

ECOLOGICAL QUALITY STATUS OF THE GREEK COASTAL WATERS COUPLED WITH ENVIRONMENTAL STRESSORS

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Abstract

In this work we have studied the linkages between different stressors and the status of the Greek coastal marine ecosystems. We have assessed the eutrophication and the ecological status of the coastal marine environments. The ecological quality of the coastal Greek waters couple with eutrophication and climate-environmental stressors.

Keywords: Coastal waters, Eutrophication, Aegean Sea, Ionian Sea

Introduction

Aquatic ecosystems are increasingly stressed by different natural and anthropogenic pressures including nutrient inputs, aquaculture, fisheries, input of hazardous substances, physical disturbance, hydrological alterations etc. It is known that the assessment of pressures and impacts is one of the key features of the EU Marine Strategy Framework Directive (MSFD). In this work we have assessed the eutrophication and the ecological status of the Greek coastal waters and we have studied the relationship between different stressors affected the selected coastal areas and the status of the Greek coastal waters.

Methodology

The eutrophication and the ecological status have been assessed using different tools (TRIX; EQS) as described in [1-3].

Results and Discussion

The eutrophication assessment of the Greek coastal marine environments according to TRIX, showed that 12% of the studied coastal stations were characterized as in HIGH eutrophication status; 51% in GOOD status; 28% in MODERATE status, 8% in POOR status and 2% into the BAD status. The ecological assessment of the Greek coastal sites showed that 54% of the Greek coastal sites were classified into GOOD status, 36% into MODERATE and 4% into HIGH status. It is noteworthy that the HIGH and GOOD sites represent the highest percentage in terms of cost length and/or surface. A Factor analysis, rotated using the Varimax rotation method, was used in order to investigate the relatively importance of the different stressors assessed in this work on eutrophication (TRIX) and the quality status (EQS). The factor analysis resulted to 2 main factors (72% of total system acquired high loadings in the first component TRIX: 0.85; EQS: 0.60; Nutrient input: 0.73; Agriculture: 0.76; Hydrological changes: 0.82). It seems that TRIX and EQS status indices couple with eutrophication stressors and hydrological changes related to climate.

References

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