

COASTAL WETLAND INVENTORY FOR SUPPORTING DECISION MAKERS IN SICILY (ITALY)

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Abstract

The analysis of the coastline in Sicily led to the individuation of different coastal wetlands of great ecological, social and economic value. Most of these areas are protected, at present, but they are dominated by processes that need to be constantly monitored. The aims are: 1) to summarise the information on coastal wetlands of Sicily; 2) to realise, on the basis of the Mediterranean Wetland Database (MWD), an inventory in order to assess the status of existing coastal wetlands in Sicily; 3) to promote awareness of the values of wetlands amongst decision makers.

Keywords : Lagoons, geomorphology, coastal management, coastal systems, sedimentation

Introduction

Coastal wetlands are transitional ecosystems between terrestrial and aquatic systems, where the land is covered by shallow water and the factors determining the sedimentary characteristics are mainly mechanical, due to the action of waves, littoral currents and wind. However, in areas characterised by Mediterranean climates, such as in Sicily, also chemical agents may exert a role (e.g., hyperhaline conditions due to high evaporation).

During this century, many coastal wetlands in Sicily have been anthropogenically modified or reclaimed for intensive agricultural practice and building of roads and houses. Some of them, however, are still in a status of good-health.

In the present study, we analysed the available information on coastal wetlands of Sicily using the guidelines of the Mediterranean Wetland Database (MWD) and the methodology developed under MedWet Project, undertaken jointly by the Instituto da Conservação da Natureza (ICN) and Wetlands International (1). The present study also summarised the large amount of data obtained by the "Sicilian beaches Atlas", 21 maps published in scale 1:100,000 and sponsored by National Research Council (C.N.R.) and Italian Minister of University and Scientific-Technological Research (M.U.R.S.T.).

Wetland inventory

The approach proposed distinguishes coastal wetland areas on the basis of habitat description system hierarchy proposed by MedWet Project (2), employing five system names (marine, estuarine, riverine, lacustrine and palustrine) with different subsystem, class and subclass names and an unspecified number of dominance types (3).

At the most detailed level, it was necessary to complete wetland habitat description, applying additionally three important parameters (water regime, salinity and artificial modifiers) according to the presence of human activities and to the duration and timing of surface inundation. The total length of the Sicilian coastline, excluding the minor islands, is about 1,104 km, of which about 32% is characterised by beaches, about 55% by cliffs, rocky platforms and terraces and about 13% by pocket beaches (4).

Along the beaches, of which about 54% are sandy, about 18% are sandy-gravelly and about 28% are gravelly, there are different depositional coastal forms: alluvial plains (about 5.5%), narrow valleys (about 15.5%), wide beaches with coastal dune systems (about 7.5%) and coastal wetlands and salines (about 3.5%).

In northern Sicily, the coast is characterised by steep cliffs with deep and narrow valleys and pocket beaches usually gravelly near the torrential stream mouths. The presence of coastal wetlands is limited to Capo Tindari and Capo Peloro, where longshore sediment transport originated barrier spits surrounding some permanently flooded pools and lakes.

In the eastern sector of the island, the coast is often low-lying, with some alluvial plains. Seasonally flooded wetlands are present only next to river mouths.

In the south-eastern sector of the island, the coast is mostly terraced, with cliffs and rocky platforms and pocket beaches. Seasonally and permanently flooded wetlands as marshes, sabkhas, salines, coastal lakes, are present mainly in the Vendicari region.

In southern Sicily, the coast is generally low-lying, with wide sandy beaches, weakly incised by poorly developed hydrographic systems and locally include sand dune systems. Different coastal wetlands are distributed along the coast, chiefly in correspondence of some torrential streams and coastal sandy ridges.

In the western sector of the island, the coast is generally steep and rocky with terraces. Many coastal wetlands are man-made and used as salt exploitation sites.

In minor islands, where often active or extinct volcanoes have contributed to coastline changes, reshaping the topography, with lavas and pyroclastic materials of successive eruptions and explosions, there are no coastal wetlands.

Conclusions

In Sicily, many natural wetland habitats have been modified by human activities, and so it is necessary an improvement of environmental awareness of the local communities, because the social context is scarcely sensitive to natural heritage issues.

More information about the coastal wetlands are required for essential actions as effective planning, management, training, education and public awareness programmes.

The approach proposed to describe coastal wetlands, together with other social and economic information, may represent a guideline for local decision makers to better manage coastal wetlands, as well as other Mediterranean areas.

References

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