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Assessment of Marine Environment and Sustainability of Ecosystems in the Adriatic



Abstract: The GEF Adriatic Project (2018-2021) was implemented in Albania and Montenegro with the aim to restore the ecological balance of the Adriatic Sea through the implementation of ecosystem approach. Within the project, two separate integrated assessments of marine Good Environmental Status (GES) for Albania and Montenegro were prepared. The marine GES was assessed according to the established criteria and with the help of national experts, which finally resulted in the initial concrete proposal of measures to achieve or maintain GES. The assessments were successful in providing initial but essential information on the state of marine and coastal environments in both countries. Since these assessments were based on the indicators accepted by all Mediterranean countries, their methodology can also be replicated elsewhere in the Mediterranean. The GES assessments carried out within the GEF Adriatic project were the first such assessments in the Mediterranean carried out in an integrated manner, addressing all of the known pressures on the coastal and marine habitats, and focusing on the complex relations between different environmental components.

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Assessments of Marine Environment and Sustainability of Ecosystems in the Adriatic

Experience of the GEF - sponsored

GEF/UNEP: Implementation of Ecosystem Approach in the Adriatic Sea through Marine Spatial Planning (GEF Adriatic project)

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PROJECT DESCRIPTION

The GEF-funded project “Implementation of the Ecosystem Approach in the Adriatic Sea through Marine Spatial Planning” (GEF Adriatic Project) is a sub-regional project implemented in Albania and Montenegro from 2018 to 2021 by the UNEP MAP Coordination Unit and its Regional Activity Centres PAP/RAC and SPA/RAC in collaboration with relevant national institutional partners from Albania and Montenegro. It aims at restoring the ecological balance of the Adriatic Sea through the implementation of the ecosystem approach and the improvement of management capacities in Albania and Montenegro with Marine Spatial Planning (MSP) as a viable marine management tool. The project builds on the successful implementation of the ICZM strategies under the GEF MedPartnership and on the lessons learned in the management of Marine Protected Areas (MPAs).

The project provides technical assistance to Albania and Montenegro by:

- increasing the level of knowledge to undertake the joint assessments, protection and sustainable use of marine areas with the aim of achieving **Good Environmental Status**;
- strengthening national capacities for sub-regional marine management through targeted demonstration of successful tools and practices; and
- sharing knowledge and experience to secure successful participation of stakeholders.

The project brings an innovative hands-on approach to the application of the **ecosystem approach**, focused on the implementation of the [Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast](#) (IMAP) of the Barcelona Convention system.

One of the important activities of the GEF Adriatic Project, presented here, relates to the preparation of the marine **Good Environmental Status (GES)** assessments. As part of that initiative, the project conducted data collection and undertook assessments in Albania and Montenegro in order to better understand the unique Adriatic ecosystems and their interrelations with human activities, to identify sources of degradation, and plan mitigation measures.

THE EXPERIENCE

Issue

Albania and Montenegro, with their 860 kilometres of coastline, offer some of the most valuable resources for both countries’ economies and populations. However, the interaction between human activities and the environment creates a complex relationship that often generates significant impacts and pressures on natural habitats and species. The GEF Adriatic project demonstrated these interconnections in Albania and Montenegro. Human activities, which depend on natural resources, take place within ecosystems. At the same time, human activities, such as tourism, can generate litter and other pressures which in turn affects human activities and the overall wellbeing, as well as ecosystems they depend on (Figure 1). It is helpful to understand and analyse such complex interrelations in order to be able to identify the key economic drivers, pressures and impacts before reaching any policy decisions. This was an important step when carrying out the overall assessment of the environmental status in Albania and Montenegro.

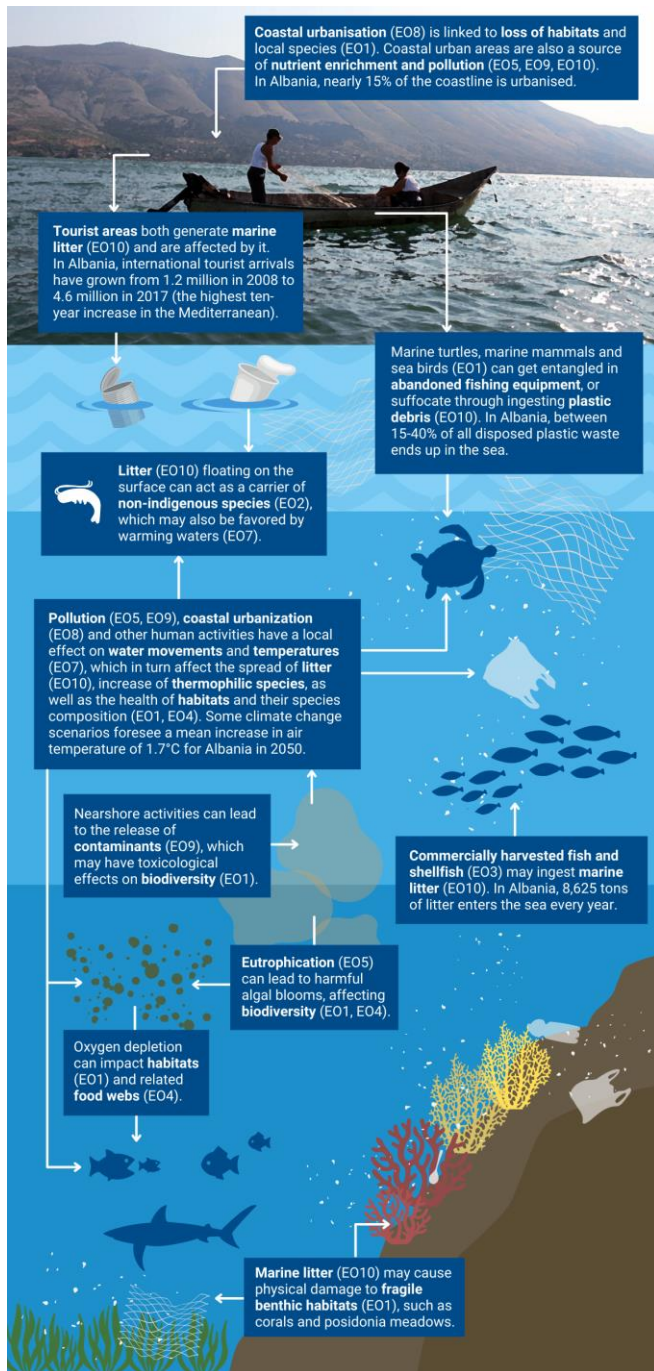


Figure 1: Interrelations between the marine environment and human activities in Albania, demonstrated through interactions among different ecological objectives (EOs)

Addressing the Issue

Achieving GES - “the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive” - is an ambitious goal, which can only be achieved by implementing an **integrated** ecosystem approach for a sustainable management of human activities. The ecosystem approach goes beyond examining specific issues, species or ecosystem functions in isolation. Instead, it recognizes ecological systems for what they are: rich mixes of biological, chemical, and physical elements in continuous interaction.

GES does not mean a state with no human impact at all, but instead represents a context where human activity is at a sustainable level. In cases where human activities and pressures exceed the acceptable level, a deviation from the desired state (GES) occurs, generally due to the resulting effect of anthropogenic pressures. Regional and sub-regional cooperation is necessary to understand what the good environmental state of a certain area entails and how GES can be achieved jointly, addressing the complex interactions between marine environment and human activities that depend on it. This was achieved in initiatives carried out along the coasts of Albania and Montenegro where marine research activities were implemented and eventually led to establishing the current status of an area in relation to GES.

By providing a detailed understanding of the state, functions and interactions of the Adriatic marine environment, the GEF Adriatic project aimed at helping planners to target the marine GES while contributing to the development of a sustainable blue economy. To achieve that aim, two separate integrated assessments of marine GES for Albania and Montenegro were prepared within this Project. These assessments are methodologically based on the Barcelona Convention’s Ecological Objectives (EOs) and their indicators, which make the core of the IMAP for the Mediterranean. The special focus while carrying out such assessments was on interactions between pressures and different environmental components, as well among those components themselves, in order to approach the problems in integrated ecosystem-based manner. This approach was applied for the first time within the Barcelona Convention system, fully based on IMAP, that set the stage for future, more comprehensive assessments, to be replicated elsewhere.

RESULTS AND LEARNING

The marine GES assessments for Albania and Montenegro were carried out by the team of national and international experts under the supervision and guidance of UNEP/MAP, PAP/RAC and SPA/RAC. These assessments consisted of an initial overview of economic activities, drivers, pressures, and impacts to the marine and coastal environments; the establishment of criteria for initial GES assessment; and the actual assessment performed for the set of individual IMAP's Ecological Objectives (EOs) - EO1 (Biodiversity); EO2 (Non-indigenous species); EO5 (Eutrophication); EO7 (Hydrography); EO8 (Coastal ecosystems and landscapes); EO9 (Contaminants); and EO10 (Marine litter). The assessment of the EO1 Biodiversity was further improved, particularly for plankton, by using the advantages of the latest EU's Marine Strategy Framework Directive (MSFD) criteria under the 2017 Commission's Decision (2017/848) and considering some national specificities.

Two marine GES assessments also included a baseline analysis for each of the above-mentioned EOs; interrelations between them; GES assessment gaps; and needs and initial proposal of measures to achieve or maintain GES. The assessments were made primarily using the existing data, as well as additional data collected during the field survey(s) that were carried out within the Project – surveys in Montenegro marine waters in 2019 and in the Patok-Radoni Bay in Albania in 2020. Both surveys were conducted based on the instructions from the national integrated monitoring programmes that had also been developed within the GEF Adriatic Project, in line with the Mediterranean IMAP.

Unlike the existing practice, where assessments towards GES were conducted individually, for each sector/ ecological objective only, the assessments within the GEF Adriatic project were focused on establishing a path towards integrating the findings of sectoral assessments into a single comprehensive one.

In **Montenegro**, the assessment towards GES took into consideration the ecological objectives for biodiversity, non-indigenous species, eutrophication, hydrography, coastal ecosystems and landscapes, contaminants and marine litter. The greatest difficulty encountered by the GEF project researchers was the lack of historical data sets, which would have helped them understand the evolution of environmental quality over the years. Nevertheless, it appears that the GES has largely been achieved, with the exception of the presence of contaminants and marine litter in certain limited areas. In **Albania**, assessments have revealed the complexity of the interconnections between environments and the types of impacts on the ecosystem. Within the Albanian context, there had been a significant lack of data series, collected historically, which would have provided a tool for comparison. Nonetheless, the analytical activities undertaken provide the best possible framework for further assessments towards achieving GES. This first attempt to assess the marine GES in Albania and Montenegro was successful in providing initial but essential information on the state of the marine and coastal environments in both countries. In order to be able to fully assess and achieve GES in the future, it is important to have continuous monitoring of marine and coastal environments based on the national monitoring programmes developed within the GEF Adriatic project. It is also essential to improve the legislative framework and the knowledge base in both countries, supported by human, institutional, and financial capacities in both countries. It is also necessary to have a good and continuous transboundary cooperation with other Adriatic countries, in both understanding and achieving GES. In Albania there is a particular need to establish a scientific institution dedicated specifically to the sea, and to improve the capacities of researchers and experts related to the marine and coastal ecosystems.

REPLICATION

The criteria and the approach used for integrated GES assessments could be replicated in any Mediterranean country, especially for components for which the criteria were not established solely on national and sub-regional characteristics. The GES assessments for Albania and Montenegro were based on the IMAP indicators which are accepted by all Mediterranean countries, and hence these assessments are of a great importance for any similar future assessment that could be made in the Region. Many pressures discussed in these two assessments are the same pressures that also affect coastal and marine areas of other Mediterranean countries, and thus any of these countries could benefit from considering the application of the recommendations to remedy these pressures and the related impacts.

One critical issue that could be encountered in other Mediterranean countries, and which is essential for appropriate GES assessment, is the lack of data, in particular data series. Without good-quality data it is very difficult to estimate the status of the marine environment and understand the evolution of environmental quality over the years. Once there are enough data available, assessments can be done to identify the trend, indicate the current status of the marine and coastal environments, and see whether a good environmental status has been achieved, recovered, maintained or not achieved.

SIGNIFICANCE

Integrated assessments of the marine GES for Albania and Montenegro were the first attempts in each of these countries to assess GES based on the principles and criteria set under the Barcelona Convention and its Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and the Related Assessment Criteria (IMAP). These were the first GES assessments based on the IMAP criteria in the Mediterranean region that were carried out in an integrated manner, focusing on interconnections among different environmental components, while focusing also on the complex relations in which a single pressure can affect a wide array of environmental parameters and *vice versa*, where a single environmental parameter is affected by multiple pressures. This is the first attempt that needs to be further developed, but it is a relevant step in that direction.

These two assessments are also quite significant for all other Contracting Parties to the Barcelona Convention of the Adriatic sub-region, EU and non-EU members (Italy, Slovenia, Croatia, Bosnia and Herzegovina). These countries will directly benefit from the results of this work, since the Adriatic marine environment knows no boundaries – e.g. certain parameters, such as hydrographic conditions, are essential to be well understood at the Adriatic level (and wider) since they influence many other environmental parameters, such as distribution of marine litter and non-indigenous species. Another example are marine mammals and sea turtles that are highly migratory species and need to be monitored at the level of the whole Adriatic Sea and beyond. For these reasons many components of these two GES assessment reports were observed at a level that is much more than of national importance.

The GEF Adriatic is also particularly important because it focuses on the Adriatic Sub-region which is in the process of becoming soon the first sub-regional area in which all the countries will be member states of the European Union. The implementation of the Project activities in full coordination with the other countries of the region will be key for the success of this initiative for the benefit of the Adriatic Sea and its riparian countries.

REFERENCES

<https://www.adriatic.eco>

Cover photo: Ghost nets in Montenegro (M.Mandić, Institute for Marine Biology, Montenegro)

KEYWORDS

Coast; Marine; Good Environmental Status (GES); Adriatic; Ecosystem approach

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