

Introduction

The Republic of Korea is a peninsular country bounded on the north by the Democratic People's Republic of Korea (North Korea) and in close proximity to Japan (across the Korea Strait) and China (beyond the DPRK). The ROK has one marine Ramsar area at Suncheon Bay Natural Eco-Park. There are twenty-one designated Marine Protected Areas (MPAs), however, economic development is allowed in MPAs within Korea. The Taean Haeen Maritime National Park near Incheon and the Dadohae Haesang National Park in the south are two of the MPAs which may have slightly greater protection.

There are many small coastal islands and the larger island of Jeju- do (also spelled Cheju-do) in the extreme south. Land reclamation along the coast, especially along the Yellow Sea, is resulting in significant loss of wetland habitat for birds and other wildlife.

Of the surrounding seas, the Yellow Sea is most at risk of long-term damage in the event of an oil spill as it is nearly enclosed and takes 6-8 years for a complete water exchange to occur thus the flushing action that would reduce impact in many open sea areas does not occur here.

There is significant oil and gas exploration occurring in the far north, particularly in the BoHai Sea, which is a small, nearly enclosed basin of the Yellow Sea. 10% of the world's human population lives in the Yellow Sea catchment area and wetlands are being drained for development. The area already suffers from chronic oiling problems, with beaches being coated in oil every winter and oiled birds being found as a result.

In the South or East China Sea the main danger is from the high volume of shipping through the area. In the East Sea or Sea of Japan, there is the lowest risk and the waters are deeper than the Yellow Sea, although there is some shipping traffic. One issue that may arise if spills occur in this area is that there are disputes between the ROK and Japan over this area.

The Korea Ocean Research and Development Institute (KORDI) has done some mapping of the coastal environment using an Environmental Sensitivity Index for Hazardous and Noxious Substances.

Wildlife at risk include birds, marine mammals and seaturtles.

Endangered bird species include Spoonbill sandpiper (*Eurynorhynchus pygmeus*), black-faced Spoonbill (*Platalea minor*), scaly sided merganser (*Mergus squamatus*), crested ibis (*Nipponia nippon*), Nordmann's or spotted Greenshank (*Tringa guttifer*). Vulnerable species include Relict gull (*Larus relictus*), Saunder's gull (*Larus saundersi*), Chinese egret (*Egretta eulophotes*), Hooded crane (*Grus monacha*). Near threatened species include the Eurasian curlew (*Numenius arquata*). There is potential for large numbers of alcids, cormorants and loons at various times of year. For example each winter numbers of ancient murrelets (*Synthliboramphus antiquus*) wash up dead on Korean beaches. Some white winged (*Melanitta fusca*) and black scoter (*Melanitta nigra*) migrate through the area but over one million are unaccounted for during the migration from breeding to wintering grounds. It is possible that these birds travel through this area as well but no surveys have been done on open waters.

There is not much information available regarding numbers of marine mammals on the Korean coast but it is possible that common seals (*Phoca vitulina*), spotted seals (*Phoca largha*), ribbon seals (*Phoca fasciata*), ringed seals (*Phoca hispida ochotensis*) and northern or Steller sea lions (*Eumetopias jubatus*), which are found in the waters around northern Japan, would also be present within the Korean waters of the East Sea. Two pinniped species of most concern are the northern fur seals (*Callorhinus ursinus*) and sea otter (*Enhydra lutra*). Both of these species are more susceptible to oil related health problems. It is, however, unlikely that large numbers of sea otters are present at any time in the area.

Leatherback (*Dermochelys coriacea*), loggerhead (*Caretta caretta*) and green sea turtle (*Chelonia mydas*) are found in Korean waters. The Ministry of Land, Transport and Maritime Affairs is monitoring nesting sites on Jeju Island.

Regional Seas

The Republic of Korea is a peninsula surrounded by three major bodies of water:

- o Yellow Sea (West)
- o South Sea or East China Sea (South)
- o Sea of Japan (West)

Past experience

1995- Yosu, tanker Sea Prince ran aground and caught fire, spilling 5,000 tons of crude oil along the southern coast. Spill took 5 months to clean up. There is little information about wildlife affected.

2007- December. Near Taeaen on the Yellow Sea, the tanker HeBei Spirit was hit by a loose Samsung barge, spilling about 10,500 tons of heavy crude. Aquaculture and fishing ground affected. Limited oiled wildlife response was attempted by the Korea Animal Rescue and Management Association, which is primarily a domestic animal rescue organization, which set up an oiled bird cleaning facility set up.

Response: the role of the authorities

The Ministry of Maritime Affairs has recently been reorganized into the Ministry of Land, Transport and Maritime Affairs. This is the government agency responsible for oil spill actions. KORDI, which did the sensitive areas mapping, is part of this ministry.

The Republic of Korea is a signatory to the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)'s Haikou Partnership Agreement which is tasked with formulating and implementing national policies and action plans for sustainable coastal development, one aspect of which is the protection of endangered marine mammals and seabirds.

The ROK is also a member of NOWPAP (Northwest Pacific Action Plan) MERRAC (Marine Emergency Preparedness and Response Regional Activity Center) which is developing coordinated response in the area's countries (China, Japan, Korea and Russia).

Oiled wildlife responseFormal guidelines?

There is no formal response plan for oiled wildlife in place. However, over a million volunteers responded to help clean the oil during the Taeaen spill so there is certainly potential capacity if appropriate training can be provided.

Response objectives and strategy

See above

Euthanasia or rehabilitation?

In 2007, efforts were made to respond to oiled wildlife but no organized survey or collection of animals occurred. Two holding facilities were set up (see photo above) but numbers of animals and success rate are not available.

It appears that there is both interest and potential funding for oil spill preparedness training within the Republic of Korea.

Impact assessment

One of the problems with impact assessment in this area is that very little survey work has been done to determine what species are in the area at various times of year. There is little known about what wildlife is present in the offshore areas.

An impact assessment for the 2007 Taeaen (HeBei Spirit) spill was done beginning in mid-December, more than two weeks after the spill, as the oil moved 400km south.

In one area surveyed 30 loons (*Gavia* sp) were seen, 10 of which were oiled.

There is a group of 20-30 veterinarians capable of doing post mortem exams on marine birds and mammals which could potentially be mobilized. There is one necropsy laboratory in the country so it is likely that temporary units would be necessary in the case of a major response.

Notification and early response

The Ministry of Land, Transport and Maritime Affairs should be notified of any significant oil spill.

Wildlife responders

There is no oiled wildlife expertise in ROK.

The Korea Animal Rescue and Management Association mounted a limited response during the HeBei Spirit incident but with a background in domestic animals the organization does not have the experience to be considered expert in the care and rehabilitation of oiled wildlife.

BirdsKorea has expressed concern that no significant seabird surveys have been done in open waters thus making post spill assessment difficult. The organization is interested in completing this survey work and participating in oiled bird responses.

The Korea Wildlife Conservation Center of the Seoul National University's College of Veterinary Medicine and the Seoul Grand Park Zoo, may be another source of cooperative assistance in the case of oiled wildlife response.

Cooperation between stakeholders

In country the Ministry of Land, Transport and Maritime Affairs coordinates response.

Two international organizations may be involved in some responses in ROK-

- o Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) is tasked with protection of endangered mammals and seabirds so would be expected to play a role in spills within joint Japanese, Korean and Vietnamese waters.

- o NOWPAP (Northwest Pacific Action Plan) MERRAC (Marine Emergency Preparedness and Response Regional Activity Center) may coordinate response in waters shared between China, Japan, Korea and Russia.

Permanent facilities

There are no permanent facilities rehabilitation of oiled wildlife.

Current processes

n/a

Documentation and references

General references

ITOPF Republic of Korea (South Korea) Country Profile

http://dinrac.nowpap.org/documents/NOWPAP_MERRAC_Newsletter_No3.pdf.

(NOWPAP MERRAC Regional Oil Spill Contingency Plan and MOU)

[Http://moeri.re.kr/eng/index.aspx](http://moeri.re.kr/eng/index.aspx)

(Maritime and Ocean Engineering and Development Institute-mapping)

http://english.mltm.go.kr/USR/WPGE0201/m_19569/DTL.jsp

Ministry of Land Transport and Maritime Affairs

<http://www.birdskorea.org/BK-Startpage.shtml>

Birds Korea

http://vet.snu.ac.kr/eng/se10_re/se10_re_e/se10_re_e.jsp

Korea Wildlife Conservation Center

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