

New Zealand

Awarua Wetland

Offline RIS Word form

[Copy of online form submitted through RSIS portal on 2 February 2022.]  
  
All fields marked with an asterisk (\*) are required.  
  
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Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a ‘full’ Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

Summary

1.1 Summary description

Please provide a short descriptive text summarising the key characteristics and internationally important aspects of the site. You may prefer to complete the four following sections before returning to draft this summary.

Summary (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  | Awarua is one of the largest remaining wetland complexes in New Zealand. It comprises six distinct areas:  • Awarua peatland, an extensive natural blanket bog on a low-lying, glacial fluvial plain of quartz rich gravels areas.  • Awarua Bay, the most important southern New Zealand coastal habitat for wading birds.  • Waituna Lagoon, a predominantly freshwater lake that supports a relatively intact Ruppia-dominated aquatic plant community, and is periodically opened to the sea, becoming tidal.  • Toetoes peatland, an area of peatland similar vegetation to the Awarua peatland.  • Toetoes Harbour and Fortrose Spit, a relatively small harbour bordered by a gravel spit formed by long-shore drift with intertidal to freshwater vegetation sequences.  • The New River Estuary, Southland’s largest estuary, dominated by extensive mudflats.    Collectively these areas form an important feeding area for more than 80 bird species including threatened species, 21 trans-equatorial migrants, such as the far eastern curlew (Numenius madagascariensis) and whimbrel (N. phaeopus), and the world’s southern-most colony of Caspian terns (Hydroprogne caspia). It also provides feeding and breeding grounds for many rare and endangered fish and bird species, including the southern New Zealand dotterel (Charadrius obscurus ssp. obscurus) and giant kokopu (Galaxias argenteus), and a rare moth (Asaphodes frivola).    The Ramsar Site contains systems that are highly representative of the peatlands of the Southland Plains. Also of note are the presence near sea level of a number of typically montane and sub alpine species, and intact ecological sequences from seagrass Zostera muelleri subsp. novazelandica on the mudflats and sandflats to saltmarsh (predominantly Samolus repens, Selliera radicans, Sarcocornia quinqueflora and Isolepis cernua), submerged aquatic macrophytes within Waituna Lagoon, rushlands (dominated by Apodasmia similis), and the peatland communities comprising Empodisma minus rushland, Leptospermum scoparium (manuka) and Dracophyllum longifolium (turpentine shrub) scrub and shrubland, lowland podocarp forest, Phormium tenax (flax) and Chionochloa rubra (red-tussock) swamps. |

Data & location

2.1 Formal data

2.1.1 Name and address of the compiler of this RIS

Responsible compiler

Name

|  |  |
| --- | --- |
|  | Sarah Thorne |

Institution/agency

|  |  |
| --- | --- |
|  | Department of Conservation |

Postal address (This field is limited to 254 characters)

|  |  |
| --- | --- |
|  | PO Box 743, INVERCARGILL |

E-mail (The online RIS only accepts valid e-mail addresses, e.g. example@mail.com )

|  |  |
| --- | --- |
|  | invercargill@doc.govt.nz |

Phone (The online RIS only accepts valid phone numbers, e.g. +1 41 123 45 67 )

|  |  |
| --- | --- |
|  | +64 3 211 2400 |

Fax (The online RIS only accepts valid phone numbers, e.g. +1 41 123 45 67 )

|  |  |
| --- | --- |
|  |  |

National Ramsar Administrative Authority

Name

|  |  |
| --- | --- |
|  | Karen Denyer, Brian Rance, Hugh Robertson |

Institution/agency

|  |  |
| --- | --- |
|  | Department of Conservation |

Postal address (This field is limited to 254 characters)

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E-mail (The online RIS only accepts valid e-mail addresses, e.g. example@mail.com )

|  |  |
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Phone (The online RIS only accepts valid phone numbers, e.g. +1 41 123 45 67 )

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Fax (The online RIS only accepts valid phone numbers, e.g. +1 41 123 45 67 )

|  |  |
| --- | --- |
|  |  |

2.1.2 Period of collection of data and information used to compile the RIS

From year (The online RIS only accepts numeric values)

|  |  |
| --- | --- |
|  | 2006 |

Period when the data and information for the sheet for a newly designated site was compiledFor updated RIS: Period when the data and informationfor revision of an existing sheet was updated

To year (The online RIS only accepts numeric values)

|  |  |
| --- | --- |
|  | 2018 |

2.1.3 Name of the Ramsar Site

Official name (in English, French or Spanish)\* (This field is mandatory)

|  |  |
| --- | --- |
|  | Awarua Wetland |

Unofficial name (optional)

|  |  |
| --- | --- |
|  | Awarua-Waituna |

2.1.4 Changes to the boundaries and area of the Site since its designation or earlier update

A. Changes to Site boundary (Update)

[x] Yes / [ ] No

.

[x] The boundary has been delineated more accurately

[ ] The boundary has been extended

[ ] The boundary has been restricted

B. Changes to Site area (Update)

|  |  |
| --- | --- |
|  | the area has decreased[[1]](#footnote-1) |

[ ] The Site area has been calculated more accurately

[x] The Site has been delineated more accurately

[ ] The Site area has increased because of a boundary extension

[ ] The Site area has decreased because of a boundary restriction

Important note: If the boundary of the designated site is being restricted/reduced, before submitting this updated RIS to the Secretariat the Contracting Party should have followed: - the requirements in Article 2.5 of the Convention; or - the procedures established by the Conference of the Parties in the annex to Resolution VIII.20 (2002); or - where appropriate instead, the procedures in the annex to Resolution IX.6 (2005). Contracting Parties should also have provided to the Secretariat a report on changes prior to the submission of an updated RIS.

[ ] For secretariat only: This update is an extension

2.1.5 Changes to the ecological character of the Site

6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS? (Update)

|  |  |
| --- | --- |
|  | Yes -actual-[[2]](#footnote-2) |

Are the changes (Update)

[ ] Positive / [ ] Negative / [x] Positive & Negative

.

.

What extent of the Ramsar site is affected (%)

Positive % (Update)

|  |  |
| --- | --- |
|  | 1 |

Negative % (Update)

|  |  |
| --- | --- |
|  | 1 |

Optional text box to provide further information (Update)

|  |  |
| --- | --- |
|  | It is not possible to specifically report on the % area |

[ ] No information available

Are changes the result of (tick each category which applies):

[x] Changes resulting from causes operating within the existing boundaries?

[x] Changes resulting from causes operating beyond the site’s boundaries?

[ ] Changes consequent upon site boundary reduction alone (e.g., the exclusion of some wetland types formerly included within the site)?

[ ] Changes consequent upon site boundary increase alone (e.g., the inclusion of different wetland types in the site)?

Please describe any changes to the ecological character of the Ramsar Site, including in the application of the Criteria, since the previous RIS for the site. (Update)

|  |  |
| --- | --- |
|  | Positive change in ecological character (likely or actual)  • Decrease in the extent of the invasive plants - Spartina sp. (cord grass), Erica lusitanica (Spanish heath), Ulex europaeus (gorse), willow spp. and wilding pines (various species) through weed control.  • Reduction of impacts of introduced animals (deer, emu, black-backed gull and goats) through a sustained pest control programme.  • Increase in the adjacent wetland area that is under legal protection, through land purchase with support from the Nature Heritage Fund, ensuring long-term security of the Ramsar Site buffer and habitat for mobile species utilising the Ramsar Site.  • Reduction in exotic mammalian predators directly adjacent to the Ramsar site (Tiwai Peninsula) through pest control.  • Riparian restoration initiated on areas adjacent to and within the Ramsar site (Craws Creek, Waituna Creek).    Negative change in ecological character (likely)  • Approximately 800 ha of peatland within the Ramsar site burned in three major human-induced fires since 2006, with a further 1200 ha burnt on land immediately adjacent to the site. These burnt areas are susceptible to weed invasion but will recover over time with adequate weed control  • A decline in 8 of 12 measured indicators occurred in the in Oreti River/New River Estuary between 2002 and 2010 (Environment Southland 2010). The 2013 macroalgal coverage for New River Estuary had an overall condition rating of poor (Stevens & Robertson 2013). Overall, gross nuisance conditions occupy 8% of the estuary, with the majority located on the western side of the Waihopi Arm, and in sheltered areas in the western flats near Daffodil Bay and at Bushy Point (Robertson and Stevens 2013). Overall, New River Estuary is rated as mesotrophic in its lower parts, and highly eutrophic or in very poor condition in the Waihopi Arm and the western flats.  • Land development on wetlands adjacent to Ramsar site, including Oreti Estuary, Awarua Bay and peatlands areas has been observed. This may have potential adverse effect on the Ramsar Site.  • A likely decline in condition of the Fortrose Estuary was observed from 2003 to 2013 (Stevens & Robertson 2017) due to increased muddiness and macroalgal growth, and establishment of a ~8.3 ha gross eutrophic zone in the estuary.  • Potential decline in the condition of stream habitat in Waituna Creek due to stream bank earthworks and removal of instream habitat (Holmes et al. 2015, Holmes at al. 2016).    Negative change in ecological character (actual)  • Monitoring in Waituna Lagoon has shown a decline in water quality and other parameters since 2006. In 2013 the Lagoon Technical Group prepared Ecological Guidelines for Waituna Lagoon. This report provides a summary of the status of Waituna Lagoon, it reported that:  o Stream nutrient inputs (Nitrogen and Phosphorus) for the period since 2006 are ~200kg/day higher than they were prior to 2006.  o The late summer total nitrogen concentration of Waituna Lagoon has been increasing over the past decade and now approaches 1000 μg/L, suggesting that the lagoon is vulnerable to macrophyte collapse.  o Periodic blooms or nuisance algae occur, such as alga Bachelotia antillarum in 2009, 2010 and 2014 which indicate the lagoon ecosystem is vulnerable to a sudden regime shift and may become algal-dominated.  • Annual monitoring observed low abundance of aquatic plants (particularly Ruppia spp.) occurs in some years (2009-2014), resulting in highly fluctuating biomass of submerged macrophytes. A recovery to healthier levels was seen in 2015 and 2016 in response to reduced duration of lagoon opening (Sutherland et al. 2014, Sutherland et al. 2016).    Note: There has been concerted effort from many groups to address ecological issues in the Waituna catchment and lagoon. A significant multi-agency and community response was launched to reduce the adverse effects of excess nutrients and sediments in Waituna Lagoon, including riparian fencing and planting, farm effluent management, stream-bank stabilisation, treatment wetland and nutrient filter trials, sediment and nutrient modelling and fingerprinting to determine source, research into optimum lagoon opening regime, community education and increased monitoring. An integrated catchment management programme (Whakamana te Waituna) is being implemented to address catchment pressures.    Other changes in ecological character (not negative or positive)    Decline in cover of the plant species Donatia novae-zelandiae and its associated cushion bog community between 2002 and 2008, however it is thought to be related to natural succession rather than a human-induced decline. Research continues to clarify the cause of decline and appropriate management response. |

Is the change in ecological character negative, human-induced AND a significant change (above the limit of acceptable change) (Update)

[ ] Yes / [x] No

.

Has an Article 3.2 report been submitted to the Secretariat? (Update)

[ ] Yes / [x] No

.

2.2 Site location

2.2.1 Defining the Site boundaries

The site boundaries must be clearly delineated on both: a) a GIS shapefile and b) a digital map/image:

-> To define the site boundaries please complete field 2.2.1 a1), 2.2.1 a2) and 2.2.1 b) via the online form.

-UPLOAD via online form-

Boundaries description (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  | Awarua Wetland lies along and adjacent to the southern Southland coast, within the South Island of New Zealand. The area contains the estuaries of Awarua Bay, New River Estuary and Toetoes Harbour, as well as the peatlands of the Awarua Plain dominated by wire rush and shrubland, and the associated Waituna Lagoon a freshwater lagoon that is periodically artificially opened to the sea whereupon it becomes brackish and tidally influenced. The boundaries of the Ramsar site are predominantly aligned with public land areas.    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.    The boundaries of the New River Estuary are generally to the estuarine edge (i.e. up to Mean High Water Level) except where the vegetation is more intact. Here it extends further inland, usually to practical boundaries (i.e. to roads, fences or drainage ditches).    Along the coastal margin of the wetland the boundary with the sea is generally at Mean High Water Level. |

2.2.2 General location

a) In which large administrative region does the site lie?

|  |  |
| --- | --- |
|  | Southland, New Zealand |

b) What is the nearest town or population centre?

|  |  |
| --- | --- |
|  | Invercargill |

2.2.3 For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries?

[ ] Yes / [x] No

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b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party?

[ ] Yes / [x] No

.

c) Is the site part of a formal transboundary designation with another Contracting Party?

[ ] Yes / [x] No

.

d) Transboundary Ramsar Site name:

|  |  |
| --- | --- |
|  |  |

Sites part of transboundary designation

2.2.4 Area of the Site

If you have not established an official area by other means, you can copy the area calculated from the GIS boundaries into the 'official area' box.

Official area, in hectares (ha): (The online RIS only accepts numeric values)

|  |  |
| --- | --- |
|  | 19195 |

Area, in hectares (ha) as calculated from GIS boundaries

|  |  |
| --- | --- |
|  | 19152.983 |

2.2.5 Biogeography

Please provide the biogeographic region(s) encompassing the site and the biogeographic regionalization scheme applied:

Biogeographic regions

|  |  |
| --- | --- |
| **Regionalisation scheme(s)**[[3]](#footnote-3) | **Biogeographic region** |
| Marine Ecoregions of the World (MEOW) | South New Zealand |
| Freshwater Ecoregions of the World (FEOW) | New Zealand |
|  |  |

Other biogeographic regionalisation scheme (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  |  |

Why is the Site important?

3.1 Ramsar Criteria and their justification

Tick the box against each criterion applied to the designation of the Ramsar Site. All criteria which apply should be ticked. Please explain why you selected a criterion by filling in the relevant fields on this page, on the three other pages of this section 'Criteria & justification' and on the 'Wetland types' page of the section 'What is the site like?'.

[x] Criterion 1: Representative, rare or unique natural or near-natural wetland types

To justify this Criterion, please select at least one wetland type as representative, rare or unique in the section What is the site like? > Wetland types and provide further details in at least one of the three boxes below.

Hydrological services provided (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | The Awarua Wetlands Ramsar site provides hydrological ecosystem services by maintaining good water quality and large areas of open water that supports recreation, hunting, appreciation of natural landscapes, cultural values and spiritual connections. There are minimal water takes as the site is largely administered public conservation land. The estuary, lagoon, rivers and wetland however do support flood, management given their substantial water holding capacity. |

Other ecosystem services provided (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | The Awarua peatlands are important for carbon storage, while the Waituna Lagoon is renowned for its recreational fishing and duck shooting. Other recreational activities supported by the wetlands include kayaking, bird watching, day walking, yachting and windsurfing    The wetland is also culturally significant to local Ngai Tahu people for mahinga kai (traditional food) and tuna (eel) fishery. The special relationship between the area and Ngai Tahu is recognised under a Statutory Acknowledgement within the Ngai Tahu Claims Settlement Act of 1998. |

Other reasons (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | The Awarua Ramsar site is a near-natural wetland that is one of the largest and most diverse areas of contiguous peatland, coastal lagoon, tidal estuary and lowland peatland streams in New Zealand. Assessment of representativeness is based on the extent to which the site is, or contains wetland types (being bioregion+hydrosystem+wetland class as defined in Denyer and Robertson 2016) that are among the best examples in the relevant bioregion.    These include:  • Coastal lake/lagoon (Ramsar type K). Waituna Lagoon is one of the best examples of its type in New Zealand, supports relatively intact macrophyte beds.  • Embayment (Ramsar type F). Awarua Bay and New River Estuary form large estuarine embayments  • Tidal estuary (Ramsar types G, H, F). The Toetoes estuary is relatively shallow and has a bar at its mouth. It is formed by the long shore drift of sand (Fortrose Spit). The major vegetation around the shore of the estuary is oioi (Apodasmia similis).  • Bog and fen wetland types (Ramsar types U, W, Tp, Xp). The Awarua blanket mire and associated ecosystems are among the largest, most diverse and most intact examples in New Zealand.  • Lowland peatland streams (Ramsar type M). The smaller creeks and associated pools in the Awarua peatlands are among the best examples of their type in New Zealand, flowing unimpeded largely through natural wetland vegetation from source to sea.    The complex contains these historically rare (Williams et al. 2007) ecosystem types:  • Lake margins  • Blanket mires  • Cushion bogs  • Ephemeral wetlands – minor examples  • Gravel beach and sand dune ecosystems are naturally rare ecosystems that occur within the Ramsar site but are not wetland types.    The complex also contains peatlands that are a special priority for inclusion on the Ramsar list (Strategic Plan, Appendix E). |

[x] Criterion 2 : Rare species and threatened ecological communities

To justify this Criterion, please give details below on:

- relevant plant species in the section Criteria & justification> Plant species (3.2)

- relevant animal species in the section Criteria & justification> Animal species (3.3)

- relevant ecological communities in the section Criteria & justification> Ecological communities (3.4)

Optional text box to provide further information (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | The wetland contains several nationally threatened and uncommon plant species (Rance 2017). Since 2006, a further 11 threatened plant species have been recorded in the Ramsar site.    Up to one third of the nationally critical southern New Zealand dotterel (Charadrius obscurus ssp. obscurus) population spends its winter feeding in Awarua Bay. Another 11 nationally threatened bird species are resident or regular visitors to the wetland. |

[x] Criterion 3 : Biological diversity

To justify this Criterion, please give details in the box below. If you want to name any specific species, please give details on:

- relevant plant species in the section Criteria & justification> Plant species (3.2)

- relevant animal species in the section Criteria & justification> Animal species (3.3)

Justification (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | The flora is very diverse and highly representative of southern New Zealand peatland, coastal lake and estuarine communities. The extensive peatland has a rich diversity of intact plant communities and sequences determined by water table, nutrient status and other site factors. The New River Estuary has extensive mudflats with intersecting tidal channels which form the habitat for the rich variety of wildlife.    Intact vegetation sequences extend from mudflats with eelgrass (Zostera muelleri subsp. novazelandica), saltmarsh foreshore, a coastal lake characterised by aquatic macrophyte beds, rushland dominated by jointed rush (Apodasmia similis), shrubland dominated by manuka (Leptospermum scoparium) and mature podocarp forest. This sequence is best represented at Bushy Point.    The margins of Waituna Lagoon and New River Estuary contain two of the largest populations of the grass Deschampsia cespitosa in New Zealand. 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. Cushion bog vegetation occurs in a small area adjacent to Toetoes Bay, with scattered cushion species in the peatland areas.    The complex of estuaries and lagoons is one of the most important waterfowl habitats in New Zealand, unrivalled by any other single habitat in Southland for the diversity of species. Of the 81 bird species recorded, 66 are partially or wholly dependent upon the estuarine environment. New River Estuary has the highest usage by trans-equatorial shorebirds of all the Southland estuaries. The wetland complex is particularly important for both international and internal migratory shorebirds.    The site has a rich diversity of insect life. Over 120 species of moth alone have been found in the Awarua Wetland complex, many of them typically sub alpine species. The area is the type locality for a number of species of moth, some of which have a limited distribution including hepialid moth Heloxycanus patricki (restricted to peat bogs of Southern NZ). |

[x] Criterion 4 : Support during critical life cycle stage or in adverse conditions

To justify this Criterion, please give details below on:

- relevant plant species in the section Criteria & justification> Plant species (3.2)

- relevant animal species in the section Criteria & justification> Animal species (3.3)

and explain the life cycle stage or nature of adverse conditions in the accompanying 'justification' box.

Optional text box to provide further information (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | Waituna Lagoon is the principal black swan (Cygnus atratus) breeding and moulting 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, while New River Estuary supports the world’s southern-most colonies of Caspian tern (Hydroprogne caspia). White-fronted tern (Sterna striata aucklandorna) breed on Tiwai Spit, and the wetland also supports one the life-cycle of the wetland-dependent Australasian bittern (Botaurus poiciloptilus) that is 'Nationally Critical'.    Through the late spring to early autumn, many hundreds of migratory waders (including up to 21 species of trans-equatorial migrants) visit the area to build up their food reserves before returning to the northern hemisphere for their summer breeding season. Internal migratory waders spend their winter feeding in the estuaries of the wetland and in the summer disperse inland. Waterfowl also utilise the estuaries and Waituna Lagoon as well as the numerous small ponds and lakes. |

[ ] Criterion 5 : >20,000 waterbirds

To justify this Criterion, please give details below on:- the total number of waterbirds and the period of data collection - relevant waterbird species, and if possible their population size, in the section Criteria & justification> Animal species (3.3)

Overall waterbird numbers\* (This field is mandatory)

|  |  |
| --- | --- |
|  |  |

Start year\* (This field is mandatory)

|  |  |
| --- | --- |
|  |  |

End year\* (This field is mandatory)

|  |  |
| --- | --- |
|  |  |

Source of data:

|  |  |
| --- | --- |
|  |  |

Optional text box to provide further information (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  |  |

[x] Criterion 6 : >1% waterbird population

To justify this Criterion, please give details on relevant waterbird species and their population size in the section Criteria & justification> Animal species (3.3)

Optional text box to provide further information (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | Awarua Bay annually supports 37% of the total population of NZ dotterel (Charadrius obscurus). |

[x] Criterion 7 : Significant and representative fish

To justify this Criterion, please give information in the box below and details of relevant fish species in the section Criteria & justification> Animal species (3.3)

Justification (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | The wetland contains marine, estuarine and freshwater fish species with 18 species reported in Waituna lagoon. The diversity, condition and expanse of fish habitat make the wetland of international importance for fish biodiversity particularly under Criterion 7. The estuaries and lagoon are meeting points for 1) coastal marine fishes and their juvenile stages, 2) marine wanderers to freshwater environment and 3) sea migratory freshwater fishes. At least 18 species of fish are known from the estuaries, including five flatfish, whitebait (Galaxias and Retropinna species) and introduced trout.    Many freshwater fishes staging in the estuaries pass up both the Oreti and Mataura River catchments (over 100 kilometres for longfin eel Anguilla dieffenbachii). Others make use of the important network of small coastal streams, channels and freshwater wetlands and thus have their entire life cycle within the Ramsar site. These fishes include two eel species (A. dieffenbachii, A. australis), three galaxiids (Galaxias argenteus, G. fasciatus, G. maculatus), four bullies (Gobiomorphus gobioides, G. huttoni, G. hubbsi, G. cotidianus) and a smelt Retropinna retropinna. The introduced brown trout (Salmo trutta) recreational fishery of Waituna Lagoon is important in Southland. |

[x] Criterion 8 : Fish spawning grounds, etc.

To justify this Criterion, please give information in the box below. Completion of details on relevant fish species in the section Criteria & justification> Animal species (3.3) is optional.

Justification (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | The estuaries, lagoon and streams are important sources of food for fishes, spawning ground, nursery and/or migration path on which fish stocks that are regularly sought after for food, cultural use, or recreational harvest. Many such species are migratory for part of their life and pass through the estuaries, while the galaxiid species harvested as whitebait live in the wetland for much or all of their life. The wetland is considered of high cultural significance for local Maori (Ngai Tahu) for mahinga kai (traditional food) and tuna (eel) fishery, recognised under a Statutory Acknowledgement within the Ngai Tahu Claims Settlement Act of 1998. |

[x] Criterion 9 : >1% non-avian animal population

To justify this Criterion, please give details on relevant non-avian species and their population size in the section Criteria & justification> Animal species (3.3)

Optional text box to provide further information (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | The critically endangered moth species Asaphodes frivola is endemic to the Invercargill area, with its stronghold in the Awarua Wetland at Tiwai. No absolute population data are available for this species, but local experts estimate that Awarua wetlands support more than 1% of the global population of Asaphodes frivola. |

3.2 Plant species whose presence relates to the international importance of the site

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Phylum** | **Scientific name**\* | **Criterion 2** | **Criterion 3** | **Criterion 4** | **IUCN Red List**[[4]](#footnote-4) | **CITES Appendix I** | **Other status** | **Justification** |
| Birds | | | | | | | | |
| Tracheophyta / Magnoliopsida | Aciphylla glaucescens | [ ] | [x] | [ ] |  | [ ] |  | Southern distribution limit for species. Endemic species (NZ). |
| Tracheophyta / Magnoliopsida | Atriplex buchananii | [x] | [ ] | [ ] |  | [ ] | Nationally Vulnerable | Endemic species (NZ). |
| Tracheophyta / Liliopsida | Carex litorosa | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Ramsar site is a national stronghold for this species. Endemic species (NZ). |
| Tracheophyta / Magnoliopsida | Coprosma acerosa | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ). |
| Tracheophyta / Magnoliopsida | Coprosma pedicellata | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Southern distribution limit for species. Endemic species (NZ). |
| Tracheophyta / Liliopsida | Deschampsia cespitosa | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Ramsar site is a national stronghold for this species |
| Tracheophyta / Magnoliopsida | Discaria toumatou | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Southern limit of species distribution. Endemic species (NZ). |
| Tracheophyta / Magnoliopsida | Donatia novae-zelandiae | [ ] | [x] | [ ] |  | [ ] |  | Endemic species (NZ). Present in Ramsar site at a unique low elevation/coastal site (typically alpine), contribute to genetic diversity |
| Tracheophyta / Magnoliopsida | Euphrasia repens | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ). |
| Tracheophyta / Liliopsida | Ficinia spiralis | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ). |
| Tracheophyta / Magnoliopsida | Gentianella lineata | [ ] | [x] | [ ] |  | [ ] | At Risk (Relict) | Endemic species (NZ). Relict species of limited distribution that contributes to genetic diversity |
| Tracheophyta / Magnoliopsida | Geranium brevicaule | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ). |
| Tracheophyta / Liliopsida | Isolepis basilaris | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ). |
| Tracheophyta / Magnoliopsida | Korthalsella salicornioides | [x] | [x] | [ ] |  | [ ] | Nationally Critical | Endemic species (NZ). |
| Tracheophyta / Liliopsida | Lachnagrostis tenuis | [x] | [x] | [ ] |  | [ ] | Nationally Vulnerable | Endemic species (NZ). |
| Tracheophyta / Magnoliopsida | Lepidium tenuicaule | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ). Possibly locally extinct |
| Tracheophyta / Magnoliopsida | Leptinella serrulata | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ) |
| Tracheophyta / Liliopsida | Libertia peregrinans | [x] | [x] | [ ] |  | [ ] | Nationally Vulnerable | Endemic species (NZ) |
| Tracheophyta / Magnoliopsida | Myosotis pygmaea | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ) |
| Tracheophyta / Magnoliopsida | Pimelea lyallii | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Endemic species (NZ) |
| Tracheophyta / Magnoliopsida | Ranunculus recens | [x] | [x] | [ ] |  | [ ] | Nationally Vulnerable | Ramsar site is a national stronghold for this species. Endemic species (NZ) |
| Tracheophyta / Magnoliopsida | Raoulia hookeri | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Ramsar site is a national stronghold for this species. Endemic species (NZ) |
| Tracheophyta / Magnoliopsida | Suaeda novae-zelandiae | [ ] | [x] | [ ] |  | [ ] |  | Southern distribution limit for this plant. Endemic species (NZ) |
| Tracheophyta / Magnoliopsida | Thyridia repens | [ ] | [x] | [ ] |  | [ ] | At Risk (Naturally Uncommon) | Naturally Uncommon species of limited distribution, contributes to genetic diversity |
| Tracheophyta / Magnoliopsida | Urtica perconfusa | [ ] | [x] | [ ] |  | [ ] | At Risk (Declining) | Southern distribution limit for this plant. Endemic species (NZ) |
|  |  | [ ] | [ ] | [ ] |  | [ ] |  |  |

GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei accessed via GBIF.org on 2020-07-15.

Optional text box to provide further information on plant species of international importance:

(This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | Threatened species status (other status) for qualification under Criterion 2 is based on the New Zealand Threat Classification System  administered by the NZ Department of Conservation. This classification system defines the Threatened (Nationally Critical, Nationally  Endangered and Nationally Vulnerable) species in New Zealand that qualify under Criterion 2. The classification system also defines the At  Risk (Declining, Naturally Uncommon, Relict) species that are near-threatened. For details on the classification system refer to: Townsend et al  (2008): New Zealand Threat Classification System Manual. Department of Conservation, Wellington. 35 p.    Endemic species status for qualification under Criterion 3 is based on the New Zealand Plant Conservation Network database. |

3.3 Animal species whose presence relates to the international importance of the site

Animals are listed in the following order: birds; fish, mollusc and curstaceen; other animals

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Phylum** | **Scientific name**\* | **Species qualifies under criterion** | | | | **Species contributes under criterion** | | | | **Pop. Size**[[5]](#footnote-5) | **Period of pop. Est.**5 | **% occurrence**5 | **IUCN Red List**[[6]](#footnote-6) | **CITES Appendix I** | **CMS Appendix I** | **Other Status** | **Justification** |
| **2** | **4** | **6** | **9** | **3** | **5** | **7** | **8** |
| Others | | | | | | | | | | | | | | | | | |
| Chordata / Reptilia | Oligosoma chloronoton | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  |  | [ ] | [ ] | At Risk (Declining) | Endemic species (NZ) |
| Chordata / Reptilia | Oligosoma inconspicuum | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  |  | [ ] | [ ] | At Risk (Declining) | Endemic species (NZ) |
| Arthropoda / Insecta | Xanthorhoe frivola | [x] | [ ] | [ ] | [x] | [x] | [ ] | [ ] | [ ] | 0 |  | 2 |  | [ ] | [ ] | Nationally Critical | Endemic species (NZ). |
| Fish, Mollusc and Crustacea | | | | | | | | | | | | | | | | | |
| Chordata / Actinopterygii | Anguilla australis | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [x] | [ ] |  |  |  |  | [ ] | [ ] |  | Nursery ground that supports fish stocks. Indigenous species |
| Chordata / Actinopterygii | Anguilla dieffenbachii | [x] | [ ] | [ ] | [ ] | [x] | [ ] | [x] | [ ] |  |  |  | EN | [ ] | [ ] | At Risk (Declining) | Endemic species (NZ). Nursery ground that support fish stocks |
| Chordata / Actinopterygii | Galaxias argenteus | [ ] | [x] | [ ] | [ ] | [x] | [ ] | [x] | [ ] |  |  |  | VU | [ ] | [ ] | At Risk (Declining) | Endemic species (NZ). Lagoon and streams support one of the largest known populations in New Zealand. Key migratory pathway for species life stages. |
| Chordata / Actinopterygii | Galaxias fasciatus | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [x] | [ ] |  |  |  | LC | [ ] | [ ] |  | Endemic species (NZ). |
| Chordata / Actinopterygii | Galaxias maculatus | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [x] | [ ] |  |  |  | LC | [ ] | [ ] | At Risk (Declining) | Nursery ground that supports fish stocks. Indigenous species |
| Chordata / Cephalaspidomorphi | Geotria australis | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [x] | [ ] |  |  |  | DD | [ ] | [ ] | Nationally Vulnerable | Indigenous fish species |
| Chordata / Actinopterygii | Gobiomorphus cotidianus | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [x] | [ ] |  |  |  | LC | [ ] | [ ] |  | Endemic species (NZ). |
| Chordata / Actinopterygii | Gobiomorphus gobioides | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [x] | [ ] |  |  |  | LC | [ ] | [ ] |  | Endemic species (NZ). |
| Chordata / Actinopterygii | Gobiomorphus hubbsi | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [x] | [ ] |  |  |  | VU | [ ] | [ ] |  | Endemic species (NZ). |
| Chordata / Actinopterygii | Gobiomorphus huttoni | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [x] | [ ] |  |  |  | NT | [ ] | [ ] |  | Endemic species (NZ). |
| Birds | | | | | | | | | | | | | | | | | |
| Chordata / Aves | Anarhynchus frontalis | [x] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  | VU | [ ] | [ ] | Nationally Vulnerable | Endemic species (NZ). |
| Chordata / Aves | Anas superciliosa | [x] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] | Nationally Critical | One of the most important grey duck sites in the South Island |
| Chordata / Aves | Ardea modesta | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  |  | [ ] | [ ] | Nationally Critical |  |
| Chordata / Aves | Arenaria interpres | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] | Migrant | Important summer feeding ground prior to trans-equatorial migration |
| Chordata / Aves | Botaurus poiciloptilus | [x] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | EN | [ ] | [ ] | Nationally Critical | National stronghold for this species. Breeding site. |
| Chordata / Aves | Calidris acuminata | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] | Migrant | Important summer feeding ground prior to trans-equatorial migration |
| Chordata / Aves | Calidris alba | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] | Vagrant | Important summer feeding ground prior to trans-equatorial migration |
| Chordata / Aves | Calidris canutus | [x] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | NT | [ ] | [ ] | Nationally Vulnerable | Important summer feeding ground prior to trans-equatorial migration |
| Chordata / Aves | Calidris ferruginea | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | NT | [ ] | [ ] | Vagrant | Important summer feeding ground prior to trans-equatorial migration |
| Chordata / Aves | Calidris ruficollis | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | NT | [ ] | [ ] | Migrant | Important summer feeding ground prior to trans-equatorial migration |
| Chordata / Aves | Charadrius bicinctus bicinctus | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  |  | [ ] | [ ] | Nationally Vulnerable |  |
| Chordata / Aves | Charadrius obscurus | [x] | [ ] | [x] | [ ] | [x] | [ ] | [ ] | [ ] | 47 | 2016 | 37 | EN | [ ] | [ ] | Nationally Critical. | 1% threshold (WPE) is 3 individuals. Awarua Bay annually supports up to 50% of total population (count up to 126 individuals). Endemic species (NZ) |
| Chordata / Aves | Chlidonias albostriatus | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | EN | [ ] | [ ] | Nationally Endangered |  |
| Chordata / Aves | Cygnus atratus | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] |  | The lagoon and estuaries provide safe moulting areas for large numbers of black swan |
| Chordata / Aves | Haematopus finschi | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  |  | [ ] | [ ] | At Risk (Declining) | Endemic species (NZ) |
| Chordata / Aves | Haematopus unicolor | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] | At Risk (Recovering) | Endemic species (NZ) |
| Chordata / Aves | Himantopus novaezelandiae | [x] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  | CR | [ ] | [ ] | Nationally Critical | Endemic species (NZ) |
| Chordata / Aves | Hydroprogne caspia | [x] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] | Nationally Vulnerable | New River estuary supports the world’s southern-most colony of Caspian terns (at geographic limits) |
| Chordata / Aves | Larus bulleri | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | EN | [ ] | [ ] | Nationally Critical |  |
| Chordata / Aves | Limosa lapponica | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | NT | [ ] | [ ] | At Risk (Declining) | Important summer feeding ground prior to trans-equatorial migration |
| Chordata / Aves | Megalurus punctatus | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  |  | [ ] | [ ] | At Risk (Declining) | Endemic species (NZ) |
| Chordata / Aves | Phalacrocorax carbo novaehollandiae | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  |  | [ ] | [ ] | At Risk (Naturally Uncommon) | Naturally uncommon species of limited distribution, contributes to genetic diversity |
| Chordata / Aves | Platalea regia | [ ] | [ ] | [ ] | [ ] | [x] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] | At Risk (Naturally Uncommon) | Naturally uncommon species of limited distribution, contributes to genetic diversity |
| Chordata / Aves | Pluvialis fulva | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | LC | [ ] | [ ] | Migrant | Important summer feeding ground prior to trans-equatorial migration |
| Chordata / Aves | Sterna striata | [x] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | NT | [ ] | [ ] | Nationally Vulnerable | Breeding site on Tiwai Spit |
| Chordata / Aves | Tringa brevipes | [ ] | [x] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  | NT | [ ] | [ ] | Vagrant | mportant summer feeding ground prior to trans-equatorial migration |
|  |  | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |  |  |  |  | [ ] | [ ] |  |  |

GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei accessed via GBIF.org on 2020-07-15.

Optional text box to provide further information on animal species of international importance:

(This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | Threatened species status (other status) for qualification under Criterion 2 is based on the New Zealand Threat Classification System  administered by the NZ Department of Conservation. This classification system defines the Threatened (Nationally Critical, Nationally  Endangered and Nationally Vulnerable) species in New Zealand that qualify under Criterion 2. The classification system also defines the At  Risk (Declining, Naturally Uncommon, Relict) species that are near-threatened. For details on the classification system refer to: Townsend et al  (2008): New Zealand Threat Classification System Manual. Department of Conservation, Wellington. 35 p    The Ramsar site also hosts important taxa that are not listed (or listed under synonyms) in the Catalogue of Life but are recognised entities in New Zealand. This includes:  - Asaphodes frivola is a Critically Endangered moth species that is endemic to the Invercargill area, with its stronghold in the Ramsar Site at Tiwai Point. It qualifies under criterion 9 as Awarua Wetland supports >1% of the known population.  - The sphagnum moth (Heloxycanus patricki) is an At-Risk (Declining) species.  - The Otago large gecko Woodworthia “Otago large” is an At Risk (Declining) species.    The critically endangered moth species Asaphodes frivola is endemic to the Invercargill area, with its stronghold in the Awarua Wetland at Tiwai. No absolute population data are available for this species, but local experts estimate that Awarua wetlands support more than 1% of the global population of Asaphodes frivola. |

3.4 Ecological communities whose presence relates to the international importance of the site

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of ecological community** | **Community qualifies under Criterion 2?** | **Description** | **Justification** |
| Chionochloa rubra (red tussock) tussockland | [x] | Chionochloa rubra (red tussock) tussockland forms areas of vegetation where red tussock is the dominant species, and may occur with rushes, e.g. Juncus edgariae, ferns Blechnum minus, scattered Coprosma shrubs or Carex species. | Fens are nationally rare less than 20% remains nationally |
| Semi-open Leptospermum scoparium (manuka) shrubland | [x] | Semi-open manuka (Leptospermum scoparium) shrubland occur on fens in the Awarua peatlands with wire rush (Empodisma minus) or, in more fertile sites, red tussock (Chionochloa rubra) shrubs and sedges. | Fens are nationally rare less than 20% remains nationally |
| Grey scrub | [x] | Grey scrub occurs in a range of wetland types (estuarine, swamp, fen, marsh). In fens diversity is relatively high with shrubs Coprosma tayloriae and Leptospermum scoparium dominant and lesser amounts of Juncus spp, Machaerina tenax and Empodisma minus. | Fens are nationally rare less than 20% remains nationally |
| Carex tussockland | [x] | Carex tussockland occurs on fens in transition zones between bog and swamp vegetation. Here the larger, clump-forming carices e.g. Carex secta and C. appressa dominate, with wirerush (Empodisma minus) and manuka (Leptospermum scoparium). | Fens are nationally rare less than 20% remains nationally |
| Podocarp forest | [x] | Remnants of pure or mixed stands of emergent kahikatea (Dacrycarpus dacrydioides), rimu (Dacrydium cupressinum), matai (Prumnopitys taxifolia), miro (Prumnopitys ferruginea) or totara (Podocarpus totara) over a broadleaf subcanopy. | Fens are nationally rare less than 20% remains nationally |
| Apodasmia similis (oioi) reedland | [x] | Occurs in saline marshes and the edges of freshwater lagoons and ponds. In intertidal zones it is often monospecific with increasing diversity at the edge of tidal influence where marsh ribbonwood (Plagianthus divaricatus) and flax (Phorimum tenax) occur. | Marshes are nationally rare less than 10% remains nationally |
| Cordyline australis (cabbage tree) treeland | [x] | Small pockets of Cordyline treeland occur in the Ramsar site along the margins of creeks where they emerge above a shrub layer of Coprosma propinqua, Juncus edgariae and Carex secta. | Swamps are nationally rare less than 10% remains nationally |
| Phormium tenax (flax) flaxland | [x] | Flax (Phormium tenax) occurs in a range of wetland and terrestrial sites but attains its greatest health and stature in relatively fertile mineralised swamps. At Awarua, good quality examples of flax swamplands occur locally near creeks and streams. | Swamps are nationally rare less than 10% remains nationally |
| Machaerina rushland | [x] | Machaerina species (M. tenax or M. arthrophylla) dominated fens, often associated with shallow pools in the Awarua peatlands, where it may grade into sphagnum and wire rush bog. | Fens are nationally rare less than 20% remains nationally |
| Carex sedgeland | [x] | Carex sedgeland (marsh) comprises sward-forming carex species (Carex coriacea and C. geminata), which may occur in areas of rough pasture with exotic grass and herb species. | Marshes are nationally rare less than 10% remains nationally |
| Aquatic macrophyte plant community – coastal lake | [x] | Ruppia-dominated macrophyte community in Waituna Lagoon occurs in association with charophytes (Lamprothamnium macropogon) and milfoil (Myriophyllum triphyllum). Abundance of submerged plants indicates a healthy lagoon system. | Many Waituna-type coastal lagoons are severely degraded in New Zealand, Waituna is an example of a relatively intact system/lagoon |
|  | [ ] |  |  |

Optional text box to provide further information (This field is limited to 4000 characters)

|  |  |
| --- | --- |
|  | Vegetation types described in Boffa Miskell and Urtica Inc. 2010. Awarua/Waituna Wetlands Hydrology and Vegetation Mapping. Prepared for the Department of Conservation, Invercargill, New Zealand.  Justification for ecological communities based on Denyer & Robertson (2016) 'National guidelines for the assessment of potential Ramsar wetlands in New Zealand'. |

What is the Site like?

4.1 Ecological character

Please summarize the ecological components, processes and services which are critical to determining the ecological character of the site. Please also summarize any natural variability in the ecological character of the site, and any known past or current change

(This field is limited to 4000 characters)

|  |  |
| --- | --- |
|  | Awarua wetlands lie within the Waituna Ecological District, characterised by extensive low-lying plains of 5-20 m thick Quaternary alluvial sediments, underlain by Tertiary gravels, sands and mudstone with significant lignite deposits, capped by a shallow blanket of poorly drained acid peat. The district has a moist, cool temperate climate (mean annual temp 10°C), characterised by cloudy, windy conditions, frequent showers but a moderate rainfall (1112 mm pa), low vapour pressure deficit (<0.3 kPa), low average sunshine hours (1600 pa) and persistent south-westerly winds (mean annual wind speed 94 km/h) with frequent gales (18 days of > 63 km/h pa).    The wetland is complex and diverse: extensive peatlands built on a pea-gravel outwash fan impounded by a gravel bar, three estuaries, several streams, and a coastal freshwater lagoon periodically opened to the sea.    Key peatland characteristics: rain-fed blanket bog, abundant open pools, stable water table, acidic water, low nutrient regime, highly representative southern bog/fen flora and fauna, minor fen and swamp components in areas of higher fertility.    Diverse vegetation: forest, shrubland, rushland, tussockland, and flaxland. Remnant cushion bogs, characterised by species adapted to cold peaty conditions, more typically found in montane or sub alpine conditions, found here at sea level.    Rich diversity of insect life, over 80 species of moth, and many insects that are typically sub alpine species. The peatlands are linked hydrologically and ecologically with the Waituna Lagoon, Awarua Bay, and a number of streams that flow through the wetland, forming pathways for fish species. The system is relatively intact, in a natural or near-natural condition, and threatened mainly by introduced plant and animal species and the risk of fire. Long term threats include climate change and altered hydrology.    The estuaries, lagoons, lakes, ponds, rivers and streams provide freshwater, saltwater, mudflat and salt marsh habitat. The large water bodies of New River Estuary, Awarua Bay, Toetoes Harbour and Waituna Lagoon provide extensive waterfowl and wading bird habitat, including for many trans-equatorial migrants. The estuaries and lagoons contain extensive saltmarsh and freshwater vegetation and sequences into both peatlands and forest. The streams provide spawning grounds for native fish including threatened species. Species of Ruppia are a key characteristic of Waituna Lagoon that require a freshwater phase and stable water conditions for recruitment.    The estuarine systems are driven by tidal regimes, affected by inputs of sediment and nutrient that affect water clarity, macrophyte and benthic communities, and the wading birds that feed on them. The catchments are largely intensive pastoral agriculture, although water pollution has both rural and urban sources, including from catchment rivers, sewage outfalls, stormwater, industrial discharge, and leachate from a closed refuse disposal site. Siltation and nutrient enrichment in the New River Estuary have been associated with accumulation of nuisance macroalgae beds that smother benthic communities.    Waituna Lagoon is subject to considerable fluctuations in water level, altering both water levels and salinity. The lagoon also receives high inputs of nutrients and sediment from catchment inflows. It is naturally periodically closed from the sea by a gravel bar, during which high rainfall events lead to an increase in water levels and a transition to a freshwater lagoon ecosystem. The transition between closed (freshwater) and open (brackish/estuarine) conditions provides habitat for a range of indigenous flora and fauna, including breeding activity of black swans, and foraging habitat for waders, and nesting sites for tern, oystercatcher and stilt. Periodic artificial opening, of the right season and duration, is important to manage the competing needs of the lagoon, including the keystone aquatic plant (Ruppia). |

4.2 What wetland type(s) are in the site?

Please list all wetland types which occur on the site, and for each of them: - rank the four most abundant types by area from 1 (greatest extent) to 4 (least extent) in the third column, - if the information exists, provide the area (in ha) in the fourth column - if this wetland type is used for justifying the application of Criterion 1, indicate if it is representative, rare or unique in the last column - you can give the local name of the wetland type if different from the Ramsar classification system in the second column

Marine or coastal wetlands

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Wetland types (code and name)**[[7]](#footnote-7) | **Local name** | **Ranking of extent (1: greatest - 4: least)** | **Area (ha) of wetland type** | **Justification of Criterion 1**[[8]](#footnote-8) |
| E: Sand, shingle or pebble shores |  | 0 |  | Representative |
| F: Estuarine waters |  | 2 |  | Representative |
| G: Intertidal mud, sand or salt flats |  | 4 |  | Representative |
| H: Intertidal marshes |  | 0 |  | Representative |
| J: Coastal brackish / saline lagoons |  | 3 |  | Rare |
| K: Coastal freshwater lagoons |  | 3 |  | Rare |
|  |  |  |  |  |

Inland wetlands

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Wetland types (code and name)**[[9]](#footnote-9) | **Local name** | **Ranking of extent (1: greatest - 4: least)** | **Area (ha) of wetland type** | **Justification of Criterion 1**8 |
| Fresh water > Flowing water >> M: Permanent rivers/ streams/ creeks |  | 0 |  | Representative |
| Saline, brackish or alkaline water > Marshes & pools >> Ss: Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools |  | 0 |  | Representative |
| Fresh water > Lakes and pools >> Tp: Permanent freshwater marshes/ pools |  | 0 |  | Representative |
| Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils |  | 0 |  | Representative |
| Fresh water > Marshes on peat soils >> U: Permanent Non-forested peatlands |  | 1 |  | Representative |
| Fresh water > Marshes on inorganic soils >> W: Shrub-dominated wetlands |  | 0 |  | Representative |
| Fresh water > Marshes on inorganic soils >> Xf: Freshwater, tree-dominated wetlands |  | 0 |  | Representative |
| Fresh water > Marshes on peat soils >> Xp: Permanent Forested peatlands |  | 0 |  | Representative |
|  |  |  |  |  |

Human-made wetlands

|  |  |  |  |
| --- | --- | --- | --- |
| **Wetland types (code and name)**[[10]](#footnote-10) | **Local name** | **Ranking of extent (1: greatest - 4: least)** | **Area (ha) of wetland type** |
| 9: Canals and drainage channels or ditches |  | 0 |  |
|  |  |  |  |

What non-wetland habitats are within the site?

Other non-wetland habitat

|  |  |
| --- | --- |
| **Other non-wetland habitats within the site** | **Area (ha) if known** |
| Sand dune |  |
| Tussockland/Shrubland (Red tussock-flax-bracken) |  |
| Mixed broadleaf forest |  |
|  |  |

Habitat connectivity (ECD)

|  |  |
| --- | --- |
|  |  |

4.3 Biological components

4.3.1 Plant species

GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei accessed via GBIF.org on 2020-07-15.

Other noteworthy plant species

|  |  |  |
| --- | --- | --- |
| **Phylum** | **Scientific name** | **Position in range / endemism / other** (optional) |
| Tracheophyta / Magnoliopsida | Actinotus novae-zealandiae | Cushion bog species, typically alpine, unique coastal population here |
| Tracheophyta / Liliopsida | Oreobolus pectinatus | Cushion bog species, typically alpine, unique coastal population here |
| Tracheophyta / Liliopsida | Ruppia megacarpa | Keystone species, regulates water quality and important habitat for aquatic invertebrates and fish, foodsource for birds |
| Tracheophyta / Liliopsida | Ruppia polycarpa | Keystone species, regulates water quality and important habitat for aquatic invertebrates and fish, foodsource for birds |
|  |  |  |

Invasive alien plant species

|  |  |  |  |
| --- | --- | --- | --- |
| **Phylum** | **Scientific name** | **Impacts**[[11]](#footnote-11) | **Changes at RIS update**[[12]](#footnote-12) |
| Tracheophyta / Liliopsida | Ammophila arenaria | Actual (major impacts) | No change |
| Tracheophyta / Magnoliopsida | Angelica pachycarpa | Actual (minor impacts) | decrease |
| Tracheophyta / Magnoliopsida | Berberis darwinii | Potential | No change |
| Tracheophyta / Magnoliopsida | Betula pendula | Potential | No change |
| Tracheophyta / Liliopsida | Crocosmia crocosmiiflora | Potential | No change |
| Tracheophyta / Magnoliopsida | Cytisus scoparius | Actual (major impacts) | decrease |
| Tracheophyta / Magnoliopsida | Erica lusitanica | Actual (major impacts) | decrease |
| Tracheophyta / Magnoliopsida | Ilex aquifolium | Potential | No change |
| Tracheophyta / Magnoliopsida | Leycesteria formosa | Actual (minor impacts) | decrease |
| Tracheophyta / Liliopsida | Lolium arundinaceum | Actual (minor impacts) | increase |
| Tracheophyta / Magnoliopsida | Lonicera japonica | Actual (minor impacts) | decrease |
| Tracheophyta / Magnoliopsida | Lupinus arboreus | Actual (minor impacts) | decrease |
| Tracheophyta / Pinopsida | Pinus radiata | Potential | decrease |
| Tracheophyta / Magnoliopsida | Salix cinerea | Actual (minor impacts) | decrease |
| Tracheophyta / Magnoliopsida | Salix fragilis | Potential | decrease |
| Tracheophyta / Magnoliopsida | Sambucus nigra | Potential | decrease |
| Tracheophyta / Magnoliopsida | Sedum acre | Actual (minor impacts) | No change |
| Tracheophyta / Magnoliopsida | Solanum dulcamara | Potential | No change |
| Tracheophyta / Magnoliopsida | Tropaeolum speciosum | Actual (minor impacts) | increase |
| Tracheophyta / Magnoliopsida | Ulex europaeus | Actual (major impacts) | decrease |
|  |  |  |  |

GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei accessed via GBIF.org on 2020-07-15.

Optional text box to provide further information (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  | Also blackberry (Rubus fruiticosus agg) and cordgrass (Spartina species) and Cotoneaster species, all minor impact, decreased.    Generally weeds are being reduced through an extensive weed programme. Surveys by the Ministry for Primary Industries (MPI) recorded beach washed fragments of Undaria in the eastern arm of Awarua Bay in February 2012, possibly indicating this invasive seaweed has spread from adjacent Bluff Harbour into the Ramsar site. However, dive surveys would be required to confirm the plant is established on rocks or structures in the Bay.    Seven new weed species were recorded in the Awarua Wetlands between 2007 and 2010: heather (species unknown), strawberry (species unknown), rhododendron (Rhododendron sp.) Japanese honeysuckle (Lonicera japonica), Himalayan honeysuckle (Leycesteria formosa) montbretia (Crocosmia x crocosmiiflora) and cotoneaster (Cotoneaster sp.). The majority of these have involved a single plant or very small patch, but invasions of cotoneaster and Japanese honeysuckle have covered larger areas up to 30 x 30 metres. All sites were controlled (potentially eradicated) and are subject to long term surveillance. |

4.3.2 Animal species

Other noteworthy animal species

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Phylum** | **Scientific name** | **Pop. size** (optional) | **Period of pop. est.** (optional) | **% occurrence** (optional) | **Position in range /endemism/other** (optional) |
| Arthropoda / Insecta | Sabatinca caustica |  |  |  | The Seaward Moss reserve is the type locality for this species |
|  |  |  |  |  |  |

GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei accessed via GBIF.org on 2020-07-15.

Invasive alien animal species

|  |  |  |  |
| --- | --- | --- | --- |
| **Phylum** | **Scientific name** | **Impacts** | **Changes at RIS update**11 |
| Chordata / Mammalia | Bos taurus taurus | Actual (minor impacts) | No change |
| Chordata / Aves | Branta canadensis | Actual (minor impacts) | increase |
| Chordata / Mammalia | Capra hircus aegagrus | Actual (minor impacts) | decrease |
| Chordata / Mammalia | Cervus elaphus | Actual (minor impacts) | decrease |
| Chordata / Aves | Dromaius novaehollandiae | Actual (minor impacts) | decrease |
| Chordata / Mammalia | Erinaceus europaeus | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Felis catus | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Lepus europaeus | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Mus musculus | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Mustela erminea | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Mustela nivalis | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Mustela putorius furo | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Oryctolagus cuniculus | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Ovis aries aries | Actual (minor impacts) | No change |
| Chordata / Mammalia | Rattus norvegicus | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Rattus rattus | Actual (minor impacts) | unknown |
| Chordata / Mammalia | Sus scrofa | Actual (minor impacts) | increase |
| Chordata / Mammalia | Trichosurus vulpecula | Actual (minor impacts) | unknown |
|  |  |  |  |

GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei accessed via GBIF.org on 2020-07-15.

Optional text box to provide further information (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  | The Seaward Moss reserve is also the type locality for three species of moth that are not listed in the Catalogue of Life: Aponotoreas synclinalis, Tingena hastata, Adeixis griseata.    Some of the listed aliens may have major effects at local scale. Reported increase in pigs and Canada geese are based on anecdotal evidence. Baseline monitoring has been established for smaller introduced mammals, but limited trend data are available to assess trends. Where change (or lack of) is recorded this is based on local expert opinion/ observation. Native black-backed gulls are also problematic because they introduce weed seeds into colonies and change soil structure through excess nutrient input.    Level of impact based on expert opinion and relatively low predator numbers in a 2008-09 survey, relative to other locations in New Zealand and showing pest distribution largely on the wetland periphery. However, research into predation levels on indigenous fauna would be required to confirm level of impact. |

4.4 Physical components

4.4.1 Climate

Please indicate the prevailing climate type(s) by selecting below the climatic region(s) and subregion(s), using the Köppen-Gieger Climate Classification System.

|  |  |
| --- | --- |
| **Climatic region**[[13]](#footnote-13) | **Subregion**[[14]](#footnote-14) |
| C: Moist Mid-Latitude climate with mild winters | Cfb: Marine west coast (Mild with no dry season, warm summer) |
|  |  |

If changing climatic conditions are affecting the site, please indicate the nature of these changes:

(This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  |  |

4.4.2 Geomorphic setting

a) Minimum elevation above sea level (in metres) (The online RIS only accepts numeric values)

|  |  |
| --- | --- |
|  | 0 |

a) Maximum elevation above sea level (in metres) (The online RIS only accepts numeric values)

|  |  |
| --- | --- |
|  | 15 |

b) Position in landscape/river basin:

[ ] Entire river basin

[ ] Upper part of river basin

[ ] Middle part of river basin

[x] Lower part of river basin

[x] More than one river basin

[ ] Not in river basin

[x] Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean. (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | Oreti River basin and Mataura River basin. Smaller streams flow from through the Awarua Plains to the Pacific Ocean via the estuaries or Waituna Lagoon |

4.4.3 Soil

[x] Mineral

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[x] Organic

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[ ] No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)?

[ ] Yes / [x] No

.

Please provide further information on the soil (optional) (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | 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. |

4.4.4 Water regime

Water permanence

|  |  |
| --- | --- |
| **Presence?**[[15]](#footnote-15) | **Changes at RIS update**12 |
| Usually permanent water present | No change |
| Usually seasonal, ephemeral or intermittent water present | No change |
|  |  |

Source of water that maintains character of the site

|  |  |  |
| --- | --- | --- |
| **Presence?**[[16]](#footnote-16) | **Predominant water source** | **Changes at RIS update**12 |
| Water inputs from surface water | [x] | No change |
| Water inputs from groundwater | [ ] | No change |
| Marine water | [x] | No change |
| Water inputs from precipitation | [x] | No change |
|  | [ ] |  |

Water destination

|  |  |
| --- | --- |
| **Presence?**[[17]](#footnote-17) | **Changes at RIS update**12 |
| Marine | No change |
| Feeds groundwater | No change |
|  |  |

Stability of water regime

|  |  |
| --- | --- |
| **Presence?**[[18]](#footnote-18) | **Changes at RIS update**12 |
| Water levels fluctuating (including tidal) | No change |
| Water levels largely stable | No change |
|  |  |

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology: (This field is limited to 2000 characters)

|  |  |
| --- | --- |
|  | The wetland 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 sq km catchment area) flows into the New River Estuary and the Mataura River (5360 sq 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 extensive blanket peatlands have relatively stable water levels. |

Connectivity of surface waters and of groundwater (ECD)

|  |  |
| --- | --- |
|  |  |

Stratification and mixing regime (ECD)

|  |  |
| --- | --- |
|  |  |

4.4.5 Sediment regime

[ ] Significant erosion of sediments occurs on the site

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[x] Significant accretion or deposition of sediments occurs on the site

Changes at RIS update (Update)

[ ] No change / [ ] Increase / [ ] Decrease / [x] Unknown

.

.

.

[x] Significant transportation of sediments occurs on or through the site

Changes at RIS update (Update)

[ ] No change / [ ] Increase / [ ] Decrease / [x] Unknown

.

.

.

[x] Sediment regime is highly variable, either seasonally or inter-annually

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[ ] Sediment regime unknown

Please provide further information on sediment (optional): (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | Most of the Ramsar site is either aquatic or blanket bog so there is no significant erosion of sediment within the Ramsar Site, other than localised stream bank and shoreline erosion, and possibly some loss of sediments in recently burned areas within the peatland.    Sediment monitoring shows some evidence of increased sediment deposition in the New River Estuary (Stevens & Robertson 2012, Stevens & Robertson 2013) and Waituna lagoon as a result of fires, land clearance, and catchment land use intensification. |

Water turbidity and colour (ECD)

|  |  |
| --- | --- |
|  |  |

Light - reaching wetland (ECD)

|  |  |
| --- | --- |
|  |  |

Water temperature (ECD)

|  |  |
| --- | --- |
|  |  |

4.4.6 Water pH

[x] Acid (pH<5.5)

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[x] Circumneutral (pH: 5.5-7.4 )

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[x] Alkaline (pH>7.4)

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[ ] Unknown

Please provide further information on pH (optional): (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | The Waituna Lagoon water has pH levels >7.4 (Environment Southland 2011). Areas dominated by blanket mire (bog) has naturally acidic soils (pH <5.5). |

4.4.7 Water salinity

[x] Fresh (<0.5 g/l)

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[x] Mixohaline (brackish)/Mixosaline (0.5-30 g/l)

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[x] Euhaline/Eusaline (30-40 g/l)

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[ ] Hyperhaline/Hypersaline (>40 g/l)

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[ ] Unknown

Please provide further information on salinity (optional): (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | Water salinity fluctuates greatly in the Waituna Lagoon from fresh to eusaline in relation to the artificial opening and natural closing of the lagoon to the sea, but overall there has been no significant change in salinity in the Ramsar Site. |

Dissolved gases in water (ECD)

|  |  |
| --- | --- |
|  | Waituna Lagoon: Dissolved Oxygen g/m³ 9.5 |

4.4.8 Dissolved or suspended nutrients in water

[x] Eutrophic

Changes at RIS update (Update)

[ ] No change / [x] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[x] Mesotrophic

Changes at RIS update (Update)

[ ] No change / [ ] Increase / [ ] Decrease / [x] Unknown

.

.

.

[x] Oligotrophic

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[x] Dystrophic

Changes at RIS update (Update)

[x] No change / [ ] Increase / [ ] Decrease / [ ] Unknown

.

.

.

[ ] Unknown

Please provide further information on dissolved or suspended nutrients (optional): (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | The wetland complex ranges from dystrophic peatlands and pools, through mesotrophic to eutrophic lagoon and estuaries. The oligotrophic and dystrophic peatlands are not likely to have changed, but Waituna Lagoon and some areas of the estuarine habitats have become more eutrophic (Lagoon Technical Group 2013, Stevens & Robertson 2013). |

Dissolved organic carbon (ECD)

|  |  |
| --- | --- |
|  |  |

Redox potential of water and sediments (ECD)

|  |  |
| --- | --- |
|  |  |

Water conductivity (ECD)

|  |  |
| --- | --- |
|  |  |

4.4.9 Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the site itself:

[ ] i) broadly similar / [x] ii) significantly different

.

If the surrounding area differs from the Ramsar Site, please indicate how: (Please tick all categories that apply)

[x] Surrounding area has greater urbanisation or development

[x] Surrounding area has higher human population density

[x] Surrounding area has more intensive agricultural use

[x] Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different: (This field is limited to 2000 characters)

|  |  |
| --- | --- |
|  | 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. Some areas of wetland adjacent (buffering). |

4.5 Ecosystem services

4.5.1 Ecosystem services/benefits

Please select below all relevant ecosystem services/benefits currently provided by the site and indicate their relative importance in the right-hand column.

Provisioning Services

|  |  |  |
| --- | --- | --- |
| **Ecosystem service**[[19]](#footnote-19) | **Examples**[[20]](#footnote-20) | **Importance/Extent/Significance**[[21]](#footnote-21) |
| Food for humans | Sustenance for humans (e.g., fish, molluscs, grains) | Medium |
|  |  |  |

Regulating Services

|  |  |  |
| --- | --- | --- |
| **Ecosystem service**[[22]](#footnote-22) | **Examples**[[23]](#footnote-23) | **Importance/Extent/Significance**21 |
| Maintenance of hydrological regimes | Groundwater recharge and discharge | Medium |
| Erosion protection | Soil, sediment and nutrient retention | Medium |
| Climate regulation | Local climate regulation/buffering of change | High |
| Climate regulation | Regulation of greenhouse gases, temperature, precipitation and other climactic processes | High |
| Biological control of pests and disease | Support of predators of agricultural pests (e.g., birds feeding on locusts) | Low |
| Hazard reduction | Coastal shoreline and river bank stabilization and storm protection | High |
|  |  |  |

Cultural Services

|  |  |  |
| --- | --- | --- |
| **Ecosystem service**[[24]](#footnote-24) | **Examples**[[25]](#footnote-25) | **Importance/Extent/Significance**21 |
| Recreation and tourism | Nature observation and nature-based tourism | Medium |
| Recreation and tourism | Picnics, outings, touring | Low |
| Recreation and tourism | Water sports and activities | Medium |
| Recreation and tourism | Recreational hunting and fishing | High |
| Spiritual and inspirational | Spiritual and religious values | Medium |
| Spiritual and inspirational | Cultural heritage (historical and archaeological) | High |
| Spiritual and inspirational | Contemporary cultural significance, including for arts and creative inspiration, and including existence values | High |
| Spiritual and inspirational | Aesthetic and sense of place values | High |
| Spiritual and inspirational | Inspiration | Medium |
| Scientific and educational | Important knowledge systems, importance for research (scientific reference area or site) | High |
| Scientific and educational | Educational activities and opportunities | High |
| Scientific and educational | Long-term monitoring site | High |
| Scientific and educational | Major scientific study site | High |
| Scientific and educational | Type location for a taxon | High |
|  |  |  |

Supporting Services

|  |  |  |
| --- | --- | --- |
| **Ecosystem service**[[26]](#footnote-26) | **Examples**[[27]](#footnote-27) | **Importance/Extent/Significance**21 |
| Biodiversity | Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part | High |
| Soil formation | Sediment retention | Low |
| Soil formation | Accumulation of organic matter | Medium |
| Nutrient cycling | Storage, recycling, processing and acquisition of nutrients | High |
| Nutrient cycling | Carbon storage/sequestration | High |
| Pollination | Support for pollinators | Low |
|  |  |  |

Optional text box to provide further information (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  |  |

Other ecosystem service(s) not included above: (This field is limited to 2000 characters)

|  |  |
| --- | --- |
|  |  |

Please make a rough estimate of the approximate number of people (distinguish between residents and visitors if possible) who directly benefit from the ecological services provided by this site (estimate at least in orders of magnitude: 10s, 100s, 1000s, 10 000s etc.):

Within the site:

|  |  |
| --- | --- |
|  | 1000 |

Outside the site:

|  |  |
| --- | --- |
|  | 10000 |

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site?

[ ] Yes / [x] No / [ ] Unknown

.

.

Where economic studies or assessments of economic valuation have been undertaken at the site, it would be helpful to provide information on where the results of such studies may be located (e.g. website links, citation of published literature): (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  |  |

4.5.2 Social and cultural values

Is the site considered internationally important 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 so, please describe this importance under one or more of the four following categories. You should not list here any values derived from non-sustainable exploitation or which result in detrimental ecological changes.

[ ] i) the site provides 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

Description if applicable (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  |  |

[ ] ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland

Description if applicable (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  | 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.  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. |

[ ] iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples

Description if applicable (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  |  |

[x] iv) 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

Description if applicable (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  | Taonga (treasured) species as identified in the Ngai Tahu Statutory Acknowledgement Deed of Recognition Ngai Tahu Settlement Act 1998 over Waituna Wetland Oreti and Mataura Rivers (does not include the estuaries). |

4.6 Ecological processes

This section is not intended for completion as part of a standard RIS, but is included for completeness as part of the agreed format of a ‘full’ Ecological Character Description (ECD) outlined by Resolution X.15

Primary production (ECD)

|  |  |
| --- | --- |
|  |  |

Nutrient cycling (ECD)

|  |  |
| --- | --- |
|  |  |

Carbon cycling (ECD)

|  |  |
| --- | --- |
|  |  |

Animal reproductive productivity (ECD)

|  |  |
| --- | --- |
|  |  |

Vegetational productivity, pollination, regeneration processes, succession, role of fire, etc. (ECD)

|  |  |
| --- | --- |
|  |  |

Notable species interactions, including grazing, predation, competition, diseases and pathogens (ECD)

|  |  |
| --- | --- |
|  |  |

Notable aspects concerning animal and plant dispersal (ECD)

|  |  |
| --- | --- |
|  |  |

Notable aspects concerning migration (ECD)

|  |  |
| --- | --- |
|  |  |

Pressures and trends concerning any of the above, and/or concerning ecosystem integrity (ECD)

|  |  |
| --- | --- |
|  |  |

How is the Site managed?

5.1 Land tenure and responsibilities (Managers)

5.1.1 Land tenure/ownership

Please specify if this category applies to the Ramsar Site, to the surrounding area or to both, by ticking the relevant option(s).

Public ownership

|  |  |  |
| --- | --- | --- |
| **Category**[[28]](#footnote-28) | **Within the Ramsar Site** | **In the surrounding area** |
| Local authority, municipality, (sub)district, etc. | [x] | [x] |
| National/Federal government | [x] | [x] |
| Provincial/region/state government | [x] | [x] |
|  | [ ] | [ ] |

Private ownership

|  |  |  |
| --- | --- | --- |
| **Category**[[29]](#footnote-29) | **Within the Ramsar Site** | **In the surrounding area** |
| Other types of private/individual owner(s) | [x] | [x] |
| Cooperative/collective (e.g., farmers cooperative) | [ ] | [x] |
| Commercial (company) | [ ] | [x] |
| Foundation/non-governmental organization/trust | [x] | [ ] |
| Religious body/organization | [x] | [ ] |
|  | [ ] | [ ] |

Other

|  |  |  |
| --- | --- | --- |
| **Category**[[30]](#footnote-30) | **Within the Ramsar Site** | **In the surrounding area** |
| Commoners/customary rights | [x] | [x] |
|  | [ ] | [ ] |

Provide further information on the land tenure / ownership regime (optional): (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | National Government [land administered by the Department of Conservation - Conservation Area, Scenic Reserve, Scientific Reserve, Tiwai Spit Wildlife Reserve and Marginal strip) and by Land Information New Zealand]  Local authority, municipality, (sub)district, etc. [Invercargill City Council and Southland District Council]  Regional government [Environment Southland]  Co-operative/ collective [eg. Dairy Farming Co-Operatives]  Commercial [eg. Peat Farming, Aluminum Smelter]  Religious Body & Trust [Diocesan Trust Board]  Private/ individual owners [Conservation Covenants]  Commoners/customary rights [eg. Fishing huts and maimais]  Taonga (treasured) species as identified in the Ngai Tahu Statutory Acknowledgement Deed of Recognition. Ngai Tahu Settlement Act 1998 over Waituna Wetland Oreti and Mataura Rivers (does not include the estuaries). |

5.1.2 Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | a) Management of Crown land and wildlife: Murihiku Area Office, Department of Conservation, Southland Conservancy    b) 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.    c) Treaty of Waitangi Partners (Indigenous peoples): Ngai Tahu – Te Ao Marama    d) Management of sports fish (trout/salmon) and game bird hunting season and licences: Southland Fish and Game Council |

Provide the name and/or title of the person or people with responsibility for the wetland:

|  |  |
| --- | --- |
|  |  |

Postal address: (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | a) Murihiku Area Office, Department of Conservation, Southland Conservancy, P0 Box 743, Invercargill, NEW ZEALAND    b) Private Bag 90116, Invercargill 9840, Southland, New Zealand    c) Te Ao Marama Inc, PO Box 7078, 408 Tramway Rd, Invercargill, 9812    d) Southland Fish and Game Council, PO Box 159, Invercargill |

E-mail address: (The online RIS only accepts valid e-mail addresses, e.g. example@mail.com )

|  |  |
| --- | --- |
|  | invercargill@doc.govt.nz |

5.2 Ecological character threats and responses (Management)

5.2.1 Factors (actual or likely) adversely affecting the Site’s ecological character

Please specify if this category applies to the Ramsar Site, to the surrounding area or to both, by ticking the relevant option(s).

Human settlements (non agricultural)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[31]](#footnote-31) | **Actual threat**[[32]](#footnote-32) | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Housing and urban areas | Medium impact |  | [ ] | No change | [x] | increase |
| Commercial and industrial areas | Medium impact |  | [ ] | No change | [x] | unknown |
| Tourism and recreation areas | Low impact |  | [x] | No change | [ ] | No change |
|  |  |  | [ ] |  | [ ] |  |

Water regulation

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[33]](#footnote-33) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Canalisation and river regulation | Medium impact |  | [x] | increase | [x] | increase |
| Drainage | Medium impact |  | [x] | No change | [x] | increase |
| Water abstraction | Low impact |  | [ ] | No change | [x] | No change |
| Salinisation | High impact |  | [x] | No change | [ ] | No change |
| Water releases | High impact |  | [x] | No change | [ ] | No change |
|  |  |  | [ ] |  | [ ] |  |

Agriculture and aquaculture

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[34]](#footnote-34) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Annual and perennial non-timber crops | Low impact |  | [ ] | No change | [x] | No change |
| Livestock farming and ranching | Medium impact |  | [ ] | No change | [x] | increase |
| Wood and pulp plantations | Low impact |  | [ ] | No change | [x] | No change |
|  |  |  | [ ] |  | [ ] |  |

Energy production and mining

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[35]](#footnote-35) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Mining and quarrying | Low impact |  | [ ] | No change | [x] | No change |
|  |  |  | [ ] |  | [ ] |  |

Transportation and service corridors

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[36]](#footnote-36) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Roads and railroads | Low impact |  | [x] | No change | [x] | No change |
| Utility and service lines (e.g., pipelines) | Low impact |  | [x] | No change | [x] | No change |
| Aircraft flight paths | Low impact |  | [x] | No change | [x] | No change |
|  |  |  | [ ] |  | [ ] |  |

Biological resource use

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[37]](#footnote-37) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Hunting and collecting terrestrial animals | Low impact |  | [x] | No change | [x] | No change |
| Gathering terrestrial plants | Low impact |  | [x] | No change | [ ] | No change |
| Logging and wood harvesting | Low impact |  | [ ] | No change | [x] | No change |
| Fishing and harvesting aquatic resources | Low impact |  | [x] | No change | [x] | No change |
|  |  |  | [ ] |  | [ ] |  |

Human intrusions and disturbance

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[38]](#footnote-38) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Recreational and tourism activities | Low impact |  | [x] | No change | [ ] | No change |
|  |  |  | [ ] |  | [ ] |  |

Natural system modifications

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[39]](#footnote-39) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Fire and fire suppression | High impact |  | [x] | No change | [ ] | No change |
| Vegetation clearance/ land conversion | High impact |  | [x] | No change | [x] | No change |
| Dams and water management/use | Medium impact |  | [ ] | No change | [x] | No change |
|  |  |  | [ ] |  | [ ] |  |

Invasive and other problematic species and genes

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[40]](#footnote-40) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Invasive non-native/ alien species | High impact |  | [x] | No change | [x] | increase |
| Problematic native species | Low impact |  | [x] | No change | [x] | No change |
|  |  |  | [ ] |  | [ ] |  |

Pollution

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[41]](#footnote-41) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Household sewage, urban waste water | Low impact |  | [x] | No change | [x] | No change |
| Agricultural and forestry effluents | High impact |  | [x] | increase | [x] | increase |
| Industrial and military effluents | Low impact |  | [x] | No change | [x] | No change |
| Garbage and solid waste | Low impact |  | [x] | No change | [x] | No change |
| Air-borne pollutants | Low impact |  | [ ] | No change | [x] | No change |
|  |  |  | [ ] |  | [ ] |  |

Geological events

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[42]](#footnote-42) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
|  |  |  | [ ] |  | [ ] |  |

Climate change and severe weather

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factors adversely affecting site**[[43]](#footnote-43) | **Actual threat**32 | **Potential threat**32 | **Within the site** | **Changes**12 | **In the surrounding area** | **Changes**12 |
| Habitat shifting and alteration | unknown impact |  | [x] | unknown | [x] | unknown |
|  |  |  | [ ] |  | [ ] |  |

Please describe any other threats (optional): (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | Housing, urban areas and commercial/ industrial sites may be affecting the quality of the New River Estuary, a receiving environment for treated wastewater and untreated stormwater e.g. see Cavanagh and Ward 2014.    Salinisation and water release is related to the artificial opening of Waituna Lagoon to the sea. The effects are positive (flushing of excess sediments and nutrients out of the lagoon) and negative (if the lagoon remains open too long, or is opened at the wrong time of year, increased salinity can adversely affect the lagoon biota).    Canalisation and river regulation occur mostly outside the Ramsar site but some has occurred inside. It involves bank stabilisation and drain maintenance of streams. The effects are positive (reduction of sediment input over time) and negative (increase in sediment and short-term adverse effects on fish during stream works and as a result of habitat loss) (Holmes et al. 2015, Holmes et al. 2016).  The level of threat from agricultural activities has likely increased because of intensification of agriculture within the wider catchment of the Ramsar site, however some mitigation has also occurred through subsidised fencing (55 km of streambank) and riparian planting, and on-farm works to manage nutrients and sediments.    Invasive alien species – following fires in the peatlands in 2008 Spanish heath increased however weed control efforts are reducing its extent towards 2006 levels. |

5.2.2 Legal conservation status

Please list any other relevant conservation status, at global, regional or national level and specify the boundary relationships with the Ramsar Site:

Global legal designations

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation type**[[44]](#footnote-44) | **Name of area** | **Online information url** | **Overlap with Ramsar Site**[[45]](#footnote-45) |
|  |  |  |  |

Regional (international) legal designations

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation type**[[46]](#footnote-46) | **Name of area** | **Online information url** | **Overlap with Ramsar Site**45 |
|  |  |  |  |

National legal designations

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation type** | **Name of area** | **Online information url** | **Overlap with Ramsar Site**45 |
| Conservation Area | Seaward Moss, Toetoes, Tiwai Peninsula, Fortrose Spit, Bushy Point |  | partly |
| Crown Land Foreshore and Seabed | New River Estuary, Awarua Bay, Toetoes Harbour |  | partly |
| Marginal strips | Unnamed |  | partly |
| Scenic Reserve | Waituna, Joey’s Island, Otatara South |  | whole |
| Scientific Reserve | Waituna Wetland |  | whole |
| Wildlife Management Reserve | Tiwai Spit |  | partly |
|  |  |  |  |

Non-statutory designations

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation type**[[47]](#footnote-47) | **Name of area** | **Online information url** | **Overlap with Ramsar Site**45 |
| Important Bird Area | Bluff Harbour, Awarua Bay. Number NZ 098, (plus New River Estuary, Toetoes Harbour, Mokomoko Inlet) |  | partly |
|  |  |  |  |

5.2.3 IUCN protected areas categories (2008)

[x] Ia Strict Nature Reserve

[x] Ib Wilderness Area: protected area managed mainly for wilderness protection

[ ] II National Park: protected area managed mainly for ecosystem protection and recreation

[ ] III Natural Monument: protected area managed mainly for conservation of specific natural features

[x] IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention

[ ] V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation

[x] VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

5.2.4 Key conservation measures

Legal protection

|  |  |
| --- | --- |
| **Measures**[[48]](#footnote-48) | **Status**[[49]](#footnote-49) |
| Legal protection | Implemented |
|  |  |

Habitat

|  |  |
| --- | --- |
| **Measures**[[50]](#footnote-50) | **Status**49 |
| Re-vegetation | Partially implemented |
| Catchment management initiatives/controls | Partially implemented |
| Improvement of water quality | Partially implemented |
| Habitat manipulation/enhancement | Partially implemented |
| Hydrology management/restoration | Partially implemented |
| Soil management | Partially implemented |
| Land conversion controls | Partially implemented |
| Faunal corridors/passage | Partially implemented |
|  |  |

Species

|  |  |
| --- | --- |
| **Measures**[[51]](#footnote-51) | **Status**49 |
| Control of invasive alien plants | Partially implemented |
| Threatened/rare species management programmes | Partially implemented |
| Reintroductions | Partially implemented |
| Control of invasive alien animals | Partially implemented |
|  |  |

Human Activities

|  |  |
| --- | --- |
| **Measures**[[52]](#footnote-52) | **Status**49 |
| Communication, education, and participation and awareness activities | Implemented |
| Management of water abstraction/takes | Implemented |
| Regulation/management of wastes | Partially implemented |
| Livestock management/exclusion (excluding fisheries) | Partially implemented |
| Fisheries management/regulation | Implemented |
| Harvest controls/poaching enforcement | Implemented |
| Regulation/management of recreational activities | Implemented |
| Research | Partially implemented |
|  |  |

Other: (This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | There has been a significant effort in the CEPA area since 2006 with development of a CEPA plan, construction of boardwalks, interpretation plaques and a viewing shelter, public events related to World Wetlands Day and the 2012 National Wetland Restoration Symposium, creation of a regional wetland trail featuring the Ramsar site, and actual and virtual school visits, including 1500 students participating in a LEARNZ virtual field trip in 2012. |

5.2.5 Management planning

Is there a site-specific management plan for the site?

|  |  |
| --- | --- |
|  | Yes[[53]](#footnote-53) |

Is the management plan/planning implemented?

[x] Yes / [ ] No

.

The management plan covers

|  |  |
| --- | --- |
|  | Part of Ramsar Site[[54]](#footnote-54) |

Is the management plan currently subject to review and update?

[x] Yes / [ ] No

.

Has a management effectiveness assessment been undertaken for the site?

[ ] Yes / [x] No

.

Please give link to site-specific plan or other relevant management plan if this is available via the Internet or upload it in section 'Additional material': (This field is limited to 500 characters)

|  |  |
| --- | --- |
|  |  |

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party?

[ ] Yes / [x] No

.

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site: (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | Boardwalks, walking tracks and interpretation shelter/lookout completed, community education centre located adjacent to the Ramsar site run by a NGO (Southland Community Nursery Trust).    www.doc.govt.nz/parks-and-recreation/places-to-visit/southland/southland/awarua-wetlands/    www.wetlandtrust.org.nz/get-involved/ramsar-wetlands/awarua-waituna-lagoon/ |

URL of site-related webpage (if relevant):

|  |  |
| --- | --- |
|  |  |

5.2.6 Planning for restoration

Is there a site-specific restoration plan?

|  |  |
| --- | --- |
|  | Yes; there is a plan[[55]](#footnote-55) |

Has the plan been implemented?

[ ] Yes / [x] No

.

The restoration plan covers:

|  |  |
| --- | --- |
|  | Part of Ramsar Site[[56]](#footnote-56) |

Is the plan currently being reviewed and updated?

[ ] Yes / [x] No

.

Where the restoration is being undertaken to mitigate or respond to a threat or threats identified in this RIS, please indicate it / them: (This field is limited to 1000 characters)

|  |  |
| --- | --- |
|  | Restoration plans have been prepared for sections of the Ramsar Site and adjacent areas. Ongoing management is implemented for continuing threats, e.g. pests, weeds, fire suppression. Much of the site is near-natural peatland that, while periodically degraded by fire, is recovering via natural succession.    The New River Estuary and the Waituna Lagoon are at risk. Catchment management rather than in-site restoration is the key to minimising or reversing threatening processes. The Whakamana te Waituna integrated catchment management programme is being implemented to address catchment pressures. |

Further information (This field is limited to 2500 characters)

|  |  |
| --- | --- |
|  |  |

5.2.7 Monitoring implemented or proposed

|  |  |
| --- | --- |
| **Monitoring**[[57]](#footnote-57) | **Status**[[58]](#footnote-58) |
| Birds | Implemented |
| Water quality | Implemented |
| Water regime monitoring | Implemented |
| Soil quality | Implemented |
| Plant community | Implemented |
| Animal community | Implemented |
| Animal species (please specify) | Implemented |
|  |  |

Please indicate other monitoring activities:

(This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | 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. |

Additional material

6.1 Additional reports and documents

6.1.1 Bibliographical references

(This field is limited to 3000 characters)

|  |  |
| --- | --- |
|  | Atkinson, E. 2008. What’s lurking in the Waituna wetlands? A freshwater fish survey – Arawai Kakariki Project. Department of Conservation, Invercargill.  Rance, B. 2017. Unpublished report – The vegetation and flora of the Waituna Ecological District. Department of Conservation, Invercargill, New Zealand.  Cavanagh and Ward, 2014. Contaminants in estuarine and riverine sediments and biota in Southland. Landcare Research Contract Report: LC1789 prepared for Environment Southland, Invercargill.  Cromarty, P. and Scott, D. A. 1995. A directory of wetlands in New Zealand. Department of Conservation, Wellington, New Zealand.  Davis, S.F. 1987. Wetlands of national importance to fisheries. New Zealand Freshwater Fisheries report No.90.  Department of Conservation. 1990. Coastal Resource Inventory first order survey, Southland Conservancy. Complied by Hare, J., Hayes, S. and King, S. Department of Conservation, Wellington, New Zealand.  Department of Conservation. 1998. Conservation Management Strategy Mainland Southland – West Otago, 1998-2008. Department of Conservation, Invercargill.  Department of Conservation. Wetlands of Ecological and Representative Importance Database. Department of Conservation, Wellington, New Zealand.  Department of Lands and Survey. 1987. Waituna Wetlands Scientific Reserve Management Plan (Draft). Dept. of Land and Survey (unpublished Management Plan), Invercargill, New Zealand. Division, DSIR, Dunedin, New Zealand.  Environment Southland. 2011. Our Ecosystems: How healthy is the life in our water and our freshwater ecosystems. Southland Water 2010 Part 2. Environment Southland, Invercargill.  Environment Southland. 2013. Waituna Science Bibliography, Environment Southland, Invercargill.  Grehan, J. R. and Patrick, B. H. 1984. Notes on bog inhabiting Hepialidae (Lepidoptera) of New Zealand. New Zealand Entomologist, Volume 8.  Holmes, R., Goodwin, E., and Allen, C. 2015. Riparian and instream habitat quality in the tributaries of Waituna Lagoon, Southland. Prepared for the Department of Conservation / Fonterra Wetland Restoration Partnership. Cawthron report No. 2587. 40 p. plus appendices  Holmes, R. and Goodwin, E. 2016. Waituna Creek fish and habitat monitoring in association with bank reconstruction and habitat rehabilitation. Prepared for the Department of Conservation, Southland. Cawthron report No. 2885. 15 p. plus appendices  Jacques, P. 2009. Awarua/Waituna animal pest monitoring report May 2008 to June 2009. Murihiku Area, Department of Conservation (unpublished)  Lagoon Technical Group. 2013 Ecological Guidelines for Waituna Lagoon. Prepared for Environment Southland, Invercargill New Zealand  Lettink, M. 2008. Lizard survey of the Awarua Waituna Wetlands and Tiwai Peninsula, Murihiku/Southland Area. Unpublished report, Southland Conservancy, Department of Conservation, Invercargill.    See attachment for additional references. |

6.1.2 Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

-UPLOAD via online form-

ii. a detailed Ecological Character Description (ECD) (in a national format)

-UPLOAD via online form-

iii. a description of the site in a national or regional wetland inventory

-UPLOAD via online form-

iv. relevant Article 3.2 reports

-UPLOAD via online form-

v. site management plan

-UPLOAD via online form-

vi. other published literature

-UPLOAD via online form-

Please note that any documents uploaded here will be made publicly available.

6.1.3 Photograph(s) of the Site

Please provide at least one photograph of the site:

|  |  |  |  |
| --- | --- | --- | --- |
| **File** | **Copyright holder** | **Date on which the picture was taken** | **Caption** |
| files/27255787/pictures/27.JPG | DOC | 14-03-2009 | Waituna Lagoon |
| files/27255787/pictures/38.JPG | DOC | 13-10-2009 | Coastal lagoon and peatland habitats |
| files/27255787/pictures/55.JPG | DOC | 31-03-2008 | Mosaic of peatland tarns (ponds), part of Awarua Wetland |
|  |  |  |  |

[x] I certify that I am the photographer, the valid holder of rights over the photograph(s), or an authorized representative of the organization which is the valid holder of rights over the photograph(s), and I hereby assign an irrevocable, perpetual and royalty-free right to use, reproduce, edit, display, transmit, prepare derivative works of, modify, publish, affix logos to, and otherwise make use of the submitted photograph(s) in any way, to the Ramsar Convention Secretariat, its affiliates and partners, for non-commercial purposes in conjunction with the mission of the Ramsar Convention. This use includes, but is not limited to, internal and external publication and materials, presentation on the websites of the Ramsar Convention or any affiliated body, and any and all other communication channels with copyright attributed to the holder in all published forms. The full accuracy of all data submitted rests with the submitter, or organization submitting the photograph(s). In submitting, I hereby agree to the aforementioned terms, personally or on behalf of the organization of which I am an authorized official, certifying that the Ramsar Convention Secretariat, its affiliates and partners are explicitly held harmless for any and all costs, expenses, or damages arising from use of the submitted photograph(s) and any additional information provided.

6.1.4 Designation letter and related data

Designation letter\*

-UPLOAD via online form-

Please upload a letter of designation from the Ramsar Administrative Authority. This letter must clearly state that the wetland is being designated for inclusion in the Ramsar List and specify the formal date of designation wished. The letter can be uploaded in two formats: Word document (doc); pdf Strategic Framework: 408. The RIS for a newly designated Site (or an update to the RIS for a previously designated site) must be officially transmitted to the Secretariat by the Ramsar Administrative Authority (AA) of the Contracting Party concerned, with a letter clearly stating that the wetland is being designated for inclusion in the Ramsar List and specifying the formal date of designation if wished. 413. The date of designation of a Ramsar Site is that indicated or requested by the Ramsar Administrative Authority (AA). The designation date required should be indicated in the designation letter from the AA to the Secretariat that accompanies the RIS. 414. If no designation date is indicated to the Secretariat, the Secretariat assigns the date of the designation letter from the Administrative Authority as the designation date of the site. 415. If, following the receipt and review of the RIS by the Secretariat (see below), a significant time-period elapses before any problems with the RIS content are resolved with the Administrative Authority, the Secretariat may propose that, with the agreement of the AA, the date of designation is that on which the RIS is finalised.

Transboundary Designation letter

-UPLOAD via online form-

Date of Designation

|  |  |
| --- | --- |
|  | 1976-08-13 |

Number of certificates wished (The online RIS only accepts numeric values)

|  |  |
| --- | --- |
|  | 0 |

1. No change to area | the area has increased | the area has decreased [↑](#footnote-ref-1)
2. Not evaluated | No | Uncertain | Yes -likely- | Yes -actual- [↑](#footnote-ref-2)
3. Marine Ecoregions of the World (MEOW) | Udvardy's Biogeographical Provinces | Bailey's Ecoregions | WWF Terrestrial Ecoregions | EU biogeographic regionalization | Freshwater Ecoregions of the World (FEOW) | Other scheme (provide name below) [↑](#footnote-ref-3)
4. [↑](#footnote-ref-4)
5. Percentage of the total biogeographic population at the site. These fields are only compulsory to justify criteria 6 & 9 [↑](#footnote-ref-5)
6. [↑](#footnote-ref-6)
7. A: Permanent shallow marine waters | B: Marine subtidal aquatic beds (Underwater vegetation) | C: Coral reefs | D: Rocky marine shores | E: Sand, shingle or pebble shores | G: Intertidal mud, sand or salt flats | Ga: Bivalve (shell-fish) reefs | H: Intertidal marshes | I: Intertidal forested wetlands | J: Coastal brackish / saline lagoons | F: Estuarine waters | Zk(a): Karst and other subterranean hydrological systems | K: Coastal freshwater lagoons [↑](#footnote-ref-7)
8. | Representative | Rare | Unique [↑](#footnote-ref-8)
9. M: Permanent rivers/ streams/ creeks | L: Permanent inland deltas | Y: Permanent Freshwater springs; oases | N: Seasonal/ intermittent/ irregular rivers/ streams/ creeks | O: Permanent freshwater lakes | Tp: Permanent freshwater marshes/ pools | P: Seasonal/ intermittent freshwater lakes | Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils | Tp: Permanent freshwater marshes/ pools | W: Shrub-dominated wetlands | Xf: Freshwater, tree-dominated wetlands | Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils | U: Permanent Non-forested peatlands | Xp: Permanent Forested peatlands | Va: Montane wetlands | Vt: Tundra wetlands | Q: Permanent saline/ brackish/ alkaline lakes | R: Seasonal/ intermittent saline/ brackish/ alkaline lakes and flats | Sp: Permanent saline/ brackish/ alkaline marshes/ pools | Ss: Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools | Zg: Geothermal wetlands | Zk(b): Karst and other subterranean hydrological systems [↑](#footnote-ref-9)
10. 1: Aquaculture ponds | 2: Ponds | 3: Irrigated land | 4: Seasonally flooded agricultural land | 5: Salt exploitation sites | 6: Water storage areas/Reservoirs | 7: Excavations | 8: Wastewater treatment areas | 9: Canals and drainage channels or ditches | Zk(c): Man-made subterranean hydrological systems [↑](#footnote-ref-10)
11. Potential | Actual (minor impacts) | Actual (major impacts) [↑](#footnote-ref-11)
12. No change | increase | decrease | unknown [↑](#footnote-ref-12)
13. A. Tropical humid climate | B. Dry climate | C. Moist Mid-Latitude climate with mild winters | D. Moist Mid-Latitude climate with cold winters | E. Polar climate with extremely cold winters and summers | H. Highland [↑](#footnote-ref-13)
14. Af: Tropical wet (No dry season) | Am: Tropical monsoonal (Short dry season; heavy monsoonal rains in other months) | Aw: Tropical savanna (Winter dry season) | BWh: Subtropical desert (Low-latitude desert) | BSh: Subtropical steppe (Low-latitude dry) | BWk: Mid-latitude desert (Mid-latitude desert) | BSk: Mid-latitude steppe (Mid-latitude dry) | Csa: Mediterranean (Mild with dry, hot summer) | Csb: Mediterranean (Mild with dry, warm summer) | Cfa: Humid subtropical (Mild with no dry season, hot summer) | Cwa: Humid subtropical (Mild with dry winter, hot summer) | Cfb: Marine west coast (Mild with no dry season, warm summer) | Cfc: Marine west coast (Mild with no dry season, cool summer) | Dfa: Humid continental (Humid with severe winter, no dry season, hot summer) | Dfb: Humid continental (Humid with severe winter, no dry season, warm summer) | Dwa: Humid continental (Humid with severe, dry winter, hot summer) | Dwb: Humid continental (Humid with severe, dry winter, warm summer) | Dfc: Subarctic (Severe winter, no dry season, cool summer) | Dfd: Subarctic (Severe, very cold winter, no dry season, cool summer) | Dwc: Subarctic (Severe, dry winter, cool summer) | Dwd: Subarctic (Severe, very cold and dry winter, cool summer) | ET: Tundra (Polar tundra, no true summer) | EF: Ice Cap (Perennial ice) | H: Highland (-) [↑](#footnote-ref-14)
15. Usually permanent water present | Usually seasonal, ephemeral or intermittent water present | Unknown [↑](#footnote-ref-15)
16. Water inputs from precipitation | Water inputs from surface water | Water inputs from groundwater | Marine water | Unknown [↑](#footnote-ref-16)
17. Feeds groundwater | To downstream catchment | Marine | Unknown [↑](#footnote-ref-17)
18. Water levels largely stable | Water levels fluctuating (including tidal) | Unknown [↑](#footnote-ref-18)
19. Food for humans | Fresh water | Wetland non-food products | Biochemical products | Genetic materials [↑](#footnote-ref-19)
20. Sustenance for humans (e.g., fish, molluscs, grains) | Drinking water for humans and/or livestock | Water for irrigated agriculture | Water for industry | Water for energy production (hydro-electricity) | Timber | Fuel wood/fibre | Peat | Livestock fodder | Reeds and fibre | Other | Extraction of material from biota | Medicinal products | Genes for tolerance to certain conditions (e.g., salinity) | Genes for resistance to plant pathogens | Ornamental species (live and dead) [↑](#footnote-ref-20)
21. not relevant for site | Low | Medium | High [↑](#footnote-ref-21)
22. Maintenance of hydrological regimes | Erosion protection | Pollution control and detoxification | Climate regulation | Biological control of pests and disease | Hazard reduction [↑](#footnote-ref-22)
23. Groundwater recharge and discharge | Storage and delivery of water as part of water supply systems for agriculture and industry | Soil, sediment and nutrient retention | Water purification/waste treatment or dilution | Local climate regulation/buffering of change | Regulation of greenhouse gases, temperature, precipitation and other climactic processes | Support of predators of agricultural pests (e.g., birds feeding on locusts) | Flood control, flood storage | Coastal shoreline and river bank stabilization and storm protection [↑](#footnote-ref-23)
24. Recreation and tourism | Spiritual and inspirational | Scientific and educational [↑](#footnote-ref-24)
25. Recreational hunting and fishing | Water sports and activities | Picnics, outings, touring | Nature observation and nature-based tourism | Inspiration | Cultural heritage (historical and archaeological) | Contemporary cultural significance, including for arts and creative inspiration, and including existence values | Spiritual and religious values | Aesthetic and sense of place values | Educational activities and opportunities | Important knowledge systems, importance for research (scientific reference area or site) | Long-term monitoring site | Major scientific study site | Type location for a taxon [↑](#footnote-ref-25)
26. Biodiversity | Soil formation | Nutrient cycling | Pollination [↑](#footnote-ref-26)
27. Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part | Sediment retention | Accumulation of organic matter | Storage, recycling, processing and acquisition of nutrients | Carbon storage/sequestration | Support for pollinators [↑](#footnote-ref-27)
28. Public land (unspecified) | National/Federal government | Provincial/region/state government | Local authority, municipality, (sub)district, etc. | Other public ownership [↑](#footnote-ref-28)
29. Cooperative/collective (e.g., farmers cooperative) | Commercial (company) | Foundation/non-governmental organization/trust | Religious body/organization | Other types of private/individual owner(s) [↑](#footnote-ref-29)
30. Unspecified mixed ownership | No information available | Commoners/customary rights [↑](#footnote-ref-30)
31. Housing and urban areas | Commercial and industrial areas | Tourism and recreation areas | Unspecified development [↑](#footnote-ref-31)
32. Low impact | Medium impact | High impact | unknown impact | [↑](#footnote-ref-32)
33. Drainage | Water abstraction | Dredging | Salinisation | Water releases | Canalisation and river regulation [↑](#footnote-ref-33)
34. Annual and perennial non-timber crops | Wood and pulp plantations | Livestock farming and ranching | Marine and freshwater aquaculture | Non specified [↑](#footnote-ref-34)
35. Oil and gas drilling | Mining and quarrying | Renewable energy | Unspecified [↑](#footnote-ref-35)
36. Roads and railroads | Utility and service lines (e.g., pipelines) | Shipping lanes | Aircraft flight paths | Unspecified [↑](#footnote-ref-36)
37. Hunting and collecting terrestrial animals | Gathering terrestrial plants | Logging and wood harvesting | Fishing and harvesting aquatic resources | Unspecified [↑](#footnote-ref-37)
38. Recreational and tourism activities | (Para)military activities | Unspecified/others [↑](#footnote-ref-38)
39. Fire and fire suppression | Dams and water management/use | Vegetation clearance/ land conversion | Unspecified/others [↑](#footnote-ref-39)
40. Invasive non-native/ alien species | Problematic native species | Introduced genetic material | Unspecified [↑](#footnote-ref-40)
41. Household sewage, urban waste water | Industrial and military effluents | Agricultural and forestry effluents | Garbage and solid waste | Air-borne pollutants | Excess heat, sound, light | Unspecified [↑](#footnote-ref-41)
42. Volcanoes | Earthquakes/tsunamis | Avalanches/landslides | Unspecified [↑](#footnote-ref-42)
43. Habitat shifting and alteration | Droughts | Temperature extremes | Storms and flooding | Unspecified [↑](#footnote-ref-43)
44. World Heritage site | UNESCO Biosphere Reserve | Other global designation [↑](#footnote-ref-44)
45. whole | partly [↑](#footnote-ref-45)
46. EU Natura 2000 | Other international designation [↑](#footnote-ref-46)
47. Important Bird Area | Important Plant Area | Other non-statutory designation [↑](#footnote-ref-47)
48. Legal protection [↑](#footnote-ref-48)
49. Proposed | Partially implemented | Implemented [↑](#footnote-ref-49)
50. Catchment management initiatives/controls | Improvement of water quality | Habitat manipulation/enhancement | Hydrology management/restoration | Re-vegetation | Soil management | Land conversion controls | Faunal corridors/passage [↑](#footnote-ref-50)
51. Threatened/rare species management programmes | Reintroductions | Control of invasive alien plants | Control of invasive alien animals [↑](#footnote-ref-51)
52. Management of water abstraction/takes | Regulation/management of wastes | Livestock management/exclusion (excluding fisheries) | Fisheries management/regulation | Harvest controls/poaching enforcement | Regulation/management of recreational activities | Communication, education, and participation and awareness activities | Research [↑](#footnote-ref-52)
53. No | Yes | In preparation [↑](#footnote-ref-53)
54. All of Ramsar Site | Part of Ramsar Site [↑](#footnote-ref-54)
55. No need identified | No; the site has already been restored | No; but restoration is needed | No; but a plan is being prepared | Yes; there is a plan [↑](#footnote-ref-55)
56. All of Ramsar Site | Part of Ramsar Site [↑](#footnote-ref-56)
57. Water regime monitoring | Water quality | Soil quality | Plant community | Plant species | Animal community | Animal species (please specify) | Birds [↑](#footnote-ref-57)
58. Implemented | Proposed [↑](#footnote-ref-58)