Information Sheet on Flyway Network Sites

Notes for compilers:

The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network.

The Site Information Sheet has been divided into two sections. Part 1 (Section 1-14) seeks basic information on the site and it is essential that it be completed. Part 2 seeks additional information and is optional.

The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified. In this case the National Government Partner need only send a copy of the existing sheets with additional details on Question 1 and 10 of the Flyway Site Information Sheet.

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

Part 1: Essential Information

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

The full name, institution/agency, and address of the person(s) who compiled the SIS, together with any telephone and fax numbers and e-mail address.

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2. Date this sheet was completed:

The date on which the SIS was completed (or updated).

29 November 2010

3. Country:

The official (short) version of the country name.

Republic of Korea

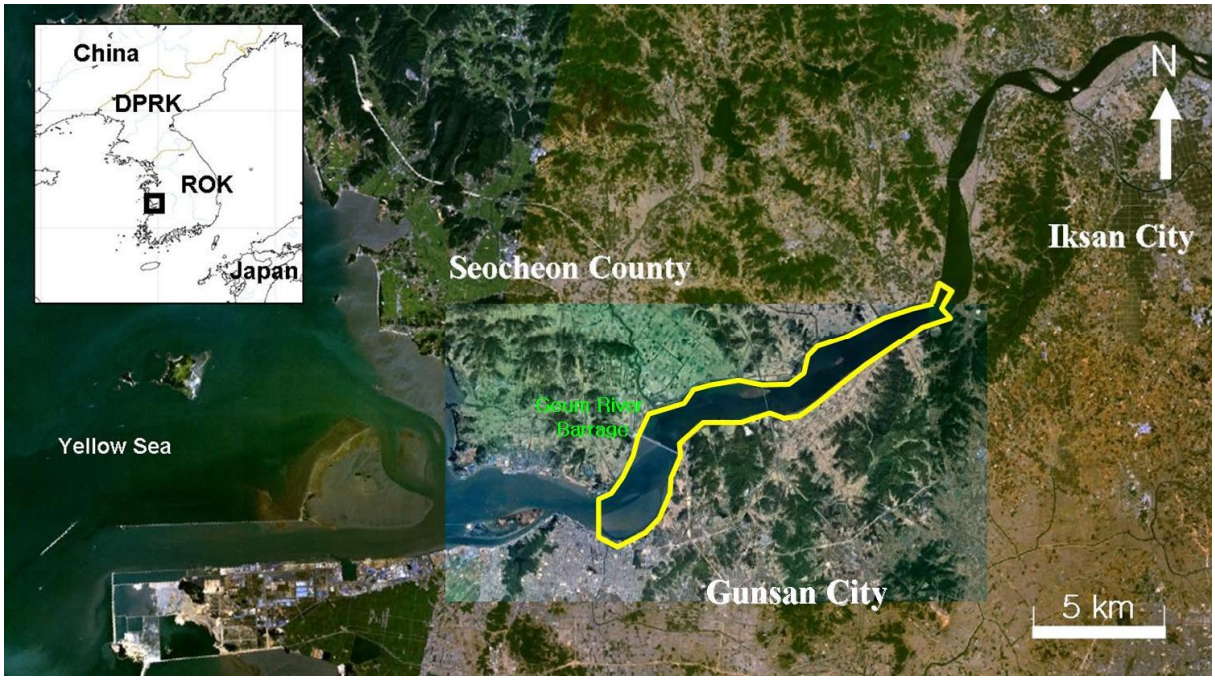
4. Name of the Flyway Network site:

The precise name of the designated site in the national language and English. This name will be used precisely as given on the Site certificate. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Geum River Estuary

5. Map of site:

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



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

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

36.03 N, 126.79 E

(Latitude : 35° 59' 05" ~ 36° 04' 23" N, Longitude : 126° 43' 00" ~ 126° 51' 58" E)

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

Average: 3m

Maximum: 6m

Minimum: 1m

8. Area:

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

The total area of the site is 2,185ha.

9. General overview of the site:

A brief summary of the site (limited to not more than two sentences), mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

Geum River, as third one of the four major rivers in Korea, originates from Tteumbong Spring in Jangsu County, Jeonbuk Province and flows into the Yellow Sea through both Chungcheong Provinces. The total watershed area of Geum River is 9,810km^2, and the total length is 396 km (130 km of an East-to-West distance, 160km of a North-to-South distance). The lower reach of Geum River becomes an inland freshwater lake (*Geumgang-ho*; Geum River Lake) of 14.85km^2 maintained by the Geum River Barrage (constructed in 1990) linking between Seocheon County and Gunsan City, and large depositional plains had been developed in this region. This area is the most important wintering site of Baikal Teals which supports more than 300,000 individuals (about 50% of total population). As an important habitat for other threatened and protected birds such as Swan Geese (Endangered Species & Natural Monument), Black-faced Spoonbills (Endangered Species & Natural Monument), Eurasian Spoonbills (Endangered Species & Natural Monument), Whooper Swans (Endangered Species & Natural Monument), Mandarin Ducks (Natural Monument), and Kestrels (Natural Monument), this area clearly meets the criteria for EAA Flyway Site Network nomination. This site also has important values for wetland conservation by hosting threatened animals like Eurasian Otters (*Lutra lutra*) and many plants (246 species from 188 genera, 71 family) including two endemic species (*Paulownia coreana* and *Lespedeza maritime*).

10. Justification of Flyway Site Network criteria:

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

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

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

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

A2

Geum River supports appreciable numbers of an endangered or vulnerable population of migratory waterbird.

- Baikal Teal *Anas formosa* (IUCN category: VU): *Average 50% of total known population visit this site.*

A5

Geum River regularly supports > 20 000 migratory waterbirds.

	Jan 2001	Jan 2002	Jan 2003	Jan 2004	Jan 2005	Jan 2006	Jan 2007	Jan 2008	Jan 2009
No. of species	28	39	35	35	39	22	35	53	31
No. of birds	49,507	160,060	341,329	108,449	116,343	276,901	747,987	310,388	210,623

Source: MoE (2001-2009) Nationwide Winterbird Census.

A6

Geum River regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird.

Species	1% of EAAF population	Mean number (2001-2009)	Peak Count (2001-2009)	Date of peak count
Mallard *Anas platyrhynchos*	15,000	14,339	28,252	Jan 2002
Baikal Teal *Anas formosa*	5,000	233,836	740,004	Jan 2007
Greater White-fronted Goose *Anser albifrons*	1,500	3,244	6,965	Jan 2003
Tundra Bean Goose *Anser fabalis serrirostris*	800	1,663	4,250	Jan 2006

Four species meet the 1% criteria: Mallard, Baikal Teal, Greater White-fronted Goose, and Tundra Bean Goose.

Source: MoE (2001-2009) Nationwide Winterbird Census.

11. Wetland Types:

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

M, O, F, G

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

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

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

G -- Intertidal mud, sand or salt flats.

12. Jurisdiction:

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

[Territorial] Gunsan City (Jeonbuk Province) and Seocheon County (Chungnam Province)

[Functional] Geumgang Project Office of Korea Rural Community Corporation (KRC): *Water level management and Barrage control*

13. Management authority:

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

- Gunsan: Department of Migratory Bird Ecology/Management, Facility Management Center, Gunsan City Office, Gunsan, Jeonbuk Province 573-703, Republic of Korea
- Seocheon: Office of Environment Protection, Seocheon County Office, Seocheon County, Chungnam Province 325-701, Republic of Korea

14. Bibliographical references:

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

Baek, U. K. (ed). 2009. Project Report on the Avifauna Changes in Geum River and Saemangeum Areas. Gunsan City. 180p. [백운기 등, 2009. 금강 및 새만금지역 조류변화상 연구 용역. 군산시. 180p.]

Kim, C. H. 2001. Bird Survey Manual: The Second Nationwide Environmental Survey. Ministry of Environment, pp 45~59. [김창회. 2001. 조류조사 지침: 제 2 차 전국자연환경 조사 지침. 환경부. pp. 45~59.]

Kim, J. H., J. Y. Park, J. Y. Lee, B. H. You, G. C. Lee. 1999. Migratory Routes and Current Status of Migratory Birds. National Institute for Environmental Research. [김진한. 박진영. 이정연. 유병호. 이길철, 1999. 철새이동경로 및 도래서식조사, 국립환경연구원.]

Kim. H. T. 2003. Analysis on Ecology and Conservation of the Baikal Teals in North-East Asia. The 49th National Science Expo. [김현태. 2003. 동북아시아 가창오리의 생태분석 및 보호대책에 관한 연구. 제 49 회 전국과학전람회]

Lee, J. Y. 1995. Ecology of the waders migrating go Kanghwa and Youngjong islands on the west coast of Korea. MSc Thesis of Kyung Hee University. 50 pp. [이정연. 1995. 서해안 강화도에 도래하는 섭금류의 생태. 경희대학교 대학원 석사학위논문, 50p.]

Lee, K. S. 2000. Current status and population fluctuations of waterbrids on the west coast of Korea. PhD Thesis of Kyung Hee University. 211 pp. [이기섭. 2000. 한국의 서해안에 도래하는 수조류의 실태와 개체수 변동. 경희대학교 박사학위논문. 211pp.]

MOE. 1998. Waterbird Survey on the main wetlands along the west coast of Korea in Spring and Autumn. Ministry of Environment, 113pp. [환경부, 1998. 서해안 주요습지에 도래하는 수조류의 봄, 가을 조사, 환경부, 서울 113pp.]

MOE. 2001. Nationwide Environment Survey on Inland Wetlands: Geum River Estuary in 2000. Ministry of Environment, 121 pp. [환경부, 2001. 2000 금강하구 전국내륙습지 자연환경조사, 환경부, 서울 121pp.]

Won, P. O. 1990. A Waterbird survey on the west coast of Korea. Bulletin of Korea Institute of Ornithology 3: 28-50. [원병오. 1990. 한국 서해안의 섭금류조사. 경희대학교 부설 한국조류연구소 연구보고, 3: 28-50.]

Won, P. O. 1998. Spring and Autumn Wader Surveys on the west coast of Korea. Nature Conservation 62: 29-41. [원병오, 1988. 한국 서해안의 춘추 섭금류조사, 자연보존 62: 29-41.]

Part 2 – Optional

15. Physical features of the site:

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

Gusan City and Seocheon County is located at the end of the south-western Charyeong Mountains; northern parts are thus higher but southern parts are lower in elevation. The lower reach of Geum River is largely composed of erosional plains, fluvial-marine plains, and inselberg areas. Most common alluvial areas are well developed by soils from upstream and muds from estuaries along the flood plains. After the construction of the barrage at the lower reach of Geum River in 1990, a huge freshwater lake was formed and several sedimentary islands with reedbeds were developed by slow-moving water without sediments from estuarine areas. The average annual precipitation is approximately 1,200 ㎜, but rainfall is concentrated mainly in summer and during typhoon periods.

Climate conditions based on the Gunsan Weather Station data (1971~2000) are as below;

- Mean air temperature: 12.6ºC
- Mean maximum temperature: 16.9ºC
- Mean minimum temperature: 9.1ºC
- Mean annual precipitation: 1,201.4mm
- Mean wind velocity: 3.9m/s

16. Physical features of the catchment area:

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

Geum River is the 3rd longest river in the Republic of Korea from Jangsu to Gunsan/Seocheon (395.9km in length). The average annual precipitation is 1,311.6mm (1,200~1,400mm), but rainfall is concentrated mainly in summer (more than 60% of total annual precipitation). Average temperature is 15.7℃. In the upper reaches, geological and geomorphological features are very complex. However, in the lower reaches, many alluvial plains were developed and have used as resident and agricultural areas which may support a great number of migratory birds near the site. Lower reach from the barrage, wide tidal mudflats experiencing strong tides have been developed due to increased amount of sediments.

17. Hydrological values:

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

Providing agricultural water to surrounding cultivated land

Adjusting water level: Control by opening the floodgate at the estuary and dredging earth and sand

18. General ecological features:

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

N/A

19. Noteworthy flora:

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

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

Plants: 344 species include unique aquatic plants

- Rare plants: *Koelreuteria paniculata, Aristolochia contorta, Trapella sinensis var. antennifera, Nymphoides indica, Phacelurus latifolius, Acorus calamus var. angustatus*
- Endemic species: *Paulownia coreana* and *Lespedeza maritime*
- Permission is required for translocation of four plant species (*Koelreuteria paniculata, Aristolochia contorta*, *Paulownia coreana,* and *Phacelurus latifolius)*

20. Noteworthy fauna:

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

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

Mammals: 18 species

- Eurasian Otter (Endangered Wildlife Species: Class I, Natural Monument #330)

Birds: 153 species

- Whooper Swan (Endangered Wildlife Species: Class II, Natural Monument #201-2)
- Baikal Teal (Endangered Wildlife Species: Class II)
- Swan Goose (Endangered Wildlife Species: Class II, Natural Monument #325-1)

Fish: 35 species

- *Erythroculter erythropterus, Leiocassis nitidus, Synecogobius hasta,* etc.

Benthos: 29 species

- *Solen strictus, Dosinorbis japonicus, Bullacta exarata, Alpheus brevicristatus,* etc.

21. 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:

The vestiges of the Old Stone Age located nearby the site (in Seokjang-ri, Gongju and in Naeheung-dong, Gunsan) indicate the historic importance of Guem River on local societies in socio-economic view. The lower reach and estuary of Geum River were the focal point for international trades among Korea, China and Japan. Given the high productivity of brackish-watered area, economic activities on this area were flourished in the early periods with higher values of aquaculture and biodiversity.

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?

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:

N/A

22. Land tenure/ownership:

a) within the Flyway Network site:

Publicly-owned water body (National lands)

b) in the surrounding area:

Mainly private lands; some national lands and public-owned lands

(Seocheon County, Gunsan City), and owned by Korea Rural Community Corporation

23. Current land (including water) use:

a) within the Flyway Network site:

No resident; Some fishing activities and aquaculture; Water supply for agriculture

b) in the surroundings/catchment:

Mainly agricultural areas (rice paddies, dry cropland, and greenhouses), Residents, Farms and Poultry facilities, Orchards, manufacturing, and National/public/private-owned forests

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

a) a) within the Flyway Network site:

- Past: After the construction of Geum River Barrage in 1990, the lower reach of Geum River was turned into a kind of freshwater lake; the change of environments caused fragmentation of the estuarine ecosystem and reduced biodiversity.
- Present: The water quality of the Geum River Lake is in the 3rd class which requires water-quality managements. Widening Projects of two main roads along the site (Jeonbuk #706 and Chungnam #68) are under consideration and is already started in some parts.
- Potential: To improve water quality in nearby Saemangeum area, a new drainage system from the site to Saemangeum is under consideration and it may affect physical and hydrological condition of the site.

b) in the surrounding area:

- Rapid environmental changes caused by the Four River Restoration Projects in catchment areas (throughout 29.57 km in length) may affect some physical and biological features of the site.
- High pressures for tour site development around Geum River Lake
- On-going Saemangeum Reclamation

25. Conservation measures taken:

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

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

Wildlife Protection Area (Maseo-myeon and Hwayang-myeon) in Seocheon County

None in Gunsan

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?:

None

d) Describe any other current management practices:

Developing Kaoliang croplands and 3.4 km-trails along Gilsan Stream, Seocheon (between Samsan 1-ri and 2-ri): to supply food resources for wintering waterbirds and to manage walking/tour trails, the total areas of no-harvest zones in Kaoliang croplands has been increased based on the Biodiversity Management Contracts between local governments and farmers.

26. Conservation measures proposed but not yet implemented:

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

Designation of the Geum River estuarine areas (15km^2) as a Wetland Protection Area and a Ramsar Wetland is planned.

27. Current scientific research and facilities:

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

A 'Research on the Changes in avifauna of Geum River and Saemangeum' will be carried out by National Science Museum after 2011.

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

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

CEPA activities are closely related with the Gunsan International Migratory Bird Festival. Geumgang Migratory Bird Observatory has exhibition rooms, lecture rooms, and birdwatching trails for visitors. Seocheon County manages a 'BIRD VILLAGE-Bird Ecology Exhibition Hall' with exhibition rooms, lecture rooms, libraries, and birdwatching trails for visitors. Geumgang Environmeltal Education Center is also involved in CEPA activities.

More than 50 programs are run annually by many organization and authorities such as the UNDP/GEF Korea Wetland Project team (Geum River Project Team).

29. Current recreation and tourism:

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

In the site, visitors may experience both inland freshwater and coastal wetland along the Geum River Barrage; more than 2 million tourists annually visit this area. Seocheon County started to hold a birdfair since 1997, and significant parts of tourists, particularly in winter, are birdwatchers at present. Every November, Gunsan city holds the Gunsan International Migratory Bird Festival (generally 5 days) at the Geumgang Migratory Bird Observatory located nearby the site. According to the Gunsan City, approximately 350,000 people attended the festival in 2009. Every December, Seocheon County also manages the 'Seocheon Bird Travel' program (generally 1 month) at the Seocheon BIRD VILLAGE - Bird Ecology Exhibition Hall. In both side of the site, various programs such as international symposium, birdwatching tours, exhibitions and performances, and education programs are available in winter.

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

(from the Partnership Text)

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

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

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

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

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

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

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

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

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

Annex 2: Ramsar Classification System for Wetland Type

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

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

Marine/Coastal Wetlands

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

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

C -- **Coral reefs**.

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

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

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

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

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

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

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

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

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

Inland Wetlands

L -- **Permanent inland deltas**.

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

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

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

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

Q -- **Permanent saline/brackish/alkaline lakes**.

R -- **Seasonal/intermittent saline/brackish/alkaline lakes and flats**.

Sp -- **Permanent saline/brackish/alkaline marshes/pools**.

Ss -- **Seasonal/intermittent saline/brackish/alkaline marshes/pools**.

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

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

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

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

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

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

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

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

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

Zg -- **Geothermal wetlands**

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

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

Human-made wetlands

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

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

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

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

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

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

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

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

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

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