

Globally significant mammals in the Yellow Sea Ecoregion

A table of mammal indicator species and their global significance

Indicator Species		Criteria for habitat and vulnerable species of global significance		
Scientific names	Common English names	Criterion 1: Endemism	Criterion 2: Vulnerable Species	Criterion 3: Commercially Important Species(not adopted)
<i>Neophocaena phocaenoides</i>	Finless porpoise	C(assubspecies),K?(needDNA analysis to identify subspecies)	C(protected but victims bycatch), K (protected but consumed)	
<i>Phoca largha</i>	Largha seal	C K	C (1000 around Bohai sea), K (400-500 in indicated area during the summer)	
<i>Eschrichtius robustus</i>	Gray whale		C, K, IUCN CR (100 ind. remain)	
<i>Lutra lutra</i>	Eurasian otter		K, IUCN NT listed (no record in China)	
<i>Balaenoptera borealis</i>	Sei Whale		IUCN EN	
<i>Balaenoptera musculus</i>	Blue Whale		IUCN EN	
<i>Balaenoptera physalus</i>	Fin Whale		IUCN EN	
<i>Eubalaena japonica</i>	North Pacific Right Whale		IUCN EN	

Notes to the table

Each indicator species were assessed against Criterion 1, 2 and 3. When an indicator species meets Criterion 1 according to data available in China, then it is indicated by C (China).

Note 1: In Criterion 1,2 and 3 columns, C indicates that a criterion is applicable to the corresponding species according to data from China, K: South Korea.

Note 2: IUCN CR and IUCN EN indicate the species is classified as Critically Endangered (CR) or Endangered (EN) in the IUCN Red List of Threatened Species.

Photos by: WON, Changman, Qian ZHU, Tobai Sadayosi, Jo Soon-Man, GeoEye and NASA SeaWiFS Project, Large Marine Ecosystem Program - NOAA



Finless porpoise

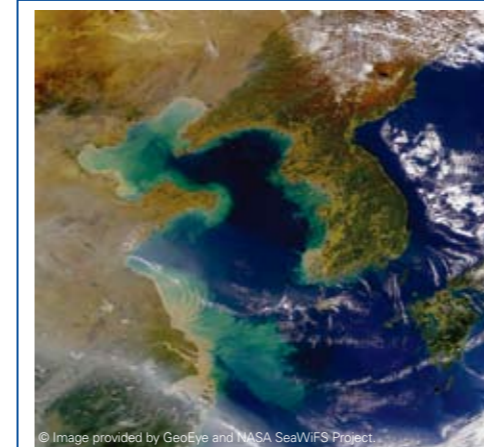


Largha seal haul-out area in Korean DMZ



Eurasian otter

Mammals of the Yellow Sea Ecoregion and their habitats



Satellite photo of Yellow Sea Ecoregion



Largha seal haul-out area in Korean DMZ

Mammals of the Yellow Sea Ecoregion

About the area

The Yellow Sea Ecoregion is one of the world's largest areas of continental shelf. The Yellow Sea Ecoregion encompasses the Bohai Sea, the Yellow Sea and the East China Sea. It is a transboundary area, and extends from the coastlines of China, North Korea, and South Korea to a depth of 200m.

Valuable nutrients flow from the Yangtze and Yellow rivers and combine with sunlight and shallow waters to create an area that teems with abundant marine life.

Diversity of mammal species

Seventeen species of whales and dolphins and four species of seals and sea lions are found in the Yellow and Bohai seas. In addition, the ecoregion is an important habitat for Eurasian otter (*Lutra lutra*), a species that is not strictly a marine mammal and which lives in estuaries and marine coves in the south-western part of the Korean peninsula, as well as the Finless Porpoise (*Neophocaena phocaenoides*), which lives in the estuary area of the Yangtze.

What is an ecoregion?

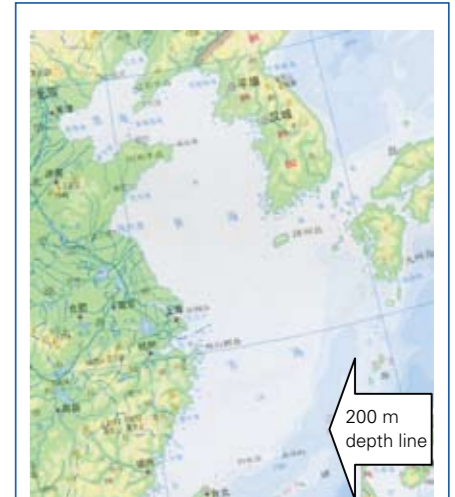
Biodiversity is not spread evenly across the Earth but follows complex patterns determined by climate, geology and the evolutionary history of the planet. These patterns are called ecoregions. WWF defines an ecoregion as a large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions. The boundaries of an ecoregion are not fixed and sharp, but rather encompass an area within which important ecological and evolutionary processes most strongly interact.

The frozen sea – a critical breeding area for Largha Seal

The Bohai Sea is the only area of the Yellow Sea Ecoregion that freezes extensively in winter. In November each year, Largha seals (*Phoca largha*) migrate in pairs to breed on ice floes here. Scientists suspect that Largha seals in this region may be a geographically as well as genetically isolated from other northwest Pacific populations, although genetic analysis is required to confirm this.

Marine DMZ (Demilitarised Zone) – a safe haven for marine mammals

The relatively undisturbed DMZ area on the Korean Peninsula is a critical habitat for cranes and other migratory birds. A marine habitat within the DMZ also provides a safe habitat for more than 350 Largha seals in summer.



Borders of the Yellow Sea Ecoregion

Mammals and People

Records of whaling activities from Japanese and Russian boats show that there were significant catches of whales in Korean waters in the first half of the 20th century. In the 1950s, Korean vessels began whaling in coastal waters, and in the 1970s whalers expanded their activities into the northern Yellow Sea and East China Sea. When South Korea joined the IWC (International Whaling Commission) in the mid-1980s whaling was largely stopped in South Korea.

In China all marine cetaceans currently are National Grade 2 protected animals. While Largha seals were once hunted in China with up to 500 seals killed in a peak year, hunting of the species was prohibited in 1983 and it is now a National Grade 2 protected animal.

Threats to Mammals

Although capture, killing and selling of protected marine mammals are strictly prohibited in China, incidental bycatch do occur because of extensive fisheries in coastal waters and the Yangtze River, which results in increased mortality.

Pollution is a serious problem in Yellow Sea Ecoregion and it leads to reproductive failure and lower immune system of marine mammals. Fragmentation of populations by coastal development affects Eurasian otters in South Korea.



Finless porpoises get damaged by fishing net

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The Yellow Sea Ecoregion - a Global Treasure, a Global Concern

Global Treasure

The Yellow Sea Ecoregion (203) has been selected by WWF as one of the Global 200 ecoregions, areas that are key to global biodiversity conservation. This marine ecosystem is also one of the Large Marine Ecosystems (LME) of the world.

Global Concern

The global importance of the Yellow Sea Ecoregion has been recognised by governments and the international community in recent years. Starting in 1992, the Chinese and South Korean governments together developed a transboundary approach to the management of the Yellow Sea area with the assistance of UNDP, UNEP, the World Bank, and NOAA. In 2005, a UNDP/GEF project, the Yellow Sea Large Marine Ecosystem project, was officially launched with participation of the Chinese and South Korean governments.

Meanwhile, in 2002, WWF and other research institutes in China, South Korea and Japan began an assessment of Yellow Sea Ecoregion biodiversity. The objective of this regional partnership was to prioritise conservation actions based on scientific data.

An urgent need: Identifying conservation priorities at a transboundary ecoregional scale

In order to conserve the full array of biodiversity and ensure the use of its services by people are sustainable, it is necessary to conduct assessments beyond political boundaries and at an ecoregional scale.

An ecoregional approach helps ensure that we do not overlook areas that are particularly unique or threatened, allowing for smarter trade-offs and greater positive impacts that are more likely to endure over time.

Methodology for finding priority mammal species and their Ecologically Important Areas

Cooperation among scientific experts from China and South Korea

Scientists from universities and environmental research institutes in China and South Korea have worked together to review and identify priority mammal species and their habitats of global significance. Together they have set a common methodology and reached an agreement on priorities.

Biological Assessment

Using a set of mutually agreed criteria that are key to biodiversity conservation representativeness, endemism, threatened status, and intact habitat - scientists analysed nationally available data to select appropriate indicator species and their habitat.

Priority Area Analysis

Using a further set of criteria, experts then prioritised the previously selected indicator species and their habitat. To do this, scientists took into account the connectivity of the habitats of migratory species on a transboundary scale - such as breeding areas, migratory routes and summer haul-out areas that occur between China, North Korea and South Korea. For many of the whale indicator species, there was not enough data available to identify their critical habitat.

Experts mapped the important habitat areas of each indicator species. This allowed scientists to visualise areas that are important for more than one species.

Results

Mammal Ecologically Important Areas (MEIAs) are areas that experts deem critical for mammal indicator species. Nine indicator species were assessed under the criteria to identify globally significant species and their habitat. Of these indicator species, two species met the endemism criterion and eight species met venerable species criterion. Those indicator species that met any of these criteria were identified as globally significant species. Then areas critical for the survival of these species were identified as the indicator species ecologically important areas. In total, three MEIAs were identified.

The Yellow Sea Ecoregion Planning Programme will publish the full results of its Biological Assessment and Priority Area Analysis so that they become accessible by scientists and government agencies in the future.

A call to action

The analysis and results provided key data for developing a regional conservation strategy and monitoring its successes. In particular, the results will help to:

- 1) Establish a network of representative marine protected areas at the ecoregional scale;
- 2) Evaluate effectiveness of existing protected areas;
- 3) Monitor status of biodiversity.

In order to conserve these globally significant species and their habitats, various stakeholders need to take concerted actions. Community-based

organisations, the scientific community, national and local government agencies, legislative bodies, non-government organisations including religious groups, the general public, the media, donor communities, industries, consumers, and youth groups all have important roles to play. For example, national and local government agencies can contribute by strengthening cross-sectoral coordination in the establishment and improvement of the management of marine protected areas (MPAs). Filling major knowledge gaps in ecology and human impacts on indicator species is also an important action to take.



Yellow Sea Ecoregion (203)



LME #48 Yellow Sea Large Marine Ecosystem (red area)



UNDP/GEF Yellow Sea Project



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