro – Canterbury mudfish (*Neochanna burrowsius*)
- c) Paraki/Ngaiore – Common smelt (*Retropinna retropinna*)
- d) Piripiripohatu – Torrentfish (*Cheimarrichthys fosteri*)
- e) Taiwharu – Giant kokopu (*Galaxias argenteus* p)

113 The Ngai Tahu Claims Settlement Act also prohibits the targeted commercial harvest of the following species in section 306:

- a) Kakahi/Koaru – freshwater mussels (*Unio menziesi*)
- b) Kanakana/Ute – southern lamprey (*Geotria australis*)
- c) Karengo – karengo/nori (*Porphyra columbina*)
- d) Karengo – sea lettuce (*Ulva* spp)
- e) Rimurapa – bull kelp (*Durvillee* spp)
- f) Toheroa/Tuvehokura – toheroa (*Paphies ventricosum*)
- g) Waikoura – freshwater crayfish (*Paranephrops* spp)

114 The Crown may agree to prohibit certain species from commercial take, or the settlement may simply record that a prohibition already exists. In either case, the Crown will also commit to consult with the iwi/hapū in the event there is a proposal to allow the species to be used commercially, and recognise and provide for the iwi and hapū customary non-commercial fishing interests.

115 The Ngati Ruanui, Ngai and Ngate Mutunga Treaty settlements prohibit the commercial harvest of lamprey within their Protocol areas unless the Minister can demonstrate a commercial harvest is sustainable.

## ***Customary Use and Value Indicators***

116 As with other sectors, estimates of freshwater fish catch for customary fishing purposes is uncertain. However, freshwater fishing for customary purposes is still significant in most areas around New Zealand.

117 In several instances, particular rivers are the home to taniwha, some of which are said to be the ancestors, or tipuna, of the current generation. These taniwha may take the form of eels or other freshwater species.

118 Elements of the river, including aquatic life, are regarded as taonga. It is a customary practice for Māori to identify themselves with a local mountain, river, and a key ancestral line, such as a chief or hapū. Rivers were also used for conducting certain rituals, and were used in some areas as demarcation lines between adjacent hapū. Accordingly, there is a collective responsibility amongst tāngata whenua to ensure that taonga are managed in such a way that particular customs are observed and respected. This includes the obligation to ensure that sufficient fishery resources are available for future generations.

119 One of the customary practices of Māori is to provide food to marae visitors. In the past these food sources were acquired locally, and the mana of the marae was held in high regard when such food was presented to visitors.

120 In the freshwaters of the North Island recreational freshwater fishing includes activities undertaken by Māori that do not relate to traditional hui or tangi. Non-commercial fishers use a wider variety of fishing methods including hand-gathering (including, gaffing, rippie), lines, spear, hīnaki (eel pots), toke or bobbing, and eel weirs. Māori exercised conservation and management methods, which included seeding areas with juveniles and imposing restrictions on harvest times and methods.

121 A subsistence fishery exists for feral goldfish where they exist in large quantities. This occurs in the lower Waikato River system, Lake Omapere and the Te Arawa Lakes where they are considered a taonga species. Freshwater mussels are sometimes harvested.

## ***Mātaimai reserves***

122 At present iwi can not apply for mātaimai reserves in freshwater in either the North or Chatham Islands under the Fisheries (Kaimoana Customary Fishing) Regulations 1998, because these regulations do not cover freshwater environments at present. Some tangata whenua have considered the exclusion of freshwater habitats as areas for establishing mātaimai reserves. The Minister of Fisheries agreed in August 2007 for MFish to consult with tangata whenua on an amendment to the Fisheries (Kaimoana Customary Fishing) Regulations 1998 so that they will apply to freshwater in the future.

123 In contrast, the Fisheries (South Island Customary Fishing) Regulations 1999 provide for establishing mātaimai reserves in freshwater, and in 2005 the first freshwater mātaimai reserve was established on a 10 km section of the Mataura River (Southland). Hokonui Rūnanga are the tāngata whenua for this area, and they have one Tāngata Tiaki/Kaitiaki appointed for the Mataura River Mataimai Reserve. At present there are no bylaws proposed for this reserve.

### ***Taiapure - local fisheries***

124 Taiapure-local fisheries can be established in coastal littoral or estuarine waters that have customarily been of special significance to any iwi or hapu. There are five taiapure-local fisheries in the North Island: Waikare Inlet in the Bay of Islands; Maketu in the Bay of Plenty; Kawhia and Aotea Harbours, Porangahau and Palliser Bay. They all contain habitats of importance to freshwater species.

125 There are three taiapure fisheries in the South Island Whakapuaka (Delaware Bay) and Akaroa Harbour (where there are no committees or regulations yet), and East Otago. The East Otago Taiapure-Local Fishery has a committee made up of 50% membership from Kati Huirapa Runanga ki Puketeraki and 50% from the Karitane Fishermen's Association, the Otago Recreational Marine Fishers Association, coastal fishers and divers' groups and community and environmental groups.

## **CREDIBLE FISHERIES MANAGEMENT**

126 Credible fisheries management requires acting in accordance with Treaty of Waitangi principles and engagement with tāngata whenua and stakeholders to implement the Government's policy of managing fisheries through fisheries plans based on objectives-based management. This enables clear links between the strategies and services provided.

### **Tāngata Whenua Input and Participation**

127 MFish has developed its relationship with Māori on the basis that Māori interests extend through customary, recreational and commercial fishing purposes. Effective management and provision for these different freshwater interests will develop over time.

128 The Fisheries (South Island Customary Fishing) Regulations 1999 provide for the management of customary fishing in the marine and freshwater environment for the South Island. For the North and Chatham Islands the Fisheries (Kaimoana Customary Fishing) Regulations 1998 do not extend to the freshwater environment at present.

129 Fishing for customary purposes in the North and Chatham Islands is presently carried out under Regulation 27A of the Amateur Regulations and this limits these activities to the taking of aquatic life for traditional hui and tangi only. MFish provides information on how customary fishing can be carried out under the present regulatory framework.

130 Discussions between hapū and iwi representatives show that Māori support an amendment to the Fisheries (Kaimoana Customary Fishing) Regulations 1998 to allow them to cover freshwater environment for enabling customary fishing access. The Minister of Fisheries agreed in August 2007 for MFish to consult with tangata whenua on an amendment.

131 MFish continues to liaise with a range of Māori groups, whether they are hapū, iwi or forums supported by MFish, in order to better recognise and provide for customary fishing activities in the North and Chatham Islands. Forums are one way that MFish and tāngata whenua can work together to meet some of the government's fisheries obligations to Māori. MFish also includes tangata whenua in all written consultation exercises.

132 MFish has established teams to help meet its objectives to tangata whenua. These are:

- the Pou Hononga, who work with tangata whenua to develop forums, act as intermediaries between tangata whenua and MFish, and who help to ensure that iwi and hapu are aware of fisheries management proposals in their area, and
- the Pou Takawaenga, who are a resource that iwi can draw on to help develop research and management proposals for fisheries in their rohe moana.

133 A new forum, Te Ika a Maui Freshwater Fisheries Forum, has been formed by Māori in the North Island. This forum will allow for effective communication between Māori and MFish about freshwater fishing.