

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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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

24 October , 2005

3. Country:

JAPAN

4. Name of the Ramsar site:

Nakaumi

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* -or- *no*

b) **digital (electronic) format** (optional): *yes* -or- *no*

6. Geographical coordinates (latitude/longitude):

Northwest corner : 35°32'14"N, 133°09'17"E

Southeast corner : 35°24'59"N, 133°19'00"E

7. General location:

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

Tottori prefecture, Shimane prefecture/ Chugoku region

It is located at the boundary of Matsue City (the capital of Shimane Prefecture; population: c. 190,000, area: c. 530 sq. km), Yasugi city (population: c. 45,000, area: c. 421 sq. km), Higashiizumo-cho (population: c.14,000, area: 43 sq. km), Yonago City (population: c. 150,000, area: c. 132 sq. km), the major urban city in Tottori Prefecture, and Sakai-minato City (population: c. 37,000, area: c. 29 sq. km).

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

0 m

9. Area: (in hectares) **8,043ha**

10. Overview:

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

Nakaumi is a brackish lake located at the border of Tottori Prefecture and Shimane Prefecture. Various seaweeds, fish, and shellfish species inhabit in the site. The lake is also one of the largest staging and wintering site for waterfowls such as ducks, geese and swans, shorebirds and also sea eagles in Japan.

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).

Criterion 5: The site is one of the largest staging and wintering sites in Japan for *Anatidae* species. Approximately 50,000 - 75,000 birds visit the site every year from 1999 to 2002.

Criterion 6: About 869-1,200 (1.01-1.4%) of *Cygnus columbianus* (Tundra Swan), about 25,000-50,000 - 3.13-6.25%) of *Aythya ferina* (Pochard), about 15,500-18,500 (2.07-2.47%) *Aythya fuligula* (Tufted Duck), and about 6,000-19,500 (2-6.5%) of *Aythya marila* (Scaup) are recorded at the site every year and the site regularly supports over 1% (each of 600, 8,000, 7,500, 3,000) of the East Asian region population.

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:

Japan

b) biogeographic regionalisation scheme (include reference citation):

Japan is recognized as single biogeographic region, because Japan is an island country which has unique and rich biota with many endemic species.

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.

Geology: Stratam of Nakaumi consist of Nakaumi formation made of mud and sand. Under the Nakaumi formation, there exist formations consist of volcanic ash, mud and gravel such as Yasugi formation and Yumigahama formation.

Geomorphology: An inland sea-lake. Nakaumi is the fifth largest lake in Japan and it has two islands called Daikon-jima and E-shima. The lake shore of Nakaumi is complicated except in the eastern part where Yumigahama-hanto peninsula extends. At the northern and southern part of the lake, the foot of the mountains directly connected to the lake and form submerged type of lakeshore that alluvial plain scarcely develops. Especially, the northern shore of the lake shows very complicated shoreline. It was formed by submergence of the fault valley which was caused by big fault. Main rivers that flow into Nakaumi such as Hakuta-gawa and Inashi-gawa concentrate at the southern part of the lake. Delta like alluvial plain mouth spread at the river mouth. The lake floor topography of most of Nakaumi (except Honjo area) is flat central plain at the depth of 5-8m. Lake floor gets deeper towards northeast and it reaches deeper than 7.5m at the off-shore of Yonago airport. In Honjo district, groove for canals and

embankment for pass were constructed as a part of reclamation plan (the plan was already canceled). Average water depth is 6m.

Soil Type and characteristic of sediment: Almost all part of lake bottom of Nakaumi is made up of uniform muddy sediment. Greater part of the sediment consists of silt and clay, and partly made up of bed rock and clay.

Origins: Natural. It was formally sea, but due to the development of Yumigahama sand bar, it became a closed body of water.

Hydrology: 37 inflow streams, 1 outflow stream. It is located at downstream of Shinjiko lake along the Hii-kawa river and it is an inland sea-lake connected to Sea of Japan by Sakai channel.

Water quality: pH 8.2(7.8 ~ 8.8), DO <0.5 ~ 9.1ppm, EC 27,688(16,000 ~ 46,000) μ s/cm, COD 7.8(2.9 ~ 10.0)ppm, T-N 0.44(0.22 ~ 0.63)ppm, T-P 0.094(0.025 ~ 0.18)ppm, SS 4.6(2 ~ 11)ppm, Cl- 11431(5,800 ~ 18,000)ppm, NH₄-N <0.01 ~ 0.44ppm, NO₂-N 0.05(0.001 ~ 0.16)ppm, NO₃-N <0.001 ~ 0.049)ppm. The salt level is high and it is approximately half of sea water.

Water depth: 8.4m at maximum, 5.4 m on average

Water level fluctuation: Daily Fluctuation: about 26cm, Seasonal fluctuation: about 30-40cm.

Climate: Relatively mild but cloudy with some snowfall in winter. Annual precipitation: 1,789 mm, annual mean temperature: 14.7 degrees Celsius, fluctuation of mean temperature in each month: +4.3-+26.4 degrees Celsius (average of Yonago from 1971 to 2000)

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).

Hii river, Inashi river, Hakuta river, Yoshida river etc.

Surface area: 2,070 sq.km (basin of Hii-kawa)

General geology and geomorphological feature: Granite of Tertiary and Cretaceous period account for 70% of the geological features. Hii-kawa is a steep river and its river bed slope is 1/500-1/750 at the middle stream, and around 1/1,000 at Izumo-heiya plain. The upper stream of Hii-kawa is covered with granite that easily collapse. Collapsed soil and sand flow into Hii-kawa as weathered granite soil and net like sand bars were developed, and Izumo-heiya was formed.

General soil types: brown forest soil, red soil, gray-brown soil, gray soil, gley soil

General land use: rice paddies, cropland, residential area, forests etc.

Climate: Relatively mild but cloudy with some snowfall in winter. Annual precipitation: 1,789 mm, annual mean temperature: 14.7 degrees Celsius, fluctuation of mean temperature in each month: +4.3-+26.4 degrees Celsius (average of Yonago from 1971 to 2000)

16. Hydrological values:

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

Flood control

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.

Q, G

18. General ecological features:

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

As the lake is directly connected to Sea of Japan by Sakai-suido channel, its salinity is about half of that of sea water and that makes the lake habitats of both saline and freshwater fauna and flora.

There are various seaweed species such as *Ulva pertusa*, *Gracilaria verrucosa*, *Grateloupia filicina* and *Grateloupia divaricata*. Fish species including *Lateolabrax japonicus* (Sea bass), *Mugil cephalus cephalus* (Mullet) and clams such as *Musculus senhousia*, *Mytilus edulis* (Mussel), *Crassostrea gigas* (Oyster) are found in the site.

Over 75 thousands waterfowls visit the site in winter, including *Cygnus columbianus* (Tundra Swan), *Anser albifrons* (White-fronted Goose), *Aythya fuligula* (Tufted Duck), and *Aythya ferina* (Pochard). Shorebirds are observed in fall and spring time such as *Calidris alpina* (Dunlin) and *Charadrius dubius* (Little Ringed Plover). Raptors also visit the site including *Haliaeetus albicilla* (White-tailed Eagle) and *Pandion haliaetus* (Osprey).

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.*

Carex rugulosa [vulnerable species (VU)*1]

Monochoria korsakowii [vulnerable species (VU)*1]

Nymphoides coreana [vulnerable species (VU)*1]

Ruppia maritima [endangered species (EN)*1]

Note: *1 Red List of Threatened Wildlife of Japan. Ministry of the Environment

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.*

[Birds]

Botaurus stellaris stellaris (Bittern) [endangered species (EN)*1]

Branta bernicla orientalis (Brent goose)[vulnerable species (VU)*1]

Anser fabalis serrirostris (Bean Goose)[vulnerable species (VU)*1]

Tadorna tadorna (Shelduck)[endangered species (EN)*1]

Anas Formosa (Baikal Teal)[vulnerable species (VU)*1, vulnerable species (VU)*3]

Haliaeetus albicilla albicilla (White-tailed Eagle) [endangered species (EN)*1, near threatened species(NT)*2, Domestic Endangered Species*3]
Accipiter gentilis fujiyamae (Goshawk)[vulnerable species (VU)*1, Domestic Endangered Species*2]
Haliaeetus pelagicus pelagicus (Steller's Sea Eagle)[vulnerable species (VU)*1, Domestic Endangered Species *2]
Falco peregrinus japonensis (Peregrine Falcon)[vulnerable species (VU)*1, Domestic Endangered Species *2]
Grus monacha (Hooded Crane)[vulnerable species (VU)*1, vulnerable species (VU)*3]
Eurynorhynchus pygmaeus (Spoon-billed Sandpiper)[endangered species (EN)*1, vulnerable species (VU)*3]
Tringa totanus ussuriensis (Redshank)[vulnerable species (VU)*1]
Numenius minutus (Little Curlew) [critically endangered species (CR)*1]
Himantopus himantopus himantopus (Black-winged Stilt) [endangered species (EN)*1]
Larus saundersi (Saunders's Gull) [vulnerable species (VU)*1, vulnerable species (VU)*3]
Sterna albifrons sinensis (Little tern)[vulnerable species (VU)*1]
Locustella pleskei (Taczanowski's grasshopper warbler) [vulnerable species (VU)*1]
Emberiza yessoensis yessoensis (Japanese reed bunting)[vulnerable species (VU)*1]
Glareola maldivarum (Indian pratincole) [vulnerable species (VU)*1]
Numenius madagascariensis (Far eastern curlew)[vulnerable species (VU)*1]

[Insect]

Lestes japonicus [vulnerable species (VU)*1]

Note: *1 Red List of Threatened Wildlife of Japan. Ministry of the Environment

*2 IUCN Red List of Threatened Species 2004.

*3 Designated under the Law for Conservation of Endangered Species of Wild Fauna and Flora (Species Conservation Law)

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 site has socio-economic value for the fishery resources and average fish catch is estimated approximately 500 tons per year. The main species considered under fishery are *Lateolabrax japonicus* (Japanese seaperch), *Acanthogobius flavimanus* (Yellow-fin gobby), *Metapenaeus ensis*, *Hemiramphus sajori* (Japanese halfbeak), *Sebastes schlegeli*, *Tapes japonica* (short-necked clam) and others.

22. Land tenure/ownership:

(a) within the Ramsar site:

National land (Ministry of Agriculture, Forestry, and Fisheries): 1,812ha

Local Public body land 28ha

Private land: 2ha

publicly-owned water body: 6,200ha

Privately-owned water body 1ha

(b) in the surrounding area:

National land, Local Public body land, Private land

23. Current land (including water) use:

(a) within the Ramsar site:

No resident, fishery rights are obtained. Bird watching

(b) in the surroundings/catchment:

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:

(b) in the surrounding area:

As social activities developed and life style changed, conservation of water quality of Nakaumi has become more and more important issue. Water pollution due to domestic drainage (domestic wastewater), industry-related drainage (wastewater from factories and business sites), agriculture and stock raising - related drainage (wastewater from the agricultural lands and livestock), and nature-related drainage (flood from urban area and forests caused by rainfall).

In recent years, Pollution loading amount has been steadily reduced. In 2003, COD, total Nitrogen, total Phosphorus achieved the target of water quality but has not reached the Environmental Quality Standard (based on Basic Environment Law).

Tottori and Shimane Prefecture will continuously promote purification measures comprehensively and deliberately based on long term programs and Basic Environment Plans of both Tottori and Shimane Prefecture with cooperation of related organizations.

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.

Special Protection Area of National Wildlife Protection Area: 8,043 hectares (Wildlife Protection and Appropriate Hunting Law) * From November 1, 2004

Capture of wildlife is in principle prohibited in the area. It is required to obtain permission from the Minister of the Environment when installation of artificial structure, reclamation of the water body and tree felling.

26. Conservation measures proposed but not yet implemented:

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

None

27. Current scientific research and facilities:

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

[Scientific research]

Population Census Survey of Anatidae (Ministry of the Environment)

National Survey on the Natural Environment (Ministry of the Environment)

[Facilities established for research]

Yonago Waterbirds Sanctuary, Nakaumi Waterbirds International Exchange Fund Foundation

(Survey and research on wild birds)

28. Current conservation education:

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

Yonago Waterbirds Sanctuary functions as a base for international cooperation through birds, researches on wild birds, awareness activities of nature conservation.

29. Current recreation and tourism:

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

Fishing, wind surfing, boat sailing, cutter

30. Jurisdiction:

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

[Territorial]

Ministry of Agriculture, Forestry and Fisheries

Ministry of Land, Infrastructure and Transport

Yonago City

[Functional]

Ministry of the Environment (National Wildlife Protection Area)

Ministry of Land, Infrastructure and Transport (class A river) 、

Ministry of Agriculture, Forestry, and Fisheries

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

Yonago Nature Conservation Office Chugoku-Shikoku Regional Environment Office

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32. Bibliographical references:

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

- Shimane Prefecture and Tottori Prefecture 2005 "Conservation Plan of Lake Water Quality in Nakaumi"
- Ministry of Land, Infrastructure and Transport Government, River Bureau 2002 "Basic policy for maintenance of Hiikawa river system"
- Ministry of Land, Infrastructure and Transport, Chugoku Regional Development Bureau, Izumo Office of River "Nakaumi / Shinji-ko"
- Foundation of River&Basin Integrated Communication "Hii-kawa - Colorful Water- "
- Economic Planning Agency 1967 "Land Classification Basic Survey, Yonago "
- Shimane Prefecture 1974 "Land Classification Basic Survey, Matsue"
- Shimane Prefecture 1972 "Land Classification Basic Survey, Mihonosaki / Sakaiminato"
- Shimane Prefecture 1972 "Land Classification Basic Survey, Etomo / Imaichi"
- Shimane University Regional Analysis and Research group "Ou no Iriumi -Nakaumi and its reclamation and desalination- "
- Shimane University, Center for Studies of the San'in Region 1988 "Atlas of Nakaumi / Shinji-ko topography, bottom material, natural history"
- Brackish Region Survey Group 1999 "Organisms and Nature of Honjo construction area, Nakaumi"
- Ministry of the Environment Nature Conservation Bureau 1998-2003 Report on Population Census Survey of Anatidae
- Ministry of the Environment 2004 Special Protection Area Designation Plan of Nakaumi National Wildlife Protection Area
- Environment Agency 1993 "The Fourth National Surveys on the Natural Environment Report on Lake and Marsh Survey"
- Ministry of the Environment Nature Conservation Bureau 2002 "500 Important Wetlands in Japan"
- Ministry of the Environment 2002 "Threatened Wildlife of Japan -Red Data Book 2nd ed.- Volume 2, Aves" (Ramsar Criteria 2)

- Environment Agency of Japan 2000 “Threatened Wildlife of Japan -Red Data Book 2nd ed. - Volume 8, Vascular Plants
 - Ministry of the Environment 2003 “Threatened Wildlife of Japan -Red Data Book 2nd ed.- Volume 4, Pisces-Brackish and Fresh Water Fishes”
 - Environment Agency of Japan 2000 “Red List of Japan, Invertebrate”
 - The Ornithological Society of Japan 2000 “ CHECK-LIST OF JAPANESE BIRDS Sixth Revised Edition”
 - Japan Wildlife Research Center "Checklist of Species of Wildlife of Japan"
 - Ichthyological Society of Japan “Dictionaly of Japanese Fish Names and Their Foreign Equivalents”
 - Hoikusya "Coloured Illustrations of Seashore Animals of Japan"
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