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Blue Growth in Insular Regions: Case study of the North and South Aegean, Greece

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Abstract

Human activities in the marine environment lead to significant economic growth of coastal areas. The sea as a "source" of development, has a key role in the development of such activities. Therefore, the implementation of a management framework, such as Marine Spatial Planning is essential.

MSP includes targeted actions for the right use of marine space. It is an appropriate cross –sectoral tool for the spatial and temporal development of human activities in the marine space effectively and sustainably. Also, MSP is of particular interest for the development of coastal areas respecting environmental concerns while leading to employment and competitiveness enhancing Blue Growth in coastal areas.

An integral part of MSP is Blue Growth, which redefines the scope of maritime activities such as aquaculture, tourism and energy towards new prospects and the protection of the environment. Blue Growth, which is the maritime approach of the European Strategy with a time frame for completion in 2020, consists of three main parts: Measures for Integrated Marine Policy relating to integrated databases and data on the seabed, Strategies for sea basins, which aim at smoothing out environmental problems that these sea basins face and Target areas for action that Blue Growth tries to develop and through which is applied to the marine space.

MSP and Blue Growth apply also in the Greek maritime space. The basic context of Greek maritime space is unique as it represents almost the one fifth of the islands territory consisting of an extensive coastline and many small islands. Most islands are concentrated in the Aegean, mainly in the southern part of it, creating one of the largest archipelagos of Greece. Greek maritime space has common characteristics but also differences between the Aegean and the Ionian Sea, coupled with the fact that every island is a special territorial area. However, it faces several developmental problems as a result of insularity and its location at the Europeans borders.

This paper explores the potential of a blue growth perspective on the development of island regions with special focus on the Aegean. Insularity related problems, such as isolation and small scale, can be possibly overcome to an extent taking advantage of the potential of blue growth strategies. The aim, therefore, is to achieve greater economic growth, reducing any distortion, using best practices and recommendations. These, combined with a right insular policy, can reduce the consequences of the phenomenon of insularity. The adoption of Blue Growth, with the appropriate adaptations, can provide answers to these problems, while preserving and enhancing the identity and characteristics of the islands.

The methodology which was adopted for this paper was primarily based on a SWOT analysis. That analysis shows the strengths, weaknesses, opportunities and threats within and outside system of islands of the North and South Aegean Regions. As a result of this analysis three scenarios emerged: the scenario of zero solution, the scenario of active intervention and the scenario of mild intervention. Choosing the right scenario, combined with a set of proposals for addressing and resolving the problems that these islands face, will lead to the right application and adoption of Blue Growth in Greek maritime space.

Keywords: *Maritime Spatial Planning; Blue Growth; Insular Policy; Greek maritime space; North and South Aegean region*

Introduction

The maritime space attracts a large number of human activities. These activities are related with the exploitation of resources of each region together with the improvement of its economic development. The adoption of MSP is essential for the management of these activities and the protection of the environment. On the basis of the Commission of the European Communities (2008: COM 2008/791), MSP is the appropriate cross-sectoral tool which leads to the development of marine activities through the promotion of entrepreneurship, competitiveness but also the protection of the environment.

Blue Growth is part of IMP. First appeared in 2012 as a new way of redefining the maritime sectors and activities. Its actions based on of three main parts: Measures for Integrated Marine Policy, Strategies for sea basins and Target areas of action such as aquaculture, coastal – marine tourism, blue biotechnology, blue energy and mining.

In such a perspective, Blue Growth is of special interest as the Greek maritime space has many strengths and opportunities but also weaknesses and threats. Although Greece has a rich coastal geomorphology and thousands of islands, it faces problems of economic recovery. These are evidenced in marine space through environmental degradation, depletion of natural resources, lack of basic infrastructure and dependence on mass tourism.

In order to solve these problems and manage the whole Greek maritime area, the integration of Blue Growth in MSP and its application is required. This paper, is focusing on the Regions of North and South Aegean, aiming to analyse Blue Growth and the insularity phenomenon in the Greek maritime space. A SWOT analysis assesses both island Regions leading to the adoption of Blue Growth and sustainability.

The first section refers to Blue Growth, analyzes the basic concepts and objectives and presents the key areas for action. Section two, explains the insularity phenomenon and outlines the problems that islands are facing commenting on the need to link island policy and Blue Growth. Section three, synthesizes a complete picture for the two island Regions such as this occurs through the SWOT

analysis. In the last chapter, three scenarios are presented with suggestions that can give direct and indirect solutions to problems of maritime area. Finally, some key conclusions are recorded.

1. Blue Growth

1.1. Concept identification and objectives

As a concept, Blue Growth first appears in 2012 through the texts of the European Commission while in the same year it is officially recognized in the Declaration of Limassol as the basic “pillar” which will determine the Water Agenda by 2020.

Blue Growth is considered as a new way of development for maritime activities. Through innovation, competitiveness and new jobs, it strengthens economic development of maritime areas in energy, aquaculture, mining and tourism while respecting and protecting the environment (European Commission, 2012: COM 2012/494; Douvère, 2008).

The main objective of Blue Growth is to provide policy makers at EU level as well as to find the appropriate future maritime policies while ensuring a sustainable and inclusive growth. Finally, it is worth noting that Blue Growth has now been recognized as a key priority for the EU (De Vet, et.al, 2016).

1.2. Main axes

Blue Growth consists of 3 main axes:

- 1) Measures for Integrated Marine Policy
- 2) Strategies for Sea basins
- 3) Target areas for action

The first part contains a set of programs and databases (Program "Marine Knowledge 2020", EMODnet, Integrated Maritime Surveillance) concerning the gathering of marine data relating to the sea and maritime activities. The objective is to create a sea map in order to record all maritime activities (European Commission, 2014a: COM 2014/254; European Commission, 2015).

The second part, concerns the taking of measures and policies to address environmental problems that face seven Sea basins and also highlight the comparative advantages to them.

The third part refers to five economically well-developed areas of maritime activity (aquaculture, coastal tourism, marine biotechnology, ocean energy, seabed mining). These areas, as will be analyzed below, will be able to provide new jobs, technological progress and innovation in several areas without missing the corresponding environmental impacts (Ecorys/Deltares/Oceanic Development, 2012:91` European Commission, 2012: COM 2012/494).

1.3. Target areas for action

1.3.1. Aquaculture

This is one of the most rapidly growing sectors in the world. It covers 20% of fish production and offers 85,000 jobs in EU countries. However, today although it is a stagnant sector some actions have begun to strengthen it through Common Fisheries Policy (Ehler, 2016).

1.3.2. Coastal tourism

This sector employs around 3.2 million people and produces one third of the maritime economy. It offers new jobs while leading to development of remote areas through small economic activities. By 2020, the tourist activity will be increased by 2-3% (European Commission, 2014: COM 2014/86` Ecorys/Deltares/Oceanic Development, 2012:59-61).

1.3.3. Marine biotechnology

This sector is not so developed in Europe. It encompasses processes of study and exploration of marine organisms with the objective of creating new pharmaceuticals or industrial products. In the long term, it will strengthen the economy with new jobs while in the short term it will evolve into a production of high quality products (Ecorys/Deltares/Oceanic Development, 2012:79-81` Commission of the European Communities, 2006: COM 2006/275).

1.3.4. Ocean energy

This sector includes all forms of energy that can come from oceans. Action in this sector leads to reducing greenhouse gas emissions while stimulating the economy through job offers (Ecorys/Deltares/Oceanic Development, 2012:81-83).

1.3.5. Seabed mining

It is an emerging sector which, by 2020, will offer globally 5% of minerals. However, appropriate equipment and infrastructure needed for further development (Ehler, 2016).

Finally, it is worth mentioning that in the maritime space in which the above economic sectors operate, there are strong impacts on the environment such as the disruption of marine ecosystems, the destruction of them and water contamination.

2. Insular Greece and Blue Growth

2.1. The insularity phenomenon

The Greek maritime space consists of approximately 10,000 maritime island territories. Specifically, in the Aegean there are around 2800 islands, which belong to Greece. Apart from the plurality of islands, the Greek maritime space has some special characteristics which form its identity. These are:

- The small size
- Peripherality and isolation
- The symbolic characteristics

(Spilanis, 1993)

The small size of islands concerns both the area and their population. Their small area leads to limited natural resources reducing the potential for productive activities. Their small population leads to limited social and economic carrying capacity causing small economies of scale (Kizos and Spilanis, 2004).

Peripherality and isolation are two meanings associated with the distance of the islands from the large urban centers. This leads to high operating costs for businesses and households (Committee of Insular Policies and Cohesion Policy, 2008).

Last but not least, the small size combined with the isolation affects the way in which people perceive the symbolic characteristics of the islands. In this way, the cultural heritage of the islands is considered to be particularly important as through it the local population is created (Kizos and Spilanis, 2004).

These three features appear in Greek maritime space through the insularity phenomenon. It is a permanent phenomenon that is burdening the development process of the economic and social sector due to geographic discontinuity of maritime area. As a phenomenon it has, also a great influence on accessibility of the islands in the maritime area. Finally, the insularity phenomenon may also affect attractiveness, i.e. the images (Spilanis, et.al, 2010 ` Kizos and Spilanis, 2004).

2.2. Weaknesses of maritime areas

2.2.1. Demographic and population weaknesses

Most of the islands observed demographic aging. With regard to the population changes, in the decades 1900 – 2000 there is a change in the population due to population outflows and migratory flows. Nevertheless, the population of most islands follows a downward path (Koutsopoulou, 2012:11-12).

2.2.2. Economy

The economy of the islands is based on the tertiary sector, where tourism is the main source of income. However, in recent decades, that tourism becomes more massive there are problems in islands such as environmental degradation, violation of cultural heritage but also economic destabilization of the landscape (University of the Aegean – Environmental Department,1990).

2.2.3. Urban development

The lack of a right planning for the island ecosystems and for the organization of land uses is evident. The result is many residential pressures in coastal areas. Land use conflicts are the most common problem in these areas (Koutsopoulou, 2012:14-15).

2.2.4. Geographical isolation

The geographical isolation of the Islands is the result of insularity and is characterized not only as the remoteness of the islands from large urban centers but also as the "exclusion" of the island regions from economic goods, sources of income or raw materials. The Greek Maritime area is such that in many cases several islands lack access to education, health services and raw materials (Klonis, 1998).

2.2.5. Environmental degradation

The quality degradation of marine resources, their inadequacy, overfishing, over-exploitation of water, coastal degradation, water eutrophication and the intensive urbanization are some of the problems that degrade the natural environment of the islands (Koutsopoulou, 2012: 17-19).

2.3. Island Policy and Blue Growth

At an international global level, the relationship between Blue Growth and Island Policy is codified through the SIDS initiative, i.e. the Small Island Developing States. As Mathiesen (2015) argues, SIDS rely on ocean and coastal aquaculture as they are considered as important sources of economy and development. Also, the special features and the isolation of these islands provide opportunities for marine tourism development. An element of this initiative is the implementation of Blue Growth so that these sectors can be developed in a sustainable way (FAO, 2014).

In Europe, the inequalities of the islands are sufficient since their characteristics and insularity continue to be an obstacle to their development process. There is a lack of integrated policies to address the problems of insularity and the integrated development of the European area. In an effort to enhance the development of islands, there are seven policies with specific reference fields

(table 1). However, only two policies managed to affect positively the contribution of Blue Growth to the maritime area, such as Environmental Policy and Common Fisheries Policy. During their implementation, they took into account the specificities of the islands (small size, different scale) strengthening their viability and attractiveness (Coccosis, 2000: 435-440).

European Policies	Fields of application
Environmental Policy Common Agricultural Policy (CAP) Common Fisheries Policy (CFP)	Natural and cultural resources Fisheries and aquaculture
Competitiveness Policy	Strengthening Entrepreneurship
Transport Policy Energy Policy	Services
Regional Policy	Human Resources

Table 1: Policies in the European area, Coccosis (2000)

On the contrary, the implementation of Blue Growth in the Greek maritime area seems to be quite difficult since there is no integrated policy for islands so far. Special emphasis and attention should therefore be given to the management of the five target areas of Blue Growth in the Greek maritime area. The Greek islands as “fragile ecosystems” with all the current problems that they face, impose the adoption of appropriate strategies. These will, in turn, bring financial, social and environmental support measures, respect for the anthropogenic and natural environment and measures to highlight the strengths of the islands. In that way, the islands will regain their attractiveness by claiming a place in the development process (Committee of Insular Policies and Cohesion Policy, 2008).

Table 2 illustrates the effort to develop and reinforce the five key areas of Blue Growth in its application to the Greek maritime area. It should be noted that, initially, great attention should be paid to the development of the aquaculture and tourism sector; these are two sectors from which originates most of the economic capital in the islands, as opposed to the energy and seabed mining sectors. The lack of basic technological infrastructures, as well as the high cost of creating new ones or maintaining them, are the inhibiting factor of their action. The least inefficient sector seems to be marine biotechnology. It is considered something quite specific. In future, it will have scope in

the European area but not in the Greek one, since the islands are weakened by innovation, skilled workforce and knowledge.

Blue Growth	Insular Greece				
	Aquaculture	Tourism	Biotechnology	Energy	Seabed Mining
Aquaculture					
Maritime Tourism					
Blue Biotechnology					
Ocean Energy					
Seabed Mining					

Table 2: The significance of growth of the Blue Growth sectors in Greek maritime area

3. North and South Aegean Regions

3.1. The profile of the two regions

The North Aegean Region has an area of 3,847 km² and is divided into 5 sub-regional sections covering 9 municipalities. The South Aegean region, with an area of 5,299 km², is divided into 13 sub-regional sections covering 33 municipalities. The capital of the North Aegean is Mytilene (86,436 permanent residents), while Ermoupolis of Syros (21,507 permanent residents) is the capital of the South Aegean (North Aegean Region, 2009` South Aegean Region, 2011-2016).

The primary sector of the Aegean islands includes agriculture, animal husbandry, which disappears in both regions and fishing, which is more productive in the North Aegean. The secondary sector includes small industries of processing local products. As regards the tertiary sector, it is mainly based on tourism (Spilanis and Kizos, 2015).

In the area of networks and transport, the situation is satisfying in both regions. In transport infrastructures, there is an integrated network of ports and airports that cover the increased needs of the islands, especially in the summer months. The networks of technical infrastructure (networks of energy, water, telecommunications) are also satisfying in the expectations and needs of the two regions with some problems being felt in the summer period (PRISMA, Triantafyllidis, Mandylas, [2012;]` Tsekouras and Mavrogeorgis, 2015)

Finally, the natural environment of the two regions is remarkable. In both regions, there are 91 NATURA protected areas, 51 small island wetlands, 62 landscapes of natural beauty and 76 wildlife sanctuaries. Also, in the North Aegean there are oil and hydrocarbon deposits, while in the southern Aegean islands there are, also, geothermal sources (Ministry of Environment & Energy, 2015 · Kemanetzi, 2008).

3.2. SWOT analysis

Below is the overall frame of the two regions. Table 3 shows the strengths, weaknesses, opportunities and threats of both regions.

In general terms, both the geographic and geopolitical position of the Aegean Sea and the particular physiognomy of the islands enhance the presence of the two regions in the Greek marine area. Also, the developed tertiary sector, through tourism, and the sufficient natural, cultural and marine resources give the two regions an outstanding momentum.

In the weak points, the insularity phenomenon with the small size of islands affects all aspects of attractiveness such as accessibility and long-distance distances. In coastal areas, there is increased capacity due to intensive construction. Also, on several islands there is lack of infrastructures, inability to manage the natural and cultural environment and inability to organize administrative services. Finally, especially incomplete seems to be a proper regional planning that would reduce the land-use conflicts and help the islands to adjust to the harsh conditions.

Nevertheless, the two regions have also several opportunities that can further enhance the effort to adopt Blue Growth. The concern of both regions is initially to highlight the comparative advantages of each region by changing the economic base and supporting alternative forms of mild growth. In the field of economy, attracting new investment and structuring new services will strengthen the primary and secondary sector by creating a new local market. For the tertiary sector, sustainable tourism management is needed in order to reduce environmental impacts. For the protection and the management of natural, cultural and marine environment of the two regions appropriate measures are needed. Finally, in the field of infrastructure, the creation, upgrading of these and the development of new ones will bring about improvements in transport by reducing

isolation and marginalization of islands from mainland Greece. They will also bring great comforts and innovations in the field of health, education and telecommunication.

Particular attention should be paid to all threats that exist in the external environment of the two regions. The often-changing environment through globalization, internationalization of markets and strong competition is, together with the fragile economic situation of the time, a major threat to the development of the regions. Also, the high dependency of the production sectors on tourism can bring cyclical fluctuations in demand and severe problems of social and cultural cohesion through the large flow of tourists. Moreover, the environmental degradation of most Aegean islands (Rhodes, Mykonos, Ios, Andros and Karpathos) is also due to mass tourism. Furthermore, there is a great vulnerability in the two regions in terms of climate change. Finally, restrictions on the attraction and utilization of specialized human resources in key sectors (energy, fisheries) and sustainable action are considered to be important, endangering and changing the physiognomy of the islands.

INTERNAL ENVIRONMENT	POSITIVE FACTORS	NEGATIVE FACTORS
	Strengths	Weaknesses
	<ol style="list-style-type: none"> 1. Particular geographic area location 2. Physiognomy of insular area 3. Developed tertiary sector 4. Natural and cultural resources 5. Natural marine resources 	<ol style="list-style-type: none"> 1. Insularity phenomenon 2. Weak primary and secondary sector 3. Exceeded carrying capacity 4. Lack of infrastructures and increased manufacturing costs of these 5. Failure to manage properly the natural and cultural environment 6. Weakness of services organization 7. Lack of a proper spatial and urban planning
EXTERNAL ENVIRONMENT	Opportunities	Threats
	<ol style="list-style-type: none"> 1. Develop and strengthen the comparative advantages of the two regions 2. Development potentials for primary and secondary production 3. Attract new investments 4. Sustainable management of tourism 5. Attempt for an extra protection and conservation of the natural, cultural and marine environment 6. Development of new technologies 7. Creation of new infrastructures and services or upgrading the existing ones 	<ol style="list-style-type: none"> 1. often changing international environment 2. The economic crisis 3. Strong dependence on tourism 4. Environmental degradation 5. The climate change phenomenon 6. Restrictions on the attracting and the use of specialized human resources (entrepreneurship, technical infrastructure and others) 7. The goal of sustainability

Table 3: SWOT analysis of the North and South Aegean Regions

4. Scenarios for Blue Growth implementation in Greek maritime area

The islands are fragile ecosystems that require delicate manipulations to deal with their problems. Having now a comprehensive picture of both the internal and the external environment of the two regions, consideration should be given to ways to implement Blue Growth in the two regions and to choose the most appropriate one.

4.1. Scenario 1st: Zero solution

In this case, no intervention and no change in the marine area is recorded. The Greek maritime area remains unchanged, with three categories of islands: the islands with a small geographic area, the islands with mild tourist development and the islands with mass tourism. This mode does not seem to be the most suitable for the implementation of Blue Growth since there is no change or intervention in the main marine sectors (aquaculture, energy, tourism). So, the islands will not be able to get the necessary dynamics that they need. Blue Growth will not be assimilated by any island, so it will not succeed in adopting it from the whole of the Greek marine area (Kousidonis, 2015` Kousidonis, 2016).

4.2. Scenario 2nd: Structural interventions in relation to competitiveness

That way of Blue Growth implementation in the Greek maritime area is completely different and leads to drastic interventions in the islands. These are large scale interventions that do not take into account the scale and the needs of each island and aim to boost tourism by increasing competitiveness between them. In the maritime area, there are now two categories of islands: those with strong tourism development and those with mass tourism. However, it does not appear that this Blue Growth assimilation scenario is the right one. Its disadvantage lies in the fact that it is thus developing the competitiveness of the islands through tourism trying to assimilate Blue Growth. So, this is a one-sided implementation of it in the maritime area and not to its full extent. Consequently, this scenario is not feasible and in case of selection it would almost equal the zero solution, intensifying the problems identified in the Aegean region (Kousidonis, 2015` Kousidonis, 2016).

4.3. Scenario 3rd: Mild interventions

The third and final mode of implementation of Blue Growth concerns soft interventions. Small scale interventions in time that can easily be implemented and lead to desired results. This is the most correct and realistic way of implementing Blue Growth in the Greek maritime area. The operation of this scenario is based on the presence of small island clusters that can potentially be created in the maritime area. Through them, appropriate interdependence and development relations between the islands can be developed, leading to the development of several sectors and thus to the adoption and implementation of Blue Growth. Finally, Blue Growth is located at a sub - regional level, contributing to a balanced and harmonious development of the Greek maritime area with the aid of the marine sectors such as aquaculture, energy and tourism (Kousidonis, 2015` Kousidonis, 2016).

5. Changes and prospects

It is a fact that Blue Growth combined with MSP is a particularly critical tool in enhancing and developing the maritime sectors. However, what is to be realized is that the adoption of Blue Growth is not a panacea and by itself cannot achieve an integrated development in the maritime sectors and also a protection and proper management of the marine environment. That is why it is necessary to pay appropriate attention to these maritime sectors by strengthening existing measures and taking new ones.

5.1. Strategy “Islands 2020”

The aim of this strategy is to highlight the strengths and the exploitation of the new opportunities presented by the external environment of the islands of the North and South Aegean. At the same time, it puts forward policies that can address the handicaps (weaknesses) and anticipate the possible dangers that may affect the islands. This strategy is almost in line with the strategy “Europe 2020”, which aims at smart, sustainable and global growth. So, the strategy "Islands 2020" aims at quality islands, green islands and equal opportunity islands (Spilanis, et.al, 2010).

5.2. Actions on the main structural parts of the North and South Aegean regions

5.2.1. Geography

The fragmented geographical area as well as the insularity are phenomena that afflict Greece. However, these two characteristics cannot be changed. Thus, a more organized and direct maritime communication is proposed between the neighboring and the border islands. Through this, the problem of isolation and accessibility will be diminished. In this way, equal opportunities for goods and services are offered to the inhabitants of the mainland and islands, thus limiting the feeling of isolation. Also, in view of the South Aegean Operational Program, priority axes are proposed that will make a decisive contribution to strengthening regional cohesion for about 30 "small islands" as well as their transformation into housing and production areas.

5.2.2. Society

Initially, the social development of islands is proposed through the use of labor, research and innovation. This reduces the internal migration of the inhabitants and thus the islands will not be inhabited only by a senile population. Equal opportunities and social equality will only occur when a range of activities can be covered in one region. So, it is suggested that the residents should be properly informed about the needs of each island. Finally, the cooperation of the University Institutions (University of the Aegean) with local services should also be sought in order to secure new jobs with sufficient human resources.

5.2.3. Economy

In order to ensure the harmonious presence and operation of all three productive sectors in the islands, it would be advisable to adopt an incentive zone that will boost the development of both the primary and secondary productive sectors. The economy will cease to be capital intensive since it will not be based on tourism. There will be exploitation of comparative advantages and economies of scale that will lead to the economic growth of the islands of the North and the South Aegean.

5.2.4. Environment

With regard to the environment, the proposals should be consistent with and promote sustainability. This could be achieved by "returning" to traditional methods of utilization of

agricultural land (terraces). Of course, talking about the environment is not only natural but also cultural. That is why it would be advisable to create legislative plans that will help preserve protected areas and continue the traditional legacies. Proper information to citizens on both disaster-management systems and on issues related to cultural heritage can cause a smooth conservation of space over time. Furthermore, the upgrading of the cultural heritage through a whole network of museums and other similar institutions will be able to promote another form of tourism in culture. Finally, natural mineral resources should be used with respect in order to preserve their existence. This will also play a key role in the development of Blue Growth.

5.2.5. Infrastructures

The infrastructures of health, education, services and transport is an issue that is particularly vulnerable to island affairs. Initially, it is proposed to improve intermodal connections between ports and road systems with key hubs in Piraeus, Heraklion and Thessaloniki. This will lead to quick connections between islands as well as faster delivery of products at less cost. There would also be an upgrading and improvement of the existing road network to better serve the citizens.

5.2.6. Networks

The islands, due to their seasonality, face problems related to energy, electricity and waste management networks. One solution, then, would be to consume a certain number of kwatt per home, especially in the summer months, and to impose fines on those who will exceed the limits. This will reduce the unreasonable use of energy and electricity. As far as waste is concerned, it would be appropriate to apply a system similar to that in force in Switzerland. That is, each home has a certain number of litters in waste. If the inhabitants exceed the limits, they will greatly increase the money they will spend on the harvesting of their waste.

5.3. Actions on the main sectors of Blue Growth

5.3.1. Aquaculture

For the North Aegean, aquaculture and fishing do not seem to be as well developed. To reinforce these, they are proposed new facilities and new methods of production since the North Aegean also has the space for the inclusion of new facilities and the environment for the development of new

catches. With regard to the South Aegean, under the South Aegean Operational Program (2014-2020) prospects for aquaculture development are presented on the uninhabited islands with an area of over 300 acres as well as the inhabited islands such as Rhodes, Karpathos and Leros. In these islands, where aquaculture activity is fully developed, further improvement and modernization of the respective units and infrastructures is proposed. Also for both regions to stimulate this sector, they are proposed innovations in fish farming and development in their marketing infrastructures. Finally, at European level, there are actions to strengthen this area based on the adoption and implementation of multiannual plans for fishery management at sea level but also on gathering more data and information.

5.3.2. Coastal tourism

In order to reduce the negative impact caused by tourism particularly during the summer, mild measures and interventions are needed based on sustainable management of this so as to address the environmental impact. Moreover, they are proposed procedures for upgrading their accommodation and certifications, as well as an effort to diversify the tourist product of each region, having as a main point of reference the emergence of the comparative advantage of each island. Finally, the seasonality phenomenon should be taken into account. An action to control this can be the development of alternative forms of tourism that can meet demand throughout the year.

5.3.3. Marine biotechnology

In the North and South Aegean, this sector seems to be disadvantaged in terms of research and innovation. For this reason, they are initially proposed technological infrastructures for the exploration and mapping of the seabed. Also, the presence of the University of the Aegean for new research programs that will lead to new highly qualified jobs is also important. Exploration of the seabed requires data (digital and non-digital). However, it has been observed that a large amount of these are owned by private companies. It is therefore necessary to have free access to these data, to exchange ideas and views between businesses and to create a digital network.

5.3.4. Ocean energy

This sector is considered as a developed and emerging sector in the two regions. However, although the natural resources on the islands (sun, water, air) are abundant, there has been a lot of effort to

develop new forms of energy through transport and use of RES networks, the cost of manufacturing and managing them remains high. For this reason, it is proposed to improve and modernize the already existing energy transport networks, to exploit the energy forms of the two regions as well as to explore the intelligent forms of energy such as the geothermal energy present in the South Aegean islands. Finally, it is considered important to integrate the RES system in islands introducing wave energy and ocean thermal energy that will achieve lower energy production and reduced environmental impact.

5.3.5. Seabed mining

The area of the North and the South Aegean has several mineral raw materials that today remain at a low level of exploration. So, it is considered necessary to map the seabed. Also, there is a need for appropriate technological equipment to make it easier to explore the seabed. Last but not least, the open digital data on the seabed and its features and the sustainable management of existing mineral resources will be necessary to prevent their useless use.

Conclusion

At present, the existence of human activities and their presence in the marine environment are increasingly intensifying, with the result that there is a great deal of conflict between them and between them and maritime activities. These problems are addressed by MSP. Together with MSP, Blue Growth also plays a key role, which seeks to provide a new image of upgrading and innovation in key areas of the marine environment. Its objective is, with reference to 2020, to develop policies at EU level that will lead to smart, sustainable and inclusive growth in the marine environment. The Blue Growth is achieved through three main axes and is sealed through the five key maritime sectors: aquaculture, coastal tourism, marine biotechnology, ocean energy, seabed mining.

Passing through the Greek marine environment, its highly morphological characteristics make it a place with many potentials for growth but also difficulties to achieve it. These difficulties are reflected in the phenomenon of insularity and the particular characteristics of the Greek islands. From islands do not miss problems as a result of modern social-political developments. To deal with these, it is clear that a policy for the Greek islands is essential. However, for 20 years there has not been a proper and consistent policy for the Greek islands

On the basis of the analysis of the profile of the Greek Aegean islands (SWOT analysis), it is observed that the islands in total present several opportunities and positive elements that have so far attributed this particular character to the area. However, the problems and threats do not seem to be diminishing, thus hindering their development. However, the existence and adoption of Blue Growth by the Greek maritime area seems to be feasible through the appearance of small island groups in the Greek maritime space as a result of the implementation of the scenario of soft interventions. As a result, sectors such as aquaculture and tourism are being strengthened through the evolution of technological equipment and tourist facilities and infrastructures. The most important element is that Blue Growth is located at a sub - regional level, contributing to a balanced and harmonious development of the Greek islands' maritime space. However, the situation seems to be stagnant. What is missing is a proper spatial planning that will accept the island's landscape with its peculiarities and will not treat it as one with the mainland.

In order, the Greek maritime area continue to develop, maintain and "resist" the rapid developments and changes of the present era, it must exploit the comparative advantages - strengths and use them as weapons for further development. A development, of course, not one-sided but to all sectors of maritime activities, thus ensuring both economic, social, cultural, environmental protection and sustainable management. Blue Growth is one form of development that can be implemented and assimilated by the Greek islands. Legislative backgrounds and appropriate tools exist. The effort focuses on the will to solve and address the problems of the islands, the proper management of the island phenomenon and the composition of a proper island policy. This is the only way to assimilate Blue Growth and bring about a recovery in the Greek islands.

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