Blue Growth

Spanish scale

ENI CBCMED
Cooperating across borders in the Mediterranean

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REGIONE AUTÒNOMA DE SARDIGNA
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Co-Evolve4BG

Analysis of Threats and Enabling Factors for Sustainable Tourism at Pilot Scale

Blue Growth

Spanish scale

UNIVERSIDAD DE MURCIA

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OVERVIEW

This document was prepared in the framework of the project “Co-evolution of coastal human activities & Med natural systems for sustainable tourism & Blue Growth in the Mediterranean in relation to Threats and Enabling Factors for maritime development and coastal tourism on a national scale” Co-funded by ENI CBC Med Programme (Grant Agreement A_B.4.4_0075).

This document constitutes the **Deliverable 3.1.4.68** (Blue Growth – Spanish scale) of the **Activity 3.1.4** (Threats and enabling factors at National scale: Overview) under the **Output 3.1** (Integrated analysis of Threats and Enabling Factors for sustainable tourism at MED scale) of the project.

REVIEW

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Abstract

This deliverable aims to provide an overview on the Blue Growth concept while highlighting the involved sectors. Next, it will indicate how applying the Blue Growth strategy will support sustainable growth in the marine and maritime sectors as a whole. In addition, it will present the necessary legal frameworks to apply the Blue Growth concept at Mediterranean level. At further step, it will tackle the relation between adopting Blue Growth strategy and developing a sustainable coastal/maritime tourism.

I. Blue Growth Concept

Blue Growth is a long-term strategy to support sustainable growth in the marine and maritime sectors; it recognises the importance of the seas and oceans as drivers of the European economy because of their great potential for innovation and growth. It is based on the Europe 2020 Strategy, which is based on smart, sustainable and inclusive growth as a way to overcome the structural deficiencies of the European economy, to improve its competitiveness and productivity and to sustain a sustainable social market economy, one of its objectives being the promotion of Research and Technological Development (R&D). This is the definition provided by the Ministry of Agriculture, Fisheries and Food on its website.

Although, according to Eikeset et al. (2018), the term does not have a generally accepted definition. Instead, it incorporates very different meanings and approaches, depending on the social contexts in which it is used. The potential for miscommunication is great, as scientists from different fields, as well as other stakeholders, may be using the same term but unknowingly perceiving the concept differently, leading to possible misunderstandings and possibly misguided governance outcomes.

II. Initiatives to promote Blue Growth at the national level

Spain and, therefore, the Ministry of Agriculture, Fisheries and Food (MAPA-Blue Growth) are firmly committed to Blue Growth (Fig. 1). For this reason, and as an immediate action, the General Secretariat for Fisheries offers the sector, through the Pescazul team, a service to seek funding for projects related to fisheries and aquaculture, as well as the processing and marketing of the products of both. This service also includes support in the preparation of proposals to be submitted to calls for proposals when these are of national interest.

Among the different initiatives to promote blue growth, one example is the granting of subsidies for the hiring of unemployed people on a full-time basis for a minimum period of six months by individuals or entities that are directly or indirectly linked to the green and/or blue economy or that, not being linked, generate employment that contributes to a sustainable line of business or to the management of an environmental improvement in the entity, with the aim of contributing to tackling major current challenges such as the crisis generated by the loss of biodiversity, climate change and the demographic challenge, promoting an ecological and just transition and building a more resilient and sustainable future.

BOLETIN DE CRECIMIENTO AZUL

Pesca y Acuicultura

ACTUALIDAD

Nº 46 – Mayo 2021

LUIS PLANAS INSISTE EN LA APUESTA DEL GOBIERNO POR LA ACUICULTURA Y LA PESCA COMO MOTOR DE LA ECONOMÍA AZUL

Según la Comisión Europea, la economía azul comunitaria generó una facturación de 650.000 millones euros y casi 5 millones de puestos de trabajo. En España el valor añadido bruto ha sido de 32.700 millones de euros y casi un millón de puestos de trabajo. Estas cifras, como lo señaló el ministro de Agricultura, Pesca y Alimentación Luis Planas, durante su intervención en el 1st Summit4Oceans Sevilla Blue Economy Virtual Event organizado por Fibes Sevilla, sitúan a nuestro país como primera potencia de la UE en economía azul.

Concretamente, el sector de la pesca y la acuicultura contribuyen con 2/3 al conjunto de la economía azul en España con un valor añadido bruto de 21.000 millones de euros y una producción de casi un millón de toneladas de pescados y mariscos. Y ha sido precisamente en estos dos sectores, la pesca y la acuicultura, en los que el ministro centró su intervención, calificándolos como "motores de la economía azul en España"; como así también está recogido, añadió, en el Plan de Nacional de Reconstrucción, Transformación y Resiliencia. A este plan, avanzó, van sumarse los 1.120 millones procedentes del Fondo Europeo Marítimo, de Pesca y Acuicultura (FEMPA) para 2021-2027, que estarán complementados con el presupuesto del Ministerio "lo que será un verdadero apoyo a la mejora de la competitividad y la sostenibilidad del sector pesquero y acuícola".

Fuente: Industrias Pesqueras (19/05/2021)

CONTENIDOS

Estimado lector, su opinión es de máxima importancia para nosotros, por lo que nos gustaría y agradeceríamos disponer de unos minutos de su tiempo y solicitar su ayuda para contestar este breve cuestionario para conocer su grado de satisfacción.

Subdirección General de Sostenibilidad Económica y Asuntos Sociales

Unión Europea
Fondo Europeo Marítimo y de Pesca (FEMP)

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Figure 1. Blue Growth information bulletin provided by the Ministry of Agriculture, Fisheries and Food (MAPA-Blue Growth) (Ministry of Agriculture, Fisheries and Food (MAPA-Blue Growth))

III. Main challenges for the implementation of Blue Growth at Mediterranean level

A year of great importance for the development of the term blue growth was the G7 summit on June 7th and 8th, 2015 (G7 summit, 2015). At this meeting, issues concerning the protection of the oceans were addressed due to their high fragility and degrees of threat due to various sources such as pollution and abusive management of the resources they offer. The Intergovernmental Oceanographic Commission (IOC-UNESCO) focused on the issue of blue growth to discuss the role of the ocean in the context of climate change.

All these events were the prelude to a document, from September 2015, which affected the implementation of blue growth. We are talking about the UN report with the 17 Sustainable Development Goals (SDGs) in which the goals for creating a more environmentally friendly world and a more equitable society were individualized. One of the points is focused specifically on the conservation and sustainability of oceans, seas, and marine resources. The Millennium Development Goals (SDGs) are 17 goals resulting from an action plan, with a target date of 2030, and accepted by all 193 UN member countries.

The SDGs follow the previous Millennium Development Goals and represent common goals on important development issues: Fighting poverty, Eradicate hunger, Combat climate change.

Of the 17 SDGs, point number 14 (divided into 5 specific goals) deals with the conservation and sustainable use of oceans, seas and marine resources; this is a very important step, in terms of establishing a goal specifically focused on the oceans (Larik, 2017). If we look at the content of SDG 14, it considers the needs resulting from the international discourses on the blue economy (from Rio+20 onwards):

1. Specific goal number 95: sustainable use and protection of marine and coastal ecosystems and their biological diversity, in particular by SIDS.

2. Specific objective 96: Combat pollution in coastal regions. According to the Transboundary Water Assessment Programme, the areas most at risk of coastal eutrophication are the Bay of Bengal, East and South China Sea, the Gulf of Mexico and the northern coast of Brazil.

3. Specific objective number 97: the continuous dissolution of carbon dioxide in the waters, derived from industrial activities, lowers the pH of the oceans, increasing acidity and modifying the biochemical balance. A study is needed on the long-term consequences and action is needed to reduce this process.

5. Specific objective number 98: points out the danger of continued exploitation of fisheries in the marine environment. In order to reach a balance, the fish stock has to be maintained at a biologically sustainable level, as the level of sustainability has been declining since the 1970s. Since 2008, however, it has remained stable.

6. Specific objective 99: increase marine protected areas. This will conserve the biodiversity of the coastal zone and support the regeneration of marine resources in neighboring areas as well.

The challenges and objectives for the implementation of blue growth are not categorized by specific geographic areas (such as the Mediterranean countries), but rather it is a concept that affects and applies to all countries equally.

IV. Measures taken to promote Blue Growth at European level

The importance of safeguarding the coasts, seas and oceans is already on the lips of all operators in related economic sectors and in international policy discussions. It is a project linked to the needs that human beings have and will have in the coming years, being a source of food, energy and other raw materials that have no substitutes on our planet.

Implementing this type of economic model is not only an option but a long-term necessity, even if it is not known how an AD works (Economist Intelligence Unit briefing, 2015). Before continuing with the strategy for implementing the blue economy, we recapitulate in Table 1 how AD can positively influence economic activities related to the oceans and seas.

Table 1. Activities related to the Blue Economy (Blue Economy development framework, World Bank (2016)

Components of the Blue Economy			
Type of Activity	**Ocean Service**	**Industry**	**Drivers of Growth**
Harvest of living resources	Seafood	Fisheries	Food Security
		Aquaculture	Demand for Protein
	Marine biotechnology	Pharmaceuticals, chemicals	R&D for healthcare and industry
Extraction of non-living resources, generation of new resources	Minerals	Seabed mining	Demand for minerals
	Energy	Oil and gas	Demand for alternative energy sources
		Renewables	
	Fresh water	Desalination	Demand for fresh water
Commerce and trade in and around the oceans	Transport and trade	Shipping	Growth in seaborne trade; International regulations
		Port infrastructure and services	
	Tourism and recreation	Tourism	Growth of global tourism
		Coastal Development	Coastal urbanization
			Domestic regulations
Response to ocean health challenges	Ocean monitoring and surveillance	Technology and R&D	R&D in ocean technologies
	Carbon Sequestration	Blue Carbon	Growth in coastal and ocean protection and conservation activities
	Coastal Protection	Habitat protection and restoration	
	Waste Disposal	Assimilation of nutrients and wastes	

The EU supports the blue economy through various instruments. The European Fund for Strategic Investments has invested more than €1.4 billion in offshore wind projects and has provided substantial support to other aspects of the blue economy, including port development and clean shipping.

Through the European Commission's Blue Invest platform and the European Investment Fund, grants worth €22 million in 2019 and €20 million in 2020 have been awarded to new blue economy entrepreneurs. In addition, a new Blue Invest Fund has been established in 2020. The European Bank for Reconstruction and Development also finances a number of blue economy projects.

In 2020, the third edition of the EU Blue Economy Report was published which continues to analyze the scope and scale of the Blue Economy in the European Union. It aims to support policy makers and stakeholders in the pursuit of sustainable development of oceans, coastal resources and, above all, in the development and implementation of policies and initiatives under the European Green Pact in line with the new approach to a sustainable Blue Economy.

For the purposes of the Report, the Blue Economy includes all marine-based or sea-related activities. The Report therefore examines not only established sectors (i.e. those that traditionally contribute to the Blue Economy), but also emerging (those for which reliable data are still being developed) and innovative sectors, which bring new investment opportunities and hold enormous potential for the future development of coastal communities.

Analyses are provided for the EU as a whole and by sector and industry for each Member State.

V. Established sectors at European level

V.1. Oil and gas

Oil and gas extraction in the sector is increasing every year despite booming investment in renewable energy. The industry is looking for this source in deeper reserves. The work derived from this sector brings with it potential hazards, such as pollution from emissions to air, water and land, among others.

V.2. Recreational and commercial fishing

Sustainable fishing generates economic benefits, a guaranteed growth of fish stocks and a recovery of marine ecosystems. Currently, there is a worldwide process of acidification and climate change, with the repercussions of loss of fish numbers. In addition, the problem of unregulated and unreported fishing (generically defined as IUU) is currently one of the greatest challenges to the health of marine ecosystems. Despite this scenario, we can observe an increase in public awareness that has generated an emerging market where customers require products that are fished out in a socially and environmentally sustainable way, underlining a new commitment between consumers and the environment (Moyer and Rife, 2015).

V.3. Fish farming

Fish farming currently meets more than half of the world's needs for seafood and fish. It is predicted that by 2030, two out of every three fish served on consumers' plates will be farmed, and by 2050, this type of industry is expected to quadruple its production.

V.4. Maritime transport and ports

The vast majority of material resources and goods are transported by sea as it is an economical means of transport. It produces a reduced amount of carbon dioxide, which is beneficial for the environment and climate change. However, it is still responsible, according to the International Maritime Organization, for 3% of the emissions produced by humans, without taking into account noise pollution and the spillage of toxic substances: according to a study carried out by Price Water house Coopers (2013), only 27% of shipping companies carry out studies and monitor the sustainability of their activity.

V.5. Telecommunications

Submarine cables carry 95% of all telecommunications, connecting 2.7 billion users (Cicin-Sain et al. 2015). These cables cause interference with benthic areas on the seabed.

VI. Emerging sectors at international level

VI.1. Renewable energy

There are numerous possibilities for renewable energy production in coastal and oceanic areas. Marine resources have the potential to meet global electricity needs around the world (UNEP, 2012). Offshore wind production is the most developed today, with many alternatives such as carbon sequestration, tidal power generation, waves tidal power, tidal thermal, *etc*.

VI.2. Mining

This is an activity that has arisen from new technologies and the growing market demand for minerals, especially for the production of electronic goods and automobiles. In addition, we must take into account that current copper mines are expected to remain operational for only 20-30 years, forcing companies to look for new mining areas (Desjardins, 2014). The seabed, being rich in minerals such as gold, copper, cobalt, nickel and other rare elements, is considered a real alternative. It is a great resource, although its exploitation, by its very nature, requires machinery that destroys and pollutes the seabed. This is why, thanks to the United Nations Convention on the Law of the Sea (UNCLOS), the International Seabed Authority (ISA) is responsible for granting permits to companies for the exploration and exploitation of marine mineral resources: regulating in a very specific way how these activities have to be carried out.

VI.3. Blue biotechnology

The oceans offer extensive resources for pharmaceuticals and cosmetic products, as well as others that can be used for environmental biotechnology. Some marine species are key elements in the production of biofuels, medicines (also to treat cancer), while certain types of germs and bacteria are proving very useful in numerous research and innovations. In 2016 the value of pharmaceuticals derived from marine species reached a value of 8.2 billion Euros.

VI.4. Blue carbon

Blue carbon is the carbon stored in soil, aboveground living biomass (leaves, branches and stems), belowground living biomass (roots) and non-living biomass (*e.g.*, litter and dry wood) of mangroves, salt marshes and seagrasses (Mcleod et al. 2011). Similar to carbon accumulated in terrestrial ecosystems, blue carbon is sequestered in living plant biomass for relatively short periods (years to decades). In contrast to terrestrial ecosystems, carbon sequestered in coastal soils can be substantial and can be trapped for very long periods (from centuries to thousands of years), resulting in large carbon stocks (Duarte et al. 2005; Lo Iacono et al. 2008). The difference in soil carbon accumulation in terrestrial systems compared to coastal systems is that potential carbon

storage in high soils is limited by high oxygen availability, which allows aerobic microbial oxidation of carbon and release back to the atmosphere (Schlesinger and Lichter, 2001). However, in blue carbon systems, the soil is saturated with water that keeps it in an anaerobic state (low oxygen or no oxygen) and constantly increasing vertically at a high rate, resulting in a continuous accumulation of carbon over time (Chmura et al. 2003). Prime examples of carbon stocks in coastal sediments include *Posidonia oceanica* seagrass meadows in Portlligat Bay, Spain, and mangroves in Belize that have accumulated carbon-rich soils more than 10 m deep and are more than 6 000 years old (McKee *et al*. 2007; Lo Iacono et al. 2008; Serrano et al. 2014). UNESCO proposes to finance the conservation of these natural riches from emerging opportunities in blue carbon markets. Countries would earn 'carbon credits' for demonstrating the benefits of restoring and conserving damaged ecosystems.

VI.5. Desalination

Water desalination is the process of separating salts from a brackish solution (brackish water or seawater) into water suitable for human consumption, industrial or agricultural use.

VII. Blue Growth and coastal/marine tourism

There is an ever-increasing demand for coastal tourism, reaching massive concentrations of tourists in certain areas of the Mediterranean during the summer season. This tourism poses a series of threats and dangers to the natural, physical and even cultural environment. This trend has been changing in recent years, as many tourists are opting for eco-friendly holidays that respect the environment and local cultures (UNEP, 2013).

At the same time, a coastline in poor condition means an increased risk for the population living in these areas and is a constant waste of public money spent on restoring beaches, promenades or coastal infrastructures. According to data from the MAGRAMA itself, a well-preserved coastline generates many jobs and high economic benefits.

A balance must be found between the economic benefits of tourism and the environmental dangers of mass tourism.

Due to tourism-related activities and the resulting disturbance of the EAB (*e.g.*, through waste production, occupation of space, yachting facilities...) there may be (negative) interactions with the following sectors:

a. Commercial fisheries: effects (displacement) on species with commercial value species due to activities associated with tourism such as recreational boating (additional indirect factors: vibration by echo sounders used in navigation, possible habitat degradation by introduction of allochthonous species).

b. Aquaculture (reduction of the environmental quality necessary to carry out the activity). On the other hand, there are direct implications in relation to coastal development (*e.g.*, occupation of space by real estate development - and associated infrastructures) or with recreational fishing and navigation, based on the navigation activity itself and the impacts associated with marinas. On the other hand, competition with other activities (involving land occupation or the emission of pollutants that generate conflicts for the development of tourist activities) cannot be ignored: hydrocarbon exploitation, renewables, land-based sources of pollution and coastal development.

It is necessary to develop and implement specific measures, always with the participation of civil society and the economic sectors involved and with scientific advice when assessing the carrying capacity of the different activities on the territories or when planning measures to reduce the impacts associated with tourism and the sectors that are closely linked to it.

VIII. Selection of parameters in Co-Evolve4BG

VIII.1. The GIS database

Geographic Information System (GIS) is applied to computer systems aimed at managing spatial data that visually allow us to analyze, manage and interpret geographic data. The methodology of this study has consisted of searching and processing shapefile layers, and their subsequent analysis GIS. Shapefile layers have been downloaded from official national statistical platforms (Ministry of Ecological Transition and Demographic Challenge, MITECO, 2021) and from European platforms such as the European Marine Observation and Data Network (EMODnet). The Spatial Reference System has the ETRS89 datum with UTM projection in the 30 North zone, with EPSG code: 25830.

In addition, they are based on official statistical platforms or rigorous studies, which guarantee the soundness of the information expressed. The GIS results were expressed by NUTS administrative boundaries from the EU (EUROSTAT https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-20-092, 2021). The NUTS classification subdivides the economic territory of the EU Member States into territorial units (regions; Fig. 2). The classification is made up of three hierarchical levels: each Member State and the UK are divided into NUTS 1 regions, which in turn are subdivided into NUTS 2 regions and then further divided into NUTS 3 regions. Each of these regions is allocated a specific code and name. Since several different regions within Europe have the same name, a distinction has been made by adding to each of these the abbreviation for the country concerned.

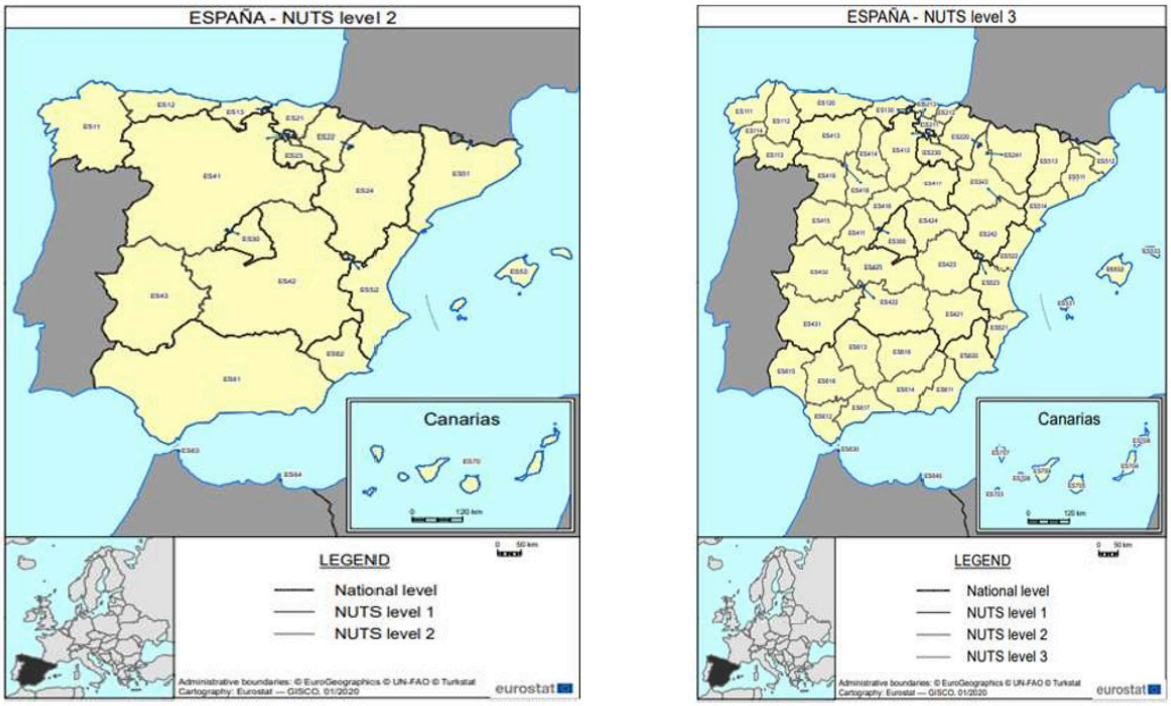

Figure 2. Spain (España): NUTS level 2 and 3 (EUROSTAT (2021))

VIII.2. Data Records

The developed Spanish Mediterranean coastal database described in this report is available through the figshare repository of results. We have included a csv file with all the information at Nuts 3 level into the repository. The database will be updated and expanded as soon as new and improved data become available. The database presented here has been created using several publicly available datasets, which are thoroughly documented and described in reports or scientific articles (Table 2). Thus, these datasets have undergone rigorous quality controls and/or validation. In addition, for those parameters where consistent information for the studied area were not available, new datasets were generated.

VIII.3. Blue Growth parameters

A panel of external experts and the working group at the Mediterranean level of the Co-Evolve4BG project selected the following parameters of Climate Change and morphological stability, which will be analyzed to National and Mediterranean scales (Table 2). In the supplementary material is located the excel table with the values of the parameters selected at the level of Spain.

Table 2. Blue Growth parameters

Parameters	Variable	Description	Source
R+D and related enterprises	Yes/No	Indicate if research and development enterprises which promote blue bio-technology exists in the region	Own data
Fishery-specific management plans	Yes/No	Indicate if fishery-specific management plans exists in the region	Own data
Restoration of fish stocks through use of sustainable fishing techniques	Yes/No	Indicate if plans to restore the fish stocks and if their ecosystems exists in the region	Own data
Industry of ship construction with innovation technology	Yes/No	Indicate if innovation technology is used for constructing ships/Boats	Own data
Recycling liquid and/or sold waste	Yes/No	Indicate the existence of law/decree for recycling the solid and/or liquid waste in the region	Own data
Marine renewable energy	Yes/No	Indicate marine renewable energy (Wave, wind, solar) is used for tourism and other activities in the region	Own data
ICZM/MSP	Yes/No	Indicate if the ICZM/MSP Protocol is implemented in the country	Own data

IX. Conclusions

The main conclusions are:

- The Ministry of Agriculture, Fisheries and Food (MAPA-Blue Growth) is firmly committed to Blue Growth.
- A year of great importance for the development of the term blue growth was the G7 summit on 7 and 8 June 2015 (G7 summit, 2015).
- The EU supports the blue economy through various instruments.
- 4.There is an ever-increasing demand for coastal tourism, reaching massive concentrations of tourists in certain areas of the Mediterranean during the summer season. This tourism poses a series of threats and dangers to the natural, physical and even cultural environment. This trend has been changing in recent years, as many tourists are opting for eco-friendly holidays that respect the environment and local cultures (UNEP, 2013).

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