

Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

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

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 14, 3rd edition). A 4th edition of the Handbook is in preparation and will be available in 2009.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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:

May 30, 2012

3. Country:

Japan

4. Name of the Ramsar site:

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

Arao-higata

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

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or
b) Updated information on an existing Ramsar site

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

- a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

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

and/or

If the site area has changed:

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

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

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

7. Map of site:

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

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

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

b) Describe briefly the type of boundary delineation applied:

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

This area overlaps the Special Protection Area of the Arao-higata National Wildlife Protection Area.

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

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

32° 58' 10" N 130° 25' 30" E

9. General location:

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

This site is situated off the coast of Arao City in Kumamoto Prefecture in Kyushu-Okinawa District in Japan.

Kumamoto Prefecture is situated in the south western part of Japan its prefectural capital is Kumamoto City

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

0m

11. Area: (in hectares)

754ha

12. General overview of the site:

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

Arao tidal flat is situated in the eastern side of the central part of the Sea of Ariake and it has the largest single tidal flat in the Central Kuroshio Current biogeographic region, where a number of *Polychaeta*, shellfish and small crustaceans have their habitats. This site serves as an important wintering and stopping point for the migratory waterbirds along the East Asia-Australasian Flyway including shorebirds which feed on the biota of the tidal flats.

13. Ramsar Criteria:

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

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9

14. Justification for the application of each Criterion listed in 13 above:

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

Criterion 1

It is the largest single tidal flat in the Central Kuroshio Current biogeographic region.

This site is affected by Kuroshio (Japan Current), which flows from Tokhuar Strait along the southern coast of Honshu, the main land of Japan.

a large tidal flat is observed in the inner bay area.

Diverse kinds of subtropical species are carried with Kuroshio . In addition, diversified species inhabit the tidal flat in the inner bay, and the shorebirds come over to this area.

Criterion 2

English Name	Scientific Name	IUCN Status	CITES Status	CMS Status	National Status
Black-faced Spoonbill	<i>Platalea minor</i>	EN	Not listed	APP I	CR
Saunders's Gull	<i>Larus saundersi</i>	VU	Not listed	APP I	VU

Criterion 6

English Name	Scientific Name	Subspecies/Population (if applicable)	Count (min-max)	1% Threshold

Saunders's Gull	<i>Larus sandersi</i>		195(2006) 138(2007) 103(2008) 142(2009) 98(2010)	85

Reference :

Data for subspecies are not available. Data for Count (min-max) are from "Monitoring site 1000, Survey on shorebirds". Average is 135 (95-195).

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

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

a) biogeographic region:

Central Kuroshio current

b) biogeographic regionalisation scheme (include reference citation):

Reference :

Marine Ecoregions of the World (MEOW)

<http://www.worldwildlife.org/science/ecoregions/marine/item1863.html>

16. Physical features of the site:

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

Geology :

The deposits of alluvial stratum on the old Tertiary are seen.

Geomorphology :

The sandbank is formed by sandy deposits near the low tide line

Soil type:

Sand layer containing a number of shells

Origins :

It is formed on the basement rocks, by the deposits of sediment and shells, carried by the tide flow.

Hydrology:

There are no inflows of rivers to "Maehama" (tidal flat formed by the deposits of sand and soil carried out by the rivers etc. to the foreshore facing the sea).

Water quality:

In the Sea of Ariake, the sediment which contains large amount of organic matter, is carried from a number of rivers, and by repeating drying and submergence, the sediment is agitated violently and flung upward, the floating mud in big quantity being mixed with the sea water to make the sea of Ariake suspended.

COD 1.9-5.9 mg/l
 pH 8.0-8.5
 DO 4.6-9.8 mg/l

Water depth:

About 2m

Tidal variations :

Difference in tidal level is big, causing the appearance of a vast tidal flat at low tide.
 (high tide : 4.56 m, low tide : 1.8m , average : 3.18m) observation point : Miike.

General climate:

The site experiences a temperate climate with small amount of snowfall with annual rainfall of about 1,900 mm, average temperature of 17degrees Celsius

17. Physical features of the catchment area:

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

As there are no inflows of rivers to Arao tidal flat, the sediment and shells carried by the tide flow are accumulated on the basement rocks, forming the sand bank near the low tide line by the sand deposits.

18. Hydrological values:

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

This place is considered as an area of collecting nutrients together with large amount of sediment.

19. Wetland Types

a) presence:

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

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

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

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

b) dominance:

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

G

20. General ecological features:

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

As large amount of organic matter is constantly carried to Arao tidal flat by the tide, there are abundant benthos such as *Polychaeta* and bivalves. The benthos are very important for the site because of their role of nutrient recycling which prevents the site from red tide and of food for the fish and birds like shorebirds such as *Calidris alpina* (Dunlin), *Tringa brevipes* (Grey-tailed Tattler), *Limosa lapponica* (Bar-tailed Godwit), *Pluvialis squatarola* (Black-bellied Plover), *Charadrius alexandrinus* Linnaeus (Kentish Plover) and *Charadrius mongolus* Pallas (Mongolian Plover).

21. Noteworthy flora:

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

None

22. Noteworthy fauna:

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

Birds

Ardea intermedia (Intermediate Egret) NT*1
Branta bernicla (Brant Goose), VU*1
Tadorna tadorna (Common Shelduck), EN*1
Pandion haliaetus (Osprey), NT*1
Circus aeruginosus (Marsh Harrier), EN*1,
Falco peregrinus (Peregrine Falcon), VU*1,
Eurynohynchus pygmeus (Spoon-billed Sandpiper), CR*1
Sterna albifrons (Little Tern), VU*1,

Fish

Boleophthalmus pectinirostris (Bluespotted Mud Hopper) EN*1

*1 Red List of Threatened Wildlife of Japan, Ministry of the Environment

23. Social and cultural values:

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

Regarding the *Ruditapes philippinarum* (Japanese little neck) at Arao tidal flat, as the organic matter is constantly carried into the area, the site is considered as suited for the growth of the shell species.

In addition, regarding the laver culture at the sea of Ariake, the laver being dried at the low tide, taking advantage of the difference in tidal water levels in order to improve the flavour of laver, nets for laver culture are supported by poles.

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

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

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

24. Land tenure/ownership:

a) within the Ramsar site:

Public water: 754ha

b) in the surrounding area:

Private land consists of mostly housing areas dotted with broad leaved forests and coniferous forests along the coast of the Sea of Ariake. Oshima district in the north region is the industrial area but mostly vacant land. In the southern part, there are steel manufacture companies, rest being cemetery and wasteland.

25. Current land (including water) use:

a) within the Ramsar site:

Fisheries such as laver cultures, fishing short-net clams

b) in the surroundings/catchment:

Housing, farmland

As for the farmland, there are private vegetable gardens but there are not those of occupational. In Urakawa district, rice cultivation is carried out and in the eastern part of Arao City, oranges and pears are cultivated

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

a) within the Ramsar site:

Past

Big scale land reclamation works etc. are conducted.
Shoreline protection in concrete reduced the supply of gravel.

Present

None

b) in the surrounding area:

Past

Agricultural land development was conducted. Waterways in concrete reduced the supply of gravel

27. Conservation measures taken:

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

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

Special Protection Area of National Wildlife Protection Area: 754ha (Wildlife Protection and Appropriate Hunting Law) from June 1, 2012 is being implemented

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.

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

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

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

Special Protection Area of National Wildlife Protection Area: 754ha (Wildlife Protection and Appropriate Hunting Law) from June 1, 2012 is being implemented.

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.

d) Describe any other current management practices:

Arao Fishermen's Association and Northern Kumamoto Fishermen's Association carry out the management practice for tillage and sand supply with the subsidy.

28. Conservation measures proposed but not yet implemented:

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

None

29. Current scientific research and facilities:

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

Ministry of the Environment, "Monitoring site 1000, Survey on shorebirds" (three times a year in spring, fall and winter)

Year	Spring	Autumn	Winter
2007	3,799	710	1,928
2008	6,492	1,773	2,152
2009	4,601	703	2,140
2010	3,389	1,665	1,738
2011	4,361	878	

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

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

Beach cleaning activities of waste materials drifted ashore by local communities, and bird watching meetings are held in collaboration with the Kumamoto branch office of the Wild Bird Society of Japan, and collecting long-armed octopus is carried out. In addition, "Sea Museum" is open on the wall along the beach with the pictures of school children.

31. Current recreation and tourism:

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

In July every year, "Japanese mud shrimp (*Upogebia major*) fishing event" is held by Arao City with the participation of more than 500 people. "Seaside Course" is a monitoring tour to provide information about Arao City. (programme : collecting long-armed octopus, tasting seafood of the Sea of Ariake, visiting seaweed (laver) factory)

32. Jurisdiction:

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

Territorial jurisdiction

Municipal land : Arao City.

Functional jurisdiction

Ministry of the Environment (Protection Area of National Wildlife Protection Area)

33. Management authority:

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

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34. Bibliographical references:

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

The Environment Agency, 1994,"The fourth basic surveys on nature conservation, report on the investigation on marine biota" (surveys on tidal flat, seaweed beds, and coral reefs)

Nature Conservation Bureau, Ministry of the Environment, 2002, “500 Important Wetlands in Japan”

Ministry of the Environment, 2002 revision, “Threatened Wildlife of Japan, Red Data Book 2, Birds”

Ministry of the Environment, “Monitoring site 1000, Survey on shorebirds”

History of Arao City (on environment, folklore)

reference : http://www.env.go.jp/nature/ramsar_wetland/conf22-02/ref04.pdf
