

BIOLOGICAL PRESSURES IN THE IONIAN SEA (GREECE) AND ROMANIAN COAST OF THE BLACK SEA: PRELIMINARY RESULTS

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Abstract

The most common important biological pressures in the Ionian Sea and Romanian Black Sea coast (presence of alien species, fishery, relationships between fishery and cetaceans) are studied, among others, in the frame of the project “Investigation and application study of the ecosystemic approach to fishery in the Ionian Sea and Black Sea (Romania)”

Keywords: Ionian Sea, Black Sea, Alien species, Fisheries, Cetacea

Introduction

The goals of ecosystemic approach to fishery (EAF) are “to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic, and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries” [1]. The biotic compartment, including the most important biological pressures (target fish resources, other species associated and dependent species – alien, cetaceans - the living habitat) could actually offer a valuable assistance for the description of the fishery interaction within the ecosystem.

Material and Methods.

In the frame of the project all the needed data-indicators will be collected (a) describing the state of the marine environment in the two research areas as well as (b) all the human activities will be reported in details (for example fisheries, aquaculture and pollution) that can affect environment (pressure indicators). The indicators which describe the state of the environment in areas relating to the abiotic and biotic parameters (e.g. marine organisms, marine protected areas), fisheries (e.g. fleet, fishing effort, spawning and nursery areas) and the legislative framework related to the environment. Regarding the record of anthropogenic impacts on the environment (pressure indicators) will be analyzed the impact of the fishery in the marine environment (e.g. impact to the fishery resources, interactions between cetaceans-fishery), the climatic changes, as the alien species, the aquaculture data in both areas and all the recorded cases of marine pollution from land and water resources. Finally we provide the first guidelines for the application and future use of the Ecological Approach to Fisheries in both regions. The above data will be processed in a comparative manner for both regions, taking into account differences in geomorphology, oceanography, fisheries and social synthesis. Very useful results to be exported will be used in the future as useful tools for the implementation of the Ecological Approach to Fisheries in both regions. The aim of the present study is to present some of the most important anthropogenic pressures (the situation of the fishery sector, the interactions between cetacean-fishery and the alien species) in both marine ecosystems of the study areas (Ionian and Romanian Black Sea coast).

Results and Discussion

Most of the alien species (60 species) found in the Ionian have an Indo-Pacific origin and belong to fishes, phyto- zoobenthos plankton. Their mode of introduction is mainly by shipping and via Suez [2]. Most invasive species at Romanian coasts (totally 70 species) were accidentally introduced from ships' hulls, ballast water, aquaculture. These species are mainly cosmopolite planktonic (43%), Atlantic and Indo Pacific species [3]. The monitoring of alien species in both areas, which does not exist, should be one of the priorities of any strategy to protect biodiversity. The number of fishery vessels during the period 2000-2012 (mean number: 4432) in the Ionian has decreased and the main gears used are trawlers, purse seines, beach seines, nets. The most common species in the landings are: anchovy, pilchard, anchovy, picarel, bogue, hake. The small size of the fleet and the traditional fishing techniques are the most important characteristics of the Romanian fishery. There are different types of fishing gears in this country (like trawls, point net, gillnets, long and bottom lines, specific gillnets, sea pound nets, other). During the period 2000-2011, the level of total catches

declining from 2476 tons to 258 tons. In general, values of Good Environmental Status (GES), in the frame of the MSFD 2008/56/EC, concerning some of the assessed fishing stocks in the Ionian are within safe limits (deep waters rose shrimp, red and striped red mullets) having acceptable values of fishing pressure and biomass indicators. Other species (hake, anchovy and sardine) present slight departures from the safe limits [4]. In the last years (2005-2011) the stock biomass for the main Romanian fishes (sprat, whiting, turbot, dogfish) presented some variations comparing the period 2005-2008. The fishing effort continues the trend of reduction reported since 2000. Resource overlap between common dolphins and fisheries in the Inner Ionian differed, being higher for purse and beach seiners [5]. The illegal fishery and the specific use of the turbot gill nets cause often the dolphin's death in the Romanian coasts [6]. Since fisheries can have often several by-catch problems with other vulnerable species (turtles, birds, elasmobranchs, cetaceans) would be advisable to adopt a multi taxon strategy of mitigation in both countries.

Conclusions

Concluding, the deep knowledge of the most important biological pressures in the environment, alien species, target fishery species and interaction between fishery-cetacean, will absolutely contribute to the fishery management in both countries taking into consideration all the ecosystem's characteristics for the application of the ecosystemic approach to fishery

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