

Information Sheet on Ramsar Wetlands

1. **Date this sheet was completed/updated:** 8 March 1998

2. **Country:** MEXICO

3. **Name of wetland:** Delta del Río Colorado

4. **Geographical coordinates:**

31°45'N - 32°10'N
114°30'W - 115°15'W

5. **Altitude:** sea level

6. **Area:** approximately 250,000 hectares

7. **Overview:**

This wetland forms a system of natural and artificial wetlands in one of the largest hydrographic basins in North America. There are permanent freshwater wetlands with abundant aquatic vegetation and flood plains with coastal halophytic vegetation.

8. **Wetland type:**

intertidal wetlands, brackish deltas, riverine environments and permanent freshwater ponds

9. **Ramsar criteria:**

10. **Map of site included? Please tick yes -or- no**

11. **Name and address of the compiler of this form:**

Centro Ecológico de Sonora
Centro de Investigación y Desarrollo de los Recursos Naturales de Sonora (CES-
CIDESON)
Hermosillo (Sonora)

12. **Justification of the criteria selected under point 9, on previous page:**

13. **General location:**

This area is in northwestern Mexico between the states of Baja California and Sonora near the border with the United States, in the municipalities of Mexicali and San Luís Río

Colorado. The nearest cities are Mexicali and San Felipe in the state of Baja California and San Lu s R o Colorado and El Golfo in the state of Santa Clara.

14. Physical features:

The delta of the R o Colorado represents a sedimentary structural complex that has gone on since the Miocene and to a lesser degree since the Cenozoic period. The delta is on the Imperial fault which is part of the larger San Andres fault.

The flatlands that form the present delta are created by sediments of mud, clays and evaporates of recent formation. The geomorphology of the region is that of a large depositional alluvial valley with intermediate zones of dunes, sand mesas and flood plains. Although the delta has been intensively modified during the present century, it maintains some original areas (river beds such as the R o Hardy and the islands in the delta) and artificial areas of new river beds (primarily the R o Colorado). Artificial wetlands such as the C nega de Santa Clara and aquiculture farms have been created.

The water flow into this wetland is quite variable, but there is water in the main channel of the R o Colorado and several channels that flow from the C nega de Santa Clara such as the Wellton-Mohawk and Riito.

This reserve is located in the lower R o Colorado valley in the Sonoro desert, of great temperature variability, which is considered to be one of the largest land areas in the world. The predominant climate is hot and very dry (BW) in which there are extreme temperatures from 0 C to 59 C with an annual average of 22 C. Precipitation is very irregular and occurs in two periods: summer (in the form of monsoons) and in winter. The average annual precipitation for this area is less than 100 mm. Along the coast, there are prevailing winds usually from the northwest.

15. Hydrological values:

This area is important for the regulation of the R o Colorado, especially in the spring. The release of water and sediment at the mouth favours the transportation of nutrients towards the coastal waters of the delta, thus increasing biological productivity. The C nega de Santa Clara is an important sump for sediments and residual waters from the Wellton-Mohawk irrigation district in Arizona and the Valle de San Lu s in Mexico.

16. Ecological features:

The freshwater wetlands of R o Hardy, the main channel of the R o Colorado and the swamps of Santa Clara and El Doctor are freshwater or slightly brackish habitats where there are communities found in the delta swamps dominated by *tulares* and *carrizales*. The flood plains have little vegetative cover, although in the area at the mouth of the river and around the islands in the delta there are halophytic plant communities among which are the only endemic salt grass of the Sonoro desert *Distichlis palmeri*. The areas adjacent to the wetlands are desert habitats dominated by microphalous *matorral*, sand banks and dunes.

17. Noteworthy flora:

Originally, the region of the delta of the Río Colorado could have contained more than 500 species of aquatic and terrestrial plants. At the present time, there are more than 400 species of which a large number are found in the Ciénega de Santa Clara which is considered to be a vestige of what was the original natural vegetative communities of the delta. The most important species are the *tule* (*Typha*) and several shrubs.

There are also narrow zones of riverine vegetation with poplars, mesquite and willows. On the islands in the delta and in the main channel of the Río Colorado near the mouth, there are communities of halophytic plants dominated by *zacate*, also known as *pasto salado* (*Distichlis palmeri*). This plant has been intensely studied because of its potential as a commercial crop.

18. Noteworthy fauna:

The most important groups of wildlife are resident and migratory waterfowl, especially ducks, shorebirds (white and brown), a resident population of *palmoteador de Yuma* (*Rallus longirostris yumanensis*) (endemic to the lower basin) and an important number of ground birds. There is also the *pupo* or *pez perrito del desierto* (*Cyprinodon macularius*) in the Santa Clara and El Doctor swamps plus other species used in aquaculture and introduced in the delta.

In the areas of marine influence at the mouth of the river, there are a large number of species of marine invertebrates and vertebrates (euryhaline) among which are the *totoaba* (*Totoaba macdonaldi*), *curvinas*, *grunios*, *lisas*, *mojarras*, *almejas* and *jaibas*. On the islands in the delta are found mammals such as the *vaquita* (*Phocoena sinus*), a species endemic to Mexico and one of the rarest in the world, as well as several dolphins. A list of the most important bird species found in the region is attached.

19. Social and cultural values:

The reserve's social values include the use by local inhabitants in many parts of the delta for small-scale fishing, hunting, agriculture, ecotourism and ranching. The Cucapá indigenous community settled in this area long ago and several small settlements still exist today on the western bank of the river near the mouth in the state of Baja California.

20. Land tenure/ownership of:

The land in the reserve is held by the national government, cooperatives, local communities and private persons or has been given in concession to private persons. Parts of these properties were incorporated into core and buffer zones and are managed under a special regimen.

In the surrounding area, the land tenure situation is the same.

21. Current land use:

At the site, there is small-scale fishing, ecotourism, aquaculture (the semi-intensive raising of shrimp), scientific research and environmental education.

In the surrounding area, there is irrigation, extensive ranching, hunting, large-scale agriculture, urban growth, mining and industry.

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

The main threats at the site are the advance of the agricultural frontier towards the floodplains, the introduction of species of exotic plants and animals, changes in the watertable because of pumping from aquifers, reduction in the quantity and quality of water that flows into the Ciénega de Santa Clara because of the functioning of the desalinization plant at Yuma, projects promoting an increase in aquaculture, illegal hunting of migratory birds, increases in sedimentation in the region, local disturbances within the Ciénega de Santa Clara such as increases in human activity, the burning of reeds and the deposition of pollutants and poor management of solid residues in this region.

In the surrounding are, threats come from the use of agrochemicals in agriculture, the discharge of sewage, depletion of aquifers and destructive fishing practices.

23. Conservation measures taken:

The mouth of the Río Colorado was designated a reserve (*zona de reserva*) by the Mexican government in the 1930s although the reserve covered only the salt water portion of the delta for the protection of important species of fish. In June 1993, the federal government established the Reserva de la Biosfera Alto Golfo de California y Delta del Río Colorado with a core area of 164,780 hectares. The core area of the Río Colorado delta covers the area at the mouth, part of the main channel, the eastern floodplain and the Santa Clara and El Doctor swamps.

A management plan has been approved and is being implemented.

In 1994, the delta of the Río Colorado was included in the hemispheric network of reserves for shorebirds (Wetlands for the Americas) through the coordinating office for the management of wetlands in Mexico.

24. Conservation measures proposed but not yet implemented:

The following proposal have been made:

- Construction and operation of the Golf de Santa Clara field station. This is sponsored by CES-CIDSON. It is hoped that research, environmental education and surveying in the core area will begin soon.
- Plans exist to provide signs for the core area and other critical sites.
- Posting of guards in the water and on the land in the core area.
- Implementation of management activities at the juncture of the Río Hardy and the Río Colorado for the creation of hunting reserves.

25. Current scientific research and facilities:

There is a large amount of information generated by several studies carried out during this century in the delta of the Río Colorado. Recent studies have been made on birdlife, fish, the Santa Clara swamp and neighbouring areas, fisheries in the mouth of the river, the ecology and the potential farming of *totoaba*, biological studies of the *vaquita de mar* and environmental studies of the area before and after it was designated a reserve.

The present infrastructure consists of a field station near the core area and limited sign posting near the Ciénega de Santa Clara.

26. Current conservation education:

There are plans to carry out environmental education programmes in the communities both inside and surrounding the core of the reserve in support of measures of protection, management and the promotion of ecotourism.

27. Current recreation and tourism:

There are limited efforts to promote tourism in this area by the local municipalities. Several communities are interested in organizing ecotourism in this area.

28. Jurisdiction:

Secretaría del Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP)

Secretaría de Agricultura, Ganadería y Desarrollo Rural (SAGAR)

Secretaría de Turismo (SECTUR)

Secretaría de Marina

Secretaría de Educación Pública (SEP)

29. Management authority:

Instituto Nacional de Ecología
Secretaría de Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP)

Centro Ecológico-CIDESON

30. Bibliographical references: