

Information Sheet on Ramsar Wetlands

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

NOTE: It is important that you read the accompanying *Explanatory Note and Guidelines* document before completing this form.

1. Date this sheet was completed/updated:

19.01.99

For office use only.

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Designation date

Site Reference Number

2. Country:

Italy

3. Name of wetland:

Marano Lagoon – Stella Estuary

4. Geographical coordinates:

45° 44' North; 13° 08' East

5. Altitude: (average and/or max. & min.). 0 m a.s.l.

6. Area: (in hectares) 1,400 ha

7. Overview:

 (general summary, in two or three sentences, of the wetland's principal characteristics)

The area includes the estuary of the Stella river which is the most important source of spring water in the Friuli lowlands plain. The most common phytocenosis is reed beds of *Phragmites australis*, followed by sand banks with halophile vegetation and flooded meadows with *Ruppia maritima*. The extremely rich and abundant nesting and migratory birdlife is by far the most interesting element of nature. More than 200 species of birds have been sighted during the past twenty years of regular observations and census, of which 50 regularly nesting in the area. During migration the area hosts approximately 20,000 aquatic birds.

8. Wetland Type:

 (please circle the applicable codes for wetland types as listed in Annex I of the *Explanatory Note and Guidelines* document)

marine-coastal: A - B - C - D - E - F - G - H - I - J - K

inland: L - M - N - O - P - Q - R - Sp - Ss - Tp
Ts - U - Va - Vt - W - Xf - Xp - Y - Zg - Zk

man-made: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9

9. Ramsar Criteria:

 (please circle the applicable criteria; see point 12, next page.)

1a - lb - lc - ld / 2a - 2b - 2c - 2d / 3a - 3b - 3c / 4a - 4b

Please specify the most significant criterion applicable to the site:

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

(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits)

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

Dr. Rolando Marini (Director of nature conservation of the regional parks and forests agency), Via Manzini, 41, 33100 Udine.

Please provide additional information on each of the following categories by attaching extra pages (please limit extra pages to no more than 10):

12. Justification of the criteria selected under point 9, on previous page. (Please refer to Annex II in the *Explanatory Note and Guidelines* document)

1a: The area is a particularly good example of a natural wetland (brackish lagoon) characteristic of the north Mediterranean biogeographical region;

2a. The area is host to a large number of rare, vulnerable or threatened species during migration and nesting, with a significant number of specimens belonging to one or both of these categories;

3a: More than 20,000 aquatic birds are regularly present in the area;

3b. Large numbers of aquatic birds either individually or in a particular group are regularly present, indicating the value of the wetlands, their productivity and diversity;

4b. The area is an important source of food for fish which use the area for wintering and reproduction.

13. General location: (include the nearest large town and its administrative region)

The area lies to the west of the town of Marano at approximately 52 km from the city of Trieste (regional capital, 250,000 inhabitants) in the Friuli-Venezia Giulia Region. It is approximately 38 km from Udine (100,000 inhabitants) and 100 km from Venice.

14. Physical features: (e.g. geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth; water permanence; fluctuation in water level; tidal variations; catchment area; downstream area; climate)

The area is part of the Marano lagoon which together with the Grado lagoon forms a single geomorphological complex with a delicate biological equilibrium. The lagoon system of Friuli is bordered to the east by the Isonzo river and to the west by the Tagliamento river. It is about 32 km long, an average of about 5 m wide and has an overall surface area of 16,000 Ha. The lagoons are closed to the sea by a ridge of small islands and sand banks the largest of which are the islands of Martignano, Sant'Andrea, Buso, Morgo, Grado and the sand banks of D'Orio and Mula di Muggia. The origin of the lagoon dates back to the post-ice age, about 5-6,000 years ago when earth movements caused the sea level to rise with a consequent lowering of the plains. The external beaches which separate the lagoon from the open sea (north Adriatic) have, over time, undergone numerous movements. In fact, it has been ascertained that in Roman times a single lagoon complex existed from the Po estuary to the Isonzo delta which was subsequently broken up as a result of marine oscillations (bradyseism and eustaseisms) and the development of the delta systems of the large rivers. The Grado and Marano lagoons are now subdivided into six different catchment areas which correspond to the outlets of six rivers. From east to west these are: Primero, Grado, Morgo, Porto Buso, Sant'Andrea and Lignano. The Marano lagoon, which constitutes the western-most part of the system, is characterised by a high water flow since all the major rivers of the low plain

discharge at this point. The zone corresponds to the Stella river estuary which is the most important as far as flow and length is concerned.

Climate

The area is part of the Friuli lowland plains where the climate is characterised by mild temperatures for more than 7 months in the year, a short dry spell in the summer and relative absence of hailstorms. The winter is mild and only a few nights are icy. There is little rain and it rarely snows. Exceptionally icy winters have been observed (1984-85). Springtime is cloudy and changeable and the amount of rainfall doubles from January to May. The temperature in March is pleasant whilst in May it can become hot. The summer rains arrive first in June and then give way to a period of Mediterranean drought. However, from August to September the rainfall doubles and it remains at an almost constant level (from 100 to 130 mm) in each of the autumn months.

There are no fixed meteorological stations able to supply systematic data. However, the following measurements may be deduced from bibliographic sources and other research:

- annual average temperature 12 C° (July 25 C° - January 3 C°)
- average rainfall 1,080 mm
- average annual number of rainy days 90

According to these values the area can be classified as temperate-hot.

15. Hydrological values: (groundwater recharge, flood control, sediment trapping, shoreline stabilisation etc.)

Within the lagoon the relationship between fresh river water (particularly the river Stella) and salty sea water is changeable and creates substantial fluctuations in temperature and salinity, which explains the exceptional productivity of this environment. The average salinity may be estimated at around 25 per thousand. These values are substantially less than those of the external sea waters (salinity of the northern Adriatic: 35 per thousand). However, the salinity of the lagoon waters varies considerably depending on the zone and generally speaking the degree of salinity increases as one moves from the mouth of the river towards the port outlets. The tidal level differs only slightly from that in the Adriatic Sea with an average value of about 60-70 cm and maximum peaks of more than one metre.

16. Ecological features: (main habitats and vegetation types)

The following main types of habitats are present: sand banks with typical halophile vegetation comprised of three different classes of vegetation: *Thero-Salicornietea*; *Arthrocnemetea fruticosae* and *Juncetea maritimi*; wet meadows of *Ruppia maritima*; extensive reed beds of *Phragmites australis* interspersed with *Amorpha fruticosa* and *Tamariz* sp.

17. Noteworthy flora: (indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc.)

Among the rare species the following are to be noted: *Artemisia caerulescens*, *Salicornia veneta*, *Trachomitum venetum*, *Centaurea tommasinii* *Spartina juncea*, *Cyperus kalli*, *Limonium densissimum*, *Centarium littorale*, *Schoenoplectus littoralis* and *Vulpia membranacea*.

18. Noteworthy fauna: (indicating, e.g., which species are unique, rare, endangered, abundant or biogeographically important; include count data, etc.)

Birdlife

Birdlife is particularly conspicuous during the wintering period and the spring and autumn migration periods. The wintering species of international or national importance are (in brackets the average presence in the last ten years): grebe (500), gadwall (1300), teal (3000), garrot (500), razor-bill (60), bald-coot (13000). In addition to the species listed during the winter there is an exceptional number of Podicipedi, Phalacrocoracidi, Ardeidi, Anatidi, Accipritidi, Rallidi, Galliginini and Laridi. The area is of fundamental importance during the migratory periods for the various species moving from Central, Northern and Eastern Europe towards the Mediterranean basin and/or the African continent, and vice versa. Populations of small black tern have been sighted during migration. An extremely high number of small black tern are present during the month of May - numbers may be estimated at around 2-3000 which far exceeds the threshold established in order to declare an area of international value.

Definite nesting species: Among the species observed to have definite nesting sites: *Tachybaptus ruficollis* (2-4 pairs); bittern (1-2 pairs); little bittern (2-4 pairs); *Ardea purpurea* (80 pairs); royal swan (1-2 pairs); grey or wild goose (sporadic nesting following a reintroduction project carried out in the adjacent nature reserve of the Valle Canal Novo); shelldrake (1 pair); gadwall; teal (1-3 pairs); wild duck (50 pairs); garganey (2-5 pairs); marsh harrier (8-9 pairs); water rail; spotted rail; bald-coot (100-200 pairs); cuckoo; kingfisher; cuttrettola; nightingale; stonechat; blackbird; river nightingale; Savi's warbler; reedwarbler; blackcap; penduline; shrike; magpie; crow; starling; sparrow; green finch; gold finch; reed bunting.

There is a considerable number of the following species whose breeding habits depend on the presence of the reed beds (*Phragmites australis*) which cover a very large area (more than 300 Ha): *Ardea purpurea* (80-100 pairs); marsh harrier (8-9 pairs); reedling (several pairs); Savi's warbler (only confirmed breeding site in this coastal region).

Fish and marine invertebrates

The lagoon areas are of fundamental importance for most of the migratory fish species of the north Adriatic Sea, such as *Sparus auratus*, *Dicentrarchus*, *Solea vulgaris*, *Platichthys flesus* and five species of Mugilidi. The presence of bi-valve molluscs (eurytherm and euryhaline) is a very important economic factor for the area. The species of greatest commercial interest are: *Mytilus galloprovincialis*, *Ostrea edulis*, *Crassostrea gigas*, *Tapes decussatus*, *Tapes philippinarum*, *Cerastoderma edulis* and *Solen marginatus*. These species are fished or farmed with various techniques and equipment. Finally, the fact that the following species breed in these unique area of the north Adriatic is worthy of note: *Atherina boyeri*, *Carcinus mediterraneus*, *Crangon crangon*, *Palaemon vulgaris*.

19. Social and cultural values: (e.g. fisheries production, forestry, religious importance, archaeological site etc.)

Archeological findings of Roman vases, pottery, ruins, etc. are frequent. The typical reed structures *casoni* utilised in the past by local fisherman as shelters during the fishing season, are particularly interesting. The present-day *casoni* are built using (at least partly) traditional techniques and materials and used mainly for recreational purposes by the people of Marano.

20. Land tenure/ownership of: (a) site (b) surrounding area

- a) Most of the area is publicly-owned: partly by maritime authorities and the municipality of Marano Lagunare. Some lots are private property.
- b) maritime property, public property, private property.

21. Current land use: (a) site (b) surroundings/catchment

a) the lagoon and surrounding area are used as recreational zones for the local inhabitants. The area has always been used for professional fishing. It is one of the most important fishing areas in the Marano Lagoon. The concentrated presence of *casoni* in the area underlines the economic importance of the area for the local population. Marano is a town of 2,200 inhabitants of which more than 300 are still professional fishermen. A section of the area is used for hunting activities (the official hunting reserve of Marano) and is therefore excluded from the regional nature reserve. There is also a considerable amount of tourism in the area.

b) intensive agricultural activities; summer tourism (bathing, sailing); professional fishing.

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

A decline in the numbers of wintering Anatidae and FOLAGHE has been observed in recent years. The possible reasons are as follows:

a) A reduction in food sources as a result of changes in the general ecosystem. These changes are due to the reduction of nutrients caused by the purification of some of the water discharged into the lagoon.

b) excessive mollusc harvesting, which has increased steadily over the past years (especially in the winter months) with serious disturbance to the flocks of wintering birds.

23. Conservation measures taken: (national category and legal status of protected areas - including any boundary changes which have been made; management practices; whether an officially approved management plan exists and whether it has been implemented)

The following measures have been taken to safeguard the area:

Regional Decree No. 598/C dated 25 June 1976

Constitution of the Oasis for protection and refuge in the territory which is already part of the hunting reserve (UD35), covering an overall area of 824,9845 Ha in the municipalities of Marano, Latisana and Precenicco.

Ministerial Decree 11 April 1979

The wetland known as “Marano Lagunare-Foci dello Stello” is declared to be of international importance according to and as a result of the convention relative to wetlands of international interest (especially as habitats for aquatic birds), signed at Ramsar on 2 February 1971 (over an area of approximately 1,400 Ha).

DPGR No. 0393/Pres. 17 August 1987

An area of 1.5 Ha is removed from the part of the Oasis in the municipality of Precenicco and the surface area is consequently 823,4845 Ha.

DPGR No. 013/Pres. 14 January 1991

An increase of 590 Ha to the Oasis in the municipality of Marano. The surface area is consequently 1,431 Ha.

Regional law 30 September 1996 No. 42. Art. 45

Constitution of the regional nature reserve of the “Foci dello Stella” with an overall surface area of approximately 1,400 Ha.

It must be pointed out that the limits of the regional nature reserve, Oasis and Ramsar area do not coincide perfectly.

24. Conservation measures proposed but not yet implemented: (e.g. management plan in preparation; officially proposed as a protected area etc.)

The Plan for Conservation and Development of the Natural Regional Reserve is under preparation, in accordance with regional law No.42/96.

25. Current scientific research and facilities: (e.g. details of current projects; existence of field station etc.)

Quantitative and qualitative census of the nesting birdlife are being carried out on a monthly basis, in addition to in-depth studies regarding the biology of the wild duck, wild goose, royal swan and marsh falcon. Ringing operations out of the Passeriformi as well as of the aquatic birds are being carried. A survey of cormorants is also in progress.

26. Current conservation education: (e.g. visitors centre, hides, information booklet, facilities for school visits etc.)

Since 1978 a privately financed, environmental educational programme has been carried out with guided tours on motor boats. There are between 15,000 and 20,000 visitors per year from the ports at Marano and Lignano Sabbiadoro. Adjacent to the zone, the regional nature reserve of Valle Canal Novo has a visitors' centre for environmental education based on the the British-type Wetland Centres.

27. Current recreation and tourism: (state if wetland is used for recreation/tourism; indicate type and frequency/intensity)

The activities indicated in the above paragraph may also be considered as recreational and tourist activities.

28. Jurisdiction: (territorial e.g. state/region and functional e.g. Dept of Agriculture/Dept. of Environment etc.)

Region: Friuli-Venezia Giulia; Regional parks and forests authority.

29. Management authority: (name and address of local body directly responsible for managing the wetland)

Municipality of Marano Lagunare (Udine), Department of Nature Reserves, Piazza Rinaldo Olivotto 1, 33050 Marano Lagunare (UD).

Regional Parks and Forestry Agency – Viale Manzini 41 – 33100 Udine

30. Bibliographical references: (scientific/technical only)

- Musi F., Parodi R., Perco F. 1983 *L'oasi avifaunistica di Marano Lagunare* (Marano Lagoon Wildlife Oasis) WWF, Delegazione FVG Udine.
 - Perco F., Vicario G. 1990. *Ambiente, vegetazione, fauna, oasi* (Environment, vegetation, fauna, oases) – in Ciceri A. Maran Arti Grafiche Friulane Udine.
 - Perco F., Utmar P. 1997. *Il censimento degli anatidi e della folaga svernanti nel FVG* (Census of wintering anatidae and coots in Friuli-Venezia Giulia) in Fauna n°4 Bollettino degli Osservatori faunistici del Friuli-Venezia Giulia, Udine.
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Please return to: Ramsar Convention Bureau, Rue Mauverney 28, CH-1196 Gland, Switzerland

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