

# Information Sheet on Ramsar Wetlands (RIS) – 2006 version

Available for download from [http://www.ramsar.org/ris/key\\_ris\\_index.htm](http://www.ramsar.org/ris/key_ris_index.htm).

*Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8<sup>th</sup> Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX.22 of the 9<sup>th</sup> Conference of the Contracting Parties (2005).*

## Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2<sup>nd</sup> edition, as amended by COP9 Resolution IX.1 Annex B). A 3<sup>rd</sup> edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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### 1. Name and address of the compiler of this form:

Cindy Bragg and Brian Rance  
Department of Conservation  
PO Box 743  
INVERCARGILL.

Telephone: 03 2144589

Fax: 03 2144486

Email: [cbragg@doc.govt.nz](mailto:cbragg@doc.govt.nz) or [brance@doc.govt.nz](mailto:brance@doc.govt.nz)

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### 2. Date this sheet was completed/updated:

21 June 2006

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### 3. Country:

New Zealand

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### 4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Awarua Wetland (formerly Waituna Lagoon)

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### 5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

a) Designation of a new Ramsar site ; or

b) Updated information on an existing Ramsar site

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**6. For RIS updates only, changes to the site since its designation or earlier update:**

**a) Site boundary and area**

The Ramsar site boundary and site area are unchanged:

or

**If the site boundary has changed:**

- i) the boundary has been delineated more accurately ; or
- ii) the boundary has been extended ; or
- iii) the boundary has been restricted\*\*

and

**If the site area has changed:**

- i) the area has been measured more accurately ; or
- ii) the area has been extended ; or
- iii) the area has been reduced\*\*

\*\* Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

**b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:**

There have been no changes to the site since the 2005 update.

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**7. Map of site:**

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

**a) A map of the site, with clearly delineated boundaries, is included as:**

- i) a hard copy (required for inclusion of site in the Ramsar List): ;
- ii) an electronic format (e.g. a JPEG or ArcView image) ;
- iii) a GIS file providing geo-referenced site boundary vectors and attribute tables .

**b) Describe briefly the type of boundary delineation applied:**

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The proposal is that the original boundary from the 1976 application be extended to include the Department's acquisition of further wetland areas acquired over the past thirty years as shown on the accompanying map.

**8. Geographical coordinates** (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

S46° 34' 10.646" E168° 31' 39.9992"

Portion A = New River Estuary (S46° 28' 18.701" E168° 19' 36.5631"), Portion B = Waituna Wetland/Seaward Moss/Awarua Bay (S46° 34' 10.646" E168° 31' 39.9992"), Portion C = Toetoes peat land (NS46° 31' 35.287" E168° 42' 03.0999"), Portion D = Toetoes Harbour/Fortrose Spit (S46° 34' 17.233" E168° 46' 32.9672")

**9. General location:**

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

Awarua Wetland site, lies along and adjacent to the southern Southland coast, within the South Island of New Zealand. The western extent of the wetland is the New River Estuary/Bushy Point area (adjacent to Invercargill) and the eastern extent is the Toetoes Harbour/Fortrose Spit.

**10. Elevation:** (in metres: average and/or maximum & minimum)

The entire area lies between 0-15m above sea level (average c. 5m).

**11. Area:** (in hectares)

c. 20,000ha

**12. General overview of the site:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland. The wetland is formed of four separate areas. This wetland complex includes the major extent of the Awarua Plains that retains natural blanket peat bog vegetation and includes a range of vegetation communities; plus forest, shrubland, rushland, tussockland and flax swamp as well as numerous ponds. Special features of the vegetation are sequences from peat bog to forest, estuary and the sea, and sequences from forest to estuary. A portion of the wetland extends out to the coast along Toetoes Bay and includes both pea gravel and sand substrates. The wetland also includes three new major estuarine areas, these being New River Estuary, much of Awarua Bay, and Toetoes Harbour as well as Waituna Lagoon. The Lagoon is artificially opened to the sea and is tidal when open. These estuarine sites provide important summer refuge and feeding areas for many trans-equatorial migratory waders. A number of nationally listed threatened and uncommon flora and fauna species are present. A special feature of the flora is the presence of a number of typically montane and sub alpine species which are found here near sea level on the coast.

**13. Ramsar Criteria:**

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 8 • 9  
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**14. Justification for the application of each Criterion listed in 13 above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

**Criterion 1:** The wetland is highly representative of peat lands and estuaries of Southern New Zealand. The entire site is either in natural or near-natural condition, the major modification being from past fires. The peat bog contains a wide range of vegetation types (including forest, shrubland, rushland,

tussockland and flax swamp communities whereas the estuaries contain mudflats, salt marsh turf, rush lands and shrublands. Rare and special communities include remnants of cushion bog (moorlike) and flax swamp vegetation. Cushion bogs are characterized by species adapted to cold peaty conditions, some of these species are more typically found in montane or sub alpine conditions and not normally at sea level. Flax swamps are one of the most reduced wetland communities found in Southland.

**Criterion 2:** The wetland contains several nationally threatened and uncommon species of flora and fauna. The extent of habitat makes the site important for conservation of many of these species especially southern New Zealand Dotterel (*Charadrius obscurus* ssp. *obscurus*) and Australasian Bittern (*Botaurus stellaris poiciloptilus*, NZ status - Nationally Endangered), Other threatened bird species that have been recorded from the wetland include Black Stilt (*Himantopus novaezelandiae*, NZ status – Nationally critical), White Heron (*Egretta alba modesta*, NZ status – Nationally critical), Black-fronted Tern (*Sterna albostrata*, NZ status - Nationally endangered), Caspian Tern (*Sterna caspia*, NZ status - Nationally vulnerable), wrybill (*Anarhynchus frontalis*; NZ status – Nationally vulnerable). Flax swamps are one of the most reduced wetland communities found in Southland.

(Note: The threat status referred to is the New Zealand threat status (Hitchmough, 2005), this may differ from the IUCN redlist status. Within Criteria two only acutely threatened species (ie Nationally Critical, Endangered or Vulnerable species are included.)

Scientific name	Common name	IUCN Redlist Status	NZ Status
<i>Charadrius obscurus</i>	New Zealand Dotterel	EN	Nat Endangered
<i>Botaurus stellaris poiciloptilus</i>	Australasian Bittern	EN	Nat Endangered
<i>Sterna albostrata</i>	Black-fronted Tern	EN	-----
<i>Sterna caspia</i>	Caspian Tern	LC	Nat Endangered
<i>Himantopus novaezelandiae</i>	Black Stilt	CR	Nat Critical
<i>Anarhynchus frontalis</i>	Wrybill	VU	Nat Vulnerable
<i>Galaxias argenteus</i>	Giant Kokopu	VU	Gradual decline

**Criterion 3:** The Awarua Wetland is one of the largest wetland complexes in New Zealand. The wetland contains a wide range of habitats and therefore supports both large numbers and a wide diversity of species. Therefore the wetland is of special value for maintaining the biological diversity of the region. Particular features of the wetland include:

- The diversity of bird life - 81 species have been recorded including international and internal migratory waders. The wetland is part of a complex of estuaries and lagoons in the Southland area which provide important habitat for migratory waders (both international and internal) visiting the far south of New Zealand.
- The wetland is an important remnant for native fish species, including Giant Kokopu (*Galaxias argenteus*; endemic, NZ status – gradual decline) and Banded Kokopu (*Galaxias fasciatus*; endemic), Inanga (*Galaxias maculatus*; endemic), Long Finned Eel (*Anguilla dieffenbachii*, NZ status - gradual decline) and Short Finned Eel (*Anguilla australis*).
- The rich diversity of insect life. Over 80 species of moth alone have been found in the Awarua Bay/Waituna wetlands complex. Many of the insects are typically sub alpine species. The area is the type locality for a number of species of moth, some of which have a limited distribution.
- The diverse flora of the area including plant species in the cushion bog vegetation typically found in montane or sub alpine conditions, which occur here at sea level. The margins of Waituna Lagoon and New River Estuary contain two of the largest populations of the grass *Deschampsia cespitosa* in New Zealand.

**Criterion 4:** A particular feature of the bird fauna is the diversity and numbers of international and internal migratory waders. These waders are reliant on the wetland annually for parts of their life cycle. The estuaries of the wetland annually support many species (up to 21 species) of trans-equatorial waders during the southern summer. These species build up their food reserves before heading back to the northern hemisphere for their summer breeding season. The internal migratory waders spend their winter

feeding in the estuaries of the wetland and in the summer disperse inland. In addition up to one third of the southern New Zealand dotterel population spends its winter feeding in Awarua Bay.

**Criterion 6:** Awarua Bay annually (autumn and winter) supports southern New Zealand Dotterel (*Charadrius obscurus* ssp. *Obscurus*) counted in 2006 up to 268 ind (1% = 2, Waterbird Population Estimates, 4<sup>th</sup> Edition, WI, 2006) which is (30% of total population)

**Criterion 7:** The wetland contains marine, estuarine and freshwater fish species. The diversity, condition and large scale of fish habitat make the wetland of national importance for fish biodiversity. The estuaries and lagoon are meeting points 1) for coastal marine fishes and their juvenile stages, 2) for marine wanderers to freshwater environment and 3) for sea migratory freshwater fishes. Many freshwater fishes staging in proposed RAMSAR estuaries pass up both the Oreti and Maitai River catchments (over 100 kilometres for long finned eel). Others make use of the important network of small coastal streams, channels and freshwater wetlands in the Proposed RAMSAR area and thus have their entire life cycle within the protected area (almost unique for New Zealand). These fishes include at least two eel species *Anguilla dieffenbachii*, *A. australis*, three galaxiid fish species *Galaxias argenteus*, *G. fasciatus*, *G. maculatus*, four bullies *Gobiomorphus gobioides*, *G. buttoni*, *G. hubbsi*, *G. cotidianus* and a smelt *Retropinna retropinna*. The brown trout *Salmo trutta* fishery of Waituna Lagoon is important in Southland.

**Criterion 8:** Many of the freshwater fish found here are migratory for part of their life and pass through the estuaries, though many live in the wetland for much of their life. Other fish use parts of the wetland for spawning or as nursery areas.

**15. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

International: Oceania region

National: Makarewa Ecological Region

**b) biogeographic regionalisation scheme** (include reference citation):

McEwen W. M. (1987) Ecological Regions and Districts of New Zealand. New Zealand Biological Resources Centre, Department of Conservation, Wellington, New Zealand.

**16. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The wetland includes an extensive area of the Awarua Plain blanket peat bog, which has developed upon a glaciofluvial plain of quartz rich gravels. This blanket peat bog extends from the Toetoes Bay coast several kilometres inland. The Toetoes Bay beach is derived in part from river gravels reworked by rising sea levels from the shallow (< 50m) floor of Foveaux Strait. There has been a progressive seaward progradation of the barrier beach along Toetoes Bay since c. 6000 years before present. The beach gravel has been sorted by long shore drift, with pea gravel found in the west, decreasing in size towards the east. Fortrose Spit near the eastern extent of the Bay is formed by sand. The wetland also contains the large, shallow, water bodies of New River Estuary, Awarua Bay and Toetoes Harbour (all estuarine) and Waituna Lagoon. The Lagoon is impounded behind the pea gravel beach and is artificially opened to the sea at regular intervals (usually on an annual basis), and is estuarine when open.

The Oreti River (3510 km catchment area) flows into the New River Estuary and the Mataura River (5360 km catchment area) flows into the Toetoes Harbour. Smaller rivers/streams that flow through, into or from the wetland include the Waihopai, Kingswell, Mokotua, Duck, Muddy, Waituna, Moffat, Currans and Titiroa. Generally these rivers flow for much of their length through intensive farmland and have been straightened.

The wetland has a moist, cool temperate climate characterised by cloud, windy conditions, and frequent showers (rainfall c. 1100mm).

### 17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type). The catchment area of the wetland is largely the Southland Plains which extend northwards from the wetland. However the larger Oreti (to the west) and Mataura (to the east) Rivers drain from the northern Southland Mountains. The adjacent area largely contains organic soils (part of the Awarua blanket peat bog) grading into yellow-brown earths further inland. Much of the catchment area is under intensive pastoral agricultural use.

### 18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc. Generally these rivers flow for much of their length through intensive farmland and have been straightened or have other control works.

### 19. Wetland Types

#### a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

**Marine/coastal:** A • B • C • D • E • F • G • H • I • J • K • Zk(a)

**Inland:** L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •  
Vt • W • Xf • Xp • Y • Zg • Zk(b)

**Human-made:** 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

#### b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

U, G, F, J, H, Tp, E, Xp, O, K, M, Ss

### 20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

**(a) Peatlands:** The wetland contains extensive peat land and includes a diversity of vegetation communities and species that are highly representative of southern New Zealand. The major communities are semi open wirerushland and manuka shrubland. The wirerushland is dominated by wirerush (*Empodisma minus*) with much tangle fern (*Gleichenia dicarpa*), manuka (*Leptospermum scoparium*), bog turpentine shrub (*Dracophyllum oliverii*) and *Sphagnum cristatum*. Other communities include podocarp forest, *Chionochloa rubra* tussockland, *Phormium tenax* flaxland, *Baumea rubiginosa* rushland and *Donatia/Oreobolus* cushionbog. One of the special features is the relic of coastal cushionbog. This community contains several species that are more typical of alpine and sub-alpine environments, these

include *Donatia novae-zelandiae*, *Oreobolus pectinatus*, *Gentiana lineata* and *Actinotus novae-zelandiae*. Another feature of the wetland is the intact sequences of vegetation found. These include sequences from peat bog to forest, peat bog to estuary mudflats and forest to estuary mudflats.

**(b) Waterbodies:** The estuaries, lagoons, lakes, ponds and rivers/streams provide freshwater, saltwater, mudflat and salt marsh habitat. The large water bodies of New River Estuary, Awarua Bay and Toetoes Harbour (all estuarine) and Waituna Lagoon (artificially opened to the sea at regular intervals) provide extensive waterfowl and wading bird habitat. This estuary complex forms one of the five most important wading bird habitats in New Zealand. The wetland is unrivalled by any other single habitat in Southland for the diversity of bird species (81), 61 of which are partially or wholly dependant upon the estuarine environment. Through the late spring to early autumn, many hundreds of migratory waders (including up to 21 species of trans-equatorial migratory waders) visit the area. Waterfowl also utilise the estuaries, Waituna Lagoon as well as the numerous small ponds and lakes. In particular, Waituna Lagoon is the principal black swan (*Cygnus atratus*) site and one of the most important grey duck (*Anas superciliosa*) sites in the South Island. There is a black shag (*Phalacrocorax carbo*) and royal spoonbill (*Platalea regia*) colony on one of the ponds. The Waituna lagoon is a brown trout fishery of some importance. The estuaries and lagoons contain extensive saltmarsh vegetation and sequences into both peat lands and forest. The streams provide spawning grounds for brown trout and native fish. Populations of Giant Kokopu (*Galaxias argenteus*, status vulnerable), Banded Kokopu (*Galaxias fasciatus*, status vulnerable), Inanga (*Galaxias maculatus*), Long Finned and Short Finned Eels (*Anguilla dieffenbachii* and *A. australis*) as well as other estuarine and freshwater fish have been recorded.

**(c) Coastal:** The wetland includes the extensive peat gravel and sand beach along Toetoes Bay. The peat gravel beach supports discontinuous vegetation of grasses, herbs and shrubs, most common being *Muehlenbeckia axillaris*, *Gentiana saxosa*, *Raoulia* and *Poa cita*. The sand dunes of Fortrose Spit contain one of the best remnants of native dune vegetation in southern Southland.

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## 21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

NB: Threat status follows Hitchmough, 2004 rather than IUCN

The flora is very diverse and highly representative of southern New Zealand peat land and estuarine communities. The peatland is an extensive area with a rich diversity of intact plant communities and sequences which illustrate the variations dependant upon water table, nutrient status and other site factors.

Nationally threatened and uncommon species recorded include the dwarf sedge *Isolepis basilaris* (NZ status – Serious decline), the grasses (*Deschampsia cespitosa*; NZ status – Gradual decline) and (*Austrofestuca littoralis*; status – Gradual decline), the shrub (*Coprosma pedicellata*; NZ status – Gradual decline) golden sedge/pingao (*Desmoschoenus spiralis*; NZ status - Gradual decline), the nettle (*Urtica linearifolia*; NZ status – Gradual decline) , the buttercup (*Ranunculus recens* NZ status – Gradual decline), the iris (*Libertia peregrinans*; NZ status – Gradual decline), the musk (*Mimulus repens*; NZ status – sparse), the gentian (*Gentiana lineata*; NZ status – sparse) the mistletoe (*Korthalsella salicornioides*; NZ status – sparse) and the pygmy sundew (*Drosera pygmaea*; NZ status – Gradual decline).

The reserve is also important for its unique moorlike vegetation (cushion bogs) characterised by herbs and shrubs adapted to cold peaty conditions; some of these species are more typically found in montane or sub alpine conditions and not at sea level. These include the cushion plants *Donatia*

*novae-zelandiae* and comb sedge (*Oreobolus pectinatus*), along with *Gentiana lineata*, *Oreostylidium subulatum*, *Actinotus novae-zelandiae*, the sundews (*Drosera* spp) and *Carpha alpina*.

## 22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

NB: Threat status follows Hitchmough, 2004 rather than IUCN

The most significant feature is the bird fauna because of its diversity (a total of 81 species) and numbers. Particular features of the fauna include

- Many hundreds of wader birds that seasonally utilise the inter-tidal habitat. These include many transequatorial wader species (up to 21 species) present between late spring to early autumn. The most abundant being Eastern Bar-Tailed Godwit (*Limosa lapponica*), Lesser Knot (*Calidris canutus*), Turnstone (*Arenaria interpres*) and Red-necked Stint (*Calidris ruficollis*). Other regular but less common visitors include Pacific Golden Plover (*Pluvialis fulva*), Sharp-Tailed Sandpiper (*Calidris acuminata*) and Curlew Sandpiper (*Alidris ferruginea*). Regular but rare New Zealand visitors include Siberian Tattler (*Tringa breviseps*), and Sanderling (*Calidris alba*). Occasional visitors include Terek Sandpiper (*Tringa terek*), Greenshank (*Tringa flavipes*), Far Eastern Curlew (*Numenius madagascariensis*), Mongolian Dotterel (*Charadrius mongolus*), Asiatic Whimbrel (*Numenius phaeopus variegates*) Marsh Sandpiper (*Tringa stagnatilis*), Large Sand Dotterel (*Charadrius leschenaultii*) and Grey Plover (*Pluvialis squatarola*).
- The south side of Awarua Bay is a winter flock site and the only regular feeding ground outside of Stewart Island for the southern subspecies of New Zealand Dotterel (*Charadrius obscurus* ssp. *obscurus*, NZ status – Nationally critical).
- The peat land provides extensive habitat for Australasian Bittern (*Botaurus stellaris poiciloptilus*, NZ status - Nationally Endangered), South Island Fern Bird (*Bowdleria punctata punctata*; endemic, NZ status - sparse), Spotless Crake (*Porzana tabuensis plumbea*; NZ status - sparse) and Marsh Crake (*Porzana pusilla affinis*; NZ status - sparse).
- Other notable birdlife that (at least occasionally) utilises the wetland includes Black Stilt (*Himantopus novaezelandiae*, NZ status – Nationally critical), White Heron (*Egretta alba modesta*, NZ status – Nationally critical), Black-fronted Tern (*Sterna albobristata*, NZ status - Nationally endangered), Caspian Tern (*Sterna caspia*, NZ status - Nationally vulnerable), wrybill (*Anarhynchus frontalis*; NZ status – Nationally vulnerable), Black-billed Gull (*Larus bulleri*, endemic, NZ status – serious decline), Red-billed Gulls (*Larus novaeollandiae scopulinus*, NZ status gradual decline), Banded Dotterel (*Charadrius bicinctus bicinctus*, NZ status - gradual decline), White-fronted Tern (*Sterna striata*,; NZ status - gradual decline), Black Shag (*Phalacrocorax carbo novae hollandiae*, NZ status - sparse) and Royal Spoonbill (*Platalea regia*; NZ status – not threatened)
- Waituna Lagoon is the principal Black Swan (*Cygnus atratus*) habitat in the southern part of the South Island and is one of the most important remaining Grey Duck (*Anas superciliosa*; NZ status - Nationally Endangered) localities in the far south. It is also an important moulting refuge for New Zealand Shoveler (*Anas rhynchos variegata*; endemic subspecies).
- The estuaries and rivers provide important marine, estuarine and freshwater habitat for fish. Threatened species include Giant Kokopu (*Galaxiinus argenteus*, NZ status gradual decline), Lamprey (*Geotria australis*, NZ status sparse) and Long Finned Eel (*Anguilla dieffenbachia*, NZ status - gradual decline)
- There is a rich diversity of insect life. In all, over 80 species of moth alone have been found in the Awarua Bay/Waituna wetlands complex. As with the flora many of the insects are typically sub alpine species. The area is the type locality for a number of species of moth, some of which are not known to occur elsewhere.
- Breeding birds include Black Shag (*Phalacrocorax carbo novae hollandiae*; NZ status - sparse), Little Shag (*Phalacrocorax melanoleucos brevirostris*), White-faced Heron (*Ardea novaeollandiae*), Paradise Shelduck (*Tadorna variegata*; endemic), Pukeko (*Porphyrio porphyrio melanotus*), South Island Pied



Oystercatcher (*Haematopus ostralegus finschi*; endemic subspecies) and Variable Oystercatcher (*Haematopus unicolor*; endemic), Banded Dotterel (*Charadrius bicinctus bicinctus*; NZ status - gradual decline), Australasian Pied Stilt (*Himantopus himantopus*), Southern Black Backed Gull (*Larus dominicanus*), Black-billed (endemic, NZ status serious decline) and Red-billed Gulls (*Larus* spp., NZ status gradual decline), Caspian Tern (*Sterna caspia*; status: vulnerable), and White-fronted Tern (*Sterna striata*; gradual decline), Royal Spoonbill (*Platalea regia*; NZ status – not threatened).

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### 23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

#### Historical

The Waituna Lagoon and its surrounds were traditionally utilised by the local Maori people, largely as a food source (especially fish) and centred on the Lagoon. The local Maori people are known as the Ngāi Tahu Iwi (tribe) and have a long association with Waituna. The Ngāi Tahu Claims Settlement Act 1998 formally and legally recognised Ngāi Tahu's cultural, spiritual, historic and traditional association to Waituna, the Maitara River, Toetoes and the Oreti River.

Intermittently open to the sea, Waituna Wetland (with the western end, where the lagoon breaks out to sea known as Kā-puna-wai) was a major food basket utilised by *nohoanga* (food gathering expeditions) and permanent settlements located in the immediate vicinity of the wetlands, and further away, for its wide variety of reliable *mahika kai* (food gathering). The great diversity of wildlife associated with the complex includes several breeds of ducks, white heron, gulls, spoonbill, kōtuku (NZ white heron), oyster-catcher, dotterels, terns and fern birds. The wetlands are important kōhanga (spawning) grounds for a number of indigenous fish species. Kaimoana (seafood) available includes giant and banded kōkopu (native trout), varieties of flatfish, tuna (eels) (Note tuna is the Maori name for eel), kanakana (lamprey), inaka (whitebait), waikākahi (freshwater mussel) and waikōura (freshwater crayfish). Harakeke (flax), raupō (bulrush), mānuka (tea tree), tōtara and tōtara bark, and pingao (golden sand sedge) were also regularly harvested cultural materials. Paru or black mud was available, particularly sought after as a product for making dyes.

The lower Maitara River/Toetoes was an important mahinga kai, and like Waituna, noted for its indigenous fishery and the diversity of its resources. There are numerous wāhi tapu and wāhi taonga sites in the area bearing witness to Māori use and occupation.

The Oreti River traverses a significant area of Murihiku, stretching from its mouth at Invercargill almost to the edge of Whakatipu-wai-māori (Lake Wakatipu). As such, it formed one of the main trails inland from the coast, with an important pounamu (greenstone) trade route continuing northward from the headwaters of the Oreti and travelling, via the Mavora or Von River Valley, to the edge of Wakatipu and onto the Dart and Routeburn pounamu (greenstone) sources. Indeed, pounamu can be found in the upper reaches of the Oreti itself.

The kai (food) resources of the Oreti supported numerous parties venturing into the interior, and returning by mokihi (vessels made of raupo), laden with pounamu and mahinga kai. Nohoanga (temporary campsites) supported such travel by providing bases from which the travellers could go water fowling, eeling and catching inaka (whitebait), and were located along the course of the Oreti River.

There were a number of important settlement sites at the mouth of the Oreti, in the New River estuary, including Omaui, which was located at the mouth of the Oreti, where it passes the New River Heads. Oue, at the mouth of the Oreti River (New River estuary), opposite Omaui, was one of the

principal settlements in Murihiku. Honekai who was a principal rangatira (chief) of Murihiku in his time was resident at this settlement in the early 1820s, at the time of the sealers. In 1850 there were said to still be 40 people living at the kaik (settlement) at Omaui under the rangatira Mauhe.

The tūpuna (ancestors) had considerable knowledge of whakapapa (genealogical history), traditional trails and tauraka waka (landing places), places for gathering kai (food) and other taonga (treasures), ways in which to use the resources of Waituna, the relationship with the lake and their dependence on it and tikanga (protocols) for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

As a result of this history of use and occupation of the area, there are wāhi tapu and wāhi taonga (sacred sites and sacred treasures) all along its shores. It is also possible that particular sections of the wetland were used for waiwhakaheketūpāpāku (water burial).

Urupā (burial grounds/cemeteries) and wāhi tapu are the resting places of Ngāi Tahu tūpuna and, as such, are the focus for whānau (family) traditions. These are places holding the memories, traditions, victories and defeats of Ngāi Tahu tūpuna, and are frequently protected by secret locations.

The mauri (life force) of Waituna represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All the elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with these areas.

**b)** Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box  and describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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#### 24. Land tenure/ownership:

a) within the Ramsar site:

Most of the terrestrial area is administered by the Department of Conservation, and has different status including: **Conservation Area 9317ha** (Seaward Moss (5936ha), Toetoes (2847ha), Tiwai Peninsula (360ha), Fortrose Spit (103ha), Bushy Point (c. 72ha); **Scientific Reserve 3556ha** (Waituna Wetland Scientific Reserve, note this is the extent of the current Ramsar site); **Scenic Reserve 67ha** (Waituna (56ha), Joeys Island (11ha)), **Wildlife Management Reserve 9ha** (Tiwai Spit), **Marginal strips 98ha**. Total of 13, 047ha

Other land included in the wetland includes: **Crown Land - Foreshore and Seabed 6680ha** (New River Estuary (c.4100ha), Awarua Bay (c. 2250ha), Toetoes Harbour (330ha)); **other Crown land - administered by Land Information New Zealand c. 50ha** (Cow Island); **Unformed legal road 178ha, Private land c. 29.5ha** (four separate owners, each protected by Conservation Covenant). Total of 6937.5ha

b) in the surrounding area:

Largely multiple private land ownership. Other ownership includes: areas of Crown Land administered by Department of Conservation; areas of formed and unformed legal road administered by local authorities (Southland District Council and Invercargill City Council); and land leased by Environment Southland.

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**25. Current land (including water) use:**

a) within the Ramsar site:

Recreational activities are fishing (primarily for introduced brown trout or flounder), game bird hunting, yachting, windsurfing, canoeing, picnicking and natural history activities (including bird watching).

b) in the surroundings/catchment:

Much of the surrounding area and catchment (particularly to the north) is used for pastoral agriculture, with some exotic forestry plantations. There are adjacent undeveloped peat lands on private land.

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**26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

a) within the Ramsar site:

**Fire:** The area has had a long fire history which has altered vegetation patterns. Fires continue to be a threat (there have been several large fires in the past 25 years).

**Weed species:** Gorse (*Ulex europaeus*), broom (*Cytisus scoparius*) and spanish heath (*Erica lusitanica*) are found within the wetland (especially peat land) but are largely confined to disturbed areas, shorelines and peripheral areas. Stone crop (*Sedum acre*), angelica (*Angelica pachycarpa*) and marram grass (*Ammophila arenaria*) are weeds found on the gravel beach and/or sand dune. *Spartina* grass (*Spartina* spp.) has been a major problem within New River Estuary however, as a result of ongoing management, eradication is now achievable. Ground and aerial spraying of weeds is the major management activity undertaken by the Department of Conservation.

**Drainage:** The maintenance of natural hydrological functioning and water tables is of great importance to peat land areas. The impacts of marginal drains extend into the wetland and can result in vegetation changes. Mechanical disturbance and lowered water tables can allow weeds to establish and spread.

**Degradation of lagoon and estuarine habitat:** The land use of the wetland catchment area is largely intensive pastoral agriculture. This results in water quality and sedimentation concerns associated with the major estuaries (particularly New River Estuary) and Waituna Lagoon.

**New River Estuary:** New River estuary lies adjacent to the city of Invercargill and it has a large intensive agriculture catchment area which affects the estuary. Considerable reclamation has occurred within the New River Estuary resulting in the reduction in tidal area by about one quarter. This is thought to have affected the hydrological functioning of the estuary. Considerable siltation resulting from catchment land use and accumulation by the exotic *Spartina* spp is an ongoing concern. Water quality is a concern, with water pollution having both rural and urban sources including sewage outfalls, storm water and industrial discharge, leachate from the closed Invercargill refuse disposal site (located adjacent to the estuary) and from its catchment rivers.

Waituna Lagoon: There has been a major change towards increased dairy farming in the last 10 years within the Waituna Lagoon catchment. It is likely this will influence water quality within the Lagoon. The regional council (Environment Southland) undertakes some water quality monitoring in Waituna Lagoon and some of its tributary catchments outside of the wetland.

### Water Quality Monitoring

The regional council (Environment Southland) undertakes regular water quality monitoring of the lagoon and its tributary streams. Waituna Lagoon is a large, shallow, coastal lagoon ecosystem affected by both saline and freshwater inputs. It has a largely intact coastal wetland system and an aquatic community dominated by *Ruppia* (horse's mane). The lagoon and surrounding wetlands provide an important habitat for flora and fauna, in particular bird and fish species. The lagoon is fed by three main waterways, including Waituna Creek, Moffat Creek and Currans Creek. Waituna Creek is the largest stream, discharging on average approximately 1800 l/sec. Nutrients and bacterial contaminants enter the lagoon via these stream inputs, particularly during times of high flows. The extent to which these affect the lagoon condition is largely unknown. The lagoon experiences seasonally windy periods, consequently it can be highly turbid and well mixed. Chlorophyll *levels* (measure of algal biomass) are moderate to low, however saline intrusions and high turbidity may prevent high algal growth. Substantial saline inputs occur during lagoon opening. This has an influence on water chemistry, hydraulic mixing, and biotic community structure and productivity.

#### Median water quality values for the lagoon are as follows (August 03 – October 04)

Parameter	Unit	Value	
Nitrate Nitrite Nitrogen	g/m <sup>3</sup>	0.27	
Total Nitrogen	g/m <sup>3</sup>	0.70	
Total Phosphorous	g/m <sup>3</sup>	0.031	
Dissolved Reactive Phosphorous	g/m <sup>3</sup>	0.0055	
Chlorophyll <i>a</i>	mg/m <sup>3</sup>	4.14	
Dissolved Oxygen	g/m <sup>3</sup>	9.5	
Electrical Conductivity	µS/cm	42.13	
pH	ph	7.78	
Turbidity	NTU	5.38	
Ammoniacal Nitrogen	g/m <sup>3</sup>		0.015
<i>E.coli</i>	MPN/100mL	8.25	
Total Coliforms	MPN/100mL	265	

In March 2004 a report by Ryder Consulting was published. Waituna Landcare Group organised this report on the health of the Lagoon and catchment. In May 2004, the group organised the Waituna Extension Day. Various speakers focused on sustainable land management. The group continues to do monthly water quality testing in the Lagoon and around other tributaries in the catchment.

**Artificial opening of Waituna lagoon:** Due to periodic blocking of the sea outlet, the lagoon is subject to considerable fluctuations in water level. When blocked during periods of high rainfall the water floods back into adjacent low lying areas. This is a desirable feature for many of the reserve's botanical features which remain because of the occasional flooding of areas and maintenance of a high water table. If this occurs during July-November it can stimulate the breeding activity of black swan to a marked degree. However, it can also be detrimental for other species such as waders, as the mudflats used for feeding are not exposed, or the small islands favoured as nesting sites for tern, oystercatcher and stilt are submerged. However flooding also causes drainage problems on some farms close to the lagoon, so a management regime exists whereby the bar is artificially opened to the sea periodically. When tidal conditions prevail, some drying out of marginal vegetation occurs and promotes the spread of the weed gorse (*Ulex europaeus*) which threatens marginal native vegetation.

b) in the surrounding area:

**Land use change/intensification of land use:** There is continuing intensification of land use including a major increase in the number of dairy farms. These are associated with increased stock numbers and increased fertiliser use. There has also been development of wetland areas and increased drainage works. These activities will influence water quality.

The reserve lies near or over extensive lignite coal fields (the Ashers-Waituna field). There are no current plans to expand lignite mining operations in the locality; however this remains a potential threat to the wetland. The impacts could include direct loss of wetland habitat, drainage impacts and effects on water quality.

**River catchment works:** Stream straightening, realignment and mechanical cleaning have all impacted upon aquatic habitats which have affected wetland drainage and fish populations.

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## 27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

**Reserves Act 1977:** Waituna Wetland Scientific Reserve (3556ha); Waituna Scenic Reserve (56ha); Joeys Island Scenic Reserve (11ha); and Anglican Church Conservation Covenant (c. 2ha). The lagoon was originally held as Crown Land. It was next classified as a Reserve for Wetland Management Purposes. It was then latterly classified in 1983 as the Waituna Lagoon Scientific Reserve. The reserves are held pursuant to section 21 (scientific reserve), section 19(a) (scenic reserve) and section 77 (Reserves Act covenant).

**Conservation Act 1987:** Seaward Moss Conservation Area (5936ha), Toetoes Conservation Area (2847ha), Tiwai Peninsula Conservation Area (360ha), Fortrose Spit Conservation Area (103ha), Bushy Point Conservation Area (c. 72ha), Marginal strips (98ha). The conservation areas are held pursuant to section 7 and the marginal strips, pursuant to section 24.

The Conservation Act established the Department of Conservation, the New Zealand Conservation Authority and Conservation Boards. The Act directs the administration and management of all land and resources under the department's control. Section 4 of the Act provides that the Act shall be so interpreted and administered to give effect to the principles of Tiriti O Te Waitangi (The Treaty of Waitangi), which is a document signed between indigenous people (Maori) of Aotearoa (New Zealand) and the Crown in 1840, to permit the Crown to govern in return for protection for Maori and their resources. Part 3 of the Conservation Act deals specifically with conservation areas and is applicable to the Toetoes, Seaward Moss, Tiwai, Fortrose and Bushy Point areas included in the proposed extension.

**Queen Elizabeth The Second National Trust Act 1977:** Nichol covenant (c.20ha), Gamble covenant (c. 5ha) and Rance covenant (2.5ha)

**The Resource Management Act 1991:** Section 5 of the Act states:

- (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

- (2) In this Act, “sustainable management” means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety.

Regional, district and city councils carry out their functions under the RMA through the preparation and implementation of Regional Policy Statements and Regional and District Plans. (Prior to the RMA was the Town and Country Planning Act and its amendments, used by these councils). The RMA requires the councils to have regard to the CMS, any Coastal Policy Statements and any management plans and strategies prepared under other statutes such as the Conservation or Reserves Acts when preparing or reviewing their own plans and strategies.

**Other measures:** The Waituna Wetland Scientific Reserve is an existing Ramsar Wetland

### **Management Planning**

There is no specific management plan for the wetland or its proposed extension. It is presently managed within the Conservation Management Strategy for Mainland Southland/West Otago (of particular relevance are the Southland Plains and Waituna sections) however, the Strategy expires in 2008 and this proposed extension will have a site specific management plan within the Waituna landscape unit of the new Strategy.

### **The Conservation Management Strategy**

The lagoon and the proposed extensions are currently managed by the Department of Conservation, Southland Conservancy in accordance with the strategy.

The strategy sets the general direction for the management of all land and other resources administered by the department within each particular Conservancy. The strategy for Southland includes a section on Waituna and the surrounding wetlands. If there were to be a management plan for Waituna it would be subservient to the strategy and must be in accordance with policies contained within the strategy..

Entry to the reserve is not restricted, but the relative isolation and difficulty of access ensures minimum disturbance. The lagoon is artificially opened to the sea on an annual basis and so is estuarine when open. No other management actions have been required on site within the wetland, although monitoring continues on lagoon levels, effects of past fires and the impact of nesting gulls on the cushion bog vegetation.

The Wetlands of Ecological and Representative Importance database gives the wetland a ranking of international importance.

### **The New Zealand Coastal Policy Statement**

The New Zealand Coastal Policy Statement 1994 is required by section 57 of the Resource Management Act, and its purpose is to state policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand. It is prepared and recommended by the Minister of Conservation and is relevant to Waituna Lagoon in particular. Policy 1.1.2 states:

“It is a national priority for the preservation of the natural character of the coastal environment to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna in that environment....”

### **The Southland District Council**

Waituna and the proposed extensions are outlined in the district plan under section 3.4 Heritage. A list of these sites is found in schedule 6.14.

### **The Invercargill City Council**

In partnership with a number of other local Councils, Landcare groups and the community, the Invercargill City Council has produced information booklets (Wetlands of Southland, Otatara/Sandy Point Bushcare and Coastcare) to inform the community of the values of the vegetation, wildlife and landscape, and to encourage land use that will maintain or enhance these unique ecosystems.

### **Environment Southland (Regional Council)**

Nestled amidst Southland's natural landscape are some of the most valuable ecosystems on earth – wetlands. Yet how many of us recognise the true value of what lies on our environmental doorstep? Over the past 200 years agricultural and urban development has resulted in the destruction of more than 90% of New Zealand's original wetlands – one of the highest losses recorded in the world. Southland however has retained around 37% of original wetland area (compared with 1% in other regions), yet many of these are under threat or not known about.

But hope is at hand for Southland's enormous wetland wealth – and it comes in the form of the Southland Wetlands Working Party – a diverse bunch of people representing local government, environmental agencies, landowner and community interests – and whose mission it is to spark our interest in the true environmental importance of wetlands.

Conservation of flora and fauna and protection of habitats are the primary aspect of the wetland.

**b)** If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

**c)** Does an officially approved management plan exist; and is it being implemented?:

No. Covered in the Mainland Southland/West Otago Conservation Management Strategy.

**d)** Describe any other current management practices:

Since 2001 the Waituna Landcare Group has been working with local landowners to safeguard the health of the lagoon and its tributaries, and to encourage sustainable land management within its catchments. The group has held regular field days and seminars, grown plants for local riparian fencing and re-vegetation projects, carried out water quality testing and conducted fish surveys of the lagoon.

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### **28. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

The Conservation Management Strategy proposes “to investigate the appropriate protected land status for Seaward Moss, Toetoes, Fortrose Spit and Tiwai Peninsula Conservation Areas.

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### **29. Current scientific research and facilities:**

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Scientific research is largely undertaken on an ad hoc basis and is issue driven. There is ongoing monitoring of the effects of a southern black backed gull colony on wetland (cushion bog) vegetation. Studies undertaken are on the geomorphic history and contemporary dynamics of the barrier and lagoon systems. There are also bi-annual wading bird counts undertaken at Waituna Lagoon, Awarua Bay and New River Estuary by the Ornithological Society of New Zealand. Monitoring of the recovery of vegetation after fire is being carried out in the Seaward Moss wetland area

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**30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:**

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The Department of Conservation and Environment Southland work to support the local Waituna Landcare Group by providing speakers for seminars, technical advice and facilitating education field days in the wetlands.

In November 2006 it is expected the Department of Conservation will complete construction of a new board walk and viewing shelter at the end of Waghorn's Access Road. This will include extensive onsite interpretation of the site and the surrounding wetlands. This will provide a good opportunity for the public to access the wetland.

The Department of Conservation has several publications which feature the site. These include: Ramsar Wetlands – Biodiversity; Southland's Estuaries and Coastal Wetlands; Wetlands – Biodiversity; and the Southern Scenic Route Brochure. The National Wetland Trust has also produced a publication called Our Wet and Wild Places – Celebrating New Zealand's Internationally Significant Wetlands which features the Waituna Lagoon as one of five significant wetlands in New Zealand.

A local school, Gorge Road Primary School, has made several trips to the wetland to learn about the biodiversity of the area and also to assess water quality of tributaries and riparian plantings of tributaries to improve water quality. These education activities are supported by educators from the Department of Conservation, Environment Southland and the Waituna Landcare Group.

The Department of Conservation has proposed an education resource specifically for the Awarua Wetlands that includes classroom activities and a field trip to the wetlands. This will be available to all schools in New Zealand to access on a website and specifically for Southland students to visit.

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**31. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

There are limited recreational uses, reflecting the relative isolation of the site and difficulty of access. The major activities are duck hunting and trout fishing (both seasonal) with some boating, yachting, wind surfing, canoeing, picnicking, day walking, bird watching, nature photography and botanising.

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**32. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

**Territorial:** Southland District Council/Invercargill City Council

**Regional:** Environment Southland

**Functional:** Department of Conservation, Southland Conservancy; Southland Fish & Game Council

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**33. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

**Resource Management:** Environment Southland has statutory responsibility under the Resource Management Act 1991 for water resources and the preparation of coastal plans. Southland District Council and Invercargill City Council have statutory responsibility under the Resource Management Act 1991 for land use activities within and adjacent to the wetland.



**Management of Crown land and wildlife:**

Murihiku Area Office  
Department of Conservation, Southland Conservancy,  
PO Box 743, Invercargill, NEW ZEALAND.

**Management of sports fish (trout/salmon) and game bird hunting season and licences.**

Southland Fish and Game Council, PO Box 159, Invercargill.

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**34. Bibliographical references:**

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

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[www.iucnredlist.org](http://www.iucnredlist.org) downloaded on Oct 4<sup>th</sup>, 2006.

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Please return to: **Ramsar Convention Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**  
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • e-mail: [ramsar@ramsar.org](mailto:ramsar@ramsar.org)