**Designation date: 17/10/2007** **Ramsar Site no. 1718**

# Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

*Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).*

**Notes for compilers:**

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 14, 3rd edition). A 4th edition of the Handbook is in preparation and will be available in 2009.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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and

**2. Date this sheet was completed/updated:**
2 June 2012

**3. Country:**
Republic of Iraq

**4. Name of the Ramsar site:**
The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Hawizeh Marsh (Haur Al-Hawizeh). The official name in local language (in Arabic: هور الحويزة). Also the local name is exactly the same Arabic name.

**5. Designation of new Ramsar site or update of existing site:**

**This RIS is for** (tick one box only)**:**
**a) Designation of a new Ramsar site** ☐ or
**b) Updated information on an existing Ramsar site** ☑

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**6. For RIS updates only, changes to the site since its designation or earlier update:**

**a) Site boundary and area**

**The Ramsar site boundary and site area are unchanged:** ☑

or
**If the site boundary has changed:**
i) the boundary has been delineated more accurately ❑; or
ii) the boundary has been extended ❑; or
iii) the boundary has been restricted** ❑

and/or

**If the site area has changed:**
i) the area has been measured more accurately ❑; or
ii) the area has been extended ❑; or
iii) the area has been reduced** ❑

** **Important note**: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

**b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:**

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**7. Map of site:**
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

**a) A map of the site, with clearly delineated boundaries, is included as:**
i**) a hard copy** (required for inclusion of site in the Ramsar List): ☑;

ii**) an electronic format** (e.g. a JPEG or ArcView image) ☑;

iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** ❑.

**b) Describe briefly the type of boundary delineation applied:**

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

Most of Hawizeh Ramsar site is located in Missan Governorate while the lowers parts of this site are located in Basra Governorate.

Hawizeh Ramsar has clear boundaries. The eastern borders of the site run along the Iraqi-Iranian borders from Sheeb area in the north down to Majnoon area in northern Basra. The upper border of the site runs westward from Sheeb border station to northwest of Musharrah town, then it goes southward along Tigris River, then it passes Sweib and Majnoon area in Basra where it goes eastward to meet the eastern border of the site at the Iraqi-Iranian borders. For more info, please find the attached map of the overall area of Hawizeh Ramsar site in the annex.

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**8. Geographical coordinates** (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Centered on 31° 25' 29" North latitude, 47° 38' 44" East longitude

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**9. General location:**
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

The Hawizeh Marsh (Haur Al-Hawizeh) designated on 17 October 2007, is located east of the Tigris River between the cities of Amara and Basrah, in the Governorates of Basrah and Misan. The marshes extend over the international border into the Islamic Republic of Iran, where they are named the Haur Al Azim.

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**10. Elevation:** (in metres: average and/or maximum & minimum)
The estimated average elevation of the Hawizeh Marsh Ramsar Site is 4.0 m above sea level.

**11. Area:** (in hectares)
The area of the Hawizeh Marshes Ramsar Site is 137,700 hectares (1,377 sq. km).

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**12. General overview of the site:**
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Hawizeh Marsh is one of 33 wetland complexes identified in the early 1990s as being of international significance (Scott 1955); about half of these are located in the southern reaches of the Tigris and Euphrates rivers. It was widely quoted that up until several decades ago, the Iraqi marshes covered a total area ranging from 1.5 to 2 million hectares (15,000-20,000 sq. km), forming the largest area of wetland in the Tigris Euphrates alluvial salt marsh biogeographic region. The marshes are located at the northern end of the Gulf

and centered on the confluence of the Tigris and Euphrates rivers. These marshlands are comprised of permanent and seasonal lakes, vast reed beds, mudflats and seasonally inundated plains. The southern Mesopotamian marshes of Iraq are typically divided into three units: the Hammar Marshes to the South, the Central (or Qurnah) Marshes and the Hawizeh Marshes to the east straddling the border with Iran.

The most important feature of the wetlands of Lower Mesopotamia was the vast extent of the permanent, shallow, freshwater lakes and reed-beds of the Hawizeh Marsh system. The Mesopotamian marshes comprise vast areas of almost contiguous wetland habitat.

Hawizeh wetland is fed by River Tigris in the west through Al-Musharah and Al-Kahla'a rivers as well as the Karkheh River which originates in Iran in the Zagros Mountains. It is bordered in the north by Assanaf Marsh and in the south by the Shatt al Arab. Historically, the Marsh was a permanent with season fluctuations around the margins. Currently, the bulk of the Marsh is still considered permanent but some shallow areas might get water occasionally. However some parts of Hawizeh such as Majnoon (southern part) is facing serious drought but this part cannot be considered as seasonal wetland as it will get its original status (as permanent marsh) when it get water. The permanent part has extensive reed-beds alternating with open sheets of water, but these areas also suffer from the lack of the water too.

An Al-Hawiza marsh is important area because it receives considerable numbers of different species of migrant waterfowl that passes over the area or overwinter from different sources. During the peak time of migration, more than 20 of different kinds of Waterfowl species were observed in Hawizeh. This matter makes the area of international importance in this aspect. It also provides very good habitat for the breeding of various bird species like the endangered Basra Reed Warbler *Acrocephalus griseldis* and the African Darter *Anhinga rufa* where the main population of the country and the Middle East breeds frequently in this area.

Hawizeh wetlands drain southeastwards into the Gulf via the Shatt al-Arab waterway.

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**13. Ramsar Criteria:**

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|
| ☑ | ☑ | ☐ | ☑ | ☐ | ☑ | ☐ | ☑ | ☐ |

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**14. Justification for the application of each Criterion listed in 13 above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1:

Hawizeh marshes represent a remnant component of a rare example of extensive freshwater marshes in the Tigris Euphrates alluvial salt marsh biogeographic region. The vast permanent and seasonal, fresh to brackish wetlands of the site in Lower Mesopotamia, forms part of the largest area of these wetland types not only in the Middle East but also in the whole of Western Eurasia.

Criterion 2:

During the most recent Key Biodiversity Areas survey (2009-2010) in the 5 KBA stations inside Hawizeh, bird species and their abundance, together with noteworthy ecological features, have been registered. Important bird species because of their global conservation status registered in the Hawizeh marshes during the survey season 2009-2010 are: the endangered Basrah Reed warbler *Acrocephalus griseldis*, the vulnerable Greater Spotted Eagle *Aquila clanga* the vulnerable Marbled Duck *Marmaronetta angustirostris.*

| Scientific Name | Common Name | IUCN | CITES | CMS |
|---|---|---|---|---|
| **BIRDS** | | | | |
| *Aquila clanga* | Greater Spotted Eagle | VU | II | I and II |
| *Marmaronetta angustirostris* | Marbled Duck | VU | | I and II |
| *Acrocephalus griseldis* | Basrah Reed warbler | EN | | II |
| *Aquila heliaca* | Imperial Eagle | VU | I and II | I and II |
| **REPTILES** | | | | |
| *Rafetus euphraticus* | Euphrates Softshell Turtle | EN | | |
| **MAMMALS** | | | | |
| *Lutrogale perspicillata maxwelli* | Smooth-coated Otter | VU | II | |

Criterion 4:
The site is of international importance as a staging and wintering area for a number of waterfowl and birds of prey on their way between their breeding grounds in Western Siberia and their winter quarters in eastern and southern Africa. In Table 1 in the annex list of breeding, summer, and winter visitors as well as passage migrants has been produced for the 2009-2010 period with data registered at the Hawizeh KBA stations. The site can be considered of international importance because it continues to support many summer breeding and wintering bird species, besides being a recovery and feeding area for passage migrants. More than 90 bird species known to winter in this area, and more than 40 bird species known to exist during summer season of which the majority of them breed in the area. No sufficient information is available about the passage bird species over Hawizeh, but it thought to be up to 60 migrant bird species.

Criterion 6: In 2009, an observation at site HZ1 (Umm An Ni'aaj) confirmed the presence of an estimated 2,750 Pygmy Cormorant (*Phalacrocorax pygmeus)*, while in the same season, 9,000 individuals were estimated in Majnoon. These observations exceed the threshold of the 1% of the global population (being 1,000 individuals). Similar counts (over 1% threshold) were made over more than three years, the matter that made the presence of this bird species regular in different areas in Hawizeh wetlands. 2100 (2009) 1300 (2008)

Criterion 8:
Hawizeh is a critical nursery area for freshwater fish species and is a water source area for marine fish stocks of the Gulf used for basic human survival in the region. 23 fish species were recorded in various Hawizeh monitoring stations during 2009 survey, the species found are as from the Table 2 in the annex.

The most common endemic fish species in the area are the *(Silurus triostegus)* and *(Barbus sharpeyi)*

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**15. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**
Tigris Euphrates alluvial salt marsh

**b) biogeographic regionalisation scheme** (include reference citation):
WWF ecoregion
Ecoregion: Tigris-Euphrates alluvial salt marsh

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**16. Physical features of the site:**
Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The Hawizeh Marsh is the most eastern part of the larger Mesopotamian marshlands in southern Iraq which are, in turn, part of the major river systems in the region encompassing a number of riparian countries namely, Turkey, Syria, Iraq and Iran.

It is part of the Mesopotamian Plain which typically consists of flood plain deposits and younger alluvium. The floor of the marsh is made of lacustrine deposits of at least 12 meters depth. These deposits rest on younger alluvium of Tigris River which is composed of the alternating layers of gravel, sand, silt and clay beds. Pliocene bedrock, which outcrops at the Iraqi-Iranian borders north of Ammara, dips gently to the southwest disappearing deep under the thick alluvial cover.

Hydrologically, it is a formation resulting from mixtures of waters that come from Iraqi as well as Iranian rivers. The major inflow from the Iraqi side comes from the Tigris River through Al-Musharah, Al-Kahla'a and Al-Machriya rivers. All these rivers form smaller but extensive networks of channels feeding into the Marsh. There is also a flood escape constructed in the 1990s, the aim of which was to divert Tigris flood waters in spring months to Haur As-Sanaf which ultimately feeds into the Hawizeh Marsh. In July 2005, the inflow to the Hawizeh Marsh from inside Iraq was estimated at 85m3/sec. The quality of the inflow was very good. No such estimate is available at the time of writing, but considering the recent drought condition of these marshes the inflow rate of 2005 can be considered no more reliable.

The inflows to the marsh from the Iranian side come mainly via the Karkheh, Al-Teeb and Dwairij rivers. The Karkheh River was the biggest contributor to the Hawizeh Marsh before the construction of the Karkheh Dam. Its historical record shows that the average annual flow exceeded 200 $m^3$/s. There is an information gap as to the inflow rates from the Iranian side in recent decades.

The water inflow coming from the Iranian side of Hawizeh is unknown, due to the construction of dams and water regulators on that side the amount of water on the Iraqi side is decreasing steadily. In the Water Resource Strategies 2010-2014 document of the Ministry of Water Resources negotiation strategies with Iran are envisaged in this respect.

Main water quality parameters in Hawizeh have been registered by Nature Iraq surveys (2012), and refer to the following:

- Water temperature, ranging from about 10°C to 30.85°C in north Hawizeh and from 15°C to about 31.7°C in South Hawizeh, depending greatly this parameter on water depth at the moment of survey.
- Salinity, averaging about 1550 ppm in North Hawizeh to slightly more than 7100 ppm in South Hawizeh.
- EC, averaging about 3.22 ms/cm in North Hawizeh to slightly more than 11.94 ms/cm in South Hawizeh
- pH, averaging 8.24 in North Hawizeh and 8.60 in South Hawizeh.
- Dissolved oxygen, averaging 6.2 and 5.47 mg/L in both locations and showing a quite moderate oxygenation and the dominance of aerobic conditions in these marshlands.

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**17. Physical features of the catchment area:**
Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The Hawizeh catchment area is poorly defined due to the hydrological features of the major rivers that feed into it. However, restricting the estimate to the physical extent of the depression of Hawizeh, that used to be inundated during high flows, it is in excess of 3,000 sq. km in size. Nearly 80% is within Iraqi territory and the rest is across the border in Iran. Generally, it has a gentle slope towards The Gulf allowing slow movement of water between the inflow and outflow points. The slope is steeper toward the Iranian side on the northeastern portion of the Marshlands. A higher hydraulic gradient occurs during the flood season causing rapid outflow to the Shatt al-Arab waterway and then to The Gulf. However, the impact of the natural tides in the lower Iraqi delta plays a role in the fluctuation of the daily water level in Shatt Al- Arab as well as in the lower reaches of the Tigris and Euphrates, thus impacting on the water level in the adjacent marshlands.

Various types of soils have been recorded in the Missan governorate (where most of the Hawizeh complex is located), the most important of which is the soil of the banks of Degla River, having good drainage properties, fertility and suitability for agricultural uses. There are also soils of Degla River streams that are affected to various extents by salinity from natural and human sources. Sandy and gypsiferous soils are also present especially in the east and north east of the governorate.

The dust storm has been recorded in the Missan governorate is 6 days and Basrah governorate is 2 days in 2011. Annual rainfalls in both (Misan and Basra) are 110.7 mm and 65.3 mm for 2011. Averaging air temperatures have been recorded in August, 2012 are 36.5 °C in the north Hawizeh and 37 °C in South Hawizeh.

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**18. Hydrological values:**
Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The hydrology of the entire lower Mesopotamian river system, including the Hawizeh Marsh, is impacted by a number of factors including the annual flooding during spring which raises the water level in the marsh to its peak between March and May. Water levels then drop gradually toward their minimum in the dry summer season. However, a significant part of Hawizeh Marsh is permanent with considerable vegetation cover all year round. The natural flood cycle has been severely changed starting in the 1970s until the present time. All countries in the Tigris-Euphrates basin have constructed huge hydraulic structures over various parts

of the major rivers. These include dams, reservoirs, barrages and regulators which give the operators of these structures a high level of control over water. Despite this, the hydrological data still show similar behavior, albeit less in magnitude and duration. In addition to the impact of management decisions and the operations of dams and reservoirs, natural tidal impact is still important particularly during the low flow seasons in summer times.

In addition to their direct economic benefits to Marsh dwellers and surrounding communities, the marshes also provided natural functions such as flood control, prevention of saltwater intrusion, water temperature regulation, water purification and erosion control. They also act to moderate the local climate, with the influence being felt as far south as Kuwait. Coastal fisheries in the northern Gulf were dependent on the marshes as spawning and nursery grounds. These fisheries have declined significantly following the destruction of the marshes. Historically, these wetlands were a main source of freshwater for human consumption, supplying communities living in and surrounding the marshes. Destruction of the marshes has had severe human health consequences as a result of the loss of clean water and degradation of sanitation standards.

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**19. Wetland Types**

**a) presence:**
Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

**Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)**

**Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp Ts • U • Va •**
**Vt • W • Xf • Xp • Y • Zg • Zk(b)**

**Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)**

**b) dominance:**
List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

dominance:

O, Tp, M, 2, 9, Ts, R, 3, 4, Ss.

The dominance of marsh habitat types needs to be re-assessed and updated.

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**20. General ecological features:**
Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The newly expanded Hawizeh marsh, as delineated in the KBA surveys, covers a total area of about 1640 km². The northerly sector was never completely dried; and was considered to be a reference marsh with respect to the fauna and flora surviving in the refuge. The southern part was first (up to 2007) re-inundated and, at the time of writing, is supposed to be completely dry again (with the exception of some water amount improvements that might have occurred since the last 2010 survey).

Recent detailed vegetation surveys of the Hawizeh Marsh are lacking. Access to many areas remains restricted due to unexploded ordinance, mine fields and/or border security considerations in some parts.

Hawizeh marshlands area is very important wetlands for resting and wintering of huge numbers of waterfowl, waders, and some other Passerines species. It also forms important part of the breeding of Basra Reed Warbler (*Acrocephalus griseldis*) that breeds only in the Lower Mesopotamian wetlands.

This site is located in a critically threatened ecoregion (Tigris-Euphrates alluvial salt marsh). Also the marshlands in southern Iraq are threatened habitats and under the threat of decreasing water levels or drought, grazing, water pollution and electrofishing.

The following plant species are characteristic species for the habitat type: Inland Standing Water- Aquatic communities- Rooted Submerged Vegetation: *Hydrella verticillata, Myriophyllum verticillatum, Najas marina, Potamogeton crispus, P. lucens, P. nodosus, P. pectinatus, P. perfoliatus*, *Ceratophyllum demersum*; the *Lemna gibba, Lemna minor, lemna sp*, are characterstic species for the habitat type: Inland Standingh Water- Aquatic communities- Free Floating Vegetation; the *Phragmites australis, Typha domingensis*, and *Schoenoplectus littoralis* are characterstic species for the habitat types: Marsh vegetation- Helophytic vegetation- Reedbed, Reedmace bed, or Schoenoplectus bed. *Salix acmophylla*, and *Salix euphratica* (trees), *Tamarix* sp, and *Rubus sanctus* (shrubs), *Cynodon dactylon* and *Aeluropus lagapoides*, are characterstic species for the habitat type: woodland-shrubs. There is one proposed endemic species found in this site *Silybum marianum*.

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**21. Noteworthy flora:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

During the most recent survey of the area (2010) most of the plants registered are common and widespread and include reed (*Phragmites australis*), submerged vegetation like *CeratophIlum demersum, Najas marina, Potamogeton crispus, Potamogeton pectinatus* as well as Chara sp.; emergent aquatic plants such as *Typha domingensis,* and *Schoenoplectus litoralis.* More rare plants found in some locations (HZ1, HZ2) include *Cladium mariscus* and the floating plant species *Lemna gibba*. The other 2010 surveyed stations (HZ4, HZ8) had no noteworthy flora due to the total drought condition found.

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**22. Noteworthy fauna:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including

count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Two Vulnerable species, Greater Spotted Eagle *Aquila clanga* and Eastern Imperial Eagle *Aquila heliaca* were found wintering as well as three Near Threatened species: Ferruginous Duck *Aythya nyroca* (summer and winter), Pallid Harrier *Circus cyaneus*, and Black-tailed Godwit *Limosa limosa* (passage and winter), but in sub-IBA threshold numbers. The resident species of the Little Grebe *T. r. Iraquensis* breeds regularly in quite large numbers in the area.

Due to the availablility of food and shelter, it seems that the area provides good home for the endangered *Rafetus euphraticus* where it exists and breeds permanently especially along the water paths and rivers in the area. This area might form potental key part of the home of an isolated population of the Smooth-coated Otter *Lutrogale perspicillata maxwelli* (vulnerable population in the Lower Mesopotamian marshlands). However, there is considerable confusion regarding the population and distribution of this animal and the Eurasian Otter *Lutra lutra* (Near Threatened). Also, this area is very important regarding the largest living mammal in the area, the Wild Boar *Sus scrofa* as this animal lives and breeds in considerable numbers over these wetlands. Some important least concern mammal species found during the KBA surveys (and according to the locals' frequent reporting) were: Golden jackal *Canis aureus*, Jungle Cat *Felis chaus* and Wild Cat *Felis silvestris*. Reptiles found in terrestrial and aquatic habitats at the site were: Tessellated Water Snake *Natrix tessellate* and Caspian turtle *Mauremys caspica,* however there are least concern species, but exists is considerable numbers.

The area also consists of considerable list of different fish species.

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**23. Social and cultural values:**

**a)** Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The wide array of services provided by the marshlands are illustrated in the Table below (source: Iraqi Marshlands - Integrated UNAMI UNCT White Paper, 2011), among them also cultural values are mentioned.

| Provisioning services – the goods of products obtained from Marshlands' ecosystems | | |
|---|---|---|
| Food | Crops | Paddy rice, great millet, dates, vegetables and fruits |
| | Livestock | Asian water buffalo, cattle, sheep, water-buffalo milk and yogurt |
| | Capture fisheries | Shrimp, yellowfin seabream, khishni |
| | Aquaculture | Cyprinids, grass carp, shellfish |
| | Wild foods | Wild boar, waterfowl (coot, teal), desert monitor |

| | | |
|---|---|---|
| Freshwater | | Freshwater for drinking, claning, cooling, and transportation (canoeing and boating) |
| Fiber and fuel | Fiber | Reeds for housing and mats; date palm wood |
| | Fuels | Reeds, crude oil, cattle dung |
| Biochemical | | Potential use of Marsh flora extracts, native herbs for pharmaceuticals and pest control |
| Genetic materials | | Resistance and breeding of native plant and animal species |
| Regulating services – the benefits obtained from the Marshland ecosystems' control of natural processes | | |
| Climate regulation | | Moderation of the national rainfall patterns and control desertification and dust storms |
| Water regulation | Hydrological flows | Storage and retention of water flowing from Euphrates-Tigris system upstream and tidal flow downstream; Permeable clay and silt facilitates recharge of the Recent Alluvium aquifer |
| | Water purification and waste treatment | Removal of harmful pollutants from water by trapping metals and organic materials; soil microbes degrade organic waste rendering it less harmful |
| Erosion regulation | | Reeds, grasses and estuarine vegetation retain soils and sediments |
| Natural hazard regulation | | Marsh areas naturally absorb seasonal floods and tidal surges; moderation of drought at a local scale |
| Pollination | | Habitat for bees and birds, the key pollinators of economically important crops |
| Cultural services – the non material benefits that Iraqis obtain from Marshlands ecosystems | | |
| Ethical values | | Customs, oral traditions, knowledge and rituals attached to the use of the land and rivers; Iraqi tangible and intangible cultural heritage; an area of global importance |
| Recreation and tourism | | Canoeing, bird and wild-life watching, recreational fishing, archaeological site visitation, Marsh communities |
| Aesthetic | | Globally significant natural beauty |

| | |
|---|---|
| Educational | Science, cultural awareness, specialized vocational training, public awareness of national, regional and global importance |
| Supporting services – the underlying processes that are necessary for the production of all other ecosystems services | |
| Soil formation | Retention of sediment, recycling and supporting the health of the ecosystem |
| Nutrient cycling | Returning phosphorus, sulfur and nitrogen to Iraq's atmosphere, water and soils |

Clearly, the Hawizeh marshlands, like all other marshlands of southern Iraq, have an outstanding exceptional value in terms of providing economic resources like clean water, fish, birds and vegetation that can be used for traditional buildings, rural housing and handicrafts and also for feeding buffalos. Other intangible values can be associated to the marshland existence that, though not directly generating an economic revenue, can also be considered as a resource. The existence of beautiful and traditional typical landscapes associated with the marshlands is a value in itself, moreover it can also develop as a touristic attraction also in the framework of internationally recognized principles on conservation of cultural values and traditional knowledge.

**b)** Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box ☑ and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

Some of the world's first records of civilization are on the fringes of the marshlands, including: Ur, Uruk, Eridu, Larsa, Lagash, and Nina. Little archaeological exploration has been carried out within the marshes themselves. Mounds, known as tells, rising above the marsh waters are believed to be sites of ancient cities. These include the sites of Agar, Qubab, Ishan, Azizah, Dibin, and Waquf (Roux, 1993). These areas were used as platforms upon which modern-day marsh inhabitants built their homes and communities.

Artifacts in Tell Al Abid (8 km north of Ur) date back to civilizations of the Abid age (4500-3800 B.C.), the Warka age (3800-3500 B.C.) and Jamdat Naser age (3500-3200 B.C.). The artifacts included earthen wares, flint-stone tools and pottery with papyruses. Due to the fact that reeds were found with the artifacts, and were indicated in home construction for these civilizations, it is likely that the marshes existed at that time.

The Sumerians flourished around the marshlands between 3,000 and 2,000 B.C. The Epic of Gilgamesh, the world's first epic poem to be written, makes mention of the marshlands: "Ever the river has risen and brought us the flood" and "A reed has not come forth… all the lands were sea, then Eridu was made." In the Iraqi Museum, there are artifacts representing Gilgamesh with water buffaloes in the Tigris and Euphrates. The boats used by marsh dwellers today are almost identical to those found at the Royal Cemetery of Ur. Clay tablets from the Sumerian period document the marsh environment alive with wildlife.

The Sumerian civilization was followed by the Assyrian Empire. The Assyrians called the marshes Narmrtu which meant 'the bitter water' or Tamdu Shamatu Kildi, which meant "the sea of the city of Kildah." They also called them the land covered with torrents "Rag tubit hashmr" or "the land covered with torrents of the bank of the Tigris." In 703 B.C., it was written that the King of Babylon "fled like a bird to the swampland" and the King of Assyria "sent ... warriors into the midsts of the swamps…. and they searched for five days" but the King of Babylon could not be found (Roux 1993).

The Assyrians were followed by the Chaldean, Persian, and Greek Empires. Alexander the Great's leader 'Nearch' described this area accurately after he passed it. He said that it was 600 stadiums wide (approx. 71 miles or 114 km). It has been hypothesized that Alexander died from a disease he caught while traversing the marshlands. The Romans defined the marshes as "Chaldaicus Lacus." This short historical characterization of the marshland area, extracted from the New Eden Master Plan for Integrated Water Resources Management in the Marshland Area (2006), demonstrates the exceptional cultural and traditional value of the Hawizeh marshes, as a part of the whole complex of Southern Iraqi marshes, and also demonstrates the way in which the past civilizations have been shaping, with their activities, the ecological nature of the marshland ecosystems up to the drainage period.

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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**24. Land tenure/ownership:**

a) Within the Ramsar site:

The area has traditional lands previously controlled by local communities but this was highly disrupted by the displacement of local people in the 1990s. These people to some measure have now returned but ongoing land tenure conflicts exist. The general rule is that flooded areas are for common use. The area thus is dominated by lands that traditionally were under private control. Current data on land tenure in this area is not available at this time requiring updated regional census information and some of lands are owned by the government.

In addition to the land tenure conflicts at local level and among the marshes rural communities, the conflict and displacement of people deriving from the oil concessions (especially affecting the southern Hawizeh Marsh) have to be taken into account in the most recent marsh development scenario.

b) In the surrounding area:

The area is predominantly agricultural. Part of the area is the Majnoon Oil Field which is well protected by dykes. Government is working to determine the ownership of land that was public or private

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**25. Current land (including water) use:**

a) Within the Ramsar site:

No recent images are available. The same conclusions can be deducted from the 2010 KBA surveys, where in some locations (e.g. HZ4, HZ8) completely dry soil was found. Therefore the 88% of flooded area figure is no longer valid.

Within the marshes, the principal activities were and are to a minor extent today, buffalo rearing, fishing, hunting, rice cultivation and mat-weaving. The water buffalo provide milk, butter, yoghurt, meat and dung. For most of the year, they graze in the reed-beds, but in winter they remain tethered on platforms and are fed with cut reed shoots. Fishing occurs throughout the wetlands. Spear-fishing was a widespread technique, but this has largely been replaced by netting with various types of nets. Waterfowl hunting was also very important in the local economy, with enormous numbers of waterfowl being harvested on a commercial basis each year. During the last socio-economy survey this activity was declared as a secondary source of income and livelihoods, and practiced mainly for domestic purposes. This change could be possibly caused by a reduction in waterfowl numbers in the marshes.

b) in the surroundings/catchment:

The main form of land use was agriculture but, with a view to the planned oil developments, urban areas and infrastructures are meant to increase considerably.

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**26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

a) within the Ramsar site:

Up to the 1970s the Hawizeh Marsh and its associated marshes covered an area of approximately 300,000 hectares (3,000 sq. km) of which 243,000 hectares (2,430 sq. km) were inside Iraq. It was considerably reduced in area due mainly to deliberate policies by the former Iraqi regime as well as the upstream construction of dams in Iraq as well as in Turkey and Iran. The marsh area extending over the border into Iranian territory has been reduced in size by Iranian-built dykes.

Extensive drainage in the 1990s, water shortage, warfare destruction of landscape, increased salinity of waters and soils, water pollution, over hunting and over fishing. There is also the danger of land mines along the border which represent a serious problem

In the 1990s, drainage of portions of the permanent lakes and reed-beds of the Hawizeh Marsh system constituted an ecological catastrophe of unprecedented proportions in Western Eurasia. Several bird and mammal species were brought to the verge of extinction. Migratory populations of waterfowl were affected over a very wide area from the West Siberian tundra to southern Africa, as some of the major staging and wintering areas in Southwest Asia were lost.

The reduction of the vegetation extension and of the water bodies was remarkable. The 2010 marshes extent shows a reduction of size of nearly 50% as compared to the 2008 situation. Following this dramatic change that has occurred again in the recently and partially restored Hawizeh Marshes, Iraq has applied for the inclusion of Hawizeh Marsh Ramsar Site in the Montreux record, according to Recommendation

4.8 of the Convention. Hawizeh Marsh is included in the Montreux record since the 28th of April 2010. A recent satellite image of the area is showing the extent of change occurred (Annex 2).

b) in the surrounding area:

The marshes in southern Iraq have undergone unprecedented degradation, with severe impacts to human livelihood and health, biodiversity and other related ecological services. Although the management of the southern marshes is an Iraqi issue, it is impacted by actions taken by Iraq's bordering riparian countries. The Hawizeh Marsh straddles the border between Iraq and Iran. At a broader level, marshland restoration and management in this area is embedded in issues of regional cooperation on water management in the Tigris-Euphrates basin, which includes Turkey, Syria, Iran and Iraq.

Water management has been a feature of the Tigris-Euphrates basin and the Mesopotamian marshes for millennia. Since the middle of the 20th century, however, the nature of water management of the Tigris-Euphrates basin has changed significantly, most notably with the construction of water storage and hydroelectric projects in the upper parts of the basin. While these developments have had a significant effect on the quantity, quality and timing of water flows into the marshes, the action that led to the wholesale destruction of the marshes was the Iraq-Iran war and the subsequent war as a result of the Iraqi invasion of Kuwait. The Marshes were particularly impacted in the wake of the civil unrest in southern Iraq and in the aftermath of the war the government began a massive program to drain the marshes. Massive levees, and hundreds of kilometers of drainage channels were constructed in the area, leading to the loss of nearly 90% of the wetlands by 1999, and untold hardships for Marsh dwellers, who were forced to flee the area. A major portion of the natural hydrological functions of these important wetlands and river system, on which the people of many cities and towns depend, was thus lost. This is one of the most severe examples of intentional destruction of a natural ecosystem in the world's history.

The most serious threat to wetlands in Iraq has been the drainage of wetlands and diversion of water supplies for agricultural and military reasons in the 1990s. Dam- building on the Euphrates in Turkey and Syria and the increasing utilization of the waters of the Tigris and Euphrates for irrigation in upper and middle Iraq have greatly reduced the extent of seasonal flooding in the wetlands of lower Iraq. This has facilitated drainage of large areas for agricultural cultivation and the exploitation of oil resources. In the 1990s, major hydrological engineering activities in and around the wetlands of Lower Mesopotamia resulted in the drying out of vast areas of wetland in the Central, Hammar and Hawizeh marshes.

The total area of the lower Mesopotamian marshland complex before the 1990s draining scheme was estimated to have been 1.5 to 2 million hectares (15,000 -20,00sq.km.). As such, it represented the largest area of this habitat type not only in the Middle East but also in the whole of Western Eurasia. Most of the wildlife species of special conservation concern in Mesopotamia are wholly or largely dependent on the continued survival of these permanent marshes.

In the surrounding area, Dam-building activities on the Tigris and Euphrates Rivers in recent years, both within Iraq and upstream in Turkey, Iran and Syria, have resulted in the loss of much of the former wetland habitat. Major drainage works in Lower Mesopotamia have caused wetland destruction on a massive scale. The on-going construction of a dyke along the Iranian border threatens natural water flows to this wetland complex and would lead to habitat fragmentation. Numerous large dams and barrages have been installed on the Tigris and Euphrates, and an elaborate network of drainage canals was constructed.

Scott and Evans (1993) concluded that drainage of the wetlands of Lower Mesopotamia could result in the global extinction of several mammal and bird species as well as the decline in the world populations of some species of birds. The current status of many migratory populations that may use Iraqi habitats remains uncertain.

Migratory populations of waterfowl have also been affected over a very wide area from the West Siberian tundra to southern Africa, as one of the major staging and wintering areas in the West Siberian/Caspian/Nile flyway was reduced by up to 90% of its former area. In August 2005, UNEP reported that up to 40 % of the original marshes areas had been reflooded. Unfortunately the re-flooding process has ceased and most of the 2005-2006 areas are now dry. Drainage of the Lower Mesopotamian wetlands and current draught conditions constitute an ecological catastrophe of unprecedented proportions in Western Eurasia that may never be fully mitigated.

Oil development: Hawizeh Marsh and, in general terms, the whole southern Iraq marshes, are in the middle of many existing and planned oil fields. New developments are planned for the near future posing consistent threats to the natural environment and to the marshes restoration (Annex 2). It has to be reminded that the southern Iraqi marshes have to be considered as a whole ecological system and that rarely the impacting activities of the oil industry will be strictly confined to the oil field boundary.

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**27. Conservation measures taken:**

**a)** List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:
In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

**b)** If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ❑;Ib ❑; II ☑; III ❑; IV ❑; V ❑; VI ❑

**c)** Does an officially approved management plan exist; and is it being implemented?:

Yes, a management plan was developed in December 2008
http://natureiraq.biz/site/sites/default/files/Hawizeh%20Plan%202nd%20Draft%20Volume%201%20Dec%201%202008.pdf, but implementation lags behind due to a lack of capacity.

Iraq is developing its capacity to monitor, protect and manage the site. The critical aspect of this is the creation of the physical conditions in which biodiversity is maintained.

Since 2004 and up to 2010, the Iraqi Ministry of Environment (MOE) has been involved in a number of initiatives to begin research in the recently restored Mesopotamian Marshlands of southern Iraq. These efforts, conducted with support from the Canadian International Development Agency (CIDA), the United Nations Environmental Program (UNEP) and the Italian Ministry of Environment, Land & Sea (IMELS) and with logistical and staff support from Nature Iraq (NI), have led to a national program to survey the country's biological diversity. This program is called the Key Biodiversity Areas (KBA) Project.

The rationale behind the KBA research in Iraq is to check on a regular basis the environmental characteristics of a set of chosen sites in order to define the most valuable areas on an ecological point of view, to identify main threats and to plan adequate management measures contributing to the possible creation of a national network of protected areas. Although research techniques and dedicated field staff are constantly improving in Iraq, there are still some gaps to fill in the assessment and evaluation of relevant KBA data. The next step will be the implementation of management plans and protection measures for the surveyed sites.

The program to survey national biodiversity (initiated in 2004) has been monitoring the Hawizeh area in a series of chosen locations that were visited with continuity up to 2010 (and depending on local favorable/unfavorable conditions). The coordinates of monitored stations inside the Hawizeh area are as from the Table.4 in the annex

**d)** Describe any other current management practices:

Since the fall of the previous Iraqi regime in March 2003, the Ministry of Water Resources has administered a program for the restoration of the marshes of Southern Iraq. The local communities also breached dykes and levees to allow water to flood more area of the former marshes. As a result, refugees have been returning to the former marshes. UNEP reported in August 2005 that up to 40% of the degraded wetlands of southern Iraq had been successfully reflooded.

Papers presented by Iraqi scientists at the August 2005 Annual Meeting of the Ecological Society of America documented a revival of the biological resources of the region. Unfortunately this first improvement offlooding and biological conditions has not lasted long and has not been followed by consequent management and conservation policies. Since the re-flooding and up to the year 2008, the water levels and the related marsh ecosystems and wildlife have been increasing in quantity and quality; however two years of drought (2008 and 2009) and the completion of the dike along the Iran-Iraq border have hampered again the ecological status of the site to such an extent that the most recent (2010) figure of the Hawizeh Marsh flooded areas and vegetation appears as shown in images of Annex 1.

In the Eden Again Project it was stated that ‘‘For the long-term viability of this vital marsh area and other marshes, there needs to be a systematic management program that would replicate the natural flooding of the marsh and the hydrodynamic period. Further, in order to understand the natural healing process, there is a need to monitor the progress of the restoration, including quality of water and water levels.’’

The pressing need to safeguard a substantial proportion of the permanent wetlands of the Hawizeh Marsh seems nowadays limited to the northern area of the Hawizeh, where, on the western side the only considerably large water body still exist. Emerging threats have also to be taken into account, among which the Iraqi planning of an embankment to be realized parallel to the country border with Iran and the oil development planning which will involve an extensive area of the southern Hawizeh Marsh (Majnoon oil fields). Iraqi embankment proposed in Hiwazeh Marshes which is parallel to the embankment of Iran, it does not affect to the sources of the water from the Iranian side (if any) because it contains a regulators and under controlled.

Iraqi embankment has proposed for the following reasons: -

- Redistribution of the Iraqi border security centers, allowing researchers and the local population and the relevant authorities applying the Ramsar site management plan, work within Hiwazeh Marsh more freely and without security restrictions.
- Prevent water drainage from Iranian side and remnants of Iranian oil drilling to access to the Iraqi side of HiwazehMarshes .

- The embankment is important to the relevant Iraqi ministries.

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**28. Conservation measures proposed but not yet implemented:**
e.g. management plan in preparation; official proposal as a legally protected area, etc.

A 1994 environmental and ecological study of the marshlands of Mesopotamia, coordinated by the Wetland Ecosystems Research Group at the University of Exeter, United Kingdom summarized available information on the faunal, floral, ecological, economic and cultural values of the wetlands, and examined the changes which had taken place in the wetlands as a result of engineering and other developments in the Tigris/Euphrates basin. The study assessed the environmental impact of past, ongoing and proposed developments on the system. The report entitled Environmental and Ecological Study of the Marshlands of Mesopotamia (Maltby 1994) made recommendations for the conservation of remaining wetland habitats and restoration of degraded areas. In 2001, UNEP published a report entitled 'The Mesopotamian Marshlands: Demise of an Ecosystem' which recommended that priority should be given to the conservation of the remnant Hawizeh marshes and suggested Ramsar Designation as one possible option.

The southern marshes of Iraq, including Hawizeh, are noted to be one of the ''Endemic Bird Areas'' in the world, and one of only 11 which are wholly or largely non-marine wetlands. The area was recognized as a potential Wetland of International Importance by Wetlands International (Scott 1995) and an Important Bird Area by BirdLife International (Evans 1994). A two-volume report, the Management Plan for the Hawizeh Marsh Ramsar Site of Iraq has been prepared for the Iraq National Marshes and Wetlands Committee (INMWC) in 2008, to assist the Government of Iraq in its implementation of national Ramsar Convention responsibilities. While the first Volume gives a background and a vision of Hawizeh Marsh, Volume 2 is more specifically dedicated to recommendations and to the practical management actions and that should have been adopted. Unfortunately, this Management Plan, of which a 2010 update was also provided, did not work due to some reasons on-ground.

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**29. Current scientific research and facilities:**
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Extensive scientific and ecological restoration studies have been carried out by national and international partners, including joint inter-university studies under the Canada-Iraq Marshlands Initiative funded by the Canadian International Development Agency (CIDA), ecological studies supported by United States Agency for International Development (USAID) and important projects supported by the New Eden Project funded by the Italian Ministry of the Environment, Land and Sea (IMELS) over the period 2005-2011.

National partners in these studies include the Ministry of Water Resources, Ministry of the Environment, Ministry of Municipalities and Public Works and the Iraqi NGOs Iraq Foundation and Nature Iraq Organization (responsible also of the national program to survey biodiversity- the KBA initiative).

During the period 2003-2009 the United Nations Environment Program (UNEP) undertook systematic satellite based monitoring of re-flooding and changes in wetland vegetation cover in collaboration with the Ministry of Water Resources (CRIM) and Nature Iraq/Iraq Foundation. The Iraq Marshlands Observation

System (IMOS)[1] was part of UNEP's "Support for Environmental Management of the Iraqi Marshlands" project implemented by the International Environmental Technology Centre (DTIE/IETC) and funded by the Government of Japan through the UN Development Group Iraq Trust Fund. The IMOS is designed and coordinated by UNEP's Post Conflict Branch and executed by GRID Europe. The main goals of the IMOS were to:

1. Develop and implement a monitoring system to systematically acquire, analyze and exchange information about changes in the Marshlands ecosystem;
2. Develop information products and services based on the data gathered to support management of the restoration process; and
3. Evaluate the success of wetland restoration and its impacts on the regional environment, including that of the northern Gulf.

The CRIM has conducted many scientific studies in this area, like "the evaluation of the chemical, biological, and radial pollution in the marshlands" in coordination with the Ministry of Science and Technology at 2005.

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**30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:**

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

In order to promote the proper integration of the Ramsar Convention values into the socio-economic context of the Hawizeh Marsh, various education activities need to be planned and drawn to the attention of the public.

An important initiative in this respect was the big celebration of the 40th anniversary of the founding of the Ramsar Convention was held in the Central Marshes on the 20th of April 2011 in the National Park Mudhif. The overall goal of the activity was to increase media focus and awareness on marshlands and trying to promote the Ramsar Convention principles for all marshes.

A second initiative was that held under the patronage of the Minister of Water Resources, Engineer Muhannad Al-Saadi, the Iraqi Ministry of Water Resources / Center for Restoration of the Iraqi Marshlands (CRIM), consisting in a celebration on the occasion of World Wetland Day in Baghdad, the 2nd of February 2012 under the slogan "Tourism in wetlands .... a great experience". This event was attended by representatives of ministries and representatives of Nature Iraq organization and a large audience of attendees. The event included speeches, film screenings both global and local about wetlands, and an important exhibition about the Iraqi marshes and the biodiversity set up by Nature Iraq organization in the ceremony. Also the organization distributed pamphlets and publications about wetlands in Arabic within a series of publications of the Ramsar Secretariat.

The CRIM has conducted a workshop in the occasion of the World Day of Wetlands for two days (8-9 Feb, 2012) and some representatives of different Ministries and NGOs attended this workshop. The Participated researches in a workshop:

-Marshlands feeders and Alternatives.
- Climate changes and its relation Marshlands designs.
- Studying of problems and obstacles in marshlands districts and required solutions to treat it.
- Constructing of housing units in the low coast from reed and papyrus supplied with solar energy techniques in outlying marshlands districts.
- Estimating of occurred changes in water surfaces by using of digital techniques for images.
- Attempt to use main fall drain water in refolded of Al – Hammar marsh.
- Development of field irrigation in Iraq.

- Central marshes … the changes and current status .
- Al – Hiwaizeh and Ramsar site .

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**31. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Due to the current security situation, tourism initiatives are not possible. In the 1980s, the Marshes had a significant tourism industry.

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**32. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

The marshes are located in southern Iraq within the borders of three governorates Basra Amara and Nassirriya. Around 80% of the Hawizeh Marsh is within Iraqi territory and 20% within Iran. The Iraq portion of Hawizeh Marsh is divided between Amara and Basra Governorates. As such, these two governorates have jurisdiction over the territory of Hawizeh. The water resources of the country are under the control of the Central Iraqi Government and as such, jurisdiction over the Management of water country wide, Hawizeh Marsh included, is under the Iraqi Ministry of Water Resources.

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**33. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Ministry of Water Resources owns the management of the site through the CRIM that has offices in the southern governments (Basrah, Nasssiriya, and Amara). It is implementing management measures to monitor the site and maintain the supply of sufficient inflow to the marsh.

National Focal Point:
Mr. Hani Fakhri Naji,
Director General,
Center for Restoration of Iraqi Marshlands and Wetlands (CRIM),
Ministry of Water Resource, Baghdad, Iraq.
Tel: +964 790 1388 625
Email: haninaji_eng@yahoo.com

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**34. Bibliographical references:**

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

An extensive bibliography with citations on main historical literature for the wildlife in the southern marshes of Iraq is provided in three primary publications (Evans 1994), Scott (1995) and (Maltby 1994).


- Evans. I. 1994. Important Bird Areas of the Middle East. BirdLife International, Cambridge, United Kingdom.

- Maltby, E. 1994. Environmental and Ecological Study of the Marshlands of Mesopotamia. University of Exeter, United Kingdom.
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- Scott, D. 1995. A Directory of Wetlands in the Middle East. International Waterfowl and Wetlands Research Bureau. Slimbridge, United Kingdom.


Researchers from the University of Basrah (Department of Biology, Department of Fisheries and Aquatic Sciences, and Marine Research Centre) have also carried out work on various aspects of the ecology of the marshes. Some of the principal studies for reference include the following:

- Population studies of gastropods from the Shatt Al Arab and aquatic mollusks of the Haur Al Hammar and Haur Az Zikri (Al-Dabbagh and Daod 1985; Al- Dabbagh and Luka 1986a, 1986b).
- Studies of aquatic beetles in the Shatt Al Arab and Mesopotamian Marshes (Ali 1976, 1978a, 1978b).
- Limnological investigations and studies of the vegetation (especially algae and phytoplankton) in the Shatt Al Arab and southern parts of Haur Al Hammar (Huq et al. 1978; Pankow et al. 1979; Al-Saadi et al. 1979; Maulood et al. 1979; Hinton and Maulood 1980, 1982; Al-Saadi et al. 1981; Maulood et al. 1981; Nurul-Islam 1982; Antoine 1984; Al-Saadi and Al-Mousawi 1988).
- Studies of seasonal variation in the quality and quantity of phytoplankton and zooplankton in Qurna Marshes (Al-Saboonchi et al. 1982, 1986).
- Studies on the parasites of fish and waterbirds (Mhaisen et al. 1990).
- Studies on the abundance and seasonal migrations of the commercial penaeid shrimp *Metapenaeus affinis* (Salman et al. 1990).

More recent literature used for the compilation of this information sheet include the following:

- KBA South Site Review 2009 and 2010 (Nature Iraq)
- Management Plan for the Hawizeh Marsh Ramsar site of Iraq (second draft) – Volume I and Volume II (Nature Iraq, 2008)
- Proposal of an Operational Programme to Facilitate the Start-up of the Hawizeh Marsh Ramsar Site (Nature Iraq, 2010)

Internet resources used for fauna and flora assessments include the following:

- http://www.fishbase.org/home.htm
- World Wildlife Fund. 2006. WildFinder: Online database of species distributions, ver. Jan-06. www.worldwildlife.org/WildFinder
- http://www.birdlife.org/
- http://www.iucnredlist.org/

## ANNEXES

Table 1 shows the different congregatory, waterbirds, and seabird species that were found in Hawizeh marshlands (Criterion 4)

| Order | Common Name | Scientific Name | Status in Iraq | Conservation Status |
|---|---|---|---|---|
| ANSERIFORMES | Northern Shoveler | *Anas clypeata* | Winter visitor & Passage migrant; may breed. | C, W |
| ANSERIFORMES | Eurasian Teal | *Anas crecca* | Winter visitor & Passage migrant | C, W |
| ANSERIFORMES | Mallard | *Anas platyrhynchos* | Winter visitor & Passage migrant. | C, W |
| ANSERIFORMES | Gadwall | *Anas strepera* | Winter visitor & Passage migrant | C, W |
| CHARADRIIFORMES | Common Sandpiper | *Actitis hypoleucos* | Breeding summer visitor; Passagemigrant | C, W |
| CHARADRIIFORMES | Little Stint | *Calidris minuta* | Winter visitor & Passage migrant | C, W |
| CHARADRIIFORMES | Temminck's Stint | *Calidris temminckii* | Winter visitor & Passage migrant | C, W |
| CHARADRIIFORMES | Little Ringed Plover | *Charadrius dubius* | Breeding summer visitor; Passage migrant | C, W |
| CHARADRIIFORMES | White-winged Tern | *Chlidonias leucopterus* | Breeding summer visitor; Passage migrant. | C, W |
| CHARADRIIFORMES | Common Snipe | *Gallinago gallinago* | Winter visitor & Passage migrant | C, W |
| CHARADRIIFORMES | Collared Pratincole | *Glareola pratincola* | Breeding summer visitor; Passage migrant | C, W |
| CHARADRIIFORMES | Great Black-headed Gull | *Larus ichthyaetus* | Winter visitor | C, W, S |
| CHARADRIIFORMES | Black-tailed Godwit | *Limosa limosa* | Winter visitor & Passage migrant | Globally Threatened (GT) |
| CHARADRIIFORMES | Common Tern | *Sterna hirundo* | Breeding summer visitor; Passage migrant | C, W, S |
| CHARADRIIFORMES | Wood Sandpiper | *Tringa glareola* | Winter visitor & Passage migrant | C, W |
| CHARADRIIFORMES | Green Sandpiper | *Tringa ochropus* | Winter visitor & Passage migrant | C, W |
| CHARADRIIFORMES | Common Redshank | *Tringa totanus* | Winter visitor & Passage migrant | C, W |
| CICONIIFORMES | Western Great Egret | *Ardea alba* | Winter visitor & Passage migrant | C, W |
| CICONIIFORMES | Grey Heron | *Ardea cinerea* | Winter visitor & Passage migrant | C, W |

| | | | | |
|---|---|---|---|---|
| CICONIIFORMES | Western White Stork | *Ciconia ciconia* | Breeding summer visitor; Passage migrant & Winter visitor | C, W |
| CICONIIFORMES | Little Egret | *Egretta garzetta* | Winter visitor & Passage migrant; May breed. | C, W |
| CICONIIFORMES | Eurasian Bittern | *Botaurus stellaris* | Summer visitor, and passage migrant | W |
| CICONIIFORMES | Little Bittern | *Ixobrychus minutus* | Breeding summer visitor; Passage migrant; some winter. | C, W |
| PASSERIFORMES | Western Yellow Wagtail (includes all races) | *Motacilla flava* | Passage migrant | C |
| PASSERIFORMES | Spotted Flycatcher | *Muscicapa striata* | Breeding summer visitor; Passage migrant. | |
| PASSERIFORMES | Eastern Black Redstart | *Phoenicurus phoenicuroides* | Winter visitor | |
| PASSERIFORMES | Common Chiffchaff | *Phylloscopus collybita* | Winter visitor & Passage migrant; may breed | |
| PASSERIFORMES | Eurasian Penduline Tit | *Remiz pendulinus* | Winter visitor | |
| PASSERIFORMES | Sand Martin | *Riparia riparia* | Breeding summer visitor; Passage migrant. | C |
| PASSERIFORMES | European Stonechat | *Saxicola rubicola* | Winter visitor; may breed | |
| PASSERIFORMES | Common Starling | *Sturnus vulgaris* | Winter visitor; may breed | |
| PELECANIFORMES | Great White Pelican | *Pelecanus onocrotalus* | Winter visitor & Passage migrant | Conservation Concern (CC), C, W |
| PELECANIFORMES | Great Cormorant | *Phalacrocorax carbo* | Winter visitor & Passage migrant | C, W, S |
| C=congregatory W=waterbird S=seabird | | | | |

Table 2 shows the different fish species that occurs and breeds in Hawizeh marshlands (Criterion 8)

| SITE | FAMILY | SCIENTIFIC NAME | ORIGIN | STATUS IN MARSHES |
|---|---|---|---|---|
| HZ1 | Cyprinidae | Acanthobrama marmid | Native | Very common |
| | Cyprinidae | Alburnus mossulensis | Native | Common |
| | Cyprinidae | Aspius vorax | Native | Common |
| | Cyprinidae | Barbus luteus | Native | Very common |
| | Heteropneustidae | Heteropneustus fossilis | Introduced | Common |
| | Siluridae | Silurus triostegus | Endemic | Very common |
| | Mugilidae | Liza abu | Native | Very common |
| | Mastacembelidae | Mastacembelus mastacembelus | Native | Common |
| HZ4 | Cyprinidae | Acanthobrama mermaid | Native | Very common |
| | Cyprinidae | Aspius vorax | Native | Common |
| | Cyprinidae | Barbus luteus | Native | Very common |
| | Mastacembelidae | Mastacembelus mastacembelus | Native | Common |
| | Mugilidae | Liza abu | Native | Very common |
| | Siluridae | Silurus triostegus | Endemic | Very common |
| HZ8 | Cyprinidae | Acanthobrama marmid | Native | Very common |
| | Cyprinidae | Alburnus mossulensis | Native | Common |
| | Cyprinidae | Aspius vorax | Native | Common |
| | Cyprinidae | Barbus luteus | Native | Very common |
| | Cyprinidae | Cyprinus carpio | Introduced | Common |
| | Cyprinidae | Barbus sharpeyi | Endemic | Rare |
| | Heteropneustidae | Heteropneustus fossilis | Introduced | Common |
| | Siluridae | Silurus triostegus | Endemic | Very common |
| | Mugilidae | Liza abu | Native | Very common |
| | Mastacembelidae | Mastacembelus mastacembelus | Native | Common |

Table 3 shows some information about the socio-economy of the Hawizeh marshes area

| Name | District | Inhabitants | Families | School | Health C | Livestock (%) | Fishing (%) | Agriculture (%) | Reed (%) | Construction /%) |
|---|---|---|---|---|---|---|---|---|---|---|
| Al Traba | Al -Kahla | 2100 | 300 | Y | Y | 70 | 20 | 10 | 0 | 0 |
| Abu Kanazer | Al -Kahla | 240 | 40 | N | N | 40 | 30 | 30 | 0 | 0 |
| Al Dibin | Al –Kahla | 900 | 130 | Y | N | 40 | 40 | 20 | 0 | 0 |
| Um Subati | Al –Kahla | 1200 | 200 | Y | N | 70 | 20 | 10 | 0 | 0 |
| Abu Lalah | Al –Kahla | 3000 | 400 | Y | N | 20 | 70 | 10 | 0 | 0 |
| Al Batha | Al –Kahla | 5000 | 630 | Y | Y | 30 | 20 | 10 | 0 | 40 |
| Abu Qsaf | Al –Kahla | 4500 | 600 | Y | Y | 30 | 60 | 10 | 0 | 0 |
| Al Saqrah | Al -Kahla | 7000 | 900 | Y | N | 80 | 10 | 10 | 0 | 0 |
| Al Siwab | Al-Qurna | 350 | 30 | Y | N | 50 | 40 | 10 | 0 | 0 |
| Al Rotta | Al-Qurna | 800 | 200 | N | Y | 80 | 0 | 10 | 0 | 10 |
| Al Sidayed | Al-Qurna | 370 | 75 | Y | N | 50 | 40 | 10 | 0 | 0 |
| Lissan Ujada | Al-Qurna | 500 | 150 | N | N | 10 | 40 | 20 | 10 | 10 |
| **TOTAL** | | 25,960 | 3,655 | 9 | 4 | | | | | |

Table 4 shows the coordinates of the key sites that are monitored as part of the KBA survey

| Site Name | Site Code | (N) Degrees, Minutes, Seconds | (E) Degrees, Minutes, Seconds |
|---|---|---|---|
| Umm An Ni'aaj | HZ1 | 31°35’35’’ | 47°34’56’’ |
| Udhaim | HZ2 | 31°41’13’’ | 47°44’56’’ |
| Sewaalif | HZ3 | 31°41’44’’ | 47°42’55’’ |
| E'jayrda | HZ4 | 31°19’55’’ | 47°37’51’’ |
| E'jayrda, East | HZ5 | 31°19’38’’ | 47°37’50’’ |
| E'jayrda Border Station | HZ6 | 31°17’10’’ | 47°36’46’’ |
| E'jayrda, North | HZ7 | 31°17’22’’ | 47°27’21’’ |
| Majnoon | HZ8 | 31°5’41’’ | 47°34’38’’ |
| Umm Al-Ward Bushes | HZ9 | 31°34’5’’ | 47°30’4’’ |


The effect of Iranian embankmen at Iraqi side of Hawizeh marsh, 10 September 2009


Iranian embankment
Hawizeh Marsh at 10 September 2009