



NEW ZEALAND THREAT CLASSIFICATION SERIES 24

Conservation status of New Zealand freshwater fishes, 2017

Nicholas R. Dunn, Richard M. Allibone, Gerard P. Closs, Shannan K. Crow, Bruno O. David, Jane M. Goodman, Marc Griffiths, Daniel C. Jack, Nicholas Ling, Jonathan M. Waters and Jeremy R. Rolfe



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Te Papa Atawhai

Cover: The Nationally Critical Canterbury mudfish (*Neochanna burrowsius*) continues to decline and it is now in serious peril.
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New Zealand Threat Classification Series is a scientific monograph series presenting publications related to the New Zealand Threat Classification System (NZTCS). Most will be lists providing NZTCS status of members of a plant or animal group (e.g. algae, birds, spiders), each assessed once every 5 years. After each five-year cycle there will be a report analysing and summarising trends across all groups for that listing cycle. From time to time the manual that defines the categories, criteria and process for the NZTCS will be reviewed. Publications in this series are considered part of the formal international scientific literature.

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Abstract

The conservation status of all known New Zealand freshwater fish taxa was reassessed using the New Zealand Threat Classification System (NZTCS). A full list is presented, along with a statistical summary and brief notes on the most important changes. This list replaces all previous NZTCS lists for freshwater fish.

Keywords: New Zealand Threat Classification System, freshwater fish, conservation status, Anguillidae, Cheimarrichthyidae, Cyprinidae, Eleotridae, Galaxiidae, Geotridae, Gobiidae, Ictaluridae, Microdesmidae, Mugilidae, Percidae, Pleuronectidae, Poeciliidae, Retropinnidae, Salmonidae, Tripterygiidae.

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1. Summary

The conservation status of 78 New Zealand freshwater fish taxa was assessed using New Zealand Threat Classification System (NZTCS) criteria (Townsend et al. 2008). This list replaces the 2013 list published by Goodman et al. in 2014. The categories, criteria and process were identical between the two listings and many of the panel members (the authors of Goodman et al. 2014 and this document) were the same.

The New Zealand Freshwater Fish Database (McDowall & Richardson, 1983; <https://nzffdms.niwa.co.nz/>, retrieved 9 August 2017) and unpublished Department of Conservation survey, monitoring and reporting data were the primary sources of information used to examine the distribution and abundance of freshwater fish taxa.

1.1 Taxonomic changes

The taxonomic status of two taxa changed in the 2017 listing. *Galaxias gracilis* as recognised by McDowall (1967), based on morphological and meristic analyses, has been disestablished as a species, and is now recognised as land-locked stocks of *Galaxias maculatus*, based on genetic work by Nicholas Ling and co-workers. *Galaxias* “lower Clutha” was recognised as a separate entity by Goodman et al. (2014) based on workshop discussions (Bowie et al. 2014), but in this assessment it is subsumed back into *Galaxias* “species D” based on the advice of Jonathon Waters.

The taxonomic descriptions of 12 *Galaxias* and *Gobiomorphus* entities, hereafter referred to as taxonomically indeterminate taxa, and assigned tag names in this list, are being progressed by several of the authors (Crow, Dunn, Ling, and Waters), with the aim of this work being completed in the near future.

1.2 Species inclusion and exclusion

Acentrogobius pflaumii is recognised in this list for the first time as it inhabits brackish estuarine areas, similar habitat to that of other gobiid species in this list. It is considered to have been accidentally introduced through ballast water (Francis et al. 2003). Two introduced freshwater fish taxa – grass carp (*Ctenopharyngodon idella*) and silver carp (*Hypophthalmichthys molitrix*) – were not assessed by the panel because they are not known to breed in the wild in New Zealand so do not fit NZTCS (Townsend et al. 2008) assessment criteria.

1.3 Changes to conservation status

Table 1 provides a summary of the number of taxa in each category listed in Goodman et al. (2014) and this document. A summary of status changes between the 2013 and 2017 lists is presented in Table 2. More comprehensive information on the status of individual taxa, the qualifiers that apply to each, and the criteria that triggered the taxon to be placed in a category, is outlined in Section 2 and provided on <http://www.nztcs.org.nz>. The conservation status of five taxa changed between the listing of Goodman et al. (2014) and this listing. The conservation status of three taxa improved. *Gobiomorphus huttoni* moved from At Risk – Declining in the listing of Goodman et al. (2014) to Not Threatened in this assessment, based on improved knowledge of population parameters. The conservation status of two species improved within the Threatened category. *Galaxias* aff. *cobitinis* “Waitaki” moved from Nationally Critical

Table 1. Statistical summary of the status of New Zealand freshwater fish species assessed in 2013 (Goodman et al. 2014) and 2017 (this document).

CONSERVATION STATUS	GOODMAN ET AL. 2014	THIS REPORT
Extinct	1	1
Data Deficient	1	0
Nationally Critical	5	4
Nationally Endangered	6	6
Nationally Vulnerable	10	12
Declining	14	11
Naturally Uncommon	5	6
Coloniser	3	3
Not Threatened	12	12
Introduced and Naturalised	20	21
Taxonomically indistinct	0	2
Total	77	78

Table 2. Summary of status changes of New Zealand freshwater fish between 2013 (data in rows; Goodman et al. 2014) and 2017 (data in columns). Numbers above the diagonal (shaded medium grey) indicate improved status (e.g. 1 of 5 taxa has gone from Nationally Critical in 2013 to Nationally Endangered in 2017), numbers below the diagonal (shaded light grey) indicate poorer status, numbers on the diagonal (shaded dark grey) have not changed, and numbers without shading are either colonisers (non-resident native), introduced species, taxa added at this assessment (i.e. not listed in 2013), or taxa rejected from this assessment because they are no longer considered to be distinct (TI) from other taxa.

		Conservation status 2017											
		Total 78	EX 1	DD 0	NC 4	NE 6	NV 12	Dec 11	NU 6	NT 12	Col 3	Int 21	TI ¹ 2
Conservation status 2013	Extinct (Ex)	1	1										
	Data Deficient (DD)	1		0									1
	Nationally Critical (NC)	5			4	1							
	Nationally Endangered (NE)	6				5	1						
	Nationally Vulnerable (NV)	10					10						
	Declining (Dec)	14					1	11		1			1
	Naturally Uncommon (NU)	5							5				
	Not Threatened (NT)	12								1	11		
	Coloniser (Col)	3										3	
	Introduced and Naturalised (Int)	20											20
	Not listed	1											1

¹ Taxonomically indistinct: now considered to be conspecific with another species in the report.

to Nationally Endangered, based on actual improvements in population parameters due to conservation management actions, while *Galaxias* “Pomahaka” moved from Nationally Endangered to Nationally Vulnerable based on improved knowledge of its area of occupancy. The conservation status of two taxa worsened. *Gobiomorphus gobioides* moved from Not Threatened to At Risk – Naturally Uncommon based on reinterpretation of available data and *Galaxias* “southern” moved from At Risk – Declining to Threatened – Nationally Vulnerable, based on interpretation of its area of occupancy and decline rate.

1.4 Canterbury mudfish (*Neochanna burrowsius*)

The panel holds particular concern for the Canterbury mudfish. This species was first classified as Nationally Critical in 2009. Since then, its highly fragmented range has further contracted within areas highly intensified for agriculture in Canterbury. Core and peripheral populations are now compromised by drought conditions, exacerbated by abstraction of irrigation water, continued agricultural development leading to loss of wetland and meandering stream habitat, and closure of stock water races. Little has changed to benefit the Canterbury mudfish since it was first classified as Nationally Critical and its persistence is now tenuous. Urgent action to protect Canterbury mudfish habitat is needed to avert its extinction.

1.5 Longfin eel (*Anguilla dieffenbachii*)

Recent data suggests that the abundance of the longfin eel may be stable or increasing in commercial fisheries and that new Total Allowable Commercial Catch limits in the South Island should further decrease pressure on populations. Nevertheless, the panel remains concerned about the continuing degradation of longfin eel habitat, especially in lowland areas, and on-going issues with fish passage (both upstream and downstream). Decline in water quality in many areas has resulted in the shortfin eel occupying habitat that formerly held the longfin eel. Therefore, the assessment remains At Risk - Declining. The panel also notes that public discourse on the longfin eel portrays the species as being severely threatened despite data that indicate otherwise.

2. Conservation status of all known New Zealand freshwater fishes

Taxa are assessed according to the criteria of Townsend et al. (2008). The criteria and qualifiers are summarised below (see Townsend et al. (2008) for detailed explanations) and Table 3 details the conservation status of New Zealand fish assessed in 2017.

Extinct

Taxa for which there is no reasonable doubt - following repeated surveys in known or expected habitats at appropriate times (diurnal, seasonal and annual) and throughout the taxon's historic range - that the last individual has died.

Data Deficient

Taxa that are suspected to be threatened, or in some instances, possibly extinct but are not definitely known to belong to any particular category due to a lack of current information about their distribution and abundance. It is hoped that listing such taxa will stimulate research to find out the true category (for a fuller definition see Townsend et al. 2008).

Threatened

Taxa that meet the criteria specified by Townsend et al. (2008) for the categories Nationally Critical, Nationally Endangered and Nationally Vulnerable.

Nationally Critical

Criteria for Nationally Critical:

A – very small population (natural or unnatural)

A(1) <250 mature individuals

- A(2) ≤ 2 subpopulations, ≤ 200 mature individuals in the larger subpopulation
A(3) Total area of occupancy ≤ 1 ha (0.01 km²)

B – small population (natural or unnatural) with a moderate ongoing or predicted decline of 50–70%

- B(1) 250–1000 mature individuals
B(2) ≤ 5 subpopulations, ≤ 300 mature individuals in the largest subpopulation
B(3) Total area of occupancy ≤ 10 ha (0.1 km²)

C – population (irrespective of size or number of subpopulations) with a very high ongoing or predicted decline of >70%

Nationally Endangered

Criteria for Nationally Endangered:

A – small population (natural or unnatural) that has a low to high ongoing or predicted decline

- A(1/1) 250–1000 mature individuals, predicted decline 10–50%
A(2/1) ≤ 5 subpopulations, ≤ 300 mature individuals in the largest subpopulation, predicted decline 10–50%
A(3/1) Total area of occupancy ≤ 10 ha (0.1 km²), predicted decline 10–50%

B – small stable population (unnatural)

- B(1/1) 250–1000 mature individuals, stable population
B(2/1) ≤ 5 subpopulations, ≤ 300 mature individuals in the largest subpopulation, stable population
B(3/1) Total area of occupancy ≤ 10 ha (0.1 km²), stable population

C – moderate population and high ongoing or predicted decline

- C(1/1) 1000–5000 mature individuals, predicted decline 50–70%
C(2/1) ≤ 15 subpopulations, ≤ 500 mature individuals in the largest subpopulation, predicted decline 50–70%
C(3/1) Total area of occupancy ≤ 100 ha (1 km²), predicted decline 50–70%

Nationally Vulnerable

Criteria for Nationally Vulnerable:

A – small, increasing population (unnatural)

- A(1/1) 250–1000 mature individuals, predicted increase >10%
A(2/1) ≤ 5 subpopulations, ≤ 300 mature individuals in the largest subpopulation, predicted increase >10%
A(3/1) Total area of occupancy ≤ 10 ha (0.1 km²), predicted increase >10%

B – moderate, stable population (unnatural)

- B(1/1) 1000–5000 mature individuals, stable population
B(2/1) ≤ 15 subpopulations, ≤ 500 mature individuals in the largest subpopulation, stable population
B(3/1) Total area of occupancy ≤ 100 ha (1 km²), stable population

C – moderate population, with population trend that is declining

- C(1/1) 1000–5000 mature individuals, predicted decline 10–50%
C(2/1) ≤ 15 subpopulations, ≤ 500 mature individuals in the largest subpopulation, predicted decline 10–50%
C(3/1) Total area of occupancy ≤ 100 ha (1 km²), predicted decline 10–50%

D – moderate to large population and moderate to high ongoing or predicted decline

D(1/1) 5000–20 000 mature individuals, predicted decline 30–70%

D(2/1) ≤15 subpopulations, ≤1000 mature individuals in the largest subpopulation, predicted decline 30–70%

D(3/1) Total area of occupancy ≤1000 ha (10 km²), predicted decline 30–70%

E – large population and high ongoing or predicted decline

E(1/1) 20 000–100 000 mature individuals, predicted decline 50–70%

E(2/1) Total area of occupancy ≤10 000 ha (100 km²), predicted decline 50–70%

At Risk

Taxa that meet the criteria specified by Townsend et al. (2008) for Declining, Recovering, Relict and Naturally Uncommon.

Declining

Criteria for Declining:

A – moderate to large population and low ongoing or predicted decline

A(1/1) 5000–20 000 mature individuals, predicted decline 10–30%

A(2/1) Total area of occupancy ≤1000 ha (10 km²), predicted decline 10–30%

B – large population and low to moderate ongoing or predicted decline

B(1/1) 20 000–100 000 mature individuals, predicted decline 10–50%

B(2/1) Total area of occupancy ≤10 000 ha (100 km²), predicted decline 10–50%

C – very large population and low to high ongoing or predicted decline

C(1/1) >100 000 mature individuals, predicted decline 10–70%

C(2/1) Total area of occupancy >10 000 ha (100 km²), predicted decline 10–70%

Recovering

Taxa that have undergone a documented decline within the last 1000 years and now have an ongoing or predicted increase of > 10% in the total population or area of occupancy, taken over the next 10 years or three generations, whichever is longer. Note that such taxa that are increasing but have a population size of < 1000 mature individuals (or total area of occupancy of < 10 ha) are listed in one of the Threatened categories, depending on their population size (for more details see Townsend et al. (2008)).

Criteria for Recovering:

A 1000–5000 mature individuals or total area of occupancy ≤100 ha (1 km²), and predicted increase >10%

B 5000–20 000 mature individuals or total area of occupancy ≤1000 ha (10 km²), and predicted increase >10%

Relict

Taxa that have undergone a documented decline within the last 1000 years, and now occupy <10% of their former range and meet one of the following criteria:

A 5000–20 000 mature individuals; population stable (±10%)

B >20 000 mature individuals; population stable or increasing at >10%

The range of a relictual taxon takes into account the area currently occupied as a ratio of its former extent. Relict can also include taxa that exist as reintroduced and self-sustaining populations within or outside their former known range (for more details see Townsend et al. (2008)).

Naturally Uncommon

Taxa whose distribution is confined to a specific geographical area or which occur within naturally small and widely scattered populations, where this distribution is not the result of human disturbance.

Non-resident Native

Taxa whose natural presence in New Zealand is either discontinuous (Migrant) or sporadic or temporary (Vagrant) or which have succeeded in recently (since 1950) establishing a resident breeding population (Coloniser).

Migrant

Taxa that predictably and cyclically visit New Zealand as part of their normal life cycle (a minimum of 15 individuals known or presumed to visit per annum) but do not breed here.

Vagrant

Taxa whose occurrences, though natural, are sporadic and typically transitory, or migrants with fewer than 15 individuals visiting New Zealand per annum.

Coloniser

Taxa that otherwise trigger Threatened categories because of small population size, but have arrived in New Zealand without direct or indirect help from humans and have been successfully reproducing in the wild only since 1950.

Not Threatened

Resident native taxa that have large, stable populations.

Introduced and Naturalised

Taxa that have become naturalised in the wild after being deliberately or accidentally introduced into New Zealand by human agency.

Qualifiers

Qualifiers provide additional information about species. They are abbreviated as follows:

- CD Conservation Dependent
- De Designated
- DP Data Poor
- EF Extreme Fluctuations
- EW Extinct in the Wild
- IE Island Endemic
- Inc Increasing
- OL One Location
- PD Partial Decline
- RF Recruitment Failure
- RR Range Restricted
- SO Secure Overseas
- Sp Sparse
- St Stable
- TO Threatened Overseas

Table 3 summarises the conservation status of all known New Zealand freshwater fish

Table 3. Conservation status of all known New Zealand freshwater fish species. The list is sorted by conservation status, then taxonomic status (determinate or indeterminate) and then alphabetically by scientific name.

SPECIES NAME	COMMON NAME	FAMILY NAME	CONSERVATION STATUS	CRITERIA	QUALIFIERS	TAXONOMIC STATUS
EXTINCT						
<i>Prototroctes oxyrhynchus</i> Günther, 1870	grayling	Retropinnidae	Extinct			Determinate
THREATENED						
<i>Galaxias cobitinis</i> McDowall & Waters, 2002	lowland longjaw galaxias (Kakanui River)	Galaxiidae	Nationally Critical	A(1)	CD, EF, OL	Determinate
<i>Neochanna burrowsius</i> (Phillipps, 1926)	Canterbury mudfish	Galaxiidae	Nationally Critical	C	CD, EF, RR, Sp	Determinate
<i>Galaxias</i> "species D"	Clutha flathead galaxias (Clutha River)	Galaxiidae	Nationally Critical	C		Indeterminate
<i>Galaxias</i> "Teviot"	Teviot flathead galaxias (Teviot River)	Galaxiidae	Nationally Critical	A(3)	DP, RR	Indeterminate
<i>Galaxias anomalus</i> Stokell, 1959	Central Otago roundhead galaxias	Galaxiidae	Nationally Endangered	C(3)	CD, EF	Determinate
<i>Galaxias eldoni</i> McDowall, 1997	Eldon's galaxias	Galaxiidae	Nationally Endangered	A(3)	PD	Determinate
<i>Galaxias pullus</i> McDowall, 1997	dusky galaxias	Galaxiidae	Nationally Endangered	A(3)	CD, PD	Determinate
<i>Galaxias</i> "Nevis"	Nevis galaxias (Nevis River)	Galaxiidae	Nationally Endangered	A(3)	DP, RR	Indeterminate
<i>Galaxias</i> aff. <i>cobitinis</i> "Waitaki"	lowland longjaw galaxias (Waitaki River)	Galaxiidae	Nationally Endangered	A(3)	CD, RR	Indeterminate
<i>Galaxias</i> aff. <i>paucispondylus</i> "Manuherikia"	alpine galaxias (Manuherikia River)	Galaxiidae	Nationally Endangered	A(3)	DP, OL	Indeterminate
<i>Galaxias depressiceps</i> McDowall & Wallis, 1996	Taieri flathead galaxias	Galaxiidae	Nationally Vulnerable	C(3)	CD, DP	Determinate
<i>Galaxias gollumoides</i> McDowall & Chadderton, 1999	Gollum galaxias	Galaxiidae	Nationally Vulnerable	C(2)	DP	Determinate
<i>Galaxias macronasus</i> McDowall & Waters, 2003	bignose galaxias	Galaxiidae	Nationally Vulnerable	C(3)	CD, RR	Determinate
<i>Galaxias postvectis</i> Clarke, 1899	shortjaw kokopu	Galaxiidae	Nationally Vulnerable	D(1)	DP	Determinate
<i>Galaxias prognathus</i> Stokell, 1940	upland longjaw galaxias (Canterbury, West Coast)	Galaxiidae	Nationally Vulnerable	C(1)	DP	Determinate
<i>Geotria australis</i> Gray, 1851	lamprey	Geotriidae	Nationally Vulnerable	C(3)	DP, SO	Determinate
<i>Neochanna heleijs</i> Ling & Gleeson, 2001	Northland mudfish	Galaxiidae	Nationally Vulnerable	C(3)	RR	Determinate
<i>Galaxias</i> "northern"	northern flathead galaxias (Marlborough, Nelson, West Coast)	Galaxiidae	Nationally Vulnerable	C(3)	DP, RR	Indeterminate
<i>Galaxias</i> "Pomahaka"	Pomahaka galaxias (Pomahaka River)	Galaxiidae	Nationally Vulnerable	C(3)	DP, RR	Indeterminate
<i>Galaxias</i> "southern"	southern flathead galaxias (Southland, Otago)	Galaxiidae	Nationally Vulnerable	C(3)	DP, RR	Indeterminate
<i>Galaxias</i> aff. <i>paucispondylus</i> "Southland"	alpine galaxias (Southland)	Galaxiidae	Nationally Vulnerable	D(3)	DP	Indeterminate
<i>Galaxias</i> aff. <i>prognathus</i> "Waitaki"	upland longjaw galaxias (Waitaki River)	Galaxiidae	Nationally Vulnerable	C(3)	DP, RR, Sp	Indeterminate
AT RISK						
<i>Anguilla dieffenbachii</i> Gray, 1842	longfin eel	Anguillidae	Declining	C(2)	CD, DP	Determinate
<i>Cheimarrichthys fosteri</i> Haast, 1874	torrentfish	Cheimarrichthyidae	Declining	C(2)		Determinate
<i>Galaxias argenteus</i> (Gmelin, 1789)	giant kokopu	Galaxiidae	Declining	B(1)	PD	Determinate

Continued on next page

Table 3 continued

SPECIES NAME	COMMON NAME	FAMILY NAME	CONSERVATION STATUS	CRITERIA	QUALIFIERS	TAXONOMIC STATUS
<i>Galaxias brevipinnis</i> Günther, 1866	koaro	Galaxiidae	Declining	C(2)	PD	Determinate
<i>Galaxias divergens</i> Stokell, 1959	dwarf galaxias (West Coast)	Galaxiidae	Declining	B(2)	DP, RR	Determinate
<i>Galaxias maculatus</i> (Jenyns, 1842)	inanga	Galaxiidae	Declining	C(2)	CD, SO	Determinate
<i>Galaxias vulgaris</i> Stokell, 1949	Canterbury galaxias	Galaxiidae	Declining	A(2)	DP, PD	Determinate
<i>Gobiomorphus hubbsi</i> (Stokell, 1959)	bluegill bully	Eleotridae	Declining	C(2)	DP	Determinate
<i>Neochanna apoda</i> Günther, 1867	brown mudfish	Galaxiidae	Declining	C(1)	PD	Determinate
<i>Neochanna diversus</i> Stokell, 1949	black mudfish	Galaxiidae	Declining	C(2)	CD, DP	Determinate
<i>Galaxias</i> aff. <i>divergens</i> "northern"	dwarf galaxias (Nelson, Marlborough, and North Island)	Galaxiidae	Declining	A(2)	DP	Indeterminate
<i>Galaxias paucispondylus</i> Stokell, 1938	alpine galaxias (Canterbury, Marlborough, West Coast)	Galaxiidae	Naturally Uncommon	–	DP, EF, RR	Determinate
<i>Gobiomorphus alpinus</i> Stokell, 1962	Tarndale bully	Eleotridae	Naturally Uncommon	–	RR	Determinate
<i>Gobiomorphus gobioides</i> (Valenciennes, 1837)	giant bully	Eleotridae	Naturally Uncommon	–	DP, RR	Determinate
<i>Neochanna rekohua</i> (Mitchell, 1995)	Chatham Island mudfish	Galaxiidae	Naturally Uncommon	–	IE, RR, St	Determinate
<i>Stokellia anisodon</i> (Stokell, 1941)	Stokell's smelt	Retropinnidae	Naturally Uncommon	–	DP, RR	Determinate
<i>Galaxias</i> "dune lakes"	dune lakes galaxias (Kai Iwi lakes)	Galaxiidae	Naturally Uncommon	–	EF, RR	Indeterminate
NOT THREATENED						
<i>Aldrichetta forsteri</i> (Valenciennes, 1836)	yelloweye mullet	Mugilidae	Not Threatened		DP, SO	Determinate
<i>Anguilla australis</i> Richardson, 1841	shortfin eel	Anguillidae	Not Threatened		Inc	Determinate
<i>Forsterygion nigripenne</i> (Valenciennes, 1836)	estuarine triplefin	Tripterygiidae	Not Threatened			Determinate
<i>Galaxias fasciatus</i> Gray, 1842	banded kokopu	Galaxiidae	Not Threatened			Determinate
<i>Gobiomorphus</i> aff. <i>breviceps</i>	upland bully (West Coast South Island, North Island)	Eleotridae	Not Threatened		DP	Indeterminate
<i>Gobiomorphus basalis</i> (Gray, 1842)	Cran's bully	Eleotridae	Not Threatened			Determinate
<i>Gobiomorphus breviceps</i> (Stokell, 1939)	upland bully (East Coast South Island)	Eleotridae	Not Threatened			Determinate
<i>Gobiomorphus cotidianus</i> McDowall, 1975	common bully	Eleotridae	Not Threatened		DP	Determinate
<i>Gobiomorphus huttoni</i> (Ogilby, 1894)	redfin bully	Eleotridae	Not Threatened		PD	Determinate
<i>Mugil cephalus</i> Linnaeus, 1758	grey mullet	Mugilidae	Not Threatened		SO	Determinate
<i>Retropinna retropinna</i> (Richardson, 1848)	common smelt	Retropinnidae	Not Threatened			Determinate
<i>Rhombosolea retiaria</i> Hutton, 1874	black flounder	Pleuronectidae	Not Threatened		DP	Determinate
NON-RESIDENT NATIVE						
<i>Anguilla reinhardtii</i> Steindachner, 1867	Australian longfin eel	Anguillidae	Coloniser		SO	Determinate

Continued on next page

Table 3 continued

SPECIES NAME	COMMON NAME	FAMILY NAME	CONSERVATION STATUS	CRITERIA	QUALIFIERS	TAXONOMIC STATUS
<i>Gobiopterus semivestitus</i> (Munro, 1949)	glass goby	Gobiidae	Coloniser		DP, OL, SO	Determinate
<i>Parioglossus marginalis</i> Rennis & Hoese, 1985	dart goby	Microdesmidae	Coloniser		SO	Determinate
INTRODUCED AND NATURALISED						
<i>Acentrogobius pflaumi</i> (Bleeker, 1853)	Asian goby, striped sandgoby	Gobiidae	Introduced and naturalised			Determinate
<i>Ameiurus nebulosus</i> (Lesueur, 1819)	brown bullhead catfish	Ictaluridae	Introduced and naturalised		Inc	Determinate
<i>Arenigobius bifrenatus</i> (Kner, 1865)	bridled goby	Gobiidae	Introduced and naturalised		DP, Inc, SO	Determinate
<i>Carassius auratus</i> (Linnaeus, 1758)	goldfish	Cyprinidae	Introduced and naturalised		Inc	Determinate
<i>Cyprinus carpio</i> Linnaeus, 1758	koi carp	Cyprinidae	Introduced and naturalised			Determinate
<i>Gambusia affinis</i> (Baird & Girard, 1853)	gambusia	Poeciliidae	Introduced and naturalised		Inc	Determinate
<i>Leuciscus idus</i> (Linnaeus, 1758)	orfe	Cyprinidae	Introduced and naturalised			Determinate
<i>Oncorhynchus mykiss</i> (Walbaum, 1792)	rainbow trout	Salmonidae	Introduced and naturalised			Determinate
<i>Oncorhynchus nerka</i> (Walbaum, 1792)	sockeye salmon	Salmonidae	Introduced and naturalised			Determinate
<i>Oncorhynchus tshawytscha</i> (Walbaum, 1792)	Chinook salmon	Salmonidae	Introduced and naturalised			Determinate
<i>Perca fluviatilis</i> Linnaeus, 1758	perch	Percidae	Introduced and naturalised		Inc	Determinate
<i>Phalloceros caudimaculatus</i> (Hensel, 1868)	caudo	Poeciliidae	Introduced and naturalised			Determinate
<i>Poecilia latipinna</i> (Lesueur, 1821)	sailfin molly	Poeciliidae	Introduced and naturalised			Determinate
<i>Poecilia reticulata</i> (Peters, 1859)	guppy	Poeciliidae	Introduced and naturalised			Determinate
<i>Salmo salar</i> Linnaeus, 1758	Atlantic salmon	Salmonidae	Introduced and naturalised			Determinate
<i>Salmo trutta</i> Linnaeus, 1758	brown trout	Salmonidae	Introduced and naturalised			Determinate
<i>Salvelinus fontinalis</i> (Mitchill, 1814)	brook char	Salmonidae	Introduced and naturalised			Determinate
<i>Salvelinus namaycush</i> (Walbaum, 1792)	Mackinaw	Salmonidae	Introduced and naturalised			Determinate
<i>Scardinius erythrophthalmus</i> (Linnaeus, 1758)	rudd	Cyprinidae	Introduced and naturalised		Inc	Determinate
<i>Tinca tinca</i> (Linnaeus, 1758)	tench	Cyprinidae	Introduced and naturalised		Inc	Determinate
<i>Xiphophorus hellerii</i> Heckel, 1848	swordtail	Poeciliidae	Introduced and naturalised			Determinate
TAXONOMICALLY INDISTINCT						
<i>Galaxias gracilis</i> McDowall, 1967	dwarf inanga (North Kaipara Head dune lakes)	Galaxiidae	Taxonomically indistinct		EF, RR	Determinate
<i>Galaxias</i> "lower Clutha"	lower Clutha galaxias (Clutha River)	Galaxiidae	Taxonomically indistinct		RR	Indeterminate

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