

Translation from original approved information sheet. By Dave Fawcett 2nd Feb 1995.

Information Sheet on Ramsar Wetlands

1. Country: Peru **2. Date:** 3 Feb 1992 **3. Ref no:** 6PE001

4. Name and address of compiler:

Programma Nacional "Parques Nacionales - Peru"
Jr. Cahuide 805 - Piso 9°
Lima 11 - Peru

5. Name of wetland: Reserva Nacional de Paracas

6. Date of Ramsar designation: 28 August 1986

7. Geographical coordinates: 13°55'S 76°15'W

8. General location: Pisco province [admin 2], Ica department [admin 1].

9. Area: 335,000 ha, of which 117,406 ha (35.046%) are terrestrial, and 217,594 ha (64.954%) marine waters.

10. Type of wetland: D rocky coasts, E sand/shingle shores (incl. dune systems), A shallow marine waters, B marine beds.

11. Altitude: 0 - 786 masl

12. Overview: Desert landscape with flat physiography with gently undulating hills rising up towards the sea. There are beaches and cliffs. The Paracas peninsula forms two bays; another bay extends to the South. There rocky outcrops rise out of the sea.

13. Physical features:

Geology and Geomorphology - In the area of the National Reserve the most significant elevations can be correlated with outcrops of intrusive igneous rocks from the Precambrian Palaeozoic, 600 million years old. Some of the oldest deposits, some 360 million years old, correspond to Carboniferous formations, are located only in the southern part of the Paracas peninsula, more specifically the Cerro [hill] Prieto. However, the most extensive deposits correspond to Tertiary fossiliferous Eocene rocks, which are found along the length and breadth of the National Reserve. These rocks make up the Paracas formation and it is estimated that sedimentation began at the end of the Eocene, 40 million years ago when the waters of the Pacific covered the region. The most recent deposits are alluvial from the quaternary and are manifested mainly in marine and shell terraces. Physiographically made up of coastal plains, pampas, hills and lakes (on some hills), covered or not with sand and dunes.

Oceanography - The form of the coastline appears to have considerable influence on the "Peruvian" or Humboldt current. This has the tendency of leaving the coast and forming eddies with a southeasterly flow leeward along the coast. The presence of the Paracas peninsula causes the Peruvian current to drift strongly away from the coast. The Paracas bay lies to the northeast of San Gallán, and has shallow waters, easily heated by the rays of the sun. This area is under the influence of the waters of the Río Pisco which flow towards the bay. The bay has a reduced salinity owing to infiltration of freshwater inside this area. During winter the Río Pisco brings temperatures lower and this leads to the appearance of very cold waters in the foothills of the peninsula which reach the Paracas bay.

Soils - The soils of the National Reserve belong to the Yermosolic Region (desert soils). Desert "regosol" and desert "lithosol" are the predominant soils, with the first of these being composed of unconsolidated marine sediments from the quaternary and aeolic material. The desert regosols are found practically as they were formed, the lack of water and absence of vegetation paralysing chemical processes, without substantial changes, with only slow physical change prevailing. The desert "lithosolic" soils are formed from sedimentary and igneous rocks, and are rocky soils deprived of all vegetation and associated with steep slopes.

Climate - The average annual temperature is 18.7 °C, with the minimum 15.5°C (August) and the maximum

22°C (February). There is very little rain. The annual average rainfall is very low, mainly coming from condensation from the winter mists. The relative humidity is of the order of 82%.

14. Ecological features:

Aquatic and terrestrial environments with a special *synecology*. The marine "troughs", the intervention of the Peruvian sea current, and the upwelling of water are modifying factors of the water temperature. The presence of the Río Pisco, the great quantity of daylight hours, the physiography, superficial beaches, cliffs, points and bays provide appropriate places for the abundant flora and marine fauna.

The Paracas National Reserve is located in the Pacific Desert Biogeographic Province.

15. Land tenure/ownership of: State.

16. Conservation measures taken:

The Paracas National Reserve was established through D.S n° 1281-75-AG, dated 25 Sept. 1975, with an area of 335,000 ha. A management was drawn up and then approved in 1979.

The objectives which were planned for conservation of the area:

- Conserve ecosystems with marine shores with great concentration of fish, birds and mammals.
- Give special protection to species in danger of extinction.
- Conserve cultural and historical heritage.
- Develop techniques of national utilization of some species of water life.
- Develop facilities for recreational, educational and cultural use.
- Contribute to the economic development of the region.

17. Conservation measures proposed but not yet implemented:

- Installation of infrastructure necessary for recreational, educational and cultural activities has not yet been finished. A hostel is in construction, but it is not yet finished and operative.
- Currently starting to draw up the 1992-1994 Operations Plan, with the participation of other government institutions involved in the management of natural resources of the Reserve, and NGO's, and also the participation of the local authorities (municipality, deputy governor, etc) and local fishermen.

18. Current land use/ principal human activities in:

a. Site. In the area of small and large lakes a small human population lives on traditional fishing. Fish and molluscs are taken, with special emphasis on shellfish species *Agropecten purpuratus* which has an established "closed season" for the best management of the species.

b. Surrounding area. Traditional fishing, and processing plants for fishmeal amongst other things.

19. Disturbances/threats, including changes in land use and major development projects:

a. Site. The factors which can have a negative impact on the ecological character of the wetland are:

- the growth of existing human settlements on Lagunilla [small lake] and Laguna Grande [large lake].
- tourism occurring is not orientated by means of an established programme such as environmental education.

b. Surrounding area. The operations of the fishmeal processing plants, if the discharge of waste into the sea is not controlled, can cause serious disturbance and impact.

20. Hydrological and physical values:

A particular characteristic of the Paracas National Reserve is the distinct water temperature of the Paracas peninsula, which is high relative to the south of San Gallán, which leads to the presence of marine animals which are generally more typical of other areas. For instance, it is the only place south of the parallel 6° 30' [S] where the marine turtles *Chelonia mydas* and *Dermochelys coriacea* are found. There is also enormous richness in species of fish (300) and birds (>200).

21. Social and cultural values:

Practices in this conservation area include traditional fishing and harvesting of marine alga for industries of the international market. There are also services for the tourism development, including a museum of the site, interpretation centres and a hostel. In terms of cultural values, the Santo Domingo archeological site belongs to the early Agricultural civilization dated to 9,000 years ago. Cultural remains, ceramics and textiles are spread around the Reserve. On the Paracas peninsula the Peruvian archaeologist Julio C. Tello and later Señor [or *Lord*] Engel, excavated on the long headland, a hamlet typical of the Paracas culture, and 5,020 years old. The *chavinoid* influence is strong and is expressed in the Disco Verde archeological site (2,900 years old) on the Cerro [hill] Chucho y Carhuas (760 BC to 300 AD). The importance of the area is evidently important in the development of the Paracas culture.

22. Noteworthy fauna: basic species list annexed to original

23. Noteworthy flora:

The flora in the Paracas National Reserve appears in two forms: terrestrial and aquatic. The most noteworthy are as follows.

Terrestrial:

Distichlis spicata and *Sesuvium portulacastrum* which are purely halophytic. *Cress truxillensis* is also found.

In the high parts of the peninsula there are some very dispersed species, two of the genus *Tillandsia*, as well as *Spergularia* sp and *Relbunium*.

Aquatic:

3 species of *Cyanophyta*; 1 *Euglenophyta*; 79 *Pyrrophyta*; 11 *Phaeophyta*; 44 *Rhodophyta*.

Amongst the macroscopic algae growing, should be mentioned: *Ulva faciata* & *U.papenfussii*, which are known locally as "Sea lettuce". They are edible species but they are not generally used; belonging to the group of chlorophytes, they are found in green, lettuce-like sheets.

Most of the edible algae are included in the Rhodophytes: *Grateloupia doryphora* ("Cochayuyos"), used in some Chinese food; *Gogartina glomerata*, *Gigartina chamissol* ("Yuyo") - a widely distributed species - and *Prophyra columbina* ("yuyo") are commonly used in the preparation of food.

The largest algae are found in the Phaeophytes group, such as: *Macrosystis pirifera* "sargaso", which is used as a fuel in some bays in the south, producing strong and lasting fire; *Macrosystis integrifolia* "aracanto" is also used as a fuel.

24. Current scientific research and facilities:

Research is being conducted in the farming of *Agropecten purpuratus*, with participation of the Ministry of Fishing, and Peruvian Marine Institute (IMARPE)

The following biological studies are being carried out:

- migratory birds, monitoring of their visits and cliff roosting
- seals *Arctocephalus australis* and *Otaria byroma*. Population census.
- marine, algal and invertebrate ecology
- cetaceans

25. Current conservation education:

- there is an auditorium, an Interpretation centre (not yet completed), leaflets, and limited infrastructure for visitors
- there is an anthropology museum about the Paracas culture
- guided visits are being developed with the help of a body of voluntary park wardens, made up of final year Forest Sciences and Biology students from the local university.

26. Current recreation and tourism:

In the summer (January-March) the Paracas National Reserve experiences a large throughflow of tourists, coming from nearby places and also the capital of the country. Most visitors come for relaxation and recreation. The presence or intensity of tourists reaches approximately 800.

27. Management authority:

Peru National Programme for National Parks - a decentralized unit of the Forestry and Fauna General Directorate in the Ministry of Agriculture.

28. Jurisdiction:

Territorial: National [i.e. the State]. Functional: Ministry of Agriculture.

29. References:

Instituto del Mar del Perú. Convenio IMARPE - Peru / CIID - CANADA. Conchas de Abanico (Perú). Scallops (Perú) N° 3 - p 5-0272. Informe Técnico Final. Octubre 31.86 - Junio 30, 1990. Línea: Cultivo piloto.

calleo-perú-mayo 1991.

Maldonado Manuel. 1988. Condiciones físico químicas y corrientes de la Bahía de Paracas, Perú, durante dos días de noviembre de 1986. en: Recursos y dinámica del ecosistema de afloramiento peruano. Blgo. Inst. Ma. Perú - Callao vol. extr.: 35-45.

Ministerio de agricultura, 1979. Plan Maestro. Reserva Nacional de Paracas

Morales, Elizabeth, 1991. Parásitos de peces y aves de la Reserva de Paracas con especial referencia a *Contraecum* sp. (Nematoda). Tesis para optar el título profesional de BIÓLOGO.

Tovar, S.H., 1977. Aves residentes de la Bahía de Independencia, Paracas e Islas adyacentes. V. Congreso Nacional de Biología. Cuzco.

Villiger, F., 1981. Paracas. Boletín de Lima 15: 27 - 41.

30. Reasons for inclusion: 1a, 1c, 2a, 2b, 3b