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Marine Spatial Planning in European Union. Case study: Hellas

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Abstract. Surrounded by the sea, Europe and Hellas have vital interests on the marine environment and they heavily depend on it; the history of both of them proves this strong relationship. In the era of globalization, of over-population and of environmental risks, the sea is a vast field available for navigation and communication, recreation, food and energy resources, s trategy and defense, waste disposal etc. As a result of these anthropogenic activities, the conflicts (that have been already arisen or might be arisen) among the uses at the sea should be managed properly. Additionally, the humanity has to cope with the natural disasters in the marine environment. In this framework, marine spatial planning is dedicated to the protection and the management of the marine environment, by focusing on the best allocation of marine uses. This article aims to present an overview of marine policy in European Union and in Hellas, and their recent evolution to marine spatial planning. After a synopsis of the past efforts concerning the marine environment, the meaning of marine spatial planning and its implementation in European countries are briefly illustrated. Finally, all direct and indirect activities strongly related to a potential marine and coastal policy in Hellas are fully illuminated.

Keywords. Marine Spatial Planning, Marine Environment, Marine Use, Marine Resource, Marine Poli-cy, Maritime, Hellas, European Union.

1. INTRODUCTION

The «sea» or the «ocean» (according to the ancient Greeks) or the «marine environment» (as it is defined according to the dictionary of Military and Associated Terms, US Department of Defense [2005])^{1,2} is of huge importance for the humanity, as it can provide (statistically) much more benefits than the territorial part of the Earth. It is notable that the British science fiction author Arthur C. Clarke said: «How inappropriate is to call this planet Earth when it is quite clearly Ocean». [EC 2006].

There is no doubt that many significant differences occur between the land and the marine space, which affect management and planning processes. They are results of their dissimilar size and of their different physical and chemical properties, as well. [Kiousopoulos 2011]. In general, such differences are: the dynamic nature and the three-dimensional character of marine environment, plus the endless mobility of the marine species. They drive to several (technical) difficulties, among which the two more important are those concerning the identification of marine planning units and the acquisition of the related data.

The international interest in the sea, seabed and their subsoil has been increased gradually. From the era of Roman law (according to which the sea just belongs to the common) till the very compound United Nations Convention on the Law of the Sea (UNCLOS II, came into force on 16 November 1994) that includes political, administrative, economical and envi-

¹ This definition (that is widely accepted by dictionaries and glossaries) describes the «marine environment» as: «the oceans, seas, bays, estuaries, and other major water bodies, including their surface interface and interaction, with the atmosphere and with the land seaward of the mean high water mark».

² In some cases, the term «sea» includes the saline lakes, as well, either due to their size (e.g. Caspian Sea) or for historical reasons (e.g. Dead Sea). Additionally, according to a narrow (geographic) meaning of the term «sea», it means a relatively limited and restricted salt water mass (e.g. the Baltic Sea, Mediterranean Sea), as opposed to the wider (geographically) «ocean».

ronmental aspects, two major changes have taken place. The one is that the over-populated planet needs even more and more resources (food, energy etc.) and the second refers to the technological evolution that allow exploration and extraction of resources from the seabed and the sea subsoil, in a very big depth from the sea level.

Nowadays, the sea level rise belongs among the main in progress environmental risks. It is an outcome of the over consumption of energy and the produced greenhouse effect. Moreover, marine environment sustainability is today a major global challenge, not only connected with climate change, but with the loss of biodiversity, the over-exploitation of resources, acidification of seawater, waste disposal, pollution caused by ship-based operational discharges etc.

Europe has a 70.000 km long coastline, along two oceans and four seas: the Atlantic and Arctic Oceans, the Baltic, the North Sea, the Mediterranean and the Black Sea. Among the 27 member-states of European Union, only 6 do not have waterfront to the sea, while 4 are completely insular. Administratively, European Union has also outermost regions in the Indian Ocean and the Pacific Ocean.

Nearly half of Europe»s population lives on or close to the coastlines, while the livelihood of a great number of EU citizens depends on the sea and marine resources. The EU's marine regions account for some 40% of their GDP and population. European Union has the largest marine area (1,200 ports) and the largest merchant fleet in the world; the 90% of foreign and the 40% of its internal trade are carried out by sea. Europe»s leadership in this global industry is beyond any doubt with 40% of the world fleet. Moreover, 3.5 billion ton of cargo per year and 350 million passengers pass through European seaports. Approximately 350.000 people work in ports and related services. [EC 2006; EC 2007].

Taking into consideration the previously displayed facts, Europe»s well-being is inevitably linked with the sea. From its part, European Union has the world's leading marine power in sectors such as: marine transportation, coastal tourism, offshore energy production, shipbuilding technologies and related services. Shipbuilding and shipping, ports and fisheries remain key marine activities, but offshore energy (including oil, gas and renewable energy), coastal and marine tourism also generate massive revenues. According to the official documents of European Union, it is important to maintain the competitiveness in these areas, which have an important socio-economic role. Ensuring that the use of the marine environment will remain genuinely sustainable is a prerequisite for maritime industries to be competitive. The growing vulnerability of coastal areas, the increasingly crowded coastal waters, the key role of the oceans in the climate system and the continuous deterioration of the marine environment are some of the issues that call for a stronger focus. [EC 2006].

In this framework, a tool that can facilitate the analysis, planning and management of the marine environment in a holistic way should be introduced. A tool that will try to utilize in the sea the (well accepted in the territorial part of the planet) notion of «spatial planning». A tool that will assure a more complicate (intersectoral) approach of the sea than the one provided from the Conventions for the Seas, which constitutes the yesterday institutional effort for protecting the marine environment. A tool that will combine the holistic approach and an integrated vision, for the sake of marine environment. Such a tool could be «marine spatial planning».

2. CONVENTIONS FOR THE SEAS: THE INITIAL EFFORT

The Conventions for the Seas derive from Regional Seas Programmes of UNEP. They aim at the preservation, conservation and sustainable development of marine flora and fauna, in order to limit the devastation of marine environment. In addition, the Conventions for the Seas usually include protocols that are mentioned to the implementation of specific issues, concerning every sea region.³

³ The development of Regional Seas Program was launched in 1974, afterwards the United Nations Conference on the Human Environment that held in 1972, in Stockholm. [UNEP 2011]. A complex system of Conventions, Protocols and Action Plans has been produced and they are still in use for the 18 marine regions worldwide.

In general, the Conventions for the Seas are adopted by countries which share a common part of the sea. The cooperation between countries tends to a targeted confrontation of issues that are related to their common part of the sea. Furthermore, the Conventions for the European Seas are: a) OSPAR Convention for North-East Atlantic Sea, b) Helsinki Convention for Baltic Sea, c) Bucharest Convention for Black Sea and d) Barcelona Convention for Mediterranean Sea.

In 1972, the Convention for the «Prevention of Marine Pollution by Dumping from Ships and Aircraft for North-East Atlantic Sea» (known as the Oslo Convention) was adopted and it entered into force in 1974. It was the first Convention worldwide. In 1974, the Convention for the «Prevention of Marine Pollution from Land-Based Sources» (known as Paris Convention) was adopted. It entered into force during 1978. In addition, in 1992, the Convention for the «Protection of the Marine Environment of the North-East Atlantic Sea» (known as the OSPAR Convention) was adopted and it entered into force in 1998. The OSPAR Convention replaces both, the Oslo Convention and the Paris Convention, referring to specific problems that are associated with the North-East Atlantic Sea, while the OSPAR Convention is referred to all environmental problems for North-East Atlantic Sea. [UNEP 2011, OSPAR Commission 1992].

For Baltic Sea, in 1974, the Convention on the «Protection of the Marine Environment of the Baltic Sea Region» (known as Helsinki Convention) was adopted and it entered into force in 1980. In 1992, the Helsinki Convention of 1974 was replaced by a renewed version (with the same name) that it entered into force in 2000. [UNEP 2011, Helsinki Commission 1992].

In 1992, the Convention on the «Protection of the Black Sea against Pollution» (known as Bucharest Convention) was adopted and it entered into force in 1994. [UNEP 2011]. It includes Protocols, which are referred to issues like the following: a) Protection of the Black Sea Marine Environment against Pollution from Land Based Sources, b) Cooperation in Combating Pollution of the Black Sea Marine Environment by Oil and other Harmful Substances in Emergency Situations and c) Protection of the Black Sea Marine Environment against Pollution by Dumping. [Black Sea Commission 1992].

For Mediterranean Sea, in 1976, the Convention for the «Protection of the Mediterranean Sea Against Pollution» (known as Barcelona Convention) was adopted and it entered into force in 1978. Furthermore, in 1995, the Barcelona Convention of 1976 was replaced by a renewed version, which was named Convention for the «Protection of the Marine Environmental and the Coastal Region of the Mediterranean» that entered into force in 2004. [UNEP 2011, UNEP/MAP 1995].

The issues are listed in the official documents of the above Conventions for the European Seas are usually associated with: i) the prevention and elimination of pollution by land-based sources and activities, ii) the prevention and elimination of pollution by offshore sources and activities, iii) the prevention and elimination of pollution by dumping ships and aircraft or incineration, iv) the prevention and elimination of pollution by oil and other harmful substances in cases of emergency and v) the protection and conservation of marine environment, which includes marine ecosystems, marine biological diversity, marine protected areas.

On the other hand, the Conventions and the linked documents in the context of Regional Sea Programme cannot be regarded as marine spatial planning; however they are likely to contribute to the development of marine spatial planning. The participants (contracting parties) of Regional Sea Programme are countries, which share a common marine area and they just attempt to deal with the issues that negatively affect their common marine environment. They do not plan the sea regions in an integrated manner, as marine spatial planning intends to do. A convention seems to be a «defensive» tool, while a marine spatial plan is designed to be an «offensive» tool.

3. MARINE SPATIAL PLANNING: AN INTEGRATED APPROACH

The roots of marine spatial planning can be found in the decade of 1980. Initially, it was proposed only as a tool for avoiding degradation of the marine environment. Australia was the pioneer state. Nowadays, marine spatial planning (MSP) has a more broad perspective. It aims to regulate marine uses and the conflicts that may arise from them.⁴

Marine spatial planning itself is an important improvement, as it adds the planning notion in the previous situation, this of the Conventions for the Seas that they seemed to be just a sum of rules. As a spatial planning process, MSP is associated with the analysis and the allocation of uses, and even more, it is strongly connected with ecological, economic and social issues. According to the more official approaches, «marine spatial planning» is defined as:

- «A public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that usually have been specified through a political process», according to the Intergovernmental Oceanographic Commission of UNESCO. [IOC 2010a].
- «A strategic plan for regulating, managing and protecting the marine environment that addresses the multiple, cumulative and potentially conflicting uses of the sea», according to the Department for Environment, Food and Rural Affairs of United Kingdom (DEFRA). [Tyldesley et al. 2004].
- «A comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas (USA)», according to the US National Oceanic and Atmospheric Administration. [NOAA 2009].
- «A process of public authorities of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives». This is the more recent definition, launched by European Union. [EC 2010].

It is obvious that **no broadly accepted definition** has been developed for the term «marine spatial planning». Many descriptions in details can be found throughout the spatial planning literature, but it is well-known that the technical terms are not applied always consistently; e.g. the terms: «ocean zoning», «marine environment etc. Therefore, the need for developing a common vocabulary for marine spatial planning is more than essential.⁵ Even more, the necessity of establishing an ontology concerning the marine spatial planning concept should be discussed and adopted, as soon as possible.

The **integrated approach** seems to be a common attribute of all the definitions. With no doubt, many coastal states have already established policies like: maritime transportation policy, offshore renewable energy policy, aquaculture policy etc. However, every policy is executed at a sector-by-sector or case-by-case basis, without consideration of impact either on other human (marine) activities or on the marine environment, in general. On the contrary, MSP incorporates a long term integrated study of marine space, in order to avoid the sectoral hindrances and the fragmentary local approaches.

⁴ The marine uses are quite similar to the land uses, even if they are not so easy recognized by a non professional (e.g. who can easy make out the occurrence of a maritime route only by watching the sea?). In this framework, the marine uses express the human activities at the sea and the resulted conflicts can be categorized in two types: those among the existing marine uses (a use has an impact on another) and those conflicts they drive to the marine environment degradation.

⁵ Beyond the evidence of such a necessity for every discipline, there is an additional requirement in the case of planning, because of its peculiar inter-disciplinary character, worldwide. Indeed, in Polish language there is no term for «zoning» and in the Chinese occurs a lack for the term «governance» [Ehler & Douvere 2011], while in Greek the term «planning» can be sometimes substituted by the term «design», as well. It is remarkable that even the terms «marine spatial planning» and «maritime spatial planning» are used without been clearly distinguished each from the other and without specific meaning widely accepted among the international

Another outcome of the previously reported definitions is that MSP can **be combined with coastal areas management**. This idea was firstly launched by NOAA, probably as a result of the requirement of planning across the Great Lakes in USA. Nowadays, it seems to be expanded, because a potential link of coastal spatial planning to the marine spatial planning could help the successful implementation of both of them.

Finally, it is clear that MSP is a **future-oriented process**. Actually, it can offer the way to address all types of conflicts that originated from the marine uses. It provides the appropriate managements mechanisms for the long term protection and maintenance of the necessary services of the marine ecosystem.

On the other hand, whatever definition is chosen, the **implementation area** of MSP is a critical issue to be answered. In accordance with the more common approaches, MSP extends its force to the «waters, the seabed and subsoil on the seaward side of the baseline from which the extent of territorial waters is measured extending to the outmost reach of the area» where a coastal state has and/or exercises jurisdictional rights, in accordance with the United Nations Convention on the Law of the Sea (UNCLOS II). In parallel, the NOAA definition takes account of coastal areas, and the area of very large lakes as well. Therefore, the implementation area can be widely differentiated, according to each state will (and power), even up to the limits of exclusive economic zone (EEZ). Then, the involvement of **geopolitics** is more that obvious.

Currently, MSP is a rather evolving process, which has not yet fully determined its components. Many coastal states have already implemented or they are going to implement such a policy. Until 2014, 12 countries are supposed to produce about 60 marine spatial plans, at the national (exclusive economic zone), sub-national (territorial sea) and state or provincial levels. [Ehler & Douvere 2010]. In the majority of these marine spatial plans, the **ecosystems approach** seems to be the dominant one.

In the context of MSP, several **decision support tools** have been already developed. The objective of these tools is to promote and to facilitate the study (analysis, monitoring etc.) of marine space and resources. To achieve this objective, practitioners, planners and all the involved stakeholders need the decision support tools in order to: 1) incorporate data from ecological, economic, and social systems; 2) transparently assess management alternatives and trade-offs; 3) involve stakeholders in the planning process and 4) evaluate progress towards management objectives. A number of decision support tools (they are appropriate for MSP) are represented below [COS 2011, Kiousopoulos 2011] :

- ARtificial Intelligence for Ecosystem Services (ARIES). It can be used at any geographical area by mapping and quantify the environmental assets or the linkages between the ecosystems. The ARIES platform is also useful for quantifying ecosystem services.
- Atlantis. This strategic planning tool was developed as a full ecosystem simulation model that incorporates factors like oceanography, nutrient availability etc., in a spatially explicit way.
- **Coastal Resilience**. It was developed to help practitioners and stakeholders understanding how they can make decisions, and implement ecosystem-based adaptation strategies. It helps users visualize future conditions so they can design future scenarios.
- **Cumulative Impacts**. It was developed to support marine spatial planning and ecosystem-based management efforts by helping practitioners assess the ecosystems conditions. It allows users to visualize how impacts are distributed throughout a region.
- InVEST. It was developed to use the conceptual framework of ecosystem services to inform management of terrestrial, freshwater, and marine ecosystems. InVEST can inform marine spatial planning and prioritization by helping users assess the current and potential status of ecosystem.
- MarineMap. It allows stakeholders (usually non-technical) to access large amounts of authoritative geospatial information and to delineate boundaries of marine protected areas.

- Marxan with Zones. It can be used to explore and propose possible network configurations, to facilitate collaborative network design and to guide decisions for land acquisition or marine zoning. The programme has mostly been used for spatial planning to indicate potential locations for different types of activities or for the management of the marine environment.
- Multi-scale Integrated Models of Ecosystem Services (MIMES). It is a multi-scale modelling» tool that can help practitioners assess the true value of ecosystem services by quantitatively linking the dynamics of ecosystem services.
- Multipurpose Marine Cadastre (MMC). It was originally designed to support the needs of developers and regulators of offshore energy projects. MMC contains authoritative marine cadastral data; over 80 data layers from a variety of sources. It can help users visualize where uses occur and areas of potential conflict, particularly for renewable energy development.



Figure 1. Multipurpose Marine Cadastre in South California, USA Source: BOEM & NOAA 2011

In parallel, in the European Union area, a similar initiative for the marine environment is in the process of being developed. Indeed, in the «Marine Strategy Framework Directive» (2008/56/EC) a requirement for an overarching European Marine Observation and Data Network (EMODnet) is included. EMODNet is coordinated at EU level with the INSPIRE Directive. It aims to link together all marine data from different sources, wherever that data has been collected from. EMODnet data products are designed to illustrate variability in space and time concerning selected geographic regions: the Greater North Sea, the Black Sea, the Mediterranean Sea and some spots in the Atlantic Ocean. Four service contracts were already launched for creating pilot components of EMODNET: Hydrographic data, Marine geological data, Chemical data, Biological data. [EMODnet 2011, EC 2009].

At the same (European Union) area, there are also some additional initiatives, programmes etc. (beyond Infrastructure for Spatial information in Europe, INSPIRE) that could help MSP. Some of them are the following: 1) Water Information System for Europe (WISE) and WISEmarine, 2) International Council for the Exploration of the Sea (ICES), 3) Shared Environmental Information Service (SEIS), 4) European Environment Information and Observation Network (EIONET) and 5) European Environment Information and Observation Network (EIONET). [MEDIN 2011].

4. MARINE POLICY IN EUROPEAN UNION AND MEMBER-STATES

Up to 2006, European Union was not officially referring to a holistic maritime approach, as marine spatial planning is. It was only focused on the protection of marine environment. The most important effort was the «Natura 2000» Programme, a European ecological network established under the Habitats Directive (1992/43/EEC). It is constituted of two types of areas: Special Protection Areas and Sites of Community Importance nominated after the member-states proposals (a number of them contain marine areas). Therefore, the state-members are obliged to protect the regions that themselves have determined as worthy of protection.

Later on, during the first half of «00, European Commission published two communications. The first was in 2002, under the title: «Towards a strategy to protect and conserve the marine environment» (COM(2002) 539 final), which focuses on the protection of marine environment, and refers to sectoral approach of marine activities. The second document was in 2005, under the title «Thematic strategy on the protection and conservation of the marine environment» (COM(2005) 504 final); it underlines the degradation of marine environment and it has an ecosystem based approach describing the associated strategy.

All the previous actions (1992, 2002 and 2005) could be considered as the precursors of the Directive about the strategy for the marine environment (2008/56/EC), even if they not contain a clear reference to the term MSP. Before the previous Directive, the first report with lucid reference to MSP occurred in 2006, when was entered the question about the establishment of the basic principles of a marine spatial planning process. Finally, in 2008, European Commission set out a roadmap concerning marine spatial planning. Afterwards, MSP has been activated through a range of documents; the most important of them are briefly presented in the following:

- 2006 «Green Paper: Towards a future Maritime Policy for the Union: A European vision for the oceans and seas» (COM(2006) 275 final). It sets two questions about MSP. Firstly, it wonders about the principles and mechanisms that should underpin MSP, and secondly, how can systems for planning on land and sea be made compatible. Finally, it proposes the creation of a Roadmap for MSP.
- 2007 «An Integrated Maritime Policy for the European Union» (COM(2007) 575 final). MSP is considered as a tool for sustainable development for marine areas and coastal regions, and focuses on how coastal development may affect the sea and vice-versa.
- 2007 «Conclusions from the Consultation on a European Maritime Policy» (COM(2007) 574 final). It reminds the need for coordinated management and planning for competing uses of the seas.
- 2008 «Guidelines for an Integrated Approach to Maritime Policy: Towards best practice in integrated maritime governance and stakeholder consultation» (COM(2008) 395 final).
- 2008 «A European Strategy for Marine and Maritime Research; A coherent European Research Area framework in support of a sustainable use of oceans and sea» (COM(2008) 534 final). It proposes an integrated ecosystem approach to marine resources, management as well as knowledge to develop coastal and marine spatial planning options.
- 2008 «Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU» (COM(2008) 791 final). MSP is considered as a tool for improved decision making. Commission makes out that MSP will enhance the competitiveness of EU maritime economy. It sets out the main issues for a debate on MSP at EU level, and supports that coastal zones are the hinge between marine and terrestrial development. It aims to sketch the first steps towards a common approach on MSP, and identify key principles.
- 2008 Directive for «establishing a framework for community action in the field of marine environmental policy» (**Marine Strategy Framework Directive**, 2008/56/EC). Main objective of this directive is to ensure good environmental status of waters by 2020. For this reason, some preparation should be done, with the following schedule:

- By 2012, the next three steps must be fulfilled: 1) initial assessment of the environmental situation, 2) determination of good environmental status of water, and 3) establishment of environmental targets and associated indicators.
- Delimitation of protected areas by 2013.
- Establishment of monitoring programs of the environmental status of the waters by 2014.
- Establishment of program of measures with objective the good environmental status by 2015 and beginning of program by the 2016.
- Guarantee of good environmental status of waters, up to year 2020.
- 2009 «Towards an Integrated Maritime Policy for better governance in the Mediterranean» (COM(2009) 466 final). The European Commission believes that, in the Mediterranean basin, «an integrated approach to maritime affairs should clearly not undermine the tools and objectives that have been set for moving forward in specific areas of maritime relevance. On the contrary, it seeks to provide the necessary cross-cutting governance perspective and tools so as to be able to minimise impacts and optimise efficiency and outputs».
- 2009 «Towards the integration of maritime surveillance: A common information sharing environment for the EU maritime domain» (COM(2009)538 final).
- 2009 «Developing the international dimension of the Integrated Maritime Policy of the European Union» (COM(2009)536 final).
- 2009 «Progress Report on the EU's Integrated Maritime Policy» (COM(2009) 540). It places MSP and ICZM as cross-sector tools, considering MSP as a key instrument to balance sectoral interests, with the ecosystem based approach as the underpinning principle.
- 2010 «Marine Knowledge 2020: marine data and observation for smart and sustainable growth» (COM(2010) 461 final).
- 2010 «Establishing a Programme to support the further development of an Integrated Maritime Policy» (COM(2010) 494 final). It proposes financial support for the establishment of a Common Information Sharing Environment on MSP and ICZM.
- 2010 «Maritime Spatial Planning in the EU; Achievements and future development» (COM(2010) 771). In the conclusion, the Commission underlines that «an important added value of further action on MSP at EU level lies in focusing on cross-border aspects and establishing a common process-oriented framework within which Member States can carry out MSP in an optimal way». Furthermore, to determine the way forward, it has launched «an impact assessment, to explore a range of options to promote and develop MSP further, in conjunction with the option to develop ICZM further. The Roadmap for MSP launched a debate on MSP in the EU. On the basis of this debate, the Commission draws conclusions. Some of them are to ensure the legal effect of national MSP, the use of MSP according to area and type of activity, the cross-border cooperation and consultation, the ecosystem based approach etc».

In addition to the previously reported institutional efforts, a number of European countries and especially European Union members have already tackled with marine spatial planning. Some of them had been engaged to this affair prior the official involvement of European Union bureaucracy.

One of the leading states in implementing MSP is **Belgium**. A Master Plan has been under development since 2003, Master Plan can issue permits within the designated areas, and its implementation process is divided into two phases [Figure 2]. Belgium implements MSP in territorial sea and in EEZ (exclusive economic zone). [EC 2008b, IOC 2010b].



Figure 2. Phases 1 and 2 of the sustainable Master Plan for the Belgian Part of the North Sea Source: Douvere et. al. 2006.

In **Germany**, MSP programs (in EEZ, as well) are implemented and supported by a national legislative decree. In 2007, marine spatial plans were drawn up for the German exclusive economic zone of North and Baltic Sea. The **Netherlands** has developed a general planning framework for North Sea that arose from the location problem of offshore wind parks and marine protected areas. **Sweden** is also activated in North and Baltic Sea, by assigning of a research, in July 2006, for monitoring of marine environment in the corresponding regions. The official report of this research was released in June 2008, stating that is time for a third generation environmental policy. [EC 2008b, IOC 2010b].

Several countries have adopted laws for marine areas, like **Poland**, which has adopted a law for marine areas and marine management. Under the program «Interreg IIIB», a pilot project for MSP for the Gulf of Puck has completed. [EC 2008b].

Spain is also working on a law called «Marine Environment Protection», to develop a strategy for protecting the marine environment. In Spain, planning of the marine area receives primarily attention in the framework of the Spanish Renewable Plan 2005-2010. Spain has also undertaken the creation of areas in its territorial sea, and during 2007 adopted a strategy for the sustainability of its coasts. [EC 2011, EC 2008b].

In United Kingdom, in 2009, the Marine and Coastal Access Act was adopted. It divides UK' waters into marine regions with an inshore and offshore region. In this context, Marine Management Organization (MMO) was created. Ten regional marine spatial plans will be developed by the MMO covering the English marine area. MSP has already began in two of the ten regions. [Ehler & Douvere 2010, EC 2008b, IOC 2010b].

France, also, works out a plan using of exploitation of sea that is based on zoning. It establishes a law that includes provisions for management of marine activities. [EC 2008b].

In April 2006, **Norway** launched a White Paper on integrated management plan for the Norwegian part of the Barents Sea and Lofoten Area. The plan provides a framework for managing all human activities. The spatial plan was developed between 2002 and 2006 with estimations based on scenarios until 2020. A similar management plan was completed in 2009, and also a management plan for the Norwegian part of the North Sea will be completed and presented in 2013. [Ehler & Douvere 2010, IOC 2010b].

Several National reports have been resulted after UNEP/PAP/RAC activities; the related reports refer to six Mediterranean countries. In more details, Albania, Bosnia & Herzegovina and Montenegro have not been activated at all in MSP. In Croatia also, there is no marine spatial planning, but the marine resources, activities and protected areas are managed according to the laws for each maritime activity, separately. In Slovenia marine spatial planning is not specifically regulated, nevertheless the Spatial Planning Act does not mention explicitly the issue of marine spatial planning, but it may be applied also to the sea. Italy has National Marine Parks, and divides them into three types of protection level. [UNEP 2007].

5. THE HELLENIC CASE

5.1 GENERAL APPROACH

Hellas (Greece) covers the south end of the Balkan Peninsula, in the south-east of Europe. Its surface is about 132.000 sq. km, with more than two thirds of this area being mountainous. The inland waters cover 1.243 sq. km of the total country area, but the territorial waters and the waters up to the potential limit of EEZ include marine area that is supposed to be more than the triple size of the land area of the country (494.605 sq. km), according to the «Sea Around Us Project» at the University of British Columbia [Sea Around Us Project & PEW 2011]. [Figure 3].

The Hellenic coastline is also calculated at about 15.000 km. It is the longest coastline among those of the Mediterranean countries. [UNEP/MAP 1996]. The majority of the Hellenes (almost the 70% of the 11 million inhabitants) live in the plains, near the coasts. [Kiousopoulos 2008]. Hellas is also the Mediterranean country with the biggest number of islands, as more than 3000 islands belong to the Hellenic State. The total islands» surface corresponds to the 18,8% of the country, while the equivalent population corresponds to no more than 15% of the Hellenes, according to the Hellenic Statistical Authority.

After two administrative reformations (1997: «Kapodistrias» and 2010: «Kalikratis»), the country is divided today (2011) into: 7 Decentralized Administration Units (they belong to the central government), 13 regions (NUTS II, according to the nomenclature of Eurostat) and 325 municipalities (the last two levels belong to the local authorities, according to the Hellenic Constitution). [YPES 2011]. Twelve of the 13 regions and more than 200 of the 325 municipalities are bordered by the sea.



Figure 3. A not official version of the not yet fully delimited Hellenic exclusive economic zone Source: Sea Around US Project & PEW, 2011

Even the great Hellenic history and culture, the spatial planning notion seems not to be so widespread among nor the Hellenes neither the Hellenic administration. It is remarkable that the first national spatial plan has been legitimately approved only during 2008. The nowadays Hellenic legislation related to the **spatial planning** consists of:

- □ the **Law** for Physical Planning & Sustainable Development (L.2742/1999). It does not refer to marine space with a specific manner, although its enactment tends to ensure the protection of environment in the national space as a total, which also includes the marine space.
- □ the General Framework for Physical Planning & Sustainable Development (the spatial plan for Hellas) that was legislated in 2008. It is mentioned there that among its goals is «the improvement of actions' coordination, which are propelled by the authorities concerned at national, regional and local level, in both the sea, through management plans for marine areas where is necessary, as well as on the land, through the coastal zones management».
- □ the **Special Frameworks** for Physical Planning & Sustainable Development. Until today (2011), 4 such Frameworks have been approved (2001-2009). They focus on sectoral location of: 1) industry areas, 2) infrastructures of renewable forms of energy, 3) tourism activities and 4) prisons location.
- □ the **Regional Frameworks** for Physical Planning & Sustainable Development, which have been approved in the period 2003-2005; each one is corresponding with each Hellenic region.

The content of the previously displayed legislation for the spatial planning is mainly referred to the national space, in general. They do not contain special reference to the marine environment. However, it includes sporadic references, like the following:

- Maritime transportations and their nodes, the ports and related infrastructure. In this context, both, the number of passengers and the trade through the ports are subjects of studying.
- Fisheries and facilities of aquacultures.
- Marine protected areas in the framework of «Natura 2000», as the National Marine Park of Alonnisos Northern Sporades and the National Marine Park of Zakynthos.⁶
- Location of wind facilities in the offshore marine space and the uninhabited islands.
- Energy networks (electricity distribution, fuel pipes etc.) and their expansions across the seabed.

5.2 HELLENIC COASTAL POLICY

During the 30 last years, a significant amount of initiatives/proposals have been launched, aiming the controlling and planning of the man-made activities along the Hellenic coastal areas. The more important related landmarks are the following [Kiousopoulos 2008]:

⁶ In the framework of «Natura 2000» Programme, Hellas includes marine regions as well, to the protected ones. Some of them are located at Alonnisos, Corfu, Karpathos, Kefalonia, Kyllini, Zakynthos, Kyparissia, Lesvos, Leykada, Preveza, Samothrace, etc. In addition, there are the following two protected areas that are almost exclusively marine:

The «National Marine Park of Alonnisos, Northern Sporades, Aegean Sea» (approximately 2.260 sq. km.), founded during 1992 (the management agency established in 2003). It is the first designated marine park in the country and is currently the largest marine protected area in Europe. Besides the sea area, the Park includes the island Alonnisos, six smaller islands, as well as 22 uninhabited islets and rocky outcrops. [NMPANS 1992].

^{2.} The «National Marine Park of Zakynthos, Ionian Sea», founded in 1999 (the management agency established in 2000). This marine park includes the sea area and islets of Laganas Bay, the nesting beaches of loggerhead sea turtle and a land area surrounding them, the wetland of Keri Lake and Strofades Islands. The protected region includes 90 sq. km. of marine area and 36 sq. km. of terrestrial area. [NMPZ 1999].

Furthermore, for the sake of the previous marine parks several actions were already developed. They focus on: the protection of ecosystems, the protection and preservation of natural and cultural landscape, the public information, the development of research activities in the protected area, the monitoring of the protected area and the environmental education and information.

- 1979 A 3-year national program for coastal management was established. The final outcome was published in the official gazette of the government (1981), as a Decision about «guidelines and actions needed for the management of the coasts».⁷ Actually, it was a rather rhetoric setting without real obligation of the administration, neither for a related policy nor for an inter-sectoral coordination.
- 1990. Many special spatial studies (projects, «EXM») were carried out. Almost all of them are related to islands and coastal areas. Unfortunately, no one has been ever officially approved and enacted.
- 1995. A public discussion on coastal management (supported by the Ministry for the Environment) drove to an academic study related to ICZM in Hellas. Finally, this effort failed to emerge the government towards a more specific coastal policy.
- 1997. Hellas took part to the European Union demonstration program on «integrated coastal zone management, 1997-1999». Six of the 35 demonstration projects are located in the Hellenic space (Athens, Ipiros, Cyclades, Magnesia, Strymonikos, Kavala).⁸
- 1999. The Hellenic Parliament voted Law 2742 for «physical planning and sustainable development». It was considered as a new start on the way to the establishment of spatial policy in Hellas, coastal policy included.
- 2003. A draft for the «Special Framework (guidelines) for Physical Planning & Sustainable Development of Hellenic Coastal Areas» was discussed, but finally was not officially approved.⁹ (During the end of the decade, a new version of this Special Framework was discussed, again without an official approval as outcome).
- 2008. The General Framework for Physical Planning & Sustainable Development (national physical plan) was approved by the Parliament. It is obvious that both, this Plan and the related Regional Frameworks incorporate articles affected coastal areas (as it was previously mentioned, chapter 5.1)

It is obvious that a clear coastal policy is not yet established in Hellas. In general, the Hellenic authorities did not submit an official Report on ICZM for the time frame 2006-2010. [Thetis S.p.A. 2011]. As a result, a general lack of coordination characterizes the Hellenic coastal space. Several elements of ICZM guidelines can be found in sectoral policies, such as the urban development, tourism, industry, energy production, agricultural development and environmental policy. However, it is understandable that those policies, even if they are successful, they do not compose an integrated coastal management policy. Furthermore, the tools are applied along the Hellenic coasts are sprung mainly from the urban policy; so they are not specialized.

Integrated management aiming both the development and the protection of coastal areas.

- · Coordination of sectoral policies at all spatial levels (national, regional and local).
- People participation and activation.

⁷According to this Decision the main objectives of the Hellenic coastal management should be the following:

Broad compromise concerning the public and the private sector projects.

Active protection and restoration (if it is possible) of the coastal resources and the natural and man-made environment.

⁸ The final result of that demonstration program was a Communication document (COM(2000) 547 final, «Integrated Coastal Zone Management: A Strategy For Europe») of the European Commission [2000] suggesting the following 8 principles, concerning the spatial planning of coastal areas in European Union: i) thematic and geographic holistic approach, ii) long term perspective, iii) adaptive management during a gradual process, iv) respect local specificity, v) work with natural processes, vi) participatory planning, vii) support and involvement of all relevant administrative bodies and viii) use of a combination of instruments.

⁹ The main goals that were written down in these documents were: 1) Promotion of: land policy control, agreements with coastal land owner, financial and tax motivations and principles and good practices for sustainable development. 2) Re-definition of stakeholders» function. 3) Production of friendly conditions for initiative»s coming out. 4) Securing of related finance resources. 5) Establishment of monitoring system. 6) Development of training/education programs on ICZM. 7) Limitation of building construction along the coastal areas. 8) Preservation of coastal agricultural areas. 9) Creation of special standards for coastal urbanization. 10) Encouragement the international collaboration and strengthening the national profile, in the context of sustainable development of coastal space.

5.3 «MARINE STRATEGY» & RELATED FACTS-INITIATIVES

Even if a coastal policy does not officially exist in Hellas, the EU» rules pushed the Hellenic administration to incorporate the EU» directives into its national legislation system. Indeed, on 17 June 2011, Law 3983 (for the «National strategy for the protection and management of marine environment», as a harmonization with the Directive 2008/56/EC) was published into the official gazette of the government. The field of its implementation contains all the marine waters, as they are already defined in this Directive. The law» specific objectives are:

- a. Taking measures to achieve and maintain good environmental status in the marine environment, up to 2020.
- b. Application of measures, e.g.: a) guarantee of protection, prevention of deterioration and restoration of marine ecosystems and b) prevention and reduction of depositions in the marine environment, aiming at the obliteration of pollution.
- c. Managing of human activities that should follow an ecosystem approach (ensuring that the total pressure of the activities will be compatible to levels, which ecosystems will be able to respond to anthropogenic impacts).
- d. Achieving cohesion of environmental parameters and ensuring the integration of the various policies (for the marine environment).

Furthermore, a «National Committee of Marine Environmental Strategy» is planned to be established, which will formulate, coordinate, evaluate and monitor the implementation of the national policy for the protection and management of marine environment. This Committee has as members the representatives of the following ministries: for Environment, Energy and Climate Change, for Foreign Affairs, for Interior Decentralization & E-government, for National Defense, for Finance, for Citizen Protection, for Development, Competitiveness and Shipping, for Rural Development and Food and for Culture and Tourism.

Apart from the previously mentioned Committee, the «Special Secretariat for Water» is drawn up for the law enforcement, under the authority of the Ministry for Environment, Energy and Climate Change. Among the responsibilities of this Secretariat (that seems not to be so dedicated to marine spatial planning notion) are: the coordination of all agencies and states» institutions, related to water issues and the regional Water Directorates, the implementation of EU» directives (such as the Water Framework Directive, the Marine Strategy Directive etc.) and the implementation of the national monitoring program.

Beyond the foresight of the previously referred law, the Hellenic public domain includes numerous administrative bodies, which are associated to marine environment issues, at various degree of involvement. The **Ministry for the Environment, Energy and Climate Change** is recognized as the main spatial planning oriented authority in Hellas. Some other public bodies (at ministerial level) involved into the marine environment' issues are listed below:

- Ministry for Rural Development and Food, which includes Directorates for: a) Marine Fisheries, b) Aquaculture & Inland Waters and c) Fisheries Applications & Fisheries Production.
- □ Ministry for Development, Competitiveness and Shipping, which is involved in investing procedure and as a result is responsible for the potential uses of marine space. This ministry incorporates the duties of the ancient Ministry for Maritime Affairs, Islands and Fisheries concerning Port Policy and Fisheries Policy. Additionally, it is responsible for port infrastructures, operation and exploitation of ports, marine transportations; also it has the Secretariat General for the Aegean and Island Policy and Marine Environment Protection Directorate.
- Ministry for Foreign Affairs, which includes services for the maritime affairs in the framework of international relations. Beyond the determination of EEZ limits with the neighbouring states [Figure 3], this ministry cooperates with other governmental authorities in order to support to Hellene mariners in case of shipwreck, repatriation of them etc.

- □ Ministry for National Defense, with operational objectives. It incorporates Navy Hydrographic Service, with responsibility for the mapping of Hellenic marine space.
- □ Ministry for Citizen Protection, with the supervisory authority of the police of sea, namely the Hellenic Coast Guard.
- □ Ministry for Education, Lifelong Learning and Religious Affairs, which supervises the researches concerning Hellenic marine space; the Hellenic Centre for Marine Research included.
- □ Ministry for Culture and Tourism, which includes the Department of Underwater Antiquities.

6. CONCLUSION AND DISCUSSION

Although marine spatial planning has launched since 1980, European Union began to activate on it after 2000. In parallel, several European countries had been activated earlier in the development and the implementation of MSP, by their own. In many cases, MSP keeps pace with the development of ICZM. Nowadays, European Union considers ICZM as another (parallel) tool for integrated marine policy, in order to achieve coherence between terrestrial and marine spatial planning. In this case ICZM acts as the «hinge» between marine and terrestrial environment.

On the other hand, the Hellenic case seems to be quite peculiar, concerning the marine spatial planning. Hellas, even its long-standing maritime tradition, and even its location and the possession of thousands of islands, does not belong among the pioneer states in marine spatial planning' process. All the circumstances are positive, but an innovative administration with strong will is not still present. Of course, there are several barriers about developing MSP in Hellas. Some of them, which could explain the related «delay» are the following:

- Hellas has not yet delimited its maritime boundaries (territorial waters and EEZ as well), because of the existing realm of relationship with their neighbors or because of negligence.
- o Hellas is out of time in many administration innovations, as cadastre and well implemented spatial plans.
- Hellas has not yet established and fully implemented an integrated coastal zone management that it could act as a beginning for marine spatial planning.
- o Nowadays Hellas confronts serious financial problems.

On contrary, the still occurred facts that could be considered as steps towards MSP are:

- o In June 2011 the Hellenic government adopts the Marine Strategy of EU (Directive 2008/56/EC). It is not yet really implemented.
- o «Natura 2000» Programme. It is the most important action in Hellas, by specifying the Marine Protected Areas in many (marine) regions, all around Hellas

Finally, after the study of good practices, at global level, the following proposals could be useful for a country aiming to set up a marine spatial planning process:

- Establishment of ontology concerning MSP for the better understanding of all MSP»s aspects. [Kiousopoulos & Bollanou, 2011].
- The «beginners» should receive as aid the experience of the pioneer states.
- The countries they share a common marine region should cooperate to achieve an integrated and ecosystem based MSP.
- Development of decision support tools and data collection methodology should be carefully designed.
- Establishment of a national authority, which will deal exclusively with MSP (in order to overcome the bureaucratic hindrances in such a multi-sectoral issue), could be a productive initiative.

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Аннотация. Окруженные морем, Европа и Греция имеют жизненно важные интересы на морскую среду, и они в большой степени зависят от неё; их история доказывает эти прочные отношения. В эру глобализации, перенаселенности и экологических рисков, море – обширная область, доступная для навигации и коммуникации, отдыха, пищевых и энергетических ресурсов, стратегии и защиты, вывоз отходов и т.д. В результате этих антропогенных действий, конфликты (которые уже возникли или могли бы возникнуть),по использованию моря должны регулироваться должным образом. Дополнительно, человечество должно справиться со стихийными бедствиями в морской среде. В этой структуре морское пространственное планирование посвящено защите и управлению морской средой, сосредотачиваясь на лучшем распределении использования морских ресурсов. Эта статья призвана представить краткий обзор морской политики в Европейском союзе и в Греции, и их недавнего развитии морского пространственного планирования. После подведения итогов прошлых усилий относительно морской среды кратко проиллюстрировано значение морского пространственного планирования и его выполнения в европейских странах. Наконец, все прямые и косвенные действия, тесно связанные с потенциальной морской и прибрежной политикой в Греции, полностью освещены.

Ключевые слова. Морское Пространственное Планирование, Морская среда, Морское Использование, Морской Ресурс, Морская политика, Морская Эллада, Европейский союз