Awarua Bay-New River Estuary

New Zealand

EAAF NETWORK SITE CODE FOR OFFICE USE ONLY:

E	A	A	F	1	3	8

Site Information Sheet on East Asian-Australasian Flyway Network Sites (SIS) – 2017 version

Available for download from http://www.eaaflyway.net/about/the-flyway/flyway-site-network/

Categories approved by Second Meeting of the Partners of the East Asian-Australasian Flyway Partnership in Beijing, China 13-14 November 2007 - Report (Minutes) Agenda Item 3.13

Notes for compilers:

1. The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network. When there is a new nomination or an SIS update, the following sections with an asterisk (*), from Questions 1-14 and Question 30, must be filled or updated at least so that it can justify the international importance of the habitat for migratory waterbirds.

2. The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified.

3. Once completed, the Site Information Sheet (and accompanying map(s)) should be submitted to the Secretariat. Compilers should provide an electronic (MS Word) copy of the Information Sheet and, where possible, digital versions (e.g. shapefile) of all maps.

1. Name and contact details of the compiler of this form *:

Compiler 1

Full name:

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2. Date this sheet was completed *:

DD/MM/YYYY

01/06/2018

3. Country *:

New Zealand

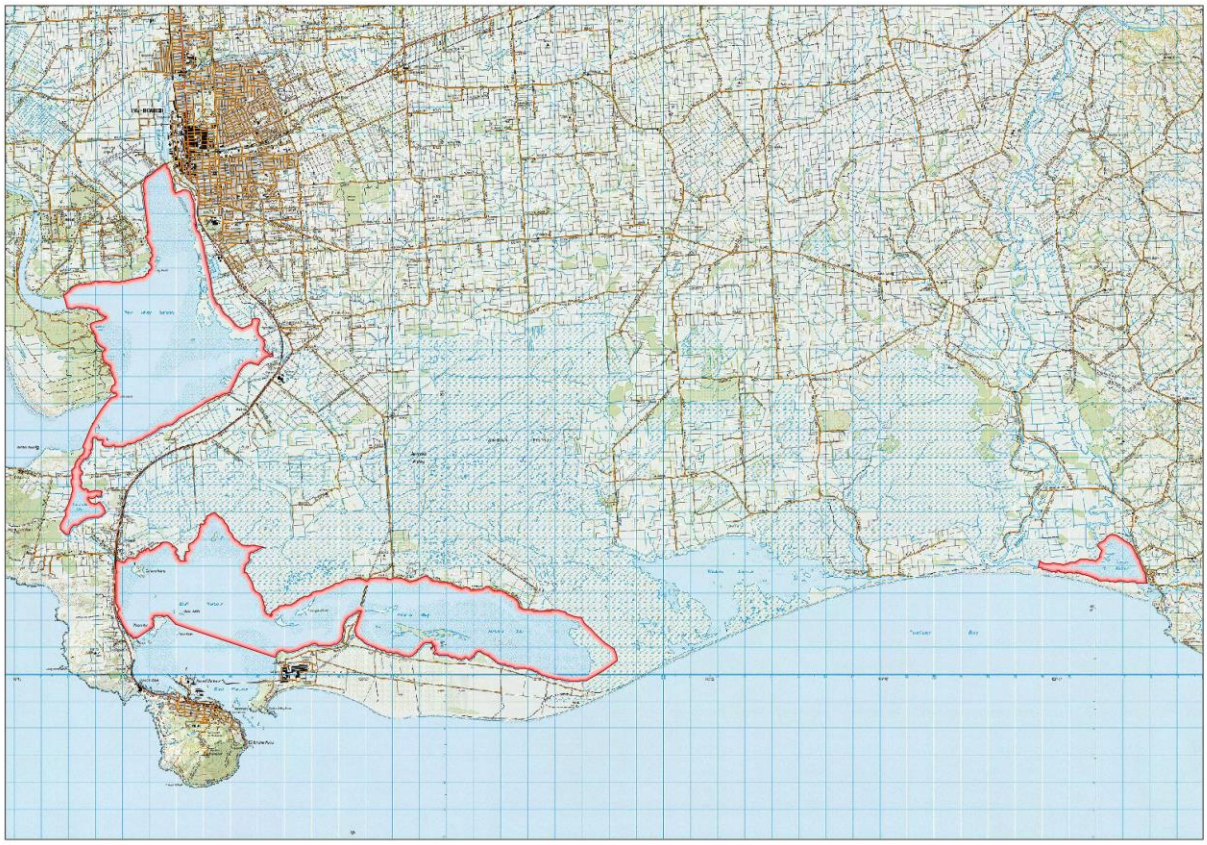
4. Name of the Flyway Network site *:

Accepted English transcription of the Site's name.

Awarua Bay-New River Estuary

5. Map of site *:

The most up-to-date available and suitable map of the wetland should also be appended to the SIS (only in digital format and shape file). The map must clearly show the boundary of the site.



6. Geographical coordinates (latitude/longitude, in decimal degrees) *:

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

Awarua Bay 46o 35' 00"S, 168o 30' 00"E
New River Estuary 46o 28' 00"S, 168o 19' 00"E
Toetoes Estuary 46o 34' 00"S, 168o 47' 00"E

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

Sea level to 20m

8. Area *:

The total area of the site, in hectares. If the areas of discrete site units are known, please also list each of these together with the names (or labels) used to identify and differentiate these units.

The site incorporates Awarua Bay (2 030 ha) (part of the Awarua - Waituna Ramsar site), northern Bluff Harbour (1 500 ha), the New River Estuary (3 700 ha), Mokomoko Inlet -1 100 ha) and Toetoes Harbour (1 648 ha).

9. General overview of the site *:

A brief (two sentences) summary of the site, mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

The southern coast of Southland contains a complex network of estuaries, wetlands, swamps and peatland with interconnecting waterways on the verge of an urban and agricultural landscape. These are included within the Awarua - Waituna Ramsar site, noted as one of New Zealand's most significant waterfowl habitats, (Bragg & Rance 2016) and of great importance for migratory shorebirds, fisheries, as habitat for many birds and invertebrates, including threatened species, and its ecological values and intact vegetation sequences.

10. Justification of Flyway Site Network criteria *:

Please provide waterbird count information (with year of latest count) that demonstrates that the site meets the criteria of the Flyway Site Network (Annex 1). That is:

- it regularly supports > 20 000 migratory waterbirds; or,
- it regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird; or,
- it supports appreciable numbers of an endangered or vulnerable population of migratory waterbird
- it is a “staging site” supporting > 5 000 waterbirds, or > 0.25% of a population stage at the site.

A listing of the populations of migratory waterbirds covered by the East Asian – Australasian Flyway Partnership and the 1% thresholds is attached (Annex 3).

The “staging site” criterion is particularly difficult to apply and application of this should be discussed with the Secretariat. Also note that some species have several populations that are very difficult to distinguish in the field.

Eastern bar-tailed godwit[1] numbers exceed the 1% threshold (1,330).
Threatened species present at the site include banded dotterel and red knot (both NZTC[2] Nationally Vulnerable, red knot IUCN Near Threatened), Eastern bar-tailed godwit (NZTC At Risk, IUCN Near Threatened) and eastern curlew (IUCN Endangered). The main site with the best data is Awarua Bay, but additional birds are present at other parts of the site.

Counts from this site have been summarised in reports as cited:

- 1983-94 summer counts at Awarua Bay: 333 ruddy turnstone, 57 Pacific golden plover, 64 red-necked stint, and 37 curlew sandpiper (Sagar et al. 1999).
- 1994-2003 summer counts: >1000 Eastern bar-tailed godwit, <100 red knot, 137 ruddy turnstone (265 at Invercargill), 8 Pacific golden plover, 28 red-necked stint and 1 curlew sandpiper (Southey 2009).

Table: Summary of counts from 2014-2018

[1] Bird nomenclature follows Gill et al. 2010. With the exception of red knot (Calidris canutus) which in New Zealand is listed as lesser knot.

[2] NZTC= New Zealand Threat Classification. For details see Townshend et al. 2008. http://www.doc.govt.nz/about-us/science-publications/conservation-publications/nz-threat-classification-system/nz-threat-classification-system-manual-2008/

YEAR	2014	2015	2016	2016	2017	2017	2018
MONTH	November	November	February	December	February	November	February
Pied Oystercatcher	50	322	1492	543	751	1260	690
Variable Oystercatcher	0	6	27	20	25	39	67
Pied Stilt	9	46	258	28	73	53	92
New Zealand Dotterel	0	2	0	3	27	0	3
Banded Dotterel	1	12	145	26	123	4	57
Wrybill	0	0	1	0	2	0	1
Pacific Golden Plover	5	1	5	7	8	69	22
Spur-winged Plover	4	6	14	33	21	30	17
Turnstone	210	175	95	128	239	140	227
Lesser Knot	0	0	4	6	249	30	50
Bar-tailed Godwit	1717	1930	1387	1475	1646	557	1448
Black-tailed Godwit	0	0	0	0	0	1	0
Sharp-tailed Sandpiper	0	0	2	0	0	6	1
Red-necked Stint	13	23	23	51	49	0	0
Far-eastern Curlew	0	0	0	0	1	0	0
Sanderling	0	2	3	1	1	0	0
Large Sand Dotterel	0	2	0	1	1	0	0

11. Wetland Types *:

List the wetland types present (see Annex 2). List the wetland types in order of their area in the Flyway Network site, starting with the wetland type with the largest area.

Marine/Coastal Wetlands

12. Jurisdiction *:

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

Territorial: Invercargill City Council, Environment Southland and Southland District Council.
Functional: Department of Conservation, Southland Fish and Game Council and Ministry of Primary Industries.The significance of the site to Ngai Tahu is recognised and acknowledged in the Ngai Tahu Claims Settlement Act 1998.
The area is bordered by Crown land held as Conservation Area, Scientific Reserve and Scenic Reserve (about 11,000 ha), Crown land managed by the Southland Regional Council, and approximately 3,050 ha of private land. Awarua Bay and New River Estuary are in Invercargill city, Toetoes is in Southland District.

13. Management authority *:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland and the title and/or name and email address/phone number of the person or persons in this office with direct responsibility for managing the wetland.

The Department of Conservation is responsible for management of flora and fauna; the Department's Murihiku Invercargill Office is responsible for day-to-day management. The Ministry of Primary Industries manages the harvest of economically important marine fish species, sets Total Allowable Commercial Catch (TACC) and daily recreational fishing bag limits, and regulates fishing equipment and methods. Invercargill City Council and the Environment Southland and Southland District Council have territorial

responsibility for parts of the Awarua-Waituna area and have statutory responsibilities under the Resource Management Act 1991 for the management of water resources and the preparation of coastal plans.

14. Bibliographical references *:

A list of key technical references relevant to the wetland, including management plans, major scientific reports, and bibliographies, if such exist. Please list Web site addresses dedicated to the site or which prominently feature the site, and include the date that the Web site was most recently updated. When a large body of published material is available about the site, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies.

Bragg, C. & Rance, B. 2006. Information Sheet on Ramsar Wetlands: Awarua Wetland. https://rsis.ramsar.org/RISapp/files/RISrep/NZ102RIS.pdf Accessed 24 Dec 2016.

Cromarty P. & Scott, D.A. (eds). 1995. A Directory of Wetlands in New Zealand. Department of Conservation, Wellington, New Zealand. 394 p.

Rance B., Cooper W. and Riddell J. 1999. Awarua Ramsar Wetland Proposal. Background information. Southland Department of Conservation.

Robertson, B., Stevens, L., Thompson, S and Robertson, B. 2004a. Broad scale intertidal habitat mapping of Bluff Harbour. Cawthron Report 940 prepared for Environment Southland.

Robertson, B., Stevens, L., Thompson, S and Robertson, B. 2004b. Broad scale intertidal habitat mapping of Awarua Bay. Cawthron Report 941 prepared for Environment Southland.

Robertson H.A., Dowding J.E., Elliot G.P, Hitchmough R.A., Miskelly C.M., O'Donnell C.J.F., Powlesland R.G., Sagar P.M., Scofield R.P. and Taylor G.A. 2013. Conservation status of New Zealand Birds, 2012. New Zealand Threat Classification series 4. Department of Conservation, Wellington.

Sagar P.M., Shankar U. and Brown S. 1999. Distribution and numbers of waders in New Zealand, 1983-1994. Notornis 46: 1-44.

Southey I. 2009. Numbers of waders in New Zealand 1994–2003
DOC Research & Development Series 308. Department of Conservation, Wellington.

Thompson, M. and Schweigman, P. 2014. Results of Royal Spoonbill colony and nest census, 2013/2014. Birds New Zealand 3: 12-13.

Townsend A.J., de Lange P.J., Duffy C.A.J., Miskelly C.M., Molloy J. and Norton D.A. 2008. New Zealand Threat Classification System manual. Department of Conservation, Wellington.

Woodley, K. (in prep 2015). Guidelines for nomination of New Zealand shorebird sites for designation under the East Asian-Australasian Flyway Partnership.

15. Physical features of the site:

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

The New River estuary and Awarua Bay are part of the Awarua Waituna Ramsar reserve complex managed by the Department of Conservation. The site consists of a coastal lagoon, peatlands, saltmarsh, gravel beach, ponds, and lakes. Awarua Bay is an arm of Bluff Harbour, 12 km in length, separated from the ocean by Tiwai Peninsula. The bay has no major tributaries and is extensively exposed at low tide.
To the north and east lie 12 500 ha in the Waituna Wetlands Scientific Reserve, Waituna Scenic Reserve, Seaward Moss and Toetoes Conservation Area. The Awarua plain is an expansive low lying peatland, sited atop a gravel bench of marine origin.

Geology
The three estuaries are a characteristic feature of the Southland coast and are still relatively unspoiled compared to similar waterways in other parts of the country. The Waituna Wetland contains the Waituna Lagoon which is periodically opened to the sea to allow drainage for adjacent agricultural lands and its brackish waters are important habitat for birds, native fish and brown trout. The wetland also contains the Awarua peatland complex.
The peatland is impounded behind a coastal gravel barrier formed in part by river gravels shifted from Foveaux Strait by rising sea levels. Since about 6,000 years BP there has been a retreat of the eastern shoreline and a late Holocene reorientation of the shoreline towards the east. Awarua Bay has a shore of quartz pebbles.
The wetland complex is fed largely by direct rainfall and a series of small streams. The smaller rivers include the Waihopai, Kingswell Creek, Mokotua, Duck Creek, Muddy Creek, Waituna, Moffat, Currans and Titoroa. The New River Estuary is fed by the Oreti River (3,510 sq.km catchment) at the western end, while Toetoes Harbour is fed by the Mataura River (5,360 sq.km catchment) at the eastern side.

16. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The south coast of Southland is about 200 sq.km of low-lying land with gentle ridged topography, and the large water bodies of New River Estuary, Awarua Bay, Waituna Lagoon and Toetoes Harbour.

17. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The Waihopai and Oreti rivers flow into the New River Estuary.
The Mataura River meets the sea at Toetoes Harbour.

18. General ecological features:

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

These habitats provide important staging areas for waders, as well as breeding, feeding, and moulting areas for various other waterbirds, particularly black swan, Australasian shoveler and mallard/grey ducks. Awarua Bay and New River Estuary are both important to wading birds, Awarua Bay has the greatest diversity.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

Vegetation of the area consists mainly of estuary fringe saltmarsh and rushland and bordering wirerush and manuka shrubland. The neighbouring peatlands support numerous native plant species, some typical of alpine regions, a number of nationally threatened plants, many species at their southern limit and ecologically important vegetation sequences from forest and peatbog to estuaries.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 10. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

More than 80 bird species have been sighted in these places, 65 of which are dependent on the estuarine environment for part or all of their life. Twenty-one species of trans-equatorial migrants recorded, including sanderling (*Calidris alba*; IUCN Least concern; NZTC Vagrant), common greenshank (*Tringa. nebularia;* IUCN Least concern; NZTC Vagrant) and marsh sandpiper (*T. stagnatilis*; IUCN Least concern; NZTC Vagrant). 30% of grey-tailed tattler (*T. brevipes; IUCN Near threatened*; NZTC Vagrant) sightings in national summer censuses 1983-1993 were at Awarua Bay. It is the only mainland site and has 30% of wintering Southern sub-species of New Zealand dotterel (*Charadrius obscurus obscurus; IUCN Critically endangered; NZTC Nationally Critical*). The Caspian tern (*Hydroprogne caspia*; IUCN Least concern; NZTC Nationally Vulnerable), white-fronted tern (*Sterna striata*; IUCN Least concern; NZTC At Risk), banded dotterel (*Charadrius bicinctus bicinctus*; IUCN Least concern; NZTC Nationally Vulnerable), South Island fernbird (*Bowdleria punctata punctata; NZTC* At Risk) and Australasian bittern (*Botaurus poiciloptilus*; IUCN Endangered; NZTC Nationally Critical) occur here. Game birds present include Black Swan (*Cygnus atratus*), Mallard (*Anas platyrhynochos*), Grey Duck (*A. superciliosa*), New Zealand Shoveler (*A. rhynchotis*) and Pukeko (*Porphyrio melanotus*).

Awarua Bay sees ruddy turnstone (*Arenaria interpres interpres*), Eastern bar-tailed godwit (*Limosa lapponica baueri*), red knot (*Calidris canutus rogersi and C. c. piersmai*), red-necked stint (*Calidris ruficollis*), Eastern curlew (*Numenius madagascariensis*), Pacific golden plover (*Pluvialis fulva*) and rarer visitors like Grey ~~p~~lover (*P. squatarola*), ~~l~~esser sand plover (*Charadrius mongolus*), marsh ~~s~~andpiper (*Tringa stagnatilis*) and Asiatic whimbrel (*N. phaeopus variegatus*). white heron (*Ardea modesta*) and Royal spoonbill (*Platalea regia*) regularly visit. Royal spoonbill have been recorded nesting here in 2013.[3]

At least 18 species of fish are known from the estuaries, including five flatfish, introduced brown trout and giant kokopu (*Galaxias argenteus*), banded kokopu (*G. fasciatus*), inanga (*G. maculatus*), long finned Eel (*Anguilla dieffenbachii*), and Short finned el (*A. australis*).

Endemic moths of note include *Asaphodes frivola, Protithona potamias, Merophyas paraloxa*, undescribed *Notoreas* sp. *Stigmella ilsea*, undescribed *Harmologa* spp, undescribed *Gymnobathra* sp., *Aletia temperate, Graphania chryserythra*, *Thalassia helix obnubila*, and many more common species.

21. Social, economic and cultural values:

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

Ngāi Tahu hold manawhenua and have ancestral and traditional relationships. The area was important as a source of food, and the muds were used as a dye. Archaeological sites are associated with the shores of some of the estuaries, indicating the importance of the wetlands to the local Maori. Ngāi Tahu's special relationship with 49 bird species, 54 plant species, 7 fish species, 5 shellfish species and 6 marine mammal species some of which are present in the area, was recognised and acknowledged through the Ngāi Tahu Claims Settlement Act 1998.

There is also a history of early European use, notably around the New River Estuary. Waituna Lagoon is an important recreational brown trout fishery and game-bird hunting area.
Current human activities include sport fishing, waterfowl shooting, general recreation such as yachting and windsurfing and birdwatching. Parts of Awarua Bay are used by school groups, for recreation and/or educational activities

Neighbours include Tiwai Point aluminium smelter and farmland.

[3] http://notornis.osnz.org.nz/system/files/No%203%20Sept%202014%20LR.pdf

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? (Double-click the checkbox to check and choose "Checked" under "Default Value" from "Check Box Form Field Options" window)

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

I. Sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland: ☐

II. Sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland: ☐

III. Sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples: ☐

IV. Sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland: ☐

22. Land tenure/ownership:

a) Within the Flyway Network site:

The bed of Awarua Bay, New River Estuary, Mokomoko Inlet, Toetoes Harbour and the foreshore lands immediately above mean high water are Crown land jointly managed by the Invercargill City Council, Southland District Council, and Environment Southland. The Regional Council Plan administered by the latter authority oversees water quality and human activities on the lagoon, while the City Council administers activities on land above mean high water spring tides.

b) In the surrounding area:

In the surrounding area is Crown land (Conservation Area and Scenic Reserve) and private land.
Comalco (NZ) Ltd
Joyes Island Scenic Reserve
Tiwai Spit Wildlife Refuge
Formed and unformed legal roads
Land beyond these areas is largely held in private ownership and occupied for residential housing (Cromarty and Scott 1996, Bragg and Rance 2006.)

23. Current land (including water) use:

a) Within the Flyway Network site:

Recreational use of wetlands for white baiting, fishing, waterfowl hunting and other activities is a long established tradition in the Southland community.
Parts of Awarua Bay have been used by school groups and DOC education programmes.
The major recreational uses are water based such as yachting and windsurfing. Birdwatching and waterfowl shooting also occur.

b) In the surroundings/catchment:

Nearby city of Invercargill (50,000), and extensive grasslands for farming (Sheep, Dairy and Beef)

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

a) Within the Flyway Network site:

When compared to many wetlands elsewhere in New Zealand, the Awarua Wetlands are relatively intact and weed-free. Despite their importance as wildlife habitat, wetlands and estuaries are often under-

appreciated and degraded through rubbish dumping, agricultural run-off, reclamation, trampling by stock, and introduction of *Spartina anglica* and *townsendii* and other weeds. *Spartina* control and an almost completed programme of eradication have been the management response

Humans
Trail bikes and motor vehicles. White baiting and game bird shooting, eel fisheries. The road access to Tiwai Point restricts water flow in the bay.

Water Quality
Awarua Bay, and Bluff Harbour have no major watercourses so contamination is lessened. There is some agricultural run off from adjacent creeks.
New River Estuary and Toetoes Harbour are fed by the Oreti, Waihopai and Mataura Rivers, which flow through intensified farming country. Water quantity, quality and sedimentation are likely to be factors in these estuaries.

Sedimentation and Erosion
Drains on farms also alter the water table. New River Estuary has greater threat from sedimentation.

Changes to Estuarine Ecology

Climate Change and Sea Level Rise

Pests
Spartina grass (*Spartina anglica* and *S. townsendii*) could spread from Bluff Harbour. Black-backed gulls (*Larus dominicanus*) have in the past adversely affected native turf communities and have led to control operations. They have also displaced tern colonies. Adjacent land contains gorse, broom, pine (*Pinus radiata*) plantations, goats, rabbits, possums, cats, mustelids, rats, hedgehogs and wandering stock (cows, sheep) that can cause damage to wildlife.

Open Spaces

Degradation of the Estuary Margins
The Invercargill City landfill was situated on the New River Estuary. It is not known if changes to the ecology subsequently have been studied/monitored. Invercargill City Council have consents to discharge tertiary treated sewerage into New River Estuary until 2029.

b) In the surrounding area:

Upstream intensified land use (dairying) threatens water volume and quality. Offshore and coastal development may impact on roost and feeding site quality.
Activities on adjacent land, including drainage, burning and mining of pea gravel, black sand minign for gold and small-scale lignite mining occur.
The adjacent Tiwai aluminium smelter discharges less than two kg of fluoride per hot tonne of aliminuium produced.
Waituna Lagoon is periodically opened to the sea to prevent flooding of farm land.

25. Conservation measures taken:

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

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

Bordering the flyway site is approximately 11,000 ha Crown land managed and administered by the Department of Conservation in the Waituna Wetlands Scientific Reserve, Seaward Moss Conservation Area, Toetoes Conservation Area, Waituna Scenic Reserve, Bushy Point Conservation Area and Tiwai Peninsula Conservation Area. Other protected land reserves in surrounding areas include the Tiwai Peninsula and Fortrose Spit Conservation Area, Otatara South Scenic Reserve, and Holvey Conservation Covenant (Southland Regional Council). The Awarua Waituna Wetlands are a Ramsar site.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate, see Annex 3):

Ia ☐; Ib ☐; II ☐; III ☐; IV ☐; V ☐; VI ☐; N/A ☐

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

If yes, is it being implemented?: If no, is one being planned?

Department of Conservation's Mainland Southland – West Otago Conservation Management Strategy implements objectives and policies for management.
Ramsar
Environment Southland has a Regional Policy Statement (1997 - 2012 under review), a Regional Coastal Plan (2013) on coastal and marine area, and a Strategy and Action Plan for Waituna (2015).
The Invercargill City Council has an Invercargill District Plan and the Southland District Council has a Southland District Plan (2001), to provide for sustainable management under the Resource Management Act.

Living Water collaboration between Fonterra and DOC have developed a Strategic plan 2015-2018 for Waituna Wetlands, with the aims to protect, restore and reconnect fragmented wetlands; improve instream habitat and water quality; and support the uptake of best farm management practices. Living Water will look to collaborate with other groups to achieve similar goals and will also contribute to large scale wetland restoration at Waituna Lagoon under the DOC-led Arawai Kākāriki programme.

The Arawai Kakariki programme at Waituna aims to maintain, enhance, increase and protect habitat, water regime and quality and species diversity. Working with iwi and partnerships to increase participation, awareness and appreciation and sharing scientific and technical knowledge. Opportunities to undertake research to improve wetland management and develop best practice restoration tools.
The Waituna Partners consists of the Department of Conservation, Environment Southland, Southland District Council, Te Runanga o Ngai Tahu and Te Runanga o Awarua, which all have statutory roles in the care and managment of Waituna Lagoon and its catchment. Their goal is to improve the health and wellbeing of Waituna Lagoon, its catchment, and community, for the use and enjoyment of present and future generations, while recognising and providing for the traditional relationship of Ngai Tahu with their ancestral lake/rohe.

d) Describe any other current management practices:

26. Conservation measures proposed but not yet implemented:

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

Continue weed control and monitoring of waste discharges.
Intensified animal and plant pest control of surrounding land across the Tiwai Spit and Awarua Bay.

27. Current scientific research and facilities:

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

The Aluminium Smelter undertakes environmental monitoring.
50 plus years of surveys at Awarua Bay by Southland OSNZ, annual summer and winter counts of wading birds. A new project involves monthly counts of NZ Dotterel at Awarua Bay.
The only tertiary institute in Invercargill is the Southern Institute of Technology which hosts courses on Environmental studies.

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

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

School visits.

29. Current recreation and tourism:

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

Walking track network, white baiting, game bird shooting, trail bike riding, bird watching, yachting, windsurfing.

30. Threats *:

Which of the following threats is present historically – when the threat stopped but the effects are still there (H), currently (C) or potentially (P)?

	Historically	Currently	Potentially
Residential and commercial development			
housing and urban areas	☒	☒	☒
commercial and industrial areas	☒	☒	☒
tourism and recreation areas	☒	☒	☒
Agriculture and aquaculture			
annual and perennial non-timber crops	☒	☒	☒
wood and pulp plantations	☐	☒	☒
livestock farming and ranching	☒	☒	☒
marine and freshwater aquaculture	☒	☐	☒
Energy production and mining			
oil and gas drilling	☐	☐	☐
mining and quarrying	☐	☐	☐
renewable energy	☐	☐	☐
Transportation and service corridors			
roads and railroads	☒	☒	☒
utility and service lines	☒	☒	☒
shipping lanes	☐	☐	☐
flight paths	☒	☒	☒
Biological resource use			
hunting and collecting terrestrial animals	☒	☒	☒
gathering terrestrial plants	☒	☐	☐

logging and wood harvesting	☒	☐	☐
fishing and harvesting aquatic resources	☒	☒	☒
Human intrusions and disturbance			
recreational activities	☒	☒	☒
war, civil unrest and military exercises	☐	☐	☐
work and other activities	☒	☐	☐
Natural system modifications			
fire and fire suppression	☒	☒	☒
dams and water management/use	☒	☒	☒
other ecosystem modifications	☐	☐	☐
Invasive and other problematic species and genes			
invasive non-native/alien species	☒	☒	☒
problematic native species	☐	☐	☐
introduced genetic material	☐	☐	☐
Pollution			
household sewage and urban waste water	☒	☒	☒
industrial and military effluents	☐	☐	☒
agricultural and forestry effluents	☒	☒	☒
garbage and solid waste	☒	☒	☒
air-borne pollutants	☐	☐	☒
excess energy	☐	☐	☐
Geological events			
volcanoes	☐	☐	☐
earthquakes/tsunamis	☒	☐	☒
avalanches/landslides	☐	☐	☐
Climate change and severe weather			
habitat shifting and alteration	☐	☐	☒
droughts	☐	☐	☒
temperature extremes	☐	☐	☐
storms and flooding	☒	☒	☒

Please write here any additional threats and comments/queries you have on the threats.

Annex 1: Criteria for the inclusion of sites in the Flyway Site Network

(From the Partnership Text)

To be considered for inclusion in the Flyway Site Network, this Partnership adopts the following criteria:

a. Convention on Wetlands (Ramsar, Iran, 1971) criteria for internationally important sites for migratory waterbirds. That is:

   Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

   Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

   Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

b. The staging criteria as applied under the Asia - Pacific Migratory Waterbird Conservation Strategy. That is:

   i. A staging site should be considered internationally important if it regularly supports 0.25% of individuals in a population of one species or subspecies of waterbirds on migration.

   ii. A staging site should be considered internationally important if it regularly supports 5,000 or more waterbirds at one time during migration.

c. Under exceptional circumstances a site can be nominated if it supports migratory waterbirds at a level or stage of their life cycle important to the maintenance of flyway populations. Justification of such nominations will be considered by the Partnership on a case by case basis.

Annex 2: Ramsar Classification System for Wetland Type

The codes are based upon the Ramsar Classification System for Wetland Type as approved by Recommendation 4.7 and amended by Resolutions VI.5 and VII.11 of the Conference of the Contracting Parties. The categories listed herein are intended to provide only a very broad framework to aid rapid identification of the main wetland habitats represented at each site.

To assist in identification of the correct Wetland Types to list in section 19 of the RIS, the Secretariat has provided below tabulations for Marine/Coastal Wetlands and Inland Wetlands of some of the characteristics of each Wetland Type.

Marine/Coastal Wetlands

A -- **Permanent shallow marine waters** in most cases less than six metres deep at low tide; includes sea bays and straits.

B -- **Marine subtidal aquatic beds**; includes kelp beds, sea-grass beds, tropical marine meadows.

C -- **Coral reefs**.

D -- **Rocky marine shores**; includes rocky offshore islands, sea cliffs.

E -- **Sand, shingle or pebble shores**; includes sand bars, spits and sandy islets; includes dune systems and humid dune slacks.

F -- **Estuarine waters**; permanent water of estuaries and estuarine systems of deltas.

G -- **Intertidal mud, sand or salt flats**.

H -- **Intertidal marshes**; includes salt marshes, salt meadows, saltings, raised salt marshes; includes tidal brackish and freshwater marshes.

I -- **Intertidal forested wetlands**; includes mangrove swamps, nipah swamps and tidal freshwater swamp forests.

J -- **Coastal brackish/saline lagoons**; brackish to saline lagoons with at least one relatively narrow connection to the sea.

K -- **Coastal freshwater lagoons**; includes freshwater delta lagoons.

Zk(a) – **Karst and other subterranean hydrological systems**, marine/coastal

Inland Wetlands

L -- **Permanent inland deltas**.

M -- **Permanent rivers/streams/creeks**; includes waterfalls.

N -- **Seasonal/intermittent/irregular rivers/streams/creeks**.

O -- **Permanent freshwater lakes** (over 8 ha); includes large oxbow lakes.

P -- **Seasonal/intermittent freshwater lakes** (over 8 ha); includes floodplain lakes.

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**.

Tp -- **Permanent freshwater marshes/pools**; ponds (below 8 ha), marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season.

Ts -- **Seasonal/intermittent freshwater marshes/pools on inorganic soils**; includes sloughs, potholes, seasonally flooded meadows, sedge marshes.

U -- **Non-forested peatlands**; includes shrub or open bogs, swamps, fens.

Va -- **Alpine wetlands**; includes alpine meadows, temporary waters from snowmelt.

Vt -- **Tundra wetlands**; includes tundra pools, temporary waters from snowmelt.

W -- **Shrub-dominated wetlands**; shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.

Xf -- **Freshwater, tree-dominated wetlands**; includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils.

Xp -- **Forested peatlands**; peatswamp forests.

Y -- **Freshwater springs; oases**.

Zg -- **Geothermal wetlands**

Zk(b) – **Karst and other subterranean hydrological systems**, inland

Note: "**floodplain**" is a broad term used to refer to one or more wetland types, which may include examples from the R, Ss, Ts, W, Xf, Xp, or other wetland types. Some examples of floodplain wetlands are seasonally inundated grassland (including natural wet meadows), shrublands, woodlands and forests. Floodplain wetlands are not listed as a specific wetland type herein.

Human-made wetlands

1 -- **Aquaculture** (e.g., fish/shrimp) **ponds**

2 -- **Ponds**; includes farm ponds, stock ponds, small tanks; (generally below 8 ha).

3 -- **Irrigated land**; includes irrigation channels and rice fields.

4 -- **Seasonally flooded agricultural land** (including intensively managed or grazed wet meadow or pasture).

5 -- **Salt exploitation sites**; salt pans, salines, etc.

6 -- **Water storage areas**; reservoirs/barrages/dams/impoundments (generally over 8 ha).

7 -- **Excavations**; gravel/brick/clay pits; borrow pits, mining pools.

8 -- **Wastewater treatment areas**; sewage farms, settling ponds, oxidation basins, etc.

9 -- **Canals and drainage channels, ditches.**

Zk(c) -- **Karst and other subterranean hydrological systems**, human-made

Annex 3: IUCN Protected Areas Categories System

IUCN protected area management categories classify protected areas according to their management objectives. The categories are recognized by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas and as such are increasingly being incorporated into government legislation.

Ia Strict Nature Reserve
Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.

Ib Wilderness Area
Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park
Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or Feature
Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

IV Habitat/Species Management Area
Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/ Seascape
A protected area where the interaction of people and nature over time has produced an area of distinct charcter with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected area with sustainable use of natural resources

Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems.