

Marine Protected Areas in DPR Korea

North-East Asia Marine Protected Areas Network (NEAMPAN) Programme



In the service of democracy, peace and development

Hanns Seidel Foundation 2019

Outline of the study

- 1) **Preamble and Background - Scope and Limitations of Research**
- 2) **Overview of Marine Areas in the DPRK**
 - a) General Overview
 - b) MPAs in the DPRK
 - c) Legal Framework
 - d) Actors and Activities for the marine ecosystem conservation in MPA
 - e) Challenges for MPAs in the DPRK
- 3) **The Project on the Wise Use of Wetlands as a Modell for International Cooperation**
 - a) Overview
 - b) DPRK and the Ramsar Convention – A model for Marine Protected Areas?
 - c) The Rason Special Economic Zone
 - d) The DPRK Wetland Directory
 - e) Indications for NEAMPANO
- 4) **Case Study: Mundok Migratory Bird Reserve**
 - a) Overview
 - b) Coastal Biodiversity Management of DPR Korea's West Sea and Mundok Migratory Bird Reserve – A GEF Project
 - c) Governance
 - d) Biodiversity
 - e) Ecosystem Services

MPAs in DPRK

1) Preamble

Preamble and Background



- Sources from DPRK are mostly **not available** publicly
- Coastal area of the country under **military jurisdiction**
- **Limited access** and mobility within the country, especially for foreigners, but also for local entities
- HSF with long experience in DPRK, and good cooperation with the Ministry of Land and Environment Conservation
- **Increasing efforts** for nature conservation in DPRK
- Experiences for **international cooperation** available through projects and **integration** in international frameworks

2) Overview of Marine Areas in the DPRK



2) Overview on designated MPA in the DPRK

General Overview

- Basic information available, e.g. through the first and second wetland inventory and consultancy/cooperation with the DPRK Ministry of Land and Environment Protection
- Limitation and restrictions of data
- Existing numbers and figures are not always reliable

“Considering its significance, the DPR Korean Government laid legal framework to conserve the marine resources and ecosystem, while mainstreaming them into the national policy and plans. And those sites, that are important in the regional ecosystem and biodiversity conservation, are designated as Marine Protected Areas (MPA); and protected and managed based on the rules and regulations.”

2) Overview on designated MPA in the DPRK

According to a Government report on Marine Protected Area from 2018, “presently, there are more than 40 Marine Resources Protected Areas such as Rajin Bay Marine Resources Protected Area and more than 15 Migratory Birds/Seabird Protected Areas such as Mundok Migratory Bird Reserve and Unmudo Seabird Protected Area.”

- Terminology is unprecise
- Lack of knowledge of main responsible entities
- Large range of laws and regulations existing
- On the paper also areas designated with a special protection status exist
- In reality, there have not been many measures to ensure and implement these policies

2) Overview on designated MPA in the DPRK



MPAs

1) Information available on

- Category

1 “Migratory Wetland Reserve”

2 “Sea Bird Reserve”

3 “Marine Resource Protected Area”

- Name of the Site

- Areas (size) of the PA

- Protected Species

- Additional information only on selected areas of category 1 and 2

2) Overview on designated MPA in the DPRK

MAIN MARINE PROTECTED AREAS

①Migratory (wetland)Reserve			
No	Name	Area(ha)	Location
1	Mundok	3715	Ryongrim-ri, Tongrim-ri, Mundok County, South Phyongan Province
2	Rason	3525.7	Kulpho-ri, Josan-ri, and Pupho-ri, Rason City
3	Ongjin	2500	Sohae-ri, Ongjin County, South Hwanghae Province
4	Kangryong	1500	Tongpho-ri and Tonggang-ri, Kangryong County, South Hwanghae Province
5	Paechon Yokkudo	1200	Yokkudo-ri, Paechon County, South Hwanghae Province.
6	Lake Tongjong	755	Kunsan-ri, Hasu-ri, Tongchon County, Kangwon Province
7	Kumya	2000	Wonphyong-ri, Tokkumi-ri, Haejung-ri, Kwangdok-ri, Kumya County, South Hamgyong Province
8	Orang Stream	1481	Ryongphyong-ri, Phalgyongdae-ri, Ponggang-ri, Iom-ri, Orang County, North Hamgyong Province.
9	Sindo	2500	Sindo County, North Phyongan Province

2) Overview on designated MPA in the DPRK

② Sea Bird Reserve			
No	Name	Aera(ha)	Location
1	Taegamdo	25	Jongju City, North Phyongan Province
2	Unmudo	85	Jongju City, North Phyongan Province
3	Tokdo	10	Onchon County, South Phyongan Province
4	Rapdo	20	Unjong-ri, Sonchon County, North Phyongan Province
5	Tongchon Alsom	15	Kumsan-ri, Tongchon County, Kangwon Province
6	Rason Alsom	20.5	Uam-ri, Rason City
7	Mugido	30	Unong-ri, Sonchon County, North Phyongan Province

2) Overview on designated MPA in the DPRK

③ Marine Resource Protected Area			
No	Name	Protected Species	Location
1	Rajin Bay	Sand Seaweed, Sea Urchin	Rason City
2	Raksan Bay	Scallop, Sea Urchin, Sea Cucumber, Salmon	Chongjin City, North Hamgyong Province
3	Rocahng Bay	Sea Urchin, Scallop, Sea Cucumber	Chongjin City, North Hamgyong Province
4	Hwangjin Bay	Unio, Scallop, Sea Cucumber	Myongchon County, North Hamgyong Province
5	Sinchang Bay	Sea Urchi, Sea Cucumber, Ear Shell	Pukchong County, South Hamgyong Province
6	Riwon Bay	Scallop, Green Laver, Sea Urchin, Ark Shell	Riwon County, South Hamgyong Province
7	Yanghwa Bay	Scallop, Sea Urchin	Sinpho City, South Hamgyong Province
8	Rakwon	Scallop, Sea Cucumber, Ear Shell	Rakwon County, South Hamgyong Province
9	Soman	Oyster (<i>Crassostrea gigas</i>)	Chonnae County and Munchon City, Kangwon Province
10	Munchon	<i>Ahnfeltia plicata</i>	Wonsan City and Munchon City, Kangwon Province

MPAs in DPRK

2) Overview on designated MPA in the DPRK

No	Name	Protected Species	Location
11	Kosong Bay	Sea Cucumber, Ear Shell, <i>Undaria pinnatifida</i>	Kosong County, Kangwon Province
12	Josan Bay	Salmon, Myongthae(walleye Pollack)	Sonbong Area, Rason City
13	Kyongsong	Myongthae(walleye Pollack)	Kyongsong County, North Hamhyong Province
14	Ongjin	Laver(<i>Porphyra</i>)	Ongjin County, South Hwanghae Province
15	Dungsan Point	Atlantic Salmon, Sea Cucumber, Ear Shell, <i>Rubia cordifolia</i>	Kangryong County, South Hwanghae Province
16	Mahapdo	<i>Rubia cordifolia</i> , Sea Cucumber	Ongjin County, South Hwanghae Province
17	Ocha	Sea Cucumber, Ear Shell	Ryongyon County, South Hwanghae Province
18	Oryuji	Sea Cucumber	Jangyon County, South Hwanghae Province
19	Ryongsupho	Sturgeon	Kwail County, South Hwanghae Province

2) Overview on designated MPA in the DPRK

Priorities in Management of Protected Areas regarding International Cooperation

- Review and revise relevant **laws and regulation**; strengthening the **institutional capacity**
- Organize workshops, seminars, study tour, training, field visit, TOT, cross visits
- Cooperation, communication, exchange of information, advanced technologies, and good practices
- Public **awareness** raising, school **education**
- More celebrating events on the occasion of environmental days
- Creation of **model site** and expansion of its good experiences
- Establishment of the observation post, arrange regular survey and supervision
- Awareness raising among managers and local people to engage them into the conservation activities
- Supplement the survey **equipment** and organize the training for surveyors for assessing changes in numbers of migratory birds and ecological changes in the protected areas
- Establishment of **education center** for awareness raising among manager, local people and visitors
- Strengthening the collaboration between stakeholders and improves the **national management system**

2) Overview on designated MPA in the DPRK

National Policy for Wetland Conservation

- To prevent the ecosystem damages caused by the economic developments through the establishment of the **national impact assessment system**
 - To designate **protected areas** for conservation and rational management
 - To develop and implement the **environmental management plan**
 - To conduct regular **surveys** on biodiversity
 - To **extend** the total area of the protected areas
-
- Management of protected areas in the DPRK are based on a variety of laws
 - Regarding the enforcement a **lack of capacity and resources** on the central and local level are evident
 - **Ideological Strategy** and no legal and formally enacted policy by the government:
 - *“Under the wise policy and leadership of the party and government, the activities for wise use and management of wetlands have been integrated into the national policy and conducted rationally in line with the national strategy in DPR Korea. For the sustainable use and management of wetland, it has laid out the laws and regulations on wetland conservation and the concerning institutions have fully implemented their duties and obligations”*

2) Overview on designated MPA in the DPRK

Legal Framework - Overview of Laws related to environmental issues:

- Law on Prevention of Marine Pollution, DPRK (1997)
- Law on Environment Protection, DPRK (1986)
- Law on Environment Impact Assessment, DPRK (2006)
- Law on Scenic Spots and Natural Monuments Protection, DPRK (1995)
- Law on Fishery, DPRK (1998)
- Law on Treatment of Wastes and Waste Material, DPRK (2007)
- Law on Natural Reserves (2009)
- Law on Rivers and Streams (2002)
- Law on Conservation of Useful Animals (1998)
- Law on Water Resources (1997)
- Law on Agriculture (1998)
- Law on Prevention of Taedong River Pollution (2008)
- Law on Prevention of Sea Pollution (1997)

MPAs in DPRK

2) Overview on designated MPA in the DPRK

Areas addressed	Relevant legislation	
Ecological environment conservation	Law on Environmental Protection (1986) Law on Water Resources (1997) Law on Prevention of Marine Pollution (1997) Law on Conservation of Useful Animals (1998) Law on Fish Culture" (1998) Law on Environment Impact Assessment (2006)	<ul style="list-style-type: none"> - Principles for the ecological conservation of the environment
Protected Areas	Law on Environmental Protection (1986) Law on Conservation of Useful Animals (1998) Law on Natural Reserves (2009)	<ul style="list-style-type: none"> - Principles for classification and designation of natural protected areas on the basis of their conservation values - Registration of PA and natural monuments - Designation of focal, buffer and ecological transit areas for protection and rational use of biodiversity - Guidance and control over the management of PA and natural monuments
Prohibited actions / activities	Law on Environmental Protection (1986) Law on Conservation of Useful Animals (1998) Law on Natural Reserves (2009) Laws on Waste Disposal	<ul style="list-style-type: none"> - Protection of animals and plants of high ecological value and of natural monuments - Prohibition of any act destroying the balance of natural ecosystems
Use of wetland / marine resources	Law on Environmental Protection (1986) Law on Fishery (1998) Law on Prevention of Marine Pollution (1997)	<ul style="list-style-type: none"> - Prohibition of disposing waste water into marine resources - Protection of marine resources with periodically investigating the level of the pollution
Monitoring, investigation and control	Law on Environmental Protection (1986) Law on Conservation of Useful Animals (1998) Law on Natural Reserves (2009)	<ul style="list-style-type: none"> - Survey of PA and natural monuments - Scientific and research and training of relevant technicians and experts
Land ownership and use	Land Law (1977) Forestry Law (1992) Tideland Law (2005) Law on Water Resources (1997) Law on Fishery (1998) Law on Agriculture (1998)	<ul style="list-style-type: none"> - stipulates land ownership - management of wetland and other land resources according to National Land Development Master-plan - development and use on the basis of ecological environment impact evaluation - prohibition of illegal development and use of wetland resources
Wetland protection	Laws of Rivers and Streams (2002) Laws on Waste Disposal (2007) Law on Lock Gate (2001)	<ul style="list-style-type: none"> - Principles for wetland protection, monitoring, investigation and control for prevention of wetland damages - re-zoning of wetlands for protection of ecological environment - scientific research and capacity-building for wetland protection - legal control and punishment for the human destruction of wetland.
Prevention of Sea Pollution	Law on Prevention of Sea Pollution (1997)	

2) Overview on designated MPA in the DPRK

- The **organizations or entities that are responsible** for implementing the laws and regulation were not clearly stated.
- Mostly, it was stated that laws should be implemented by "DPR Korea" , "environment protection related organizations" and "scientific research institutions“
- **No specification** about the name of the entities that are responsible for implementing the laws.

For example: Law on Prevention of Sea Pollution (1997)

- Establishment of strict discipline and order in prevention of sea pollution so as to protect the water quality and resource at sea
- Regulates the establishment of water quality protection area by **concerning agency** and strengthening of supervision and controlling activities and scientific research activities to prevent sea pollution

2) Overview on designated MPA in the DPRK

Actors related to Environment Conservation

Entity	Responsibility
National Coordinating Committee for the Environment (NCCE)	<ul style="list-style-type: none">- Convened by the Ministry of Foreign Affairs- Serves as an inter-Ministerial forum where environmental policy is determined in a cross-sectoral manner- Provides a cross-sectoral and cross-cutting mechanism for environmental administration and planning in DPR Korea, but currently lacks the capacity to implement such projects effectively.
Ministry of Land and Environment Protection (MoLEP)	<ul style="list-style-type: none">- Lead organization with operational responsibilities for environmental administration- Mandate arises from the various environmental laws and regulations that it administers- Plans both for land protection and land reclamation within the sensitive coastal area
State Academy of Sciences (SAOS)	<ul style="list-style-type: none">- Scientific assessment of the environment- Support and monitoring of environmental issues under the guidance of MoLEP
Nature Conservation Union of Korea (NCUK)	<ul style="list-style-type: none">- Awareness raising and public communication

2) Overview on designated MPA in the DPRK

Actors and Activities for the marine ecosystem conservation in MPA

The **Ministry of Land and Environment Protection (MoLEP)** is responsible for the management and control for the conservation of ecological environment and has the following tasks:

- *reviews the plans of marine pollution control at the regional and enterprises' levels*
- *formulates the National Plan of Marine Pollution Prevention based on detailed review of those plans from different levels*
- *once the plan is approved by the Cabinet, the MoLEP takes charges in the execution of the plan by mainstreaming them into annual plans or Land Management Plans*
- *designates the MPAs under the approval of the Cabinet*
- *selects the responsible entities for the MPA management and conservation*

According to MoLEP, **all responsible entities** should take necessary measures to

- *development of the environment conservation plan*
- *regular monitoring and recording of the marine ecosystem and its changes*
- *conservation activities in the MPAs*
- *construction of revetments, embankment, waterway and shoreline protection facilities for preventing the ecosystem damages*
- *sustainable management such as drainage system in MPAs*
- *prohibiting the exploration and any activities that might cause marine pollution*

Land and environment protection entities and the responsible scientific research entities should

- *regularly conduct the field surveys on pollution threats and ecological changes based on the criteria set by the MoLEP in fixed survey spots for 3 times per month and recorded any ecological changes monthly, or quarterly*
- *The land and environment protection entities and responsible scientific research entities should also conduct the regular surveys on status of the marine animals and plants and water quality and should take necessary measures to address the marine pollutants*

2) Overview on designated MPA in the DPRK

Challenges

- Lack of capacity of local officials
- Short of fund to manage the protected area
- Lack of awareness among local communities
- Irregular surveys due to lack of survey equipment and surveyor
- Illegal hunting and overexploiting
- Unclear demarcation of the reserves boundaries
- Lack of awareness of local people
- Insufficient collaboration between stakeholders
- Natural factors such as sea level rise and temperature rise by the global warming
- Socio-economic activities such as economic development and improper disposal of the wastes nearby the MPAs.

2) Overview on designated MPA in the DPRK

Challenges – Media Analysis

Fishing rights: Several media reports have indicated that fishing rights in North Korea were sold to China. In 2016, United Press International published an article based on South Korean intelligence sources that North Korea sold its state fishing rights along coastal water on both sides of the peninsula, earning \$75 million having an "intermediary trading company" use its maritime rights.

Report on KCNA in July 2018: Creation of a **Marine Environmental Protection Center** under the Maritime Administration of the DPRK. While not much is known internationally about the institution, the article claims that the center, founded in 2011,

- Undertakes ship-based pollution removal and damage recovery operations in the territorial seawaters and rivers of the DPRK
- It encourages the introduction of homemade products into ship-oil pollution removal in the seas, rivers and lakes, thus making contribution to ensuring good environment
- Adsorptive belt for checking the spread of oil pollution, mineral oil adsorbent and mineral oil dispersant have been applied to all the ports in the country, making great contributions to preventing pollution.
- The national system for quality inspection of ship oil and ship oil analyzers like densimeter, automatic flash-point tester and automatic sulfur analyzer are playing a big role in keeping off marine accidents caused by fire and preventing air pollution.
- The ship oily sewage filter proves effective in removing sea pollution."

➤ **The scope of the institution is not known and further research and exchange with partners in the DPRK would be necessary to find out more.**

3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

Overview

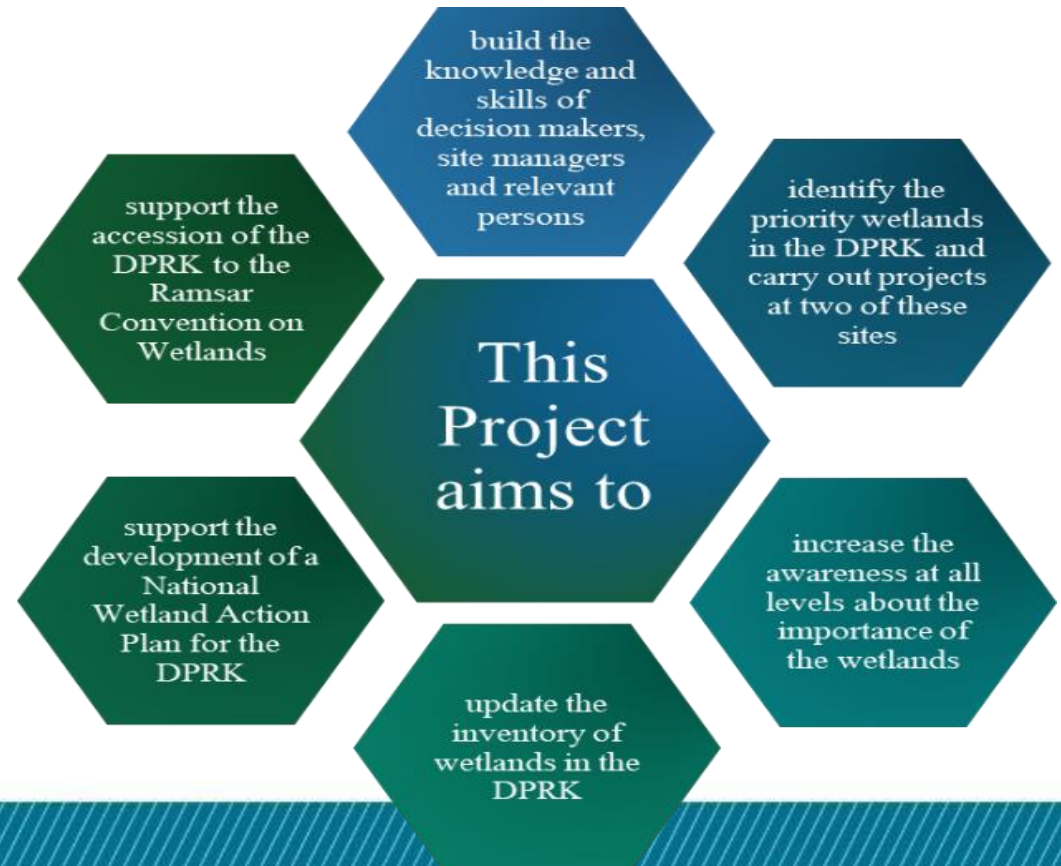
- Increased cooperation with the DPRK over the last years, despite politically difficult developments
- Integration into the Ramsar Convention, East – Asian Australasian Flyway Partnership and IUCN – and in the future others?
- War on Forest Rehabilitation as a state policy and expansion of the policy into functioning ecosystems, including wetlands, biodiversity and maritime areas
- A chance for cooperation with North Korea and a better understanding of local conditions

3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

DPRK and the Ramsar Convention – A model for Marine Protected Areas?

Activities included

- Trainings
- CEPA/Awareness
- Research
- Workshops/Conferences
- Regional activities
- Involvement in task forces, etc.



MPAs in DPRK

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3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

DPRK and the Ramsar Convention – A model for Marine Protected Areas?

- **National Wetlands Inventory:**

Publication in October 2018 and site surveys along the East and West Coast

- **Awareness Raising:**

Awareness-raising activities (e.g. translation of Ramsar Convention and handbooks, celebration of International Environment Days) for a better understanding for healthy ecosystems

- **Enhanced Networks:**

Regular participation of representatives of the North Korea in international meetings, conferences, and workshops, as well as representatives of more than 10 international organizations paying visits to North Korea

- **Reintegration into International Environment Networks:**

MoLEP became a member to IUCN, DPRK acceded the Ramsar Convention and the EAAFP, leading to international cooperation naturally

- **Capacity Building:**

Trainings abroad and in the DPRK supported the environmental sector in the DPRK and lead to an improvement of skills and knowledge.

- **Ramsar Sites, EAAFP and IUCN Accession**

Commitment by DPRK to sustainable management and conservation of Mundok Ramsar Site, Rason Ramsar Site, and Kumya EAAFP Network Site – potential for international cooperation



MPAs in DPRK

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3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

DPRK and the Ramsar Convention – A model for Marine Protected Areas?

1. Global/Regional level

- Supporting the Participation in the YS/West Sea Working Group
- Supporting the Participation in Ramsar Meetings
- Involvement in World Heritage Initiatives
- Strengthening the Network and Partnership in Northeast Asia

2. National level

- Consultation to improve the legal frameworks
- Support of the creation and facilitation of national wetlands committees
- Support of the revision of National wetlands inventories
- Support of the development and implementation of CEPA national strategies
- Support of National Environment Days (World Migratory Bird Days, International Biodiversity Days)

3. Site level: Mundok

- Support of revision of Ramsar Site Information Sheets, Flyway Network Site Information Sheets
- Support of the Creation of site management committees in Protected Areas
- Joint biodiversity and socio-economic research and studies
- Support of the development of management plan
- Support of the development of monitoring programmes
- Support of the development of education programmes and facilities
- Capacity building and trainings at site level

4. Site level: Rason

- Support of revision of Ramsar Site Information Sheets, Flyway Network Site Information Sheets
- Support of the Creation of site management committees in Protected Areas
- Joint biodiversity and socio-economic research and studies
- Support of the development of management plan
- Support of the development of monitoring programmes
- Support of the development of education programmes and facilities
- Capacity building and trainings at site level
- TB exchange and cooperation with China, Russia, eco-tourism strategy and implementation

3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

Rason Special Economic Zone

- Engagement of UNESCAP, HSF, and others in 2014
- Research activities to enable Rason Migratory Bird Reserve to be designated as a Ramsar Site
- Cooperation as a means for a better understanding and to increase information availability and accessibility



3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

The DPRK Wetland Directory

- 2nd Updated version published in 2018 after more than two decades
- Usage of Wetland Ecosystem Assessments
- 54 coastal, inland and artificial wetlands in the country
- Contribution to the national policy-making for the wetland conservation and management and as a baseline for achieving SDG 6, 14, 15.1, 15.9.

Code	Wetland Types	Representative wetlands
Marine/Coastal Wetlands		
A	Permanent shallow marine waters	Water area around Is. Al, Hamhung bay, Estuary of River Nam
B	Coral reefs	Some areas on east and west coastal area
D	Rocky marine shores	Castal area of estuary of Nam River, Is. Al, Is.Rab
E	Sand, shingle or pebble shores	sand bars in Lake Sijung, Lagoon Chona
F	Estuarine waters;	Estuaries of Amnok. River, Tuman River and Chongchon River and etc.
G	Intertidal mud, sand or salt flats.	Is.Maan Tideland, Taedong Bay, Ongjin Bay
H	Intertidal marshes;	Is. Yo at the estuary of Chongchon River, Is.So at the estuary of Amnok River and etc.
J	Coastal brackish/saline lagoons;	Lagoon Kwang, Lake Tongjong, Lake Sijung and etc.
K	Coastal freshwater lagoons	Lake Jangyon, Lake Mugye and etc.
Zk(a)	Karst and other subterranean hydrological systems, marine/coastal	Kumran Cave

3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

The DPRK Wetland Directory

Inland Wetlands		
L	Permanent inland deltas.	Rungra Islet, Ryanggak Islet and Ssuk Islet in Taedong river
M	Permanent rivers/streams/creeks	Amnok River, Tuman River, Taedong River, Chongchon River, Kumya River and etc.
N	Seasonal/intermittent/irregular rivers/streams/creeks.	common
O	Permanent freshwater lakes (over 8 ha)	Lake Chon, Lake Samji and etc.
P	Seasonal/intermittent freshwater lakes (over 8 ha);	some
Sp	Permanent saline/brackish/alkaline marshes/pools.	some
U	Non-forested peatlands	Paegam Peatland
Xp	Forested peatlands	Distributed in some areas of North Hamgyong Province and Ryanggang Province
Y	Freshwater springs; oases.	common
Zg	Geothermal wetlands	Hot springs in Kyongsong, Songhung, Sechon, Jongdal, Sinchon, Unchon, Sektang and etc.
Zk(b)	Karst and other subterranean hydrological systems, inland	Ryongmun Cavern and Paekryong Cavern

3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

The DPRK Wetland Directory

Human-made wetlands		
1	Aquaculture (e.g., fish/shrimp) ponds	Fishing ponds in Is.Tasa Tideland and Poman-ri
2	Ponds	farm ponds, stock ponds, salt pans
3	Irrigated land	Pyongyang Plain, Yoldusamchonri Plain, Yonbaek Plain., Jaeryong Plain and etc.
4	Seasonally flooded agricultural land	Distributed in small size around the river basin
5	Salt exploitation sites;	salt pans in Namyang, Yonan, Ongjin Bay, etc
6	Water storage areas;	Mayang Reservoirs,lake Unpha, Lake Sohung, Lake Yonphung
7	Excavations;	Mining pools in Mundok County
8	Wastewater treatment areas;	sewage farms in some places
9	Canals and drainage channels, ditches.	some

3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

The DPRK Wetland Directory

- Regarding Marine Areas the section on “Production of Fisheries” are most important. Following the data given, it says that there are “860 species of fish of which 660 species live in the sea and 190 species in lakes, reservoirs, rivers and streams”.
- Looking closer onto the field of **Marine Areas and the related wetland types** “Permanent shallow marine waters” in category A as well as category B or C (Marine subtidal aquatic beds and coral reefs, respectively), it must be noted that out of the 56 wetlands listed in Annex I “The list of significant wetlands in DPR Korea”, a total of 14 are categorized as “in most cases less than six metres deep at low tide” (see table below) and none within category B or C (Marine subtidal aquatic beds and coral reefs, respectively).
- No. 12. Island Muki and Rap
- No. 39. Nam River Estuary
- No. 41. Lake Tongjong and Lagoon Chona
- No. 42. Lake Sijung
- No. 43 Namdaechon Estuary and Anbyon Plain
- No. 44 Kumya River Estuary
- No. 45 Lagoon Ha
- No. 46. Songchon River Estuary and Hamhung Plain
- No. 47 Lagoon Kwang
- No. 49. Orangchon Estuary
- No. 53. Lagoon Sobon and Tongbon
- No. 54. Lagoon Man
- No. 55. Island Al
- No. 56. Tuman River Estuary

➤ indication of potential Marine Areas, but not much further information on the entire scope of Marine Areas in the DPRK

3) The project on the Wise Use of Wetlands as a Modell for International Cooperation

The DPRK Wetland Directory – Indication for NEAMPAN

- Some indicators can also be used for a better understanding of Marine Areas in the DPRK
- The Wetland Inventory for DPR Korea is so far one of the **most conclusive** and comprehensive list of wetlands, due to the lack of resources and capacity it is still **far below international standards**
- NEAMPAN strategy can close a gap, similar to the project on the Wise Use of Wetlands in the DPRK



Graph. The location of significant wetlands in DPR Korea

MPAs in DPRK

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4) Case Study: Mundok Migratory Bird Reserve

Mundok Migratory Bird Reserve



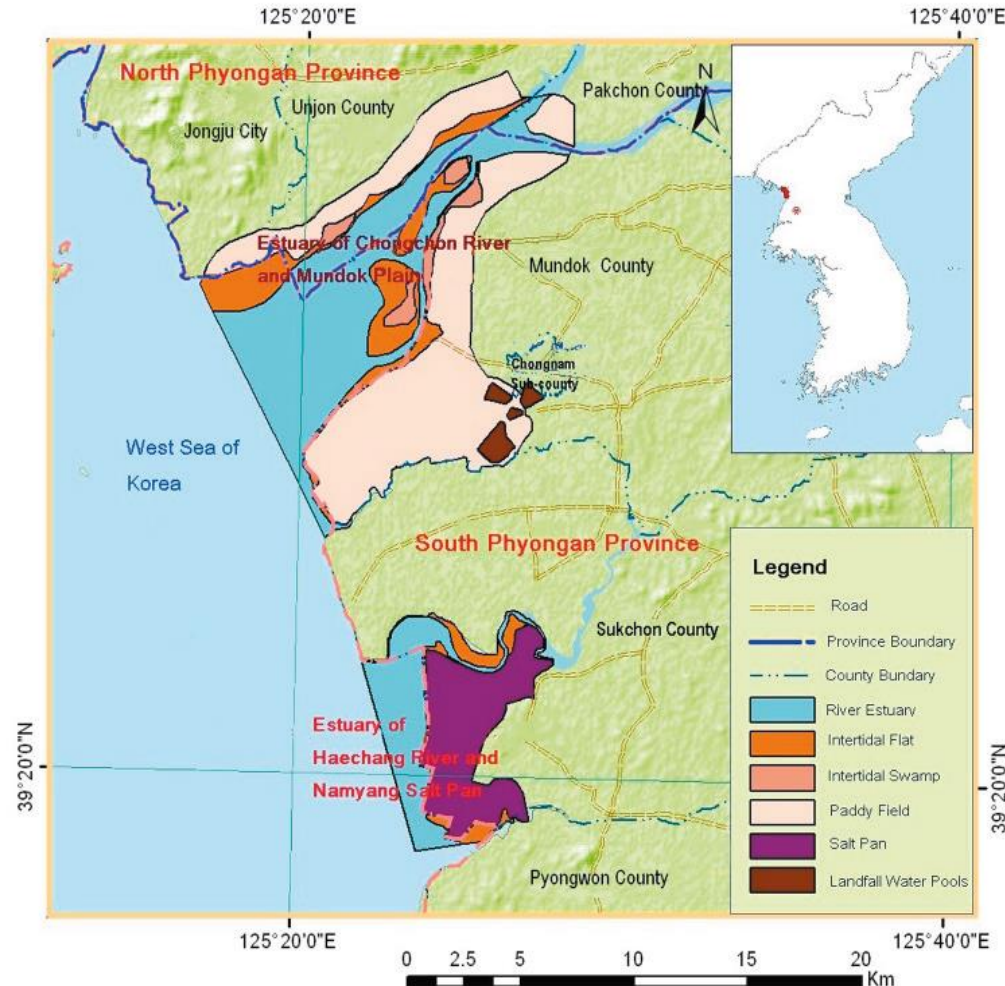
Location: Mundok County, South Phyongan Province

Area: 3 715 ha(established in 1995)

Wetland types: delta(marsh), inter-tidal, watershed, rice paddy fields, landfalls

4) Case Study: Mundok Migratory Bird Reserve

- Already in 1999, the site was listed as a site in the East Asia Crane Network, which resulted later as the designation as a EAAF Network site and finally in 2018 as the first Ramsar Site (together with Rason MBR)
- Due to national and global significance and long-lasting work on the site, it is until today the coastal **Protected Area with the most scientific information available and also the best management in place (while internationally the standard is still low)**
- The site has been listed by MoLEP as a Marine Protected Area in their latest report and in its character as a Migratory Bird Reserve and Ramsar Site



4) Case Study: Mundok Migratory Bird Reserve

Coastal Biodiversity Management of DPR Korea's West Sea and Mundok Migratory Bird Reserve – A GEF Project

The project operated on **three levels**:

- a) At the provincial and national level: planning processes will be enhanced through capacity building, increased public involvement and the development of broad-based planning processes for South Pyongan Province.
- b) At the county level: a fully developed integrated Coastal Zone Management Plan will be implemented in the Mundok County Coastal zone.
- c) At the local level: demonstration of effective and integrated coastal zone management plans will be implemented for biodiversity conservation, agriculture, and other related sectors, focusing on and around the Mundok reserve.

Four broad project objectives have been identified:

- a) Planning processes for wetland management effective at national and local levels;
- b) Public awareness of natural resources and biodiversity values achieved through increased participation in protected areas management;
- c) Implementation of the integrated coastal zone management plan in Mundock County to demonstrate biodiversity conservation with sustainable development;
- d) Management practices in industries and other sectors with potential environmental impacts improved.

4) Case Study: Mundok Migratory Bird Reserve

Coastal Biodiversity Management of DPR Korea's West Sea and Mundok Migratory Bird Reserve – A GEF Project

- The project is of high relevance for potential marine protected areas, as it is the first at least partially implemented international project in the DPRK on coastal biodiversity management (and therefore at least partially also targeting marine or maritime area) and has given Mundok MBR an advanced management plan and administrative structure.
- One of the outcomes of the project is a management plan for Mundok MBR. However, this data is not available as of now.
- At the same time the “Project Document for CEO Approval” for the Medium-Sized Project Coastal Biodiversity Management of DPR Korea's West Sea gives some insights in the situation of the site, envisaged objectives for the future development of the site and also information on challenges and objectives that can serve as a indicator for related projects, e.g. on marine areas.

4) Case Study: Mundok Migratory Bird Reserve

Governance

within the Ramsar site:

- Fishery activities and agricultural production activities are mainly conducted by marine stations and residents.

in the surroundings/catchment:

- Fishery activities and agricultural production activities are mainly conducted as in the past and no construction and exploitation activities are advanced.

The management is implemented by “*Mundok Migratory Bird Reserve Management Center*”, “*Land and Environment Protection Department*” of Mundok county, MoLEP and other referent institutes such as the Institute of Biodiversity.

Mundok Migratory Birds Reserve Management Office controls and manages the activities including marine and agriculture production and reed cutting regularly in the reserve area.

“The Mundok Migratory Bird Reserve Management Board takes charge in the site-management, conservation of migratory birds and controlling illegal activities in the reserve area. The staff members are sometimes engaged in the bird monitoring and recording, but it still requires more capacity-building and awareness increase on the management skills, bird-watching, wetland ecosystems and migratory bird conservation.”

Report by the Ministry of Land and Environment Protection, DPRK: Marine Protected Areas in the DPRK (2018).

4) Case Study: Mundok Migratory Bird Reserve

Challenges

- Mundok MBR as one of the few site with a **specific management system** (staff, management entity, etc.) but suffers of a **lack of capacity** to manage the area well and is severely restricted by a lack of proper training, low levels of equipment (no binoculars, radios, and only one vehicle at HQ) and lack of direction and operational planning from higher authorities
- Current **management of the protected area is very basic**, consisting of regular patrolling to stop illegal activities, ad hoc tree planting and monitoring of the migratory bird populations (by the Academy of Sciences)
- The management plan is not operational (?)
- The reserve **boundaries are unmarked** and there appears to be significant areas of inter-tidal lands outside the reserve that are of importance for biodiversity too.
- Linkages and collaboration with land managers in adjacent areas are few, despite management of a 'common resource'
- Local communities currently attain few benefits from their association with the reserve
- Outreach to local communities is stipulated, but due to lack of means of communications, transport and propaganda the management is not fully carried out

4) Case Study: Mundok Migratory Bird Reserve

Biodiversity

- The area consists of delta(F), tideland(G), marsh soaked by seawater (H), artificial reservoir(2), paddy fields and water trough(3), salt farms(5) and soil depression (7). The area inhabits 120 species of birds including 22 threatened species and other birds.
- In this wetland over 80,000 waterbirds inhabit annually and internationally important numbers have been recorded for 10 species with 1% of global population:

Common name	Scientific name	Waterbird counts	1% used in this table	Rate, %
Greater white-fronted goose	Anser albifrons	7,000	840	>8
Bean goose	Anser fabalis serrirostris	2,300	1,100	>2
Swan goose	Anser cygnoides	40,000	680*	>58
Northern pintail	Anas acuta	3,500	2,400	~1.5
Red-crowned crane	Grus japonensis	39	10	~4
White-naped crane	Grus vipio	300	45	>6
Hooded crane	Grus monacha	1,500	110	>13
Bar-tailed godwit	Limosa lapponica baueri	2 900	1 300	>2
Far-eastern curlew	Numenius madagascariensis	750	320*	>2

MPAs in DPRK

4) Case Study: Mundok Migratory Bird Reserve

Biodiversity in the Reserve

Flora

- 102 species, 29 families, 23 orders

Fauna

- Annelida - 7 species
- Mollusca - 15 species
- Crustacea - 20 species
- fish- 62 species, 29 families, 16 order
- reptiles- 6 species, 5 genera, 3 families, 2 orders
- Birds- 186 species, 33 families, 11 orders (migratory birds: 161 species, waterbirds 91 species)
- Animal - 24 species, 20 genera, 12 families, 5 orders

Plants community

- *Ranunculales*
- *Papaverales*
- *Leguminosae*
- *Lythrales*
- *Trapaceae*
- *Urticales*
- *Chenopodiaceae*
- *Plantaginales*
- *Ruppiales* ...



Invertebrates in West Sea

- Sea worm
Cipangopaludina malleata
- clam
Cipangopaludina malleata
- Tiny shrimps
Acetes chinensis
Macrobrachium
Neptunus tuberculatus
Eriocheir
Helice tridens

Main fish species

- *Mugil cephalus*
- *Collichthys lucidus*
- Goby
- Sweat fish
- *Tetraodontidae*
- *Coilia ectenes*
- *Coilia mystus*
- eel
- *Carassius auratus*
- catfish
- *Cyprinus carpio*
- mudfish
- *Ophicephalus argus*
- *Pelteobagrus fulvidraco*

Animal species

- *Bombina orientalis*
- *Rana catesbeiana*
- *Hyla arborea japonica*
- *Kaloula borealis*
- mole
- *Apodemus agrarius*
- Wood mouse
- Weasel

Main threatened species in Mundok

Nº	English name	Scientific name	level
1	Chinese Egret	<i>Egretta asiatica</i>	VU
2	Oriental Stork	<i>Ciconia boyciana</i>	EN
3	Crested Ibis	<i>Nipponia nippon</i>	EN
4	Black-bellied Green Heron	<i>Butorides</i>	VU
5	Asian Green Heron	<i>Butorides</i>	VU
6	Lesser White Heron	<i>Butorides</i>	VU

4) Case Study: Mundok Migratory Bird Reserve

Animal species

- *Bombina orientalis.*
- *Rana catesbeiana.*
- *Hyla arborea japonica.*
- *Kaloula borealis*
- *Rana nigromaculata.*
- *Takydromus amurensis.*
- *Agkistrodon blomhoffi.*
- Water snake
- *Elaphe rufodorsata*
- mole
- *Apodemus agrarius*
- Wood mouse
- Weasel
- Manchurian reed vole
- Shrew
- *Crocidura dsinezumi.*
- *Hydropotes inermis.*

Main threatened species in Mundok

Nº	English name	Scientific name	level
1	Chinese Egret	<i>Egretta eulophotes</i>	VU
2	Oriental Stork	<i>Ciconia boyciana</i>	EN
3	Crested Ibis	<i>Nipponia nippon</i>	EN
4	Black faced spoon bill	<i>Platalea minor</i>	EN
5	Swan goose	<i>Anser cygnoides</i>	VU
6	Lesser white fronted goose	<i>Anser erythropus</i>	VU
7	scaup	<i>Aythya baeri</i>	CR
8	white naped crane	<i>Grus vipio</i>	VU
9	Hooded crane	<i>Grus monacha</i>	VU
10	red crowned crane	<i>Grus japonensis</i>	EN
11	Far Eastern Curlew	<i>Numenius madagascariensis</i>	VU
12	Norman's Greenshank	<i>Tringa guttifer</i>	EN
13	Red Knot	<i>Calidris temirostris</i>	VU
14	Spoonbilled sandpiper	<i>Eurynorhynchus pygmeus</i>	CR
15	Saunders's Gull	<i>Larus saundersi</i>	VU

4) Case Study: Mundok Migratory Bird Reserve

Ecosystem Services

- **Provisional Services:** Rice Production and fishery are a major part of the local industry. Reed harvest and marine resources collection (e.g. mud worm, shrimps) are also important for the local economy.
- **Regulation Services:** Importance of the estuary as water regulation function and impact of the oceanic climate to the inland of the site due to the location at the estuary of the river.
- **Cultural Services:** Site is a natural monument as the “Mundok White Crane Habitat”. There is also a scientific value due to the abundance of migratory birds and regular surveys that take place. Public awareness and education for local schools are conducted and related to Mundok MBR.
- **Supporting Services:** Alluvial mud layer is predominant in the region and supports globally endangered species. The estuary also plays an important role in the nutrient and water cycle in the region.

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Thank you for your attention!

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