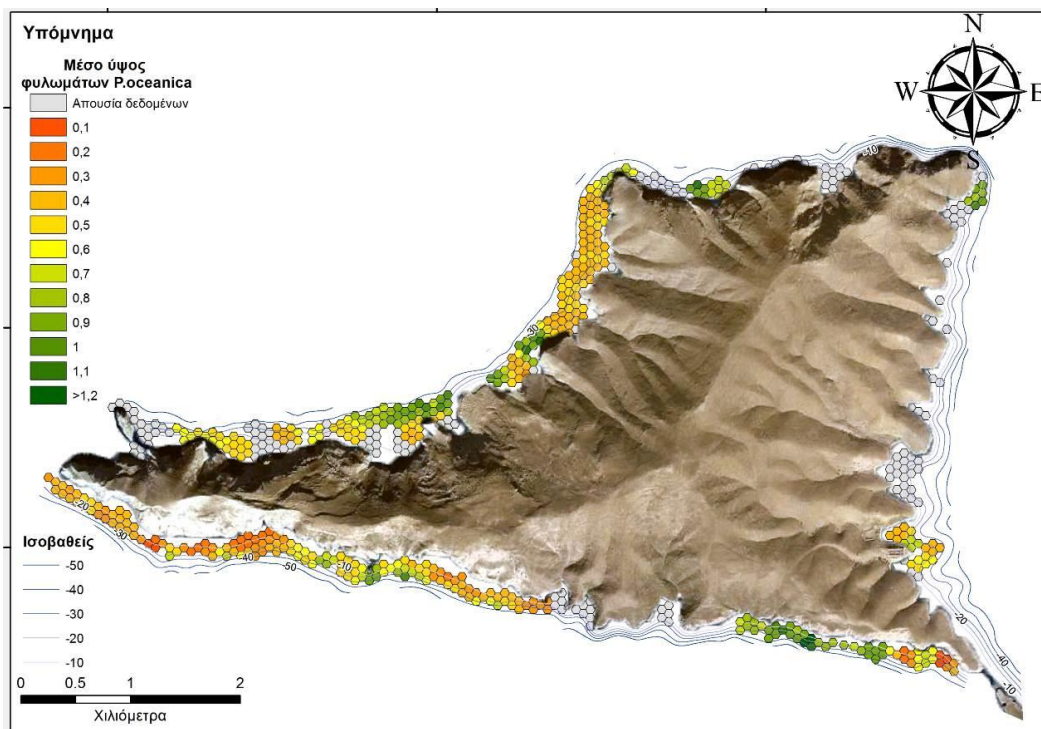


WWF ΕΛΛΑΣ
CYCLADES LIFE
ΟΛΟΚΛΗΡΩΜΕΝΗ ΠΡΟΣΤΑΣΙΑ
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ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

ΠΑΤΡΑ

ΝΟΕΜΒΡΙΟΣ 2014

ABSTRACT

The present technical report describes the methods and the results of a marine remote sensing research conducted by the Laboratory of Marine Geology and Physical Oceanography, Department of Geology, University of Patras, on behalf of the WWF NGO, within the framework of the program “CYCLADES- LIFE”. One of the objectives of the project is the mapping of high priority habitats in the seafloor surrounding Gyaros Island (N. Cyclades, Aegean Sea) up to water depth of 150m.

Geoacoustical (remote sensing), underwater visual census and sediment sampling methods were used for the detailed mapping of the seafloor in order to: (a) detect, classify and quantify *P.oceanica* meadows and coralligenous formations, (b) detect, classify and quantify other habitats that may presented in study area, and (c) determine the stratigraphy and texture of the surface sediments (substrate). The geoacoustical methods included the use of SideScan Sonar, Sub-Bottom profiler and single-beam Aquatic Habitat echosounder, while visual census and sediment sampling was conducted using a tow camera/divers and a sediment grab, respectively.

Expert processing and combinational analysis of the data collected from the study area revealed high diversity of habitats of great ecological significance. Totally 8 bottom types were discriminated on the basis of the collected data: (1) “Bedrock”: located at high slope seabed in proximity to the coastline and in depths between 1 and 40m, (2) “*P. oceanica*”: it covers up to 3.5 % of the studied area, it is located in depths between 1 and 40m and it occurs as meadows or as isolated patches. Canopy height is greater at the NW of the island, while it does not seem to flourish in the eastern part of the island despite smoother seafloor slopes, (3) “Coarse-grained sand/gravel”: featureless sand/gravel observed up to 62m depth, (4) “Coarse sand/gravel covered by dead *P.Oceanica* leaves”: it is actually the bottom type “3”, but extensively covered by dead *P.Oceanica* leaves, located between 8 and 72m depth, (5) “Sand with green algae, small rhodolith fragments and occasionally *C. racemosa*”: it is located between 13 and 73m depth, over a thin substrate of up to 4m thickness, with mean thickness of 1m, occasionally colonized by the alien specie *C. racemosa* and/or small rhodolith fragments, (6) “Moderate to coarse-grained sand with varying size rhodoliths and occasionally rhodophyceae and *C. racemosa*”: it covers 15.8 % of the surveyed seafloor, and is observed in depths between 20 and 95m over a thin substrate of up to 2m thickness, (7) “Dense rhodoliths field/Well developed coralligenous formations”: it is the dominate bottom type, with 47% coverage over the surveyed area and is located at depths between 80 and 110m depths. In the eastern part of the survey area, it is significantly extended from 40 to up to 130m depths. The mean thickness of the underlying sediments is estimated to 1.8m. This bottom type is characterized by corraligenous formations appearing as fields of

dense-sizable rhodoliths over sandy/silty substrate, or as minute reefs and ridges, (8) “Fine-grained sand and silty sand”: this bottom type is located at the deepest part of the surveyed area (>110m), with mean substrate thickness greater than 5m.

Over 50% of the surveyed area, having total ground coverage of over 24km², is covered by the high priority, protected habitats, *P. oceanica* and coralligenous formations. The only weak indication of possible ecological degradation is the existence, locally, of *C. racemosa*, an alien species that seems to have dominated in Aegean and Ionian Sea, during the last decade. All the collected data from the seafloor around Gyaros Island, up to 150m water depth, have shown that this marine area is of great ecological significance and deserves *protection*.