

MARINE ENVIRONMENT

Resources and natural environment



ECOSYSTEM APPROACH

Economic and social analysis of marine and coastal ecosystems in the Mediterranean

A growing perception of the crucial role of marine and coastal ecosystems in the supply of goods and services that contribute to present and future human wellbeing and a recognition of the impact of human activities on these ecosystems have inspired the fight to protect them. The social and economic analysis of ecosystem services and the impacts of uses reinforce this awareness and encourage the development of policies that contribute to the protection of the environment and sustainable development. This is the background behind Plan Bleu's development of a programme of activities focussed on an economic approach to marine and coastal ecosystems in support of the implementation of the Ecosystem Approach to activity management by the Mediterranean Action Plan. Plan Bleu has also developed this type of analysis for other sensitive fields such as Mediterranean forests and wetlands.

What is the Ecosystem Approach?

The Ecosystem Approach is a strategy drawn from the Convention on Biological Diversity for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It takes into account the social and economic aspects of human activities associated with marine and coastal ecosystems. The economic and social analyses performed by Plan Bleu is notably part of the Mediterranean Action Plan (MAP) for the Ecosystem Approach (EcAp). By Decision IG 17/6, the Contracting Parties to the Barcelona Convention undertook to progressively apply the Ecosystem Approach to the management of human activities that may affect marine and coastal ecosystems, with a view to achieving Good Environmental Status (GES) in the Mediterranean.

Other important reference frameworks are designed in line with the *Ecosystem Approach, including the European Marine Strategy Framework Directive (MSFD)* which aims to achieve Good Environmental Status in the marine waters of Member States by 2020. This framework applies to European countries in the Mediterranean, which led to the decision that while EcAp is an approach in its own right, it should be compatible with the MSFD.

Applying EcAp includes a rational and strategic seven-step process including an initial assessment of the status of ecosystems and the pressures exerted on them.

EcAp GES is defined by a set of 11 Ecological Objectives (EO). The indicators and corresponding target values have been approved by the 18th Conference of the Parties.

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What is economic and social analysis within the MAP EcAp process?

In order to complete the initial EcAp assessment on ecosystem status, a regional economic and social analysis (ESA) of the main human activities associated with marine and coastal ecosystems was performed between 2013 and 2014. It aimed to produce and share understanding of interactions between human activities, the environmental pressures generated and their impacts on ecosystems. In addition to characterising the main areas concerned, it includes an analysis of their impacts under the eleven EcAp Ecological Objectives.

The seven steps of the MAP's Ecosystem Approach

1. Definition of an Ecological Vision for the Mediterranean
2. Setting common Mediterranean strategic goals
3. Identification of an important ecosystem properties and assessment of ecological status and pressures
4. Development of a set of ecological objectives corresponding to the Vision and strategic goals
5. Derivation of operational objectives with indicators and target levels
6. Revision of existing monitoring programmes for on-going assessment and regular updating of targets
7. Development and review of relevant action plans and programmes

In order to be consistent with the initial ecosystem status assessment, the analysis was performed at a sub-regional level with relatively homogenous environments: **the Western Mediterranean, the Adriatic Sea, the Ionian Sea & the Central Mediterranean and the Aegean-Levantine Seas.**

Ecological sub-regions in the Mediterranean



Source: UNEP/MAP, 2011

This provides the socio-economic context for the action plan which aims to achieve GES by improved management of human activities through encouraging the prevention and mitigation of environmental pressures and their impacts on marine and coastal ecosystems. To guide Plan Bleu, a Correspondence Group on Economic and Social Analysis (COR-ESA) made up of Government-appointed experts has been established with the MAP.

The marine water accounts approach implemented in the Mediterranean

The methods reference selected is the document produced by the European working group for implementing the MSFD¹. Two main approaches should be considered: the ecosystem services approach and the marine water accounts approach. The first should be preferable, but requires extremely detailed knowledge of ecosystems and their relationships with human activities, difficult to implement on a regional level in the allotted time. With the agreement of the COR ESA, the **marine water accounts approach** was selected as the most appropriate method for the situation. This approach provides a sufficient level of detail and can be implemented using available data.

The data comes from international and regional statistics departments such as the World Bank, the Food and Agriculture Organisation, databases of the United Nations, Eurostat and other Mediterranean countries. Data is generally collected on a per country basis, and often turned out to contain insufficient detail to meet the objectives of the regional and sub-regional analysis both in terms of geographical scope (land / coast, national / sub-regional) and sector definition (agriculture / aquaculture or fishing / aquaculture). Where data was lacking, reasonable extrapolations and expert estimates were used, in particular to separate out coastal activities from the rest and to break down this data by sub-region, since data was often only available at a national level.

Results of the economic and social analysis of marine and coastal ecosystems in the Mediterranean

A decision was made to focus the analysis on the main marine sectors: **fishing, aquaculture, leisure and tourism, shipping and the offshore extraction of oil and gas.** The results provide an idea of the order of magnitude of economic activities assessed, in terms of production volume and value, Gross value added (GVA) and employment.

In the Mediterranean countries, the analysis showed that the **main marine economic sectors assessed generate around €400 billion of income, €200 billion in Gross value added and 4.5 million jobs** (Plan Bleu, 2014)

The fishing and tourism sectors are presented here for illustrative purposes. Results for the other activities can be viewed in the [full report](#).

Fishing, a generator of income and employment in the Mediterranean

For an analysis of the commercial fishing sector, and in particular its economic and social characteristics, the data (FAO and General Fisheries Commission for the Mediterranean FishStat database) was collected by country and by fishing area.

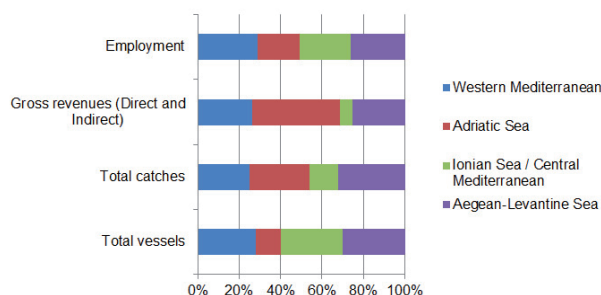
The results reveal fairly homogenous socioeconomic characteristics in the four sub-regions, especially with regard to employment, with the notable exception of income, of which the Adriatic Sea has the highest share at 42%, as opposed to 6% for the Ionian Sea & Central Mediterranean.

¹ EC/DGE, WG on ESA, 2010, Economic and social analysis for the initial assessment for the marine strategy framework directive: a guidance document

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Economic and social indicators for the fishing sector

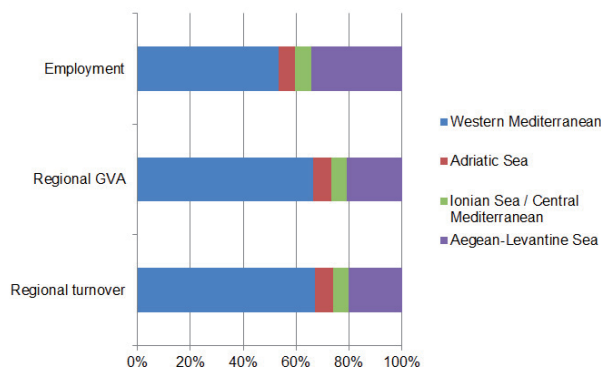


Source: Plan Bleu, 2014

Tourism, a key economic sector for job creation in the Western Mediterranean

The Western Mediterranean is a historic tourist destination with two thirds of the income and Gross value added, and over half of the jobs in the region. However, the trend is towards an increasing share for tourism in the other sub-regions.

Economic and social indicators for the tourism sector



Source: Plan Bleu, 2014

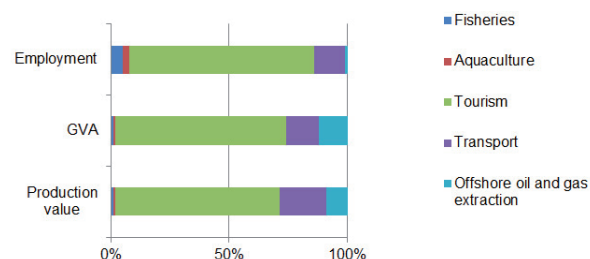
Summary of the results obtained for the main maritime sectors

Coastal tourism is far and away the biggest sector in the Mediterranean region, and represents 70% of production value and Gross Value Added and almost 80% of jobs. Shipping is the second biggest marine economic activity, and generates almost 20% of production value, 14% of Gross value added and 13% of jobs in the region. The offshore extraction of oil and gas is a long way behind, generating 9% of the production value, and 12% of the Gross value added and only 1% of jobs. However, aquaculture and fishing provide a very low share of production value and Gross value added (1%), but make a higher contribution to employment (5% and 3%).

These results show that fishing and coastal tourism have fairly high social impacts, since they contribute to employment in the region, while other sectors such as offshore oil and gas extractions and maritime transport have higher economic impacts for a lower contribution to employment.

The impacts of these five activity sectors on the marine and coastal ecosystems were analysed according to the eleven EcAp Ecological Objectives, and are summarised in the table below:

Distribution of the main socio-economic indicators



Source: Plan Bleu, 2014

All the sectors analysed have very high or high impacts, although the pressures and impacts that they generate need to be characterised in more detail in terms of extent, occurrence and persistence of pressures and their degree of impact (acute, chronic). Analysing the changes in these sectors gives an indication of how these pressures might develop, and the level of urgency to mitigate them.

Impact of the sectors analysed according to the EcAp Ecological Objectives

Ecological Objectives / Sectors		Fisheries	Aquaculture	Tourism, recreational	Maritime transport	Offshore extraction
EO1	Biological diversity	High	High	Very high	High	High
EO2	Non-indigenous species	High	High	High	High	High
EO3	Commercial species	High	High	High	High	High
EO4	Food webs	High	High	High	High	High
EO5	Eutrophication	High	High	High	High	High
EO6	Sea-floor	High	High	High	High	High
EO7	Hydrographical conditions	High	High	High	High	High
EO8	Coastal area's natural dynamics	High	High	High	High	High
EO9	Contaminants	High	High	High	High	High
EO10	Marine litter	High	High	High	High	High
EO11	Noise	High	High	High	High	High

Legend: ■ Very high ■ High ■ Moderate

Source: Plan Bleu, 2014

The cost of degradation, a growing argument for action

The other aspect of the analysis focusses on an assessment of the cost of damaging ecosystems borne by society compared to a reference status characterised by GES. Theoretically, performing this assessment requires assessing the benefits drawn from the services provided by ecosystems for both statuses. Three approaches were proposed in the framework of the MSFD, the ecosystem service approach, the thematic approach and the cost-based approach

Implementing the first requires a very detailed understanding of the services provided by the ecosystems, so that projections can be made for both statuses. The thematic approach involves starting from degradation themes (pollutants, eutrophication, overfishing, invasive species, etc.) by assessing the full costs for society in both statuses, including costs associated with forgone benefits due to degradation.

The final approach is based on costs, and is limited to evaluating the costs actually borne by society for the environment (protection, mitigation of impacts). This final approach only provides a low estimate of the cost of degradation but has the advantage of being conceptually straightforward and providing relatively solid results. The various approaches were analysed by Plan Bleu as part of an exploratory study, which produced a recommendation of using the cost-based approach for the initial analysis on a regional or national scale (Plan Bleu, Acteon, 2014).

Development and sharing of experience for national analyses

In order for this experience to be shared by most of Mediterranean countries, Plan Bleu encouraged the production of economic and social analyses as part of the ReGoKo² project for Egypt, Lebanon, Morocco and Tunisia. These analyses demonstrated the interest in these questions, the large number of different situations and the need for exchanges to be based on a common foundation. Based on both these pilot studies and the experience of regional analysis, Plan Bleu produced a recommendations document for the economic and social analysis of Mediterranean marine ecosystems on a national scale for Mediterranean countries (Plan Bleu, 2015).

The need for consistency across the Mediterranean

In conclusion, performing an economic and social analysis of human activities is both a complex and ambitious exercise, due to the diversity of potential approaches and the challenge of collecting relevant data and adapting it to the scale of the study area concerned. There is a real need for sharing experience and for harmonising national approaches with regional ones.

In the future, a closer collaboration with national statistics authorities is strongly recommended, in order to facilitate the comparison and harmonisation of results. Regular feedback and experience exchanges would make it possible to supply and strengthen these analyses in order to make them consistent and comparable across countries. This is strategically important because the process of developing future programmes of national measures should ideally be based on the results of national analyses. The adoption of common approaches and the development of the harmonisation process between Mediterranean countries are essential to work towards achieving Good Environmental Status in the Mediterranean.

References

Plan Bleu (2014). *Economic and social analysis of the uses of the coastal and marine waters in the Mediterranean, characterization and impacts of the Fisheries, Aquaculture, Tourism and recreational activities, Maritime transport and Offshore extraction of oil and gas sectors*. Technical Report. Plan Bleu, Valbonne.

Plan Bleu, ACTeon (2014). *Scoping study for the assessment of the costs of degradation of the Mediterranean marine ecosystems*. Technical Report. Plan Bleu, Valbonne.

Plan Bleu (2015). *Guidelines for national Economic and Social Analysis of Mediterranean marine ecosystems, adapted to non EU Mediterranean Countries under the framework of the MAP EcAp roadmap implementation*. Technical Report. Plan Bleu, Valbonne.



² The Regional – Governance and Knowledge generation Project, funded by GEF <http://regoko.planbleu.org/>