

# **SENSITIVE COASTAL AREAS OF IRAN**

By

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## **1-INTRODUCTION**

Coastal areas are the place where sea and land meet and is a common place for the interaction of two ecosystems having their own characteristics. Coastal environment is a well developed natural system encompassing a very complex but one of the most productive ecosystems on earth. This zone is a transitional band and is very sensitive and susceptible because is the final destiny for most of the pollutants coming from the land and the sea. This situation imposes a permanent threat to this fragile environment with its all organisms living nearly at the edge of their tolerance. Increasing pollution from land and sea is the consequences of socio-economic activity of mankind which will definitely results in damaging and changing the living environment of coastal areas. This situation is more or less now a common problem everywhere. On top of that, the rapid changes of climate in recent years combining with permanent influence of natural phenomenon on coastal environment would enhance the deterioration of this zone.

The happening of these changes has long ago made man to regulate its relation to the coastal areas in order to sustain their environmental value which if they are lost man would be the first loser of their precious economic values especially for most of coastal communities such as fishers and tourism industry. One of the first step in this regard was by IMO in 1986 presenting a program to identify Marine Sensitive Coastal Areas (MSCA). The main aim of this initiative was to survey and locate ecological areas which are sensitive to human activities and need special care and protection. This issue was again emphasized in Earth Summit Conference in Rio in 1992. In Article 13 of Chapter 17 of Rio 21 Agenda regarding the protection of marine environment against maritime and shipping activities, it was asked by all countries to recognize MSCAs and take necessary actions and implement management tools in identifying, protection and conservation of marine ecosystems. This Article recommends to the contracting countries to implement their study and duties according to the degree of sensitivity and importance of coastal habitats prioritizing as: 1) coral reef ecosystems, 2) Estuaries and bays, 3) tropical wetlands and mangrove forests, 4) algal and sea grass beds, and 5) spawning and nursery grounds.

Since the selection parameters for sensitive coastal areas are in accordance with the IUCN criteria for marine biospheres and protected areas, therefore the existence of vulnerable marine resources could be regarded as the most important parameter for the selection of Marine Protected Areas (MPA).

As a whole, sensitive coastal areas could be located within the realms of inland waters, territorial waters, exclusive economic zone (EEZ) and open waters, are areas which have a critical marine coastal resources or related habitats. And they are sensitive because they posses unique characteristics, such as high biodiversity and species richness, having rare, vulnerable and susceptible species, the living condition is at the limit of tolerance, sensitive to the pollutants, slowness of environmental rehabilitation and finally, problem arising from cleaning operations.

## **2-BACKGROUND OF MSCA IN IRAN**

The age of studies regarding sensitive coastal areas in Iran is quite new and actually not an even one thorough study has been carried out in this regard. The first steps towards defining and presenting it to the public was initiatives taken by the Dept. of the Environment, Marine Bureau Office. In 1994, first definition for sensitive areas was determined by this office and natural resources along the coastal zone were classified living and non-living sources as follows:

1. Sensitive Biological Resources, including: coral reefs, mangrove forests, sea turtles, water birds, seaweeds, sea grasses and sea mammals, etc.
2. Sensitive Physical Resources, including: coastal areas with sand, mud and rocky characteristics (rock shores, mud and sand flats), hydrological regimes, river mouth and estuaries, creeks and small bays, etc.

Following this action the first survey in this regard was conducted in 1998 in one of the coastal provinces of Iran, Khuzestan Province in the south west of Iran a place of oil industry and a major pollution source along the coastal zone.

In 2002, a project was defined by Port and Organization Shipping of Iran (PSO) titled: "Marine Ecological Sensitivity Mapping System", in order to map and classify sensitive coastal areas of Iran according to IUCN criteria by using satellite images and field checks. This project supposes to be finished by mid of 2003.

The Marine Environment Bureau of Iran has just started a project to survey and study 1800 km coastal zone of Iran along the Persian Gulf and Sea of Oman in order to specify and classify sensitive areas and then imposes management measures. This study will be finished in 2003 as well.

### 3-PERSIAN GULF CHARACTERISTICS

Persian Gulf is a semi-enclosed marginal sea surrounded by landmasses and is located in subtropical region of the west-northern Indian Ocean. This has imposed a harsh condition on the marine organisms, especially coral reef communities with regard to salinity, temperature and extreme low tides. This is a very shallow sea with an average depth of about 35 meters, and was above sea level 10-15 thousand years ago. The mean sea temperature is about 28 degrees. Present climatic conditions force extreme rate of evaporation, which exceeds precipitation and fresh water inputs, thus driving the average salinity above 40 ppt. Inflow from the Indian Ocean through the Strait of Hormuz makes up the water balance. The sea is surrounded by 8 countries the main shoreline belongs to Iran with about 1000 km long. With 800 km of shoreline in Sea of Oman, the total length of coastline is 1800 km.

### 4-SENSITIVE COASTAL AREAS OF IRAN

#### 4-1-Mangrove Forests

Mangroves of Iran are situated along southern coasts with an area of 9200 ha in different locations between 25° 11' and 27° 52' N (Table 1). Mangrove communities of Iran are comprised of only 2 species, the dominant one is *Avicennia marina* (called "Harra" in local name) and the other is *Rhizophora mucronata* (called "Chandal" in local name). *Avicennia* is the dominant mangrove species and is found in all areas whereas the distribution of *Rhizophora* is restricted to only one area in Sea of Oman, called "Jask". The distribution of this species is therefore restricted only to creeks of this area. This species is not native and had been introduced in recent years from Africa for the consumption of its wood. The plantation of this species in other places in Iran has not been successful yet. In the past mangroves were used for their wood for burning but today only its leaves are used for feeding of cattle. Also, in Ni-band Bay the flower of mangrove is used by locals for producing honey in a small scale.

All mangrove areas are somehow under the protection by the Dept. of the Environment. The largest mangrove area is in the north of Qeshm Island in the Strait of Hormuz. The area is a protected area and is the only coastal Biosphere Reserve in the southern parts. Some other areas have been selected as Ramsar Sites and some others are International Wetlands (Table 1).

In spite of mangroves being under the protection of the government, but they are under constant threat, especially the ones in the Persian Gulf. The main threats include: over-utilization of top branches, development of coastal roads, unwise use by tourists, oil pollution from constant shipping activities or marine accidents, development of shrimp farms in the vicinity and finally, industrial development.

It should be mentioned that so far no especial conservation management program based on the zonation of mangroves has been done, but is hoped that in the future conservation program be designed and implemented. In some areas artificial plantation of *A. marina* is underway such as in Qeshm Island and Ni-Band Bay.

#### 4-2- Coral Reefs

Coral reefs are the second most productive biome in the world after the tropical forests. Corals of north Persian Gulf exist mainly as fringing reefs around the offshore islands and also as patchy reefs or individuals along the coastline or in the bays. There are 16 islands surrounded by reefs (Fig. 1) with a width of about 1-2 km down to the maximum 20 m (Fig.2). The specification of main coral areas of Iran are shown in Table2.

So far, altogether, 27 species of corals have been identified from the studied areas, belonging to 9 families and 20 genera. Faviidae with 6 genera and 8 species is the most diverse of all families. On the other hand, Poritidae with 2 genus and 4 species is the most abundant corals in all areas. *Acropora* is the most abundant coral in shallow waters of fringing islands but it is almost less frequent at present time because of the environmental stresses and human impacts causing a mass mortality during last ten years or so.

It is estimated that the total coral coverage of Iran is about 700 km<sup>2</sup> and because of increasing pressure on their health, it is estimated that about 88 % of reefs are at risk. Regarding the coral health, the live coral coverage ranges from 9 to 30%, because during the past few years, considerable bleaching events have been occurred throughout the area. This has been the result of high sea surface temperature which was already reported during the years of 1996 and 1998. Of other natural diseases, Yellow-Band disease could be mentioned which was observed for the first time from the Farur Island in year 2000. It was also observed in Kish Island in 2001. Species found to be affected were *Porites lutea*, *P. compressa*, *Favia pallida*, and *Platygyra daedela*.

Apart of natural impacts on coral reefs, the human pressure is increasing and in some places coastal development has resulted in considerable destruction of reefs. The main negative impacts induced by human in the area can summarized as: oil pollution, coastal development (oil and gas industry and road construction), inshore and near shore activities (housing, light industry), irresponsible diving and ornamental use (fished corals are sell in the market and there is not any ban or prevention by any legal authorities, e.g. Kish Island), extensive anchoring damage by fishing boats and basket traps (e.g. Farur Island), etc.

Although coral reefs are regarded sensitive and protected areas everywhere in the world but unfortunately there is not any program or plan to implement conservation measures against these damages. The Dept. of the Environment is by law responsible for the protection of sensitive habitats in the country. Similarly, none of these coral reefs or reef communities has been selected as a marine sanctuary or protected area.

#### 4-3-Intertidal Zones

4-3-1- Mud Flats: The low slope of muddy intertidal areas mostly in sheltered beaches exists in very vast areas in the north of Persian Gulf. These flats because of their richness in organic materials and abundant benthic organisms play an important role in supporting different marine life and also occasional visitors such as native or migratory birds who come to these areas during the winter mainly for feeding. The number of these birds is not known but it is estimated that millions of them come to these flats every year. The most important species are included:

- *Pheonicopterus rubber* ( Greater Flamingos)
- *Charadrius leschenaultia* (Greater Sand Plover)
- *Egretta gullaris* (Western Reef Horn)
- *Egretta alba* (Greater White Horn)
- *Chevalier sp.* (Sandpiper)
- *Mouette sp* (Gulls)
- *Stern caspiens* ( Caspian tern)

- *Sterna repressa* (White-cheeked Tern)
- *Dromas ardeola* (Crab Plover)
- *Ardeola gryii* (Indian Pond Heron)
- *Ixobrychus minutus* (Little Bittern)

Mud flats are very sensitive to pollution especially oil pollution which is very common and frequent in the area. This situation has polluted many mud flats and it will definitely endanger the health of these important habitats in the future. One example is traditional boat building and repairing on the mud flats. All rubbish and sludge are left behind and are accumulated on the mud.

According to one estimate the area of mud flats in north Persian Gulf is estimated about 7345 km<sup>2</sup>, 76% in Khuzestan Province, 9.7 % in Bushehr province and the rest in Hormozgan Province are exist. The main distribution of mud flats are in north of Qeshm Island and in north of the Gulf (Fig. 3).

Some of the mud flats of Iran because of being in the middle of protected areas and wildlife refugees are automatically under the protection. Some are also important because they are a part of International wetlands or biosphere reserves. Other mudflats which are important to the recreation of marine life and or encompass important animal and plants are also regarded as coastal sensitive areas. At present there is no particular conservation plan or program for the protection of mud flats as a whole in Iran.

4-3-2- Rocky shores: These areas exist along shore where shore is adjacent to mountains or rocky information. IN the Persian Gulf there are some rocky shores in some places including: Bushehr coastline, from Ni-band to Gaav-Bandi till Lengeh Port on the east and then in Sea of Oman where the most extensive and continuous rocky shores occur. In the latter case a rocky shore of about 300 km are stretched along the coastline from east of Jask Port to the Gulf of Gwatre near Pakistani boarded.

These areas support most extensive and dense community of seaweeds from intertidal to sub tidal. They are also the living and fishing grounds for the unique population of spiny lobster fished on a commercial basis every year by local fishers. Therefore, they need to be protected and conserved because of their importance to the marine life and also are unique marine habitat in the country. They are very susceptible to the oil pollution and there is still hundreds of kilometers of rocky shores polluted with oil pollution remained from the Persian Gulf War in the area during 80s and 90s. Again, there is not any conservation plan or program for protecting these sensitive shores. Rocky shores are among the most important and sensitive coastal habitats.

s4-3-3- Sandy Beaches: These shores are often exist as a narrow sandy band with a width of 20-30 m along the different regions especially when sea is open. According to one estimate the length of sandy shores in the Persian Gulf is about 577 km which 67 % of it exists in Hormozgan Province and the rest in Bushehr province. Some part of these sandy shores is host to the marine turtles which come to these areas every year for nesting and reproduction on the supra tidal parts. The tidal and sub tidal of these sandy beaches are the best suitable ground for the growth of sea grass. Which are apart of their input into the productivity, but are feeding ground for turtle which feed on them. At least there are two species of sea grass in sandy and silty beaches in the area including: *Haledule uninervis* and *Halophola ovalis*. These sandy beaches therefore are regarded as sensitive coastal areas. They are also important because they are a good feeding and living ground for some local and migratory birds. These sandy beaches are also important for recreational activities which attract many people every year such as Kish Island, north of Sirik or north of Chah Bahar Bay having golden sandy beaches. This item is another value which should be regarded when evaluating the sensitivity of a coastal zone.

Coastal development and road construction along the coasts and sand mining from beach resources are the main threats to these important habitats and there is not any particular conservation program for sandy beaches. Sandy beaches important for nesting of marine turtles, with recreational values and habitats for coastal birds should be protected and managed for their sustainability.

#### 4-4-Estuaries

Estuaries, where fresh water from rivers and salt water from the sea are mixed are an important habitat in marine environment and regarded as sensitive coastal area. Persian Gulf is a dry region and there are only a few rivers running into the sea, one from Iran and Iraq (Shat-al-Arab=Arvand-rud) and 5 other smaller and permanent from Iran. There are some other seasonal rivers coming from mainland of Iran with a considerable amount of water in flood season. The estuaries which are regarded sensitive along the Iranian coastline are as Table 3. The main threat to estuaries are land base pollutants coming from industrial and urban areas especially in Karun and Bahmanshir Rivers where most of the pollution of Khuzestan province is carried into the sea. There is no conservation program for estuaries in Iran for the time being.

#### 4-5-Creeks (Khood)

Khoods of Iran are of kind of tidal estuary in nature without the permanent fresh water inflow. They are influenced by tidal currents twice a day (semi-diurnal tidal regime is prevailing in the area) and are an important nursery and feeding grounds for many fish species in the Persian Gulf and Sea of Oman. Also, they are suitable grounds for mangrove growths and feeding and living ground for birds, e.g. Sirik and Jask Khoods in Oman Sea. Most creeks are anchoring ground or stoppage place for local fishing and commercial vessels (Lenj or Dow) and they empty their bilge and other oil and wastes into the water and contaminating the water. These contaminants remain in the area and will gradually pollute the water as it is the case with many creeks in Iran.

Altogether there are about 220 main khoods (creeks) in Iran with different dimensions along the coast. Some of these khoods are located in protected areas and are very important nursery grounds for marine organisms and fisheries resources. Names of these protected khoods are provided in Table 4.

Regarding management system for protection of these important sensitive habitats, no plan or program has yet been provided by relevant authorities and there should be urgent needs for implementing a conservation scheme.

#### 4-6-Bays

Bays are regarded as sensitive coastal areas because on their important role in supporting different marine life especially at the early and juvenile stage. For these reasons some bays are under the management. These include in Table 5. Although these bays are under the protection by law but no real control is implemented.

#### 4-7- Algal Beds(Seaweeds)

There is an extensive and dense algal bed along the rocky shores of Sistan and Baluchestan Province in Oman Sea. These rocky shores are the most extensive in the country and support different marine life as well as seaweeds. So far more than 100 species of seaweeds have been identified in this region (Chah Bahar) and more species is expected to be found. They are included as:

- 1) Green algae, e.g. *Ulva*, *Enteromorpha*, *kolpa*
- 2) Brown algae, e.g. *Sargassum*, *Padina*, *Laminaria*
- 3) Red algae, e.g. *Gracillaria*, *Phorphyra*

These beds are a very important habitat for different marine organisms such as turtles, fish, crustacean and many invertebrates. No commercial harvest has been started yet but it is expected soon.

Unfortunately, no conservation program has been provided to protect this important marine ecosystem.

#### 5-Conclusions and Recommendations

Coastline of Iran along the Persian Gulf and Sea of Oman is about 1800 km stretching from Iraqi border (Arvand-Rud River) down to the west to the Pakistani boarder( Gwatre Bay). This coastline is between about 29-24 N Lat. and is situated in semi-tropical region. As moving from east to west, temperature is increasing and tropical condition prevails. These coastlines are stretched along the 4 coastal provinces, from east to west are: Khuzestan (where oil industry is concentrated), Bushehr, Hormozgan and finally Sistan and Baluchestan near the Pakistani border.

There are a variety of different coastal habitats along the coast comprising almost all tropical and subtropical habitats and environments many of them are now regarded protected or should be under the management because they are regarded as the Sensitive Coastal Areas. These habitats include:

- 1) Mangrove swamps and mangrove forests,
- 2) Coral reefs and coral communities,
- 3) Mud flats and associate organisms,
- 4) Sandy beaches with turtle nesting grounds and sea grass beds,
- 5) Rocky shores and associate organisms,
- 6) Algal beds and associate organisms
- 7) Sea birds and their nesting grounds,
- 8) Estuaries and river mouths,
- 9) Tidal creeks(Khoors),
- 10) Bays and embayment,
- 11) Coastal salt marshes

Along this long coastline a considerable population lives which most of them is directly dependant on the marine and fisheries resources. Fisheries communities are by number the largest costal population who are solely depend on sea resources for the living and income. The utilization of fish stocks have been mostly regulated but the increasing pressure arising from the population increase in recent years is going to be the major challenge of the government to control the utilization rate according to the carrying capacity of the sea and optimal utilization. Apart of regulations imposed by fisheries authorities on stock utilization rate (which is somehow promising) but the lack of environmentally fishing practices especially at sensitive coastal areas is going to be a major threat in future. A good example of this situation is anchoring of fishing boats on top of coral reefs for catching demersal fishes of these areas.

Another major threat to the coastal sensitive areas is the rapid and irresponsible development of coastal regions, by both private sector and unfortunately by government agencies as well. Many habitats are now under threat in this way and in spite of the existence of some laws and regulations in this regards it seems that the lack of environmentally thinking with the people and authorities are the main reason. Of course, it should be mentioned that the economic situation and welfare of the people is the main reason for this kind of behavior and careless actions.

Although some coastal habitats are under the protection of law as protected areas or international wetlands, but all these regulations have not been adopted with particular reference and attention to the importance and characteristics of marine environment. Department of the Environment is by law responsible for the protection of the marine environment but as it was mentioned earlier, lack of enough insight to the importance of marine sensitive areas and organisms is a very weak point with the relevant authorities. This situation is not restricted to the concerned authorities but also is the case with all other government people and decision makers who do not consider environmental issues in their development programs and if they do, they just do not take it seriously or are sad to say reluctant.

In order to keep the Sensitive Coastal Areas in Iran an a good shape and productive in parallel with sustainable utilization of marine coastal resources, followings not to the least are recommended:

1. The enhancement of public awareness through education at the First and Second levels, public media, local communities and fisheries cooperatives, etc.
2. The enhancement of government authorities in appraising marine environmental issues, especially in coastal areas,
3. The formulation and implementation of a National Scheme on Coastal Zone management Plan (NZMP) to encompass and address all relevant organizations and authorities involved in marine and maritime activities in order to harmonize and confine them within the framework of environmental issues and sustainable development for any development plan or programs,

4. Dept. of the Environment to conduct a massive and comprehensive study regarding identifying of Marine Sensitive Coastal Areas (MSCAs) and the degree of their protection and management measures,
5. Dept. of the Environment acts for the adaptation of necessary laws and regulations through relevant channels in order to provide enough and sufficient legal background for the protection of marine sensitive areas and organisms,
6. The enhancement of regional cooperation for the management of shared critical coastal habitats and exchange of data and information in this regard.

Table1: Distribution and Management of Mangroves of Iran

| No | Province                | Name                | position       |                | Area (km <sup>2</sup> ) | Environmental values   | Environment Management  |
|----|-------------------------|---------------------|----------------|----------------|-------------------------|--|---|
|    |                         |                     | Lat            | Lon            |                         |  |   |
| 1  | Bushehr                 | Melleh-Gonzeh       | 27° 52'        | 51° 35'        | 0.3                     | (1) Migratory Bird living ground,<br>(2) Vulnerable plant species,<br>(3) Rare species habitat<br>(4) Nursery ground<br>(5) high biodiversity<br>(6) irreplaceable ecosystem | Protected Area  |
| 2  | Bushehr                 | Bandar-e-Dayyer     | 27 52          | 51 59          | 0.01                    |  | Protected Area  |
| 3  | Bushehr                 | Ni-Band Bay         | 27 27<br>27 24 | 52 41<br>52 37 | 3.57                    |  | Protected Area  |
| 4  | Hormozgan               | Khamir              | 26 59<br>26 45 | 55 46<br>55 41 | 10.5                    |  | Protected Area  |
| 5  | Hormozgan               | North west of Qeshm | 26 43<br>26 53 | 55 48<br>55 23 | 67.5                    |  | Protected Area<br>Biosphere Reserve,<br>International wetland |
| 6  | Hormozgan               | Tiab Region         | 27 08<br>27 03 | 56 52<br>56 48 | 1.3                     |  | International wetland   |
| 7  | Hormozgan               | Sirsk               | 26 24<br>26 14 | 57 09<br>57 04 | 4.86                    |  | International wetland   |
| 8  | Hormozgan               | Jask City           | 25 41<br>25 40 | 57 47<br>57 44 | 0.02                    |  | International wetland   |
| 9  | Hormozgan               | Creeks of Jask      | 25 34<br>25 34 | 58 25<br>57 07 | 2                       |  | International wetland   |
| 10 | Sistan and Balouchestan | Gwatre Bay          | 25 16<br>25 11 | 61 35<br>61 28 | 2                       |  | Protected Area  |

Ref: Danehkar, 1998

Table 2: Distribution and Management of Coral Reefs of Iran

| No | Province  | Island        | Area (km <sup>2</sup> ) | Environmental values                  | Environmental Management | Remarks     |
|----|-----------|---------------|-------------------------|---------------------------------------|--------------------------|-------------|
| 1  | Bushehr   | Khark         | 5.39                    | 1- vulnerable species                 | Sensitive Area           |             |
| 2  | Bushehr   | Kharko        | 6.75                    | 2- Sensitive to environmental changes | Wildlife Refugee*        | Only Island |
| 3  | Hormozgan | Tonbe-Bozorg  | n.a.                    |                                       | Sensitive Area           |             |
| 4  | Hormozgan | Tonbe-Koochak | n.a.                    | 3- Sensitive to oil pollution         | Sensitive Area           |             |
| 5  | Hormozgan | Farur         | n.a.                    |                                       | Protected Area*          | Only Island |
| 6  | Hormozgan | Bani-Farur    | n.a.                    | 4- Sensitive to turbidity             | Sensitive Area           |             |
| 7  | Hormozgan | Siri          | n.a.                    | 5- high diversity                     | Sensitive Area           |             |
| 8  | Hormozgan | Aboo-Moossa   | n.a.                    |                                       | Sensitive Area           |             |
| 9  | Hormozgan | Larak         | n.a.                    | 6- Scarcity of ecosystem in Iran      | Sensitive Area           |             |
| 10 | Hormozgan | Hormuz        | n.a.                    |                                       | Sensitive Area           |             |
| 11 | Hormozgan | Kish          | n.a.                    |                                       | Sensitive Area           |             |
| 12 | Hormozgan | Shidvar       | n.a.                    | 7- irreplaceable ecosystem            | Wildlife refugee*        | Only Island |
| 13 | Hormozgan | Lavan         | n.a.                    |                                       | Sensitive Area           |             |
| 14 | Hormozgan | Qeshm         | n.a.                    |                                       | Sensitive Area           |             |
| 15 | Hormozgan | Hengam        | n.a.                    |                                       | Sensitive Area           |             |
| 16 | Hormozgan | Hendourabi    | n.a.                    |                                       | Sensitive Area           |             |

\*The coral reefs surrounding these islands are not under the management therefore are not regarded as protected area.

Table 3: Important River Mouth(Estuaries) of Iran in the Persian Gulf and Sea of Oman

| No | River             | Province            | Location | Flow |
|----|-------------------|---------------------|----------|------|
| 1  | Arvan-Rud (Karun) | Khuzestan           | PG       | P    |
| 2  | Bahmanshir        | Khuzestan           | P G      | P    |
| 3  | Zohreh            | Khuzestan           | PG       | P    |
| 4  | Helleh            | Bushehr             | PG       | P    |
| 5  | Mond              | Bushehr             | PG       | P    |
| 6  | Shoor             | Bushehr             | PG       | S    |
| 7  | Kal               | Hormozgan           | PG       | S    |
| 8  | Meharan           | Hormozgan           | PG       | S    |
| 9  | Minab             | Hormozgan           | OS       | P    |
| 10 | Gabrik            | Hormozgan           | OS       | S    |
| 11 | Sedivh            | Hormozgan           | OS       | S    |
| 12 | Jegin             | Hormozgan           | OS       | s    |
| 13 | Bahokalat         | Sistan& Baluchestan | OS       | S/P  |

PG=Persian Gulf OS=man Sea P=Permanent S=Seasonal

Table 4: Under management Khoors (Creeks) in Persian Gulf and Sea of Oman, Iran

| No | Name         | Province             | Management            |
|----|--------------|----------------------|-----------------------|
| 1  | Gowatre      | Sistan & Baluchestan | Protected Area        |
| 2  | Jusk Complex | Hormozgan            | International Wetland |
| 3  | kolahi       | Hormozgan            | Protected Area        |
| 4  | Laft-Khamir  | Hormozgan            | Protected Area        |

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Table 5: Under management bays in Persian Gulf and Sea of Oman, Iran

| No | Name            | Province             | Management             |
|----|-----------------|----------------------|------------------------|
| 1  | Khoor Mousa     | Khuzestan            | International Wetlands |
| 2  | Ni-Band Bay     | Bushehr              | International Wetland  |
| 3  | Khalije-Gowatre | Sistan & Baluchestan | Protected Area         |