



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



New Zealand Government

Department of  
Conservation  
*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<br>78              | EX<br>1 | DD<br>0 | NC<br>4 | NE<br>6 | NV<br>12 | Dec<br>11 | NU<br>6 | NT<br>12 | Col<br>3 | Int<br>21 | TI <sup>1</sup><br>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                    |   |

<sup>1</sup> 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)  $\leq 2$  subpopulations,  $\leq 200$  mature individuals in the larger subpopulation  
A(3) Total area of occupancy  $\leq 1$  ha (0.01 km<sup>2</sup>)

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

- B(1) 250–1000 mature individuals  
B(2)  $\leq 5$  subpopulations,  $\leq 300$  mature individuals in the largest subpopulation  
B(3) Total area of occupancy  $\leq 10$  ha (0.1 km<sup>2</sup>)

***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)  $\leq 5$  subpopulations,  $\leq 300$  mature individuals in the largest subpopulation, predicted decline 10–50%  
A(3/1) Total area of occupancy  $\leq 10$  ha (0.1 km<sup>2</sup>), predicted decline 10–50%

***B – small stable population (unnatural)***

- B(1/1) 250–1000 mature individuals, stable population  
B(2/1)  $\leq 5$  subpopulations,  $\leq 300$  mature individuals in the largest subpopulation, stable population  
B(3/1) Total area of occupancy  $\leq 10$  ha (0.1 km<sup>2</sup>), 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)  $\leq 15$  subpopulations,  $\leq 500$  mature individuals in the largest subpopulation, predicted decline 50–70%  
C(3/1) Total area of occupancy  $\leq 100$  ha (1 km<sup>2</sup>), 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)  $\leq 5$  subpopulations,  $\leq 300$  mature individuals in the largest subpopulation, predicted increase >10%  
A(3/1) Total area of occupancy  $\leq 10$  ha (0.1 km<sup>2</sup>), predicted increase >10%

***B – moderate, stable population (unnatural)***

- B(1/1) 1000–5000 mature individuals, stable population  
B(2/1)  $\leq 15$  subpopulations,  $\leq 500$  mature individuals in the largest subpopulation, stable population  
B(3/1) Total area of occupancy  $\leq 100$  ha (1 km<sup>2</sup>), 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)  $\leq 15$  subpopulations,  $\leq 500$  mature individuals in the largest subpopulation, predicted decline 10–50%  
C(3/1) Total area of occupancy  $\leq 100$  ha (1 km<sup>2</sup>), 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 km<sup>2</sup>), 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 km<sup>2</sup>), 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 km<sup>2</sup>), 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 km<sup>2</sup>), 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 km<sup>2</sup>), 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 km<sup>2</sup>), and predicted increase >10%

B 5000–20 000 mature individuals or total area of occupancy ≤1000 ha (10 km<sup>2</sup>), 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 |
|---|--|--------------------|--------------------------|----------|-------------------|------------------|
| <b>EXTINCT</b>  |  |                    |                          |          |                   |                  |
| <i>Prototroctes oxyrhynchus</i><br>Günther, 1870              | grayling   | Retropinnidae      | Extinct                  |          |                   | Determinate      |
| <b>THREATENED</b>   |  |                    |                          |          |                   |                  |
| <i>Galaxias cobitinis</i><br>McDowall & Waters, 2002          | lowland longjaw galaxias<br>(Kakanui River)                        | Galaxiidae         | Nationally Critical      | A(1)     | CD, EF, OL        | Determinate      |
| <i>Neochanna burrowsius</i><br>(Phillipps, 1926)              | Canterbury mudfish   | Galaxiidae         | Nationally Critical      | C        | CD, EF, RR,<br>Sp | Determinate      |
| <i>Galaxias</i> "species D"                                   | Clutha flathead galaxias<br>(Clutha River)                         | Galaxiidae         | Nationally Critical      | C        |                   | Indeterminate    |
| <i>Galaxias</i> "Teviot"                                      | Teviot flathead galaxias<br>(Teviot River)                         | Galaxiidae         | Nationally Critical      | A(3)     | DP, RR            | Indeterminate    |
| <i>Galaxias anomalus</i><br>Stokell, 1959                     | Central Otago roundhead<br>galaxias                                | Galaxiidae         | Nationally<br>Endangered | C(3)     | CD, EF            | Determinate      |
| <i>Galaxias eldoni</i><br>McDowall, 1997                      | Eldon's galaxias   | Galaxiidae         | Nationally<br>Endangered | A(3)     | PD                | Determinate      |
| <i>Galaxias pullus</i><br>McDowall, 1997                      | dusky galaxias   | Galaxiidae         | Nationally<br>Endangered | A(3)     | CD, PD            | Determinate      |
| <i>Galaxias</i> "Nevis"                                       | Nevis galaxias (Nevis<br>River)                                    | Galaxiidae         | Nationally<br>Endangered | A(3)     | DP, RR            | Indeterminate    |
| <i>Galaxias</i> aff. <i>cobitinis</i><br>"Waitaki"            | lowland longjaw galaxias<br>(Waitaki River)                        | Galaxiidae         | Nationally<br>Endangered | A(3)     | CD, RR            | Indeterminate    |
| <i>Galaxias</i> aff. <i>paucispondylus</i><br>"Manuherikia"   | alpine galaxias<br>(Manuherikia River)                             | Galaxiidae         | Nationally<br>Endangered | A(3)     | DP, OL            | Indeterminate    |
| <i>Galaxias depressiceps</i><br>McDowall & Wallis, 1996       | Taieri flathead galaxias   | Galaxiidae         | Nationally<br>Vulnerable | C(3)     | CD, DP            | Determinate      |
| <i>Galaxias gollumoides</i><br>McDowall & Chadderton,<br>1999 | Gollum galaxias  | Galaxiidae         | Nationally<br>Vulnerable | C(2)     | DP                | Determinate      |
| <i>Galaxias macronasus</i><br>McDowall & Waters, 2003         | bignose galaxias   | Galaxiidae         | Nationally<br>Vulnerable | C(3)     | CD, RR            | Determinate      |
| <i>Galaxias postvectis</i><br>Clarke, 1899                    | shortjaw kokopu  | Galaxiidae         | Nationally<br>Vulnerable | D(1)     | DP                | Determinate      |
| <i>Galaxias prognathus</i><br>Stokell, 1940                   | upland longjaw galaxias<br>(Canterbury, West Coast)                | Galaxiidae         | Nationally<br>Vulnerable | C(1)     | DP                | Determinate      |
| <i>Geotria australis</i><br>Gray, 1851                        | lamprey  | Geotriidae         | Nationally<br>Vulnerable | C(3)     | DP, SO            | Determinate      |
| <i>Neochanna heleijs</i><br>Ling & Gleeson, 2001              | Northland mudfish  | Galaxiidae         | Nationally<br>Vulnerable | C(3)     | RR                | Determinate      |
| <i>Galaxias</i> "northern"                                    | northern flathead galaxias<br>(Marlborough, Nelson,<br>West Coast) | Galaxiidae         | Nationally<br>Vulnerable | C(3)     | DP, RR            | Indeterminate    |
| <i>Galaxias</i> "Pomahaka"                                    | Pomahaka galaxias<br>(Pomahaka River)                              | Galaxiidae         | Nationally<br>Vulnerable | C(3)     | DP, RR            | Indeterminate    |
| <i>Galaxias</i> "southern"                                    | southern flathead galaxias<br>(Southland, Otago)                   | Galaxiidae         | Nationally<br>Vulnerable | C(3)     | DP, RR            | Indeterminate    |
| <i>Galaxias</i> aff. <i>paucispondylus</i><br>"Southland"     | alpine galaxias<br>(Southland)                                     | Galaxiidae         | Nationally<br>Vulnerable | D(3)     | DP                | Indeterminate    |
| <i>Galaxias</i> aff. <i>prognathus</i><br>"Waitaki"           | upland longjaw galaxias<br>(Waitaki River)                         | Galaxiidae         | Nationally<br>Vulnerable | C(3)     | DP, RR, Sp        | Indeterminate    |
| <b>AT RISK</b>  |  |                    |                          |          |                   |                  |
| <i>Anguilla dieffenbachii</i><br>Gray, 1842                   | longfin eel  | Anguillidae        | Declining                | C(2)     | CD, DP            | Determinate      |
| <i>Cheimarrichthys fosteri</i><br>Haast, 1874                 | torrentfish  | Cheimarrichthyidae | Declining                | C(2)     |                   | Determinate      |
| <i>Galaxias argenteus</i><br>(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><br>Günther, 1866           | koaro  | Galaxiidae     | Declining           | C(2)     | PD         | Determinate      |
| <i>Galaxias divergens</i><br>Stokell, 1959             | dwarf galaxias (West Coast)                            | Galaxiidae     | Declining           | B(2)     | DP, RR     | Determinate      |
| <i>Galaxias maculatus</i><br>(Jenyns, 1842)            | inanga   | Galaxiidae     | Declining           | C(2)     | CD, SO     | Determinate      |
| <i>Galaxias vulgaris</i><br>Stokell, 1949              | Canterbury galaxias                                    | Galaxiidae     | Declining           | A(2)     | DP, PD     | Determinate      |
| <i>Gobiomorphus hubbsi</i><br>(Stokell, 1959)          | bluegill bully   | Eleotridae     | Declining           | C(2)     | DP         | Determinate      |
| <i>Neochanna apoda</i><br>Günther, 1867                | brown mudfish  | Galaxiidae     | Declining           | C(1)     | PD         | Determinate      |
| <i>Neochanna diversus</i><br>Stokell, 1949             | black mudfish  | Galaxiidae     | Declining           | C(2)     | CD, DP     | Determinate      |
| <i>Galaxias</i> aff. <i>divergens</i><br>"northern"    | dwarf galaxias (Nelson, Marlborough, and North Island) | Galaxiidae     | Declining           | A(2)     | DP         | Indeterminate    |
| <i>Galaxias paucispondylus</i><br>Stokell, 1938        | alpine galaxias (Canterbury, Marlborough, West Coast)  | Galaxiidae     | Naturally Uncommon  | –        | DP, EF, RR | Determinate      |
| <i>Gobiomorphus alpinus</i><br>Stokell, 1962           | Tarndale bully   | Eleotridae     | Naturally Uncommon  | –        | RR         | Determinate      |
| <i>Gobiomorphus gobioides</i><br>(Valenciennes, 1837)  | giant bully  | Eleotridae     | Naturally Uncommon  | –        | DP, RR     | Determinate      |
| <i>Neochanna rekohua</i><br>(Mitchell, 1995)           | Chatham Island mudfish                                 | Galaxiidae     | Naturally Uncommon  | –        | IE, RR, St | Determinate      |
| <i>Stokellia anisodon</i><br>(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    |
| <b>NOT THREATENED</b>                                  |  |                |                     |          |            |                  |
| <i>Aldrichetta forsteri</i><br>(Valenciennes, 1836)    | yelloweye mullet                                       | Mugilidae      | Not Threatened      |          | DP, SO     | Determinate      |
| <i>Anguilla australis</i><br>Richardson, 1841          | shortfin eel   | Anguillidae    | Not Threatened      |          | Inc        | Determinate      |
| <i>Forsterygion nigripenne</i><br>(Valenciennes, 1836) | estuarine triplefin                                    | Tripterygiidae | Not Threatened      |          |            | Determinate      |
| <i>Galaxias fasciatus</i><br>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><br>(Gray, 1842)            | Cran's bully   | Eleotridae     | Not Threatened      |          |            | Determinate      |
| <i>Gobiomorphus breviceps</i><br>(Stokell, 1939)       | upland bully (East Coast South Island)                 | Eleotridae     | Not Threatened      |          |            | Determinate      |
| <i>Gobiomorphus cotidianus</i><br>McDowall, 1975       | common bully   | Eleotridae     | Not Threatened      |          | DP         | Determinate      |
| <i>Gobiomorphus huttoni</i><br>(Ogilby, 1894)          | redfin bully   | Eleotridae     | Not Threatened      |          | PD         | Determinate      |
| <i>Mugil cephalus</i><br>Linnaeus, 1758                | grey mullet  | Mugilidae      | Not Threatened      |          | SO         | Determinate      |
| <i>Retropinna retropinna</i><br>(Richardson, 1848)     | common smelt   | Retropinnidae  | Not Threatened      |          |            | Determinate      |
| <i>Rhombosolea retiaria</i><br>Hutton, 1874            | black flounder   | Pleuronectidae | Not Threatened      |          | DP         | Determinate      |
| <b>NON-RESIDENT NATIVE</b>                             |  |                |                     |          |            |                  |
| <i>Anguilla reinhardtii</i><br>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><br>(Munro, 1949)       | glass goby                                   | Gobiidae      | Coloniser                  |          | DP, OL, SO  | Determinate      |
| <i>Parioglossus marginalis</i><br>Rennis & Hoese, 1985 | dart goby                                    | Microdesmidae | Coloniser                  |          | SO          | Determinate      |
| <b>INTRODUCED AND NATURALISED</b>                      |  |               |                            |          |             |                  |
| <i>Acentrogobius pflaumii</i><br>(Bleeker, 1853)       | Asian goby, striped sandgoby                 | Gobiidae      | Introduced and naturalised |          |             | Determinate      |
| <i>Ameiurus nebulosus</i><br>(Lesueur, 1819)           | brown bullhead catfish                       | Ictaluridae   | Introduced and naturalised |          | Inc         | Determinate      |
| <i>Arenigobius bifrenatus</i><br>(Kner, 1865)          | bridled goby                                 | Gobiidae      | Introduced and naturalised |          | DP, Inc, SO | Determinate      |
| <i>Carassius auratus</i><br>(Linnaeus, 1758)           | goldfish                                     | Cyprinidae    | Introduced and naturalised |          | Inc         | Determinate      |
| <i>Cyprinus carpio</i><br>Linnaeus, 1758               | koi carp                                     | Cyprinidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Gambusia affinis</i><br>(Baird & Girard, 1853)      | gambusia                                     | Poeciliidae   | Introduced and naturalised |          | Inc         | Determinate      |
| <i>Leuciscus idus</i><br>(Linnaeus, 1758)              | orfe   | Cyprinidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Oncorhynchus mykiss</i><br>(Walbaum, 1792)          | rainbow trout                                | Salmonidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Oncorhynchus nerka</i><br>(Walbaum, 1792)           | sockeye salmon                               | Salmonidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Oncorhynchus tshawytscha</i><br>(Walbaum, 1792)     | Chinook salmon                               | Salmonidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Perca fluviatilis</i><br>Linnaeus, 1758             | perch  | Percidae      | Introduced and naturalised |          | Inc         | Determinate      |
| <i>Phalloceros caudimaculatus</i><br>(Hensel, 1868)    | caudo  | Poeciliidae   | Introduced and naturalised |          |             | Determinate      |
| <i>Poecilia latipinna</i><br>(Lesueur, 1821)           | sailfin molly                                | Poeciliidae   | Introduced and naturalised |          |             | Determinate      |
| <i>Poecilia reticulata</i><br>(Peters, 1859)           | guppy  | Poeciliidae   | Introduced and naturalised |          |             | Determinate      |
| <i>Salmo salar</i><br>Linnaeus, 1758                   | Atlantic salmon                              | Salmonidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Salmo trutta</i><br>Linnaeus, 1758                  | brown trout                                  | Salmonidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Salvelinus fontinalis</i><br>(Mitchill, 1814)       | brook char                                   | Salmonidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Salvelinus namaycush</i><br>(Walbaum, 1792)         | Mackinaw                                     | Salmonidae    | Introduced and naturalised |          |             | Determinate      |
| <i>Scardinius erythrophthalmus</i><br>(Linnaeus, 1758) | rudd   | Cyprinidae    | Introduced and naturalised |          | Inc         | Determinate      |
| <i>Tinca tinca</i><br>(Linnaeus, 1758)                 | tench  | Cyprinidae    | Introduced and naturalised |          | Inc         | Determinate      |
| <i>Xiphophorus hellerii</i><br>Heckel, 1848            | swordtail                                    | Poeciliidae   | Introduced and naturalised |          |             | Determinate      |
| <b>TAXONOMICALLY INDISTINCT</b>                        |  |               |                            |          |             |                  |
| <i>Galaxias gracilis</i><br>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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