PRELIMINARY RESULTS OF MAPPING OF THE COASTAL AND HALOPHYTIC HABITAT TYPES (DIRECTIVE 92/43/EEC) IN THE GULF OF KOUKOUNARIES (SKIATHOS, NORTH AEGEAN SEA)

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Abstract

Inventory, identification, evaluation and mapping of the coastal and halophytic habitat types (Directive 92/43/EEC) in the Gulf of Koukounaries (Skiathos, N. Aegean Sea) was accomplished by the use of aerial photographs and SCUBA diving sampling. Five habitat types were identified: 1110 (Sandbanks which are slightly covered by seawater all the time), 1120 (*Posidonia oceanica* beds), 1150 (Lagoons), 1170 (Reefs) and 119A (Unvegetated sand bed). The type 1110 is characterized by vegetation of *Cymodocea nodosa* beds and the type 1170 by vegetation of *Cystoseira* spp. communities.

Key words: Aegean Sea, conservation, mapping, Posidonia.

Introduction

Beds of *Posidonia oceanica*, an endemic mediterranean marine phanerogam, constitute the fundamental richness of coastal waters. As a result of their importance in primary production, the richness of their flora and fauna and their role in maintenance of biological equilibrium and coastal sedimentology, the *Posidonia oceanica* meadows are regarded as the "key" ecosystems in the Mediterranean Sea (1). Likewise, the *Cystoseira* spp. communities constitute a source of floristic richness, form a productive belt which plays an important ecological role as shelter and food and shape most of the rocky underwater landscape in the Mediterranean Sea (2, 3). *Posidonia oceanica* meadows and most of the species of the genus *Cystoseira* are particularly sensitive to natural and anthropogenic stress, resulting in reduction of species diversity over extensive areas (4).

The knowledge of the distribution of the main marine biocenoses is of fundamental importance. Cartography of the sea bottom plays a "key" role in coastal management and it is realized by combination of direct (SCUBA diving) and indirect (aerial photographs, satellite images, etc) methods.

The aim of the present study is to invent, identify, evaluate and map the habitat types in the Gulf of Koukounaries (Skiathos, N. Aegean Sea).

Materials and methods

The gulf of Koukounaries is located in the South part of Skiathos island (North Aegean Sea) and it is characterized by great touristic impact especially during the summer months.

Aerial photographs (1:5000), in combination with SCUBA diving sampling were used for mapping the site in May 2000. Thirty samples (400 cm^2) of macroalgae and marine phanerogams were collected. Two Way Indicator Analysis (TWINSPAN) was used for grouping the sapling areas.

Results and discussion

According to the results of mapping in the Gulf of Koukounaries, five habitat types (Directive 92/43/EEC) were identified (Fig. 1). They, with their 4-digital NATURA 2000 codes, are:

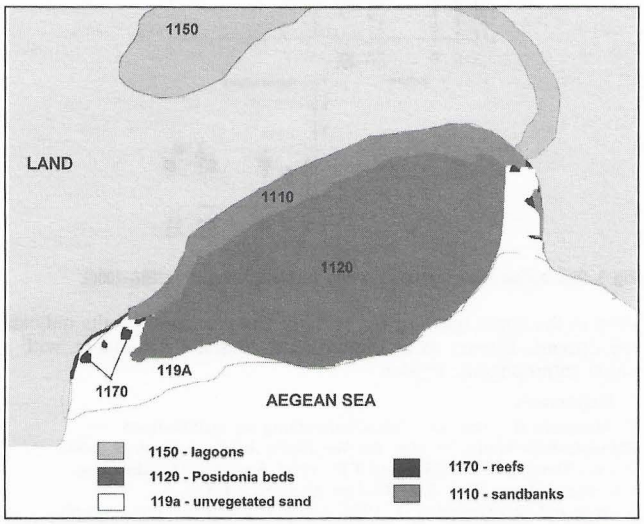

Figure 1. Map of the habitat types in the Gulf of Koukounaries. (Scale 1:208000)

1. Sandbanks which are slightly covered by seawater all the time (1110). This habitat type is characterized by a good representativity and conservation status. 1110 occurs in this site both as sandbanks without vegetation and sandbanks with vegetation of *Cymodocea nodosa* (Group 1 of sampling areas after TWINSPAN analysis).

2. *Posidonia oceanica* beds (1120) (Group 2 of sampling areas after TWINSPAN analysis). This habitat type is of priority, due to its important ecological role and the extensive areas it covers in the Mediterranean Sea (Directive 92/43/EEC). In Koukounaries, 1120 is the dominant habitat type and shows an excellent representativity and conservation status.

3. Lagoons (1150). It concerns expanses of shallow coastal salt water, of varying salinity and water volume, with or without vegetation of *Ruppia maritima*, etc. In this site, the representativity and conservation status of 1150 are satisfactory. No vegetation was found.

4. Reefs (1170). Rocky substrates in the sublittoral or littoral zone, which support a zonation of benthic communities of algae and animal species. The representativity and the conservation status of 1170 are good. The total coverage of this type is extremely low. The type is characterized by vegetation of *Cystoseira* spp. communities. The dominant association is that of *Cystoseira amentacea* (Group 3 of sampling areas after TWINSPAN analysis). Significant is, as well, the appearance of the association of *Cystoseira corniculata* (Group 4 of sampling areas after TWINSPAN analysis). There also exist dense populations of *Acetabularia acetabulum* and *Dictyota dichotoma*.

5. Unvegetated sand bed (119A). The representativity and the conservation status of 119A are good. The total coverage of this type is relatively low.

Although the gulf of Koukounaries is under great touristic development the habitat types that were identified are characterized by satisfactory global assessment. The associations of *Posidonia oceanica* and *Cystoseira* spp., which are sensitive to natural and anthropogenic stress are in a good condition.

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