

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

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

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PO Box 20025
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Hamilton
NEW ZEALAND

FOR OFFICE USE ONLY.

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

23 November 2004

3. Country:

New Zealand

4. Name of the Ramsar site:

Firth of Thames

5. Map of site included:

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

a) hard copy (required for inclusion of site in the Ramsar List): Yes attached

b) digital (electronic) format (optional): Available if required – JPEG images of whole map and/or GIS shapefile

6. Geographical coordinates (latitude/longitude):

175° 27' E long 37° 123' S lat

7. General location:

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

Located approximately 52 km south east of Auckland in the North Island in a direct line to the northern boundary of site.

8. Elevation: (average and/or max. & min.)

-1.1 to 2.1 metres from mean sea level with no more than 1.5 m change in altitude between the inner and outer margins.

9. Area: (in hectares)

8927 hectares

10. Overview:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Firth of Thames is an internationally important feeding ground for up to 25,000 birds at any one time, the most of which are migratory. It is one of the three most important coastal stretches for wading birds in New Zealand.

11. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

12. Justification for the application of each Criterion listed in 11. above:

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

The Firth of Thames regularly supports in excess of 20,000 waterfowl.

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

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

a) biogeographic region:

b) biogeographic regionalisation scheme (include reference citation):

14. 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 Firth of Thames lies in the northern part of the Hauraki graben bounded by fault lines along the Hunua and Coromandel ranges. The Waiakto River originally flowed through the Hauraki graben and emptied into the Firth bringing with it much of the fertile alluvium of the region. Today the Waihou, Piako and Waitakaruru Rivers flow into the Firth from the south and together with the strong northwest wave action, determine the biological character and natural resource. The Firth opens onto the Hauraki Gulf at its northern end.

The sea floor of the Firth consists of fine clay, silt and sand sediments laid over pumice sands and the maximum depth of the inter-tidal areas is 2.2 m at mean high water spring. The graded shell beach ridges between Miranda and Kaiua are an example of a Chenier Plain, a landform unique to New Zealand and rare globally. They are composed principally of the fossilised shells of the cockle *Austrovenus stutchburyi*.

The average annual rainfall is approx 1200 mm with a mean annual temperature of about 13°C.

15. Physical features of the catchment area:

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

The catchment area of the Firth is 3600 km² with three billion cubic metres of water entering the Firth of Thames from the Waihou and Piako Rivers every year.

16. Hydrological values:

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

The primary hydrological value of the wetland is in providing a habitat and food source for avifauna and fish. The Firth also has a role in sediment trapping and prevention of coastal erosion. It is estimated that the Firth basin is infilling at the rate of 0.8-1.0 mm per year at the centre and 1.8-2.0 mm near the shore, mainly from sediments deposited by the Waihou and Piako Rivers (Naish et al. 1990)

17. Wetland Types

a) presence:

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

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

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

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

b) dominance:

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

I, G, H, E, A

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The shallow tidal flats of the Firth of Thames exposed at ebb tide cover approx 8500 hectares and can be divided into four wetland types – shallow estuarine water and mudflats; shell banks (40 ha); grass flats (30 ha) and mangrove forest; salt marsh and swamp (730 ha). The shell banks present in the area are used as high tide roosts by many birds while adjacent grass flats are used for feeding and as roosts by some species. The remaining area from Miranda to the Waihou River consists of soft mudflats, flourishing and expanding mangrove communities and some intermingling salt marsh (mainly *Salicornia australis*). This area is an important feeding ground for Golden plover (*Pluvialis fulva*). Mangrove (*Avicennia resinifera*) is within 100 km of its southern limit at this site and is increasing in area. Mangroves have high ecological value and this extensive area of mangroves is therefore significant. Further shoreward and reached only by fortnightly or monthly spring tides are the salt marshes forming wide rush beds. The salt marsh associated plant Maori musk (*Mimulus repens*) is a species that is uncommon nationally and found at one locality in the Firth. By contrast, the formation called salt meadows is flooded only by very exceptional high tides. The soil is salty and often waterlogged and the plants are usually succulent. The salt meadow forms a narrow fragile community. There is a high proportion of exotic species present, particularly in better drained sites.

The Firth of Thames area supports particularly dense populations of shorebirds for the amount of intertidal habitat available. Seventy four shorebird species, many rare or uncommon, have been recorded at this site. These include one grebe, five comorants, four herons, one spoonbill, seven members of the Anatidae family, one gallinule, two oystercatchers, six plover, 27 members of the *Scolopacidae* (curlews, whimbrels, godwits, snipes and sandpipers), two stilts, two skuas and seven gulls and terns. The average number of waders present in the area over the year is 25,000 while the total number present may peak at as many as 40,000 migratory birds during the summer months.

The area provides an important fishery of local significance with flounder and snapper the main species caught as well as incidental catches of other species such as sandshark.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare,

endangered or biogeographically important, etc. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

No rare or endangered indigenous plants have been recorded from the area. The mistletoe (*Loranthus micranthus*) is found in the Miranda region and is uncommon nationally.

20. Noteworthy fauna:

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

Transequatorial Migrants

Eastern bar-tailed godwit (*Limosa lapponica baueri*) is the most abundant of arctic migrants with an estimated 100,000 spending the southern summer in New Zealand. The Firth of Thames population represents approximately 10% of this total but may vary. Some birds remain in New Zealand for the winter.

Lesser knot (*Calidris canutus canutus*) breeds in Siberia and some of those in eastern Siberia migrate to New Zealand for the southern summer. Numbers vary considerably from 2000 to 11,000. flocks of knots often fly and roost with the godwits.

Pacific golden plover (*Pluvialis fulva*) breeds in northern Asia and migrates into an area between the tropical Pacific and southern New Zealand. They occasionally feed and roost inland on pasture.

Turnstone (*Arenaria interpres*) is a circumpolar species with those breeding in the northern Pacific and Siberia wintering in an area from Hawaii south as far as New Zealand. They like the plovers, may feed inland and there appears to be an upward trend in numbers. Each year several thousand reach New Zealand.

Curlew sandpiper (*Calidris acuminata*) breeds in northern Asia and migrates every year in small numbers to New Zealand at the southern extent of its range. There appears to be an increase in numbers with 20-30 usually present. Status: rare.

Sharp-tailed sandpiper (*Calidris acuminata*) has a status of rare although is one of the commonest arctic shorebirds in Australia. In New Zealand, small flocks are found in suitable areas around the coast. The Firth harbours flocks of up to 20 but numbers fluctuate.

Red-necked stint (*Calidris ruficollis*) breeds in north eastern Siberia and is one of the commonest arctic shorebirds visiting Australia. Small numbers reach New Zealand and these are often found associated with non-breeding wrybills on the roosts. They also feed in similar habitats picking small crustaceans, annelids and bivalves from the surface of the inshore mud.

Eastern curlew (*Numenius madagascariensis*) is characterised by its large size and markedly down-curved bill and is usually at a mean of about 10. Status rare.

Internal Migrants

South Island pied oystercatcher (*Haematopus ostralegus finschii*) has increased in numbers since counting began and now represent a significant percentage of total shorebirds in the Firth. This species breeds exclusively in inland South Island of New Zealand, mainly on the large eastern riverbeds, lakeshore and farmland in southland but occasionally in the sub-alpine zone. It has been legally protected since 1940.

Pied stilt (*Himantopus himantopus leucocephalus*) breeds in both the North and South Islands but is more abundant in the latter. Large fluctuations in numbers occurs at Miranda where the population winters.

Wrybill (*Anarhynchus frontalis*) is an endemic species and the Firth of Thames represents its most important wintering ground. Birds start arriving from the Canterbury River beds at the end of December to eventually comprise 50-60% of the total population. Departure from the Firth occurs in August with approximately 10% of birds remaining for a later departure – primarily immature non-breeders.

Depending on such factors as the height of the tide and weather, wrybills in the Firth either occupy a series of discrete roosts or all congregate at a single site.

NZ dotterel (*Charadrius obscurus*) and Black stilt (*Himantopus novaezelandiae*) both of which are endangered, visit the area in small numbers regularly and the dotterel is known to nest at Miranda.

21. Social and 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.

The Firth of Thames (Tikapa Moana) is a central component of the Hauraki tribal history. Historically, Hauraki Maori lived predominantly on the fertile lowlands along the coast and waterways which provided food resources and transport routes. The Ramsar site is part of a claim brought by the Hauraki Maori Trust Board under the Treaty of Waitangi which is currently under consideration by the Waitangi Tribunal.

The Firth of Thames is a popular fishing area for both commercial (flounder) and recreation (flounder, snapper and trevally).

The Firth is recognised as an important wildlife area and fish habitat and various groups visit the area for scientific or educational purposes.

22. Land tenure/ownership:

(a) within the Ramsar site: The tidal flats area is Crown Land and currently has no special protection status. A coastal reserve (Taramaire) of about 30 hectares is managed by the Department of Conservation and flanked by approximately 1.7 km of coastline north of Miranda. Ownership of the Hauraki Gulf foreshore and seabed (including the Firth of Thames) is being contested in the Maori Land Court.

(b) in the surrounding area: The majority of land adjoining the site is in private ownership. An area of 27.7 ha is covenanted under the Queen Elizabeth II National trust and is managed jointly by the landowners and the Miranda Naturalists Trust.

23. Current land (including water) use:

(a) within the Ramsar site: Grazing occurs where grass is established although most areas of the wetland are not available as they are inter-tidal.

(b) in the surroundings/catchment: The surrounding terrestrial areas are primarily in pasture and farmed while the waters of the Firth of Thames are used for fishing and boating..

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 Ramsar site: There is potential for exotic aquatic species to become established and through their invasive growth habit, compete with indigenous species.

(b) in the surrounding area: In the past, much of the surrounding land has been cleared of forest resulting in sediment deposition and loss of some habitat in the Firth. These sediments coupled with low wave energy, minimal current flow and regular re-oxygenation of the water through a high ration of atmospheric contact to water volume in the shallows at high tide have provided an ideal growing medium for mangroves. The mangrove community now covers approximately 900 ha in bands up to 550 m wide.

Today, inflowing rivers deliver more than 10 tonnes of nitrogen per day to the Firth along with one tonne of phosphorus (Vant, 1999). The majority of this nitrogen comes from non-point source agricultural land use whilst the majority of phosphorus comes from wastewater treatment plants, dairy factories and meatworks.

25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Management of the area has been slight to date and is complicated by a claim under the Treaty of Waitangi. The Taramaire reserve is included in the Auckland Conservation Management Strategy but there is no management plan for the balance of the Ramsar site.

The potential of the area for a marine reserve is being investigated by the Department of Conservation.

26. Conservation measures proposed but not yet implemented:

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

- Site specific management plan to be produced.

27. Current scientific research and facilities:

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

The wildlife of the area has been monitored since the 1940's with regular bird counts and studies undertaken by the Miranda Naturalists Trust and Ornithological Society.

Regional and National Government are undertaking a long-term study of the oceanography of the Firth of Thames and how the current patterns, temperature profiles and chlorophyll productivity is influenced by the cyclic phenomena of El Nino and La Nina.

Work on the botany and entomology of the salt marsh and mangrove area is being undertaken by Ecoquest Education Foundation.

28. Current conservation education:

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

A number of organisations and school parties visit the Firth of Thames for educational purposes. The Miranda Naturalists Trust operates their own Shorebird Centre at Miranda which is used for educational purposes and promotion of research. An education kit "Shorebird Migration" has been produced by the Department of Conservation in association with the Trust.

EcoQuest Education Foundation based at Kaiua offer the opportunity for applied field studies in New Zealand for graduate students mainly from overseas and the Firth of Thames is one of the main study areas.

Part of a wetland trail established by the National Wetland Trust and a Booklet on the Ramsar sites in New Zealand covering the Firth of Thames is about to be published in February by the National Wetland Trust (funded by the Department of Conservation).

29. Current recreation and tourism:

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

The coast road that runs close to the shores of the Firth of Thames has been designated the "Pacific Coast Highway" and has become a tourist route for visitors and New Zealanders heading south and east from Auckland. The Miranda Naturalist Trust Shorebird Centre and the shell banks are a popular stopping place along the route.

30. Jurisdiction:

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

Territorial

The Ramsar site lies within the Coastal Marine Area owned by the Crown and administered by Waikato Regional Council and Minister of Conservation.

Hauraki Plains District Council, Waikato District Council and Franklin District Council have jurisdiction over land use issues on the private lands immediately adjacent to the Ramsar site.

Legislation

The principal legislation governing activities within the Ramsar site are the Resource Management Act 1991, the Hauraki Gulf Marine Park Act 2000, the Fisheries Act 1996, the Crown Minerals Act 1991, the Biosecurity Act 1993 and the Wildlife Act 1953. Management of reserve land is governed by the Conservation Act 1987 and the Reserves Act 1977.

Functional:

The Hauraki Gulf Marine Park Act 2000 recognises the national significance of the Hauraki Gulf by establishing a marine park encompassing the waters of the Gulf (including the Firth of Thames), the foreshore and seabed within the Gulf and all publicly owned reserves located on the islands of the Gulf. It also established a governing Hauraki Gulf Forum comprising representative from iwi and from central and local government agencies with statutory responsibilities for managing use, development and conservation within the park and its catchment to co-ordinate action and to oversee implementation of the Act.

The Department of Conservation has responsibilities for management of the Ramsar site.

31. Management authority:

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

Tony Roxburgh
Waikato Area Manager
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Box 20025
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HAMILTON

32. Bibliographical references:

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

Broekhuizen, N., Zeldis, J., Stephens, S.A., Ross, A.H., Ren, J., James, M.R., 2002: Factors relating to the sustainability of shellfish aquaculture operations in the Firth of Thames: a preliminary analysis. Report prepared for Environment Waikato and Auckland Regional Council. NIWA Client Report EVW02243.

Brownell, B and Brejaart, R (Eds), 2001: Muddy Feet: Firth of Thames Ramsar site update 2001. EcoQuest Education Foundation, Kaiaua, NZ.

NIWA, 2002: A broad scale seafloor habitat assessment of the Firth of Thames using Acoustic mapping with associated video and grab sample ground-truthing: report prepared for the Department of Conservation. NIWA, Auckland, NZ.

Penny, S.F., Donoghue, M.F. and Aspell, A., 1987: Heavy metals in sediments of four rivers draining into Tikapa Te Moana (Firth of Thames).

Van Voorthuysen, R and Strahan, J, 1991: Marine farming, Firth of Thames: an assessment of the potential economic and social effects of 14 proposed marine farms. Waikato Regional Council, Hamilton East, NZ.

Woodroffe, C.D., Curtis, R.J., McLean, R.F., 1983: Development of a Chenier Plain, Firth of Thames, New Zealand. *Marine geology* 53: 1-22.

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