

Information Sheet on Ramsar Wetlands (RIS) – 2009-2015 version

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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 25, 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.

Yonaha-wan

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.

Waterside lines of water areas (coast line) and geopolitical boundaries by local government jurisdictions etc.

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.

Centre: 24° 45' 57" N, 125° 16' 16" 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.

It is situated in the western part of Miyako Island (Miyakojima City), about 285km southwest of Naha City in Okinawa main island which is located at the south eastern end of Japan.

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

0m

11. Area: (in hectares)

704 ha

12. General overview of the site:

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

This site, located in the south western part of Miyako Island which is situated in the west of Nansei Islands (southwestern islands off Kyushu and in the Okinawa archipelago), consists of Yonaha Bay, covering Hirara and Shimoji in Miyakojima City and Maehama beach of Yonaha Bay and the surrounding areas such as windbreak forests etc. The biggest tidal flat in Miyako Island is seen to develop in the mentioned site and in the coastal zone, mangrove forests such as *Kandelia obovata* etc., in the land area, *Pandanus odoratissimus* (Thatch Screwpine) and *Hibiscus ilicifolius* (Beach Hibiscus) plant communities, and within the bay area, vast seaweed beds mainly composed of *Thalassia hemprichii*, *Cymodocea rotundata* and *Syringodium isoetifolium*, are distributed, giving the evidence of its diversified natural environment. For that reason, the site is considered as the place for foraging, stopping and breeding for a number of birds including shorebirds. Consequently, threatened bird species included in the Red List of Threatened Wildlife of Japan, Ministry of the Environment that are found at the site, include *Platalea minor* (Black-faced Spoonbill) mentioned as critically endangered (CR), *Tadorna tadorna* (Common Shelduck) and *Chalcophaps indica yamashinai* (Emerald Dove) mentioned as endangered (EN), and *Butastur indicus* (Grey-faced Buzzard), *Himantopus himantopus himantopus* (Black-winged Stilt) and *Tring totanus ussuriensis* (Common Redshank) etc. mentioned as vulnerable (VU).

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

Because of the warm Kuroshio Current, the marine area of the Ryukyu Islands falls under the tropical South Kuroshio Province, Central Indo-Pacific Realm. This site represents part of the largest seagrass bed in the Ryukyu Islands, dominated by *Thalassia hemprichii*, *Cymodocea rotundata* and *Syringodium isoetifolium*. These seagrass species are common in the Central Indo-Pacific Realm but in this wetland they are located at the north edge of their distribution.

Criterion 2:

Scientific name	Common name	IUCN category	CMS Appendix	CITES Appendix	National Protection Class
Birds					
<i>Grus japonensis</i>	Japanese Crane	EN	I	I	VU
<i>Eurynorhynchus pygmeus</i>	Spoon-billed Sandpiper	CR	I	II	CR
<i>Platalea minor</i>	Black-faced Spoonbill	EN	I		CR
<i>Numenius madagascariensis</i>	Far Eastern Curlew	VU	I		VU
<i>Larus saundersi</i>	Saunders's Gull	VU	I		VU
<i>Ciconia boyciana</i>	Oriental Stork	EN		I	CR
Reptiles					
<i>Chelonia mydas</i>	Green turtle	EN	I	I	VU
<i>Caretta caretta</i>	Loggerhead	EN	I	I	EN
<i>Eretmochelys imbricata</i>	Hawksbill Turtle	CR	I	I	EN
<i>Takydromus toyamai</i>	Miyako Grass Lizard	EN			EN

Criterion 6

Common Name	Scientific Name	Population at the site			1% Level of Global threshold
		Year (2008)	Year (2009)	Year (2010)	
Lesser Sand Plover	<i>Charadrius mongolus</i>	91	332	315	200

Reference: Total number of birds in spring, fall and winter seasons from the bulletin of "Monitoring site 1000, 2008-2011, "investigation on shorebirds"

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:

2.41.13, the Palearctic Realm , Ryukyu islands, Mixed island System

b) biogeographic regionalisation scheme (include reference citation):

Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas, Spalding et al. (2007)

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 :

Mostly consisting of quarterly south sand stone, quarterly reddish brown clay and new ear sand dunes, sand layer are observed in the southern part. The bottom material of the tidal flats shifts from gravel mud in the bay interior and vast sand areas in the west side of the bay (commonly called Sanitsu-hama) to coarse sands in the seagrass beds (eelgrass beds). The east part of the bay is studded with large gravels.

Geomorphology:

It is situated in the western part of Miyako Island. It is a bag-shaped enclosed bay with the entrance of the bay in the north western part. Within the bay area, there is a waterway dredged as a sailing route within the bay area from the entrance of the bay to the bay interior, and at low tide, most of the area is dried out except the waterway and the site becomes a vast tidal flat. At low tide, there are little tide pools observed. In addition, sand banks, sand dunes and beach rocks are formed in the coastal areas.

Soil type :

Reddish and yellowish soils called Shimajiri marge, slightly acidic-slightly alkaline.

Origins :

Natural

Hydrology :

Only the inflow of short and small rivers such as Sakita River and Upugaa, of which headstream is the spring water from the groundwater system are observed and thus it is considered closed.

Water quality :

Susceptible to the influence of the weather and the precipitation, physicochemically, unstable and big fluctuations etc. in the water temperature and pH.

Water depth :

At high tide, maximum water depth is 2m (except the waterway)

Tidal variations :

Maximum, 205m : Minimum, -17cm (2011)

General climates :

Subtropical oceanic climate with high temperature and humidity . Annual amplitude of temperature change is small. Annual precipitation, 2,021mm; average temperature, 23.6 degrees celsius; monthly average temperature fluctuation range, 18.0 degrees celsius-28.7degrees celsius. Annual average of 3.8 typhoons pass the areas within 300km of Miyako Island. (all averages between 1981 and 2010)

17. Physical features of the catchment area:

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

Surface area :

Sakita River, 4,500 m²

General geology and geomorphological features :

Enclosed bay sand banks, sand dunes

General soil types :

Alluvial soil, Shimajiri marge

Climate :

Subtropical oceanic climate with small annual amplitude of temperature change. Annual precipitation, 2,021mm (average between 1981 and 2010)

18. Hydrological values:

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

Function for purifying water, function for sediment trapping

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.

A, G, B

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.

The said region covers the surface area of about 700ha, the biggest tidal flat in Miyako Island, around which mangrove forests exist in the coastal areas, and which *Pandanus odoratissimus* (Thatch Screw pine) and *Hibiscus iliaceus* (Beach Hibiscus) plant communities occupy in the land areas. To add to this, near the entrance of the bay, vast seagrass beds (eelgrass) are seen to develop, showing the manifestation of diverse natural environment. Rich in benthic organisms, fry, and Crustacea, this site is used as the place for foraging and stopping for the waterbirds such as shorebirds and sandpipers. At the shore reefs of the entrance of the bay, *Gerres equulus* (Eastern Reef Heron) and *Sterna sumatrana* (Black-naped Tern) breed. In addition, around the entrance of the bay, *Chelonioidea* (Sea Turtle) make migrations.

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.*

The following species are found at the site and which are included in the Red List of Threatened Wildlife of Japan, Ministry of the Environment:

(beach plant, sandy shore plant)

Vulnerable species include: *Sophora tomentosa*,

Maytenus diversifolia,

Aristolochia tubiflora, *Colubrina asiatica*,

Jasminum superfluum,

Limonium wrightii, *Lepturus repens*, and *Avicennia marina*,

(seaweed)

Near-threatened species include:

Thalassia hemprichii,

Cymodocea serrulata, *Cymodocea rotundata*, and

Halodule uninervis,

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.*

The said site is used by diverse endangered bird species, where, in the past, stray birds such as *Grus japonensis* (Japanese Crane), *Ciconia boyciana* (Oriental Stork) and *Phalacrocorax aristotelis* (Pelagic Cormorant) migrated and also *Chelonioidea* (Sea Turtle) made migrations. *Chalcophaps indica* (Emerald Dove), a natural monument in the maritime forests, and rare species such as *Takydromus toyamai* (Miyako Grass Lizard) and *Cakanarua ofefferi* (Pfeffer's Grass Lizard) etc., endemic species of Miyako Island are inhabiting this area. (See attached)

In addition, *Mustela itatsi* (Japanese Weasel) is introduced and become established, intended to reduce the feeding damage to the agricultural products caused by field mice.

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:

Social values

This site is an ideal place for learning biodiversity, nature observation meetings being held. From old times, *Birgus latro* (locally called Makugan) is used for food as well as stuffed ornaments.

Cultural values

March 3 by the old calendar is called “Sanitsu” in Okinawa dialect, when women celebrate the coming season on the seashore, clean their bodies with the seawater and enjoy shell gathering. This traditional event is called “Hamauri”. In addition, along the coast, there exist a number of

sacred sites and shrines such as Toumai Utaki (Utaki meaning the sacred site) and Akanagu, in which faith and worship of local people are observed. Among them include sacred sites and shrines which have close relations to the sea such as Suufutsu Utaki which worships the tutelary of the sea in Kawamitsu community (Kawamitsu fishing port), and Upudomaara shrine in Matsubara community (Hisamatsu fishing port) which worships seven brothers who extended the village and created the culture upon drifting ashore from Tang. Among the historic spots includes Ikeda Bridge which indicates the coastline of old Yonaha Bay etc.

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:
Municipal land (Miyakojima City) : 1ha
Private land : 4ha
Public water : 699ha
- b) in the surrounding area:
National land : 3ha
Municipal land : 3ha (Okinawa Prefecture)
Municipal land : 97ha (Miyakojima City)
Private land : 540ha
Public water : 723ha

25. Current land (including water) use:

- a) within the Ramsar site:
Fishery, tourism, education
- b) in the surroundings/catchment:
Fields, grasslands, wind prevention, tsunami control forests, fishing ports, factories, housing

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

In 1973, when the big scale drought occurred, there was a growing tendency for a new source of water and as a result, a plan came up to establish a fresh water lake within Yonaha Bay, enclosing the area of 500 ha and retaining the surface water and ground water flowing out to the sea in the enclosed bay.. In September 1981, an opposition movement occurred by the fishermen mainly in the Hisamatsu district and thus this project for the fresh water lake was abandoned in 1983.

From 1988 to 1997, around 21.7ha of public waters bordering the south western part of Yonaha (commonly called Ikehara tidal flat) are reclaimed as for the implementation of Okinawa Prefectural reclamation project intended mainly for the land reclamation purpose. At that time, communities of *Avicennia marina*, growing naturally (Red List of Threatened Wildlife of Japan, Ministry of the Environment, vulnerable species ,VU) and *Cerithidea rhizophorarum* disappeared.

In 1996, 8ha of the area was reclaimed at the occasion of the improvement of Hisamatsu fishing port.

From 1997 to 2005, the gentle slope concrete revetment was established in the western coast district of Yonaha Bay.

Present

In the surrounding areas, the implementation of land improvement project is conducted. The inflow of sediment (red soil) from the fields are observed and there is concern for the damage to the biodiversity and fisheries. In addition, the inflow of domestic sewage from the surrounding areas is observed and there is concern for the damage to the biodiversity and fisheries as well. These factors coming from outside the site adversely affect the site.

Introduction of *Mustela itatsi* for the reduction of feeding damage of agricultural products by field mice and its establishment are conducted.. There is not yet any assessment of impacts of this introduction and its establishment on the site.

Potential

By the construction of Irabe Big Bridge (scheduled to be completed in 2013), there are possibilities of the occurrence of disturbances to gravely sands surrounding the entrance of the bay owing to the changes in tidal flow.

b) in the surrounding area:

Past, present, potential

Because of land improvement project, there is concern that the sediments flowed into Yonaha Bay will cause a damage to biodiversity and fisheries.

Excessive capture of *Birgus latro* and deterioration of habitat environment causes a reduction in inhabiting species.

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.

Yonaha-wan Special Protection Zone of National Protection Area: surface area of 704ha by “Wildlife Protection and Appropriate Hunting Law” designated on November 1, 2011 (Capture of wildlife is in principle prohibited in the area. It is required to obtain permission from the Minister of the Environment in case of 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?:

Miyakojima City is in process of implementing “Miyakojima City Basic Plan for the Promotion of Fisheries”. Regarding Yonaha Bay, the plan for the prevention of inflow of red soil and conservation and multiplication of *Caulerpa lentillifera* (sea grapes) around the mouth of the bay is being reviewed

d) Describe any other current management practices:

The plant community in Tomai Utakei and *Heritiera littoralis Dryand* are designated by Miyakojima City as natural monuments..

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.

Project for the promotion of monitoring the sites of important ecological systems (monitoring site 1000), “investigation on shorebirds”, Ministry of the Environment
Diverse ecosystem including diverse fauna and flora developed respectively, by varied geology, climate and natural features of each region in the Japanese archipelago, about 1,000 monitoring sites are established to continue gathering basic environmental information over a long period of time and to grasp at an early stage, a quantitative and qualitative state of deterioration of natural environment in Japan

Registration of three new species, *Uka neocultrimana*, *Mictyris brevidactylus*, and *Scopimera ryukyensis* (provisional name) by Toru Naruse, Assistant Professor, Ryukyu University, etc. in 2010

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.

Every year with the initiative of Miyakojima City, juvenile crabs of *Portunus pelagicus* (about 33,000 species in 2011) are released by the children of kindergartens and primary schools, promoting educational campaigns for the conservation of fishing resources.

Primary and junior high schools offer related classes and high schools provides the occasions such as biology club activities in Miyakojima City.

Occasions for field observations are held for the students on school excursions and the tourists in general from other prefectures.

Miyako-yacho-no-kai (“Miyakojima wildbird society”) offer the occasions for observation meetings of wildbirds and tidal flat”)

31. Current recreation and tourism:

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

Shell gathering:

It was frequently seen before but at present only few cases in small groups are observed.

Fishing:

Fishing is actively engaged mainly at Hisamatsu and Kawamitsu fishing ports and surrounding areas.

Tidal flat and mangrove forest observations:

Occasions are held few times a year by the local environmental associations as well as by eco-tourism agents who offer to guide the students on school excursions and the tourists in general.

Bird watching:

It is held about twice a year by Miyako-yacho-no-kai. (“Miyakojima wildbird society”)

Kite surfing:

On windy days and before after high tide, this sport is enjoyed by the people from outside the island and the young generation migrated to this island, which are increasing in number.

Carnival on Sanitsu Beach:

Held by Okinawa Times (local newspaper publishing company) and Miyakojima City, traditional Sanitsu events are organized in a developed style. Every year in July, it is held on Sanitsu Beach in Yonaha Bay. At low tide, traditional events such as “Hama-keiba” (Horse racing on seashore), Miyako sumo wrestling and multi-legged(11 legs) races etc. are held to attract many spectators in and out of the island.

32. Jurisdiction:

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

(Territorial jurisdiction)

Public water : Okinawa Prefecture

Land : Municipal Land (Miyako City) and Private Land

(Functional jurisdiction)

Ministry of the Environment (Special Protection Zone of National Protection Area)

Okinawa Prefecture (Port and harbour)

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.

- Environment Agency, 1997, 'The current conditions on tidal flats, seagrass beds and coral reefs in Japan (2) Seagrass beds'
- Fujita, Yoshihisa, Kitamura, Takaaki, 2010, 'Leander serrifer and Utica gracilipes collected in Sakita River, Miyako Island', Bulletin of Miyakojima City Museum 14:115-121
- Fujita, Yoshihisa, 2009, 'Birgus latro (Makugan) and the livelihood of people', Miyakojima City Museum
- Fujita, Yoshihisa, 2007, 'Decapod crustaceans inhabiting the spring water of Miyako', Bulletin of Miyakojima City Museum 11:89-110
- Hirara City Board of Education, 1994, 'History of Hirara City Vol. 9'
- Japan Meteorological Agency, 'Information on climatological statistics, (Homepage)'
- Jun Nawa, 2009, 'Shelfish species in tidal flats in Ryukyu Islands (2), Okinawa and the Miyakojima, and Yaeyama Islands, Research report of Nishinomiya Shell Museum 6'
- Ministry of the Environment, 2011, 'Plan for the designation of the Yonaha-wan Special Protection Zone of National Protection Area'
- Ministry of the Environment, 2002, '500 Important Wetlands in Japan'
- Ministry of the Environment, 2006, 'Red Data Book, Red Data List (revised)'
- Ministry of the Environment, 2007, 'The 7th Report on the investigation on nature environment conservation, and on the investigation on ecosystems in shallow water areas (investigation on tidal flats)'
- Miyakojima-jyousuido-kigyoudan (Miyako Island waterworks business association) 1996 : 'Suido-shi (Journal of waterworks) (2)'
- Miyakojima City Museum, 2010, 'Animals brought to Miyako'
- Miyakojima City Board of Education, 2011, 'Cultural assets of Miyakojima City'
- Okinawa Prefectural Board of Education, 1998, 'Report on the investigation on the actual situation of Chelonioidea habitat II'
- Okinawa Prefectural Fisheries Experiment Station, 1976, 'Report on the biological investigation on fishing resources of Yonaha Bay'
- Shimoji-machi Board of Education, 2004, 'Legends and archaeological sites of Shimoji-machi'
- Yohena, Satomi, Tohyama, Masanao, Yasukawa, Yuichiro, Szu-Lung Chen, Takahashi, Ken, Kugai, Masamori, 1998, 'The distribution of reptiles and amphibians on land in the Miyakojima Islands', Bulletin of Hirara City Museum 5:23-38

