

Introduction

The Republic of Yemen lies at the south-western part of the Arabian Peninsula. It is bordered by the Kingdom of Saudi Arabia in the north, the Arabian Sea and the Gulf of Aden in the south, the Sultanate of Oman in the east and the Red Sea in the west.

Yemen's coastline, which is about 2200 km. long (excluding the islands), hosts a variety of coastal and marine habitats, including rocky and sandy coasts, saline mud flats, mangrove swamps, coral reefs and seagrass beds. It provides prime feeding and breeding sites for numerous seabirds and it is a flight corridor for species migrating between southern Africa and Asia. Important coastal and island bird areas include: Maldi/al-Luhayyah area, the islands north of al-Hudaydah, Ras Isa, al-Zubair Islands, al-Urj, Nukhaila, al-Fazza, Hanish al-Kabir, Mokha/al-Khaukha area, Bab-al-Mandab, Hiswat al-Hugaima, Aden wetlands, lands off Bir Ali, Wadi Hajar, Qishn, Ras Fartak, Abdullah Gharib Lagoons and the Socotra Archipelago (Evans, 1994). The Aden wetlands are among the most important in the region, regularly holding over 10,000 waterfowl including three globally threatened species, and twelve species with regionally important populations (al-Saghier and Porter, 1996).

Sea turtles also inhabit Yemen waters. The green sea turtle (*Chelonia mydas*), the leatherback (*Dermochelys coriacea*), the hawksbill (*Eretmochelys imbricate*), the loggerhead (*Caretta caretta*) and olive ridley (*Lepidochelys olivacea*) have been recorded, but only two of them, the green and the hawksbill are common and known to breed in Yemeni waters. Coastal wildlife includes as well a variety of marine mammals including the dugong (*Dudong dugong*) and several species of dolphins and whales, such as the blue whale (*Balaenoptera musculus*), humpback whale (*Megaptera novaeangliae*) and the Indo-Pacific Hump-backed Dolphin (*Sousa chinensis*).

The coastline of Yemen is an important shipping lane linking the world's major seas. Both the Red Sea and the Gulf of Aden were designated as "special areas" under the international MARPOL convention. Besides the intense shipping traffic, Yemen exports oil from two locations: Ra's Isa in Hodiedah Governorate and Al-Dhaba oil terminal close to Al Shiher in Hadhramout Governorate. The Aden port receives large quantities of crude oil for the purpose of its refinery.

Socotra Archipelago (400 km. south off Yemen), a sensitive and very vulnerable area with high degree of endemism, is an area most at risk due to its location on the main oil tanker routes.

Regional Seas

Arabian Sea, the Gulf of Aden and the Red Sea

Past experience

Yemen has experienced small to large oil spills, in particular in the Aden Gulf, where oil refineries are located. The largest spill in Yemen was caused by the French tanker LIMBURG near the Ash Shiher oil Terminal (east of Gulf of Aden) as a result of a terrorist attack in 2002. Shoreline oiling was patchy, with stretches of a few hundred metres heavily contaminated, but elsewhere oiling was light to moderate (ITOPF). Shoreline clean-up was undertaken by a contractor appointed by the Yemeni authorities. Volunteers from environmental NGOs and fishermen in the area carried out the cleanup operations at the beach. Oiled seabirds and other type of marine wildlife were reported (though accurate data do not exist), but there are no references as of wildlife response activities that were undertaken as part of this response.

Response: the role of the authorities

The Maritime Affairs Authority (MMA) of the Ministry of Transport is the competent national authority responsible for the coordination of the oil spill response including maritime safety, marine environment

protection and marine pollution control issues. The MMA, which is also in charge of developing a National Contingency Plan, has finalised a draft with the assistance of IMO, pending its formal approval by the cabinet of ministers. Local sensitive maps are available. Plans also exist for individual oil exporting terminals and a major port in Yemen with the agreement of MMA. Oil companies have also produced some baseline biological studies and documented minor oil spill response capacity.

The Environment Protection Authority (EPA) under the Ministry of Water and Environment will likely assume responsibility for a response to oiled wildlife. The Marine Science and Biological Research Authority (MSBRA) of the Ministry of Fish Wealth will provide assistance with the aim to assess and advise on strategies to minimise environmental impacts. It will also liaise closely with competent authorities at local, regional and international level.

Oiled wildlife response

Formal guidelines?

Yemen does not have a national oiled wildlife response plan in place. The local response plans contain an action plan and procedures on how to deal with oiled wildlife.

Response objectives and strategy

As mentioned in the National Strategy (section I) of the NCP, a priority is to concentrate efforts on preventing damage to wildlife during an incident.

In case a spill in Yemen's water (Tier 3) requires international assistance, the Maritime Affairs Authority (MMA) will hire contractors or companies to undertake the oiled wildlife response.

Euthanasia or rehabilitation?

The competent authorities (MAA, EPA and MSBRA) will allow the rehabilitation of oiled wildlife. Neither local expertise nor wildlife response capacity is available. No triage, rehabilitation and euthanasia protocols as yet exist.

Impact assessment

The EPA and MSBRA will be in charge of collecting dead corpses from the beach. A wildlife impact assessment will be carry out based on the IMO guidelines.

Notification and early response

In case of oiled wildlife incident, the Yemen Coast Guard (YCG), the Navy, the Port authorities or other parties will notify to the Maritime Affairs Authority (MMA) and the MAA regional branches. MMA, as a coordinator and lead authority, in turn notifies all key players such as the Environment Protection Authority (EPA) and the Marine Science and Biological Research Authority (MSBRA).

The early response will be based on the National Contingency Plan that is drafted. In case a Tier 3 response is requested, regional and international experts will be called in by the MMA.

Wildlife responders

Neither permanent wildlife rescue centres nor oiled wildlife responders exist in Yemen.

National environmental organisations that may be able to provide useful information in the aftermath of a future incident include the Yemen Society for the Protection of Wildlife (YSPW), which is the Birdlife International partner, and the Yemen Ornithological Society. The Socotra Archipelago Conservation and Development

Programme, with the assistance of national and international experts, has carried out biological baseline surveys and collected data on sea turtles in Socotra, working closely with the local community and authorities. The collective interests of the national NGOs are represented through a Yemen NGO Forum.

International NGOs such as WWF, Wetlands International, Birdlife International (through YSPW), Friends of the Earth and IUCN are considerably active in the Republic.

The University of Aden and the Marine Science and Resources Research Center, which has newly established small pollution control center at al-Buraiqa (Little Aden), could be an additional source of information. The Faculty of Environment and Marine Biology of the Hadramout University, the Faculty of Oceanography and Environment of the Al-Hodeidah University and the Faculty of Science of the Sana'a University could also be involved as information sources.

At the regional level, some organisations may be able to provide useful information and contacts, such as the BirdLife Middle East and Central Asia Division and the intergovernmental body 'Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden' (PERSGA).

Cooperation between stakeholders

There is cooperation among several stakeholders including authorities, scientists, and NGOs albeit contacts are not maintained on a regular basis.

Permanent facilities

The Marine Science and Resources Research Centre established a shrimp breeding farm that can be easily modified to suite the purpose of wildlife rescue centre.

Current processes

A NCP is drafted pending its formal approval. It will most likely be implemented by the end of 2008.

Documentation and references

General references

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