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Marine spatial planning in Croatia – legal and technical aspects

Mirjana Kovačić[1], Biserka Rukavina[1], Lea Perinić[2]

[1] University of Rijeka, Faculty of Maritime Studies, Studentska 2, 51000 Rijeka, Croatia, e-mail: mirjana051@gmail.com; biserka.rukavina@pfri.uniri.hr
[2] University of Rijeka, University Centre for Research and Innovation, Trg braće Mažuranića 10, 51000 Rijeka, Croatia, e-mail: lea.perinic@uniri.hr

ABSTRACT

The introduction of marine spatial planning (hereafter: MSP) for Croatia is essential, considering the coastline length and the increasing usurpation of coastal and marine space. MSP is more than a process that regulates the activities on the sea. It is an analytical approach to the setup of human activities in the marine area. As a maritime country, Croatia has ratified the Protocol on Integrated Coastal Zone Management and undertook the obligations of the Barcelona Convention. However, an appropriate document has not yet been made that would enable quality management of marine space. MSP and its onshore version contribute to the establishment and development of various activities, taking into account environmental, natural, economic, and sociological criteria. MSP is a continuation of spatial planning of the mainland area and must undoubtedly consider the more expansive coastal environment and the activities there. One of the tools in marine area mapping is the Geographic Information System (GIS), which has proven to be a very high quality and effective tool, especially in decision-making processes.
The authors analyze the existing legal framework for marine spatial planning. Particular emphasis is placed on the obligations facing the Republic of Croatia to implement marine spatial planning. Given that the paper seeks to determine the advantages of MSP implementation using modern tools in marine area mapping, the authors in the third part discuss the benefits of using GIS as an acceptable tool in mapping marine space and provide recommendations for further actions.

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1 Introduction

Various economic, cultural, ecological, or social activities are putting pressure on the marine ecosystem, stressing the need for a new approach to the sustainable use of marine space. Marine spatial planning offers a new framework for managing activities at sea, intending to meet social and economic requirements and at the same time respect the environmental needs. The practice and interest in marine spatial planning are on the rise in the coastal states of Europe. The establishment of the MSP process attempts to harmonize the spatial impact of different users so that their activities are focused on protecting the sea. The establishment of marine spatial plans makes a significant step forward in applying ecosystem management of the marine environment. Many tools are used to support decision-making that requires knowledge of the spatial distribution of people, activities, etc. With GIS being used as a system that provides significant support to state or local government by helping to determine the best locations for doing business.

Although several regulations have been adopted that partially cover the MSP issues, Croatia still does not have a legal framework governing this critical area of concern. At the same time, GIS is used for displaying maritime area, borders, concessions in the maritime domain, and other spatial data.

The paper provides an overview of previous research and determines the legal determinants of MSPs and the role of spatial plans in Croatia. In the context of the establishment of MSPs, the role of the GIS tool for displaying spatial data and activities in the coastal area is explained.

2 Review of previous research

Marine spatial planning has emerged globally as a tool for sustainable ocean management. Scientific and professional interest in MSP has grown enormously over the last decade. A large number of papers, over a thousand, have been published in international journals and numerous reports and documents that explain marine spatial planning and the issue of planning sustainability and explore the challenges of marine planning [16, 17]. The author Ehler [14] points out that the implementation of MSP brings many economic, environmental, and administrative benefits, but also costs. The author explores the challenges and guidelines as well as experiences in the application of MSP. Douvere [12], in his research, analyzes the countries that are leaders in marine zoning and the establishment of MSPs. These are the Netherlands, Germany (North Sea), Belgium, and the United Kingdom in the Irish Sea. The author state that these countries laid the foundations for the further development of MSP by their own initiatives, the EU's Integrated Maritime Policy (IMP), the Bergen Declaration of the North Sea Conference and the recommendations on integrated coastal zone management. Their experiences, according to the author, can help further develop and understand the complexities of MSP.

The author Olssen [22] concludes that the interest in MSP is the result of international workshops on MSP, scientific conferences, and consultations. Many scientific conferences, such as the Annual International Council for the Exploration of the Sea (ICES) [28], now have regular sessions on MSP. In addition, a particular MSP research network has been set up at the University of Liverpool, focusing on specific thematic areas.

On the mainland coast of Portugal, the MSP was established in 2010. It is worth noting that Portugal has the most extensive maritime jurisdiction in the EU. The multidisciplinary team conducted a complex resource analysis and categorization, zoning, activity mapping, and similar activities to prevent conflicts, ensure sustainability for all sectors, and avoid overuse. The author Calado [5] states that the applied zoning scheme resolved the conflict and proved to be a powerful tool to promote stakeholder discussion and participation. According to the author, the successful implementation of MSP will rely heavily on the ability of stakeholders to apply MSP.

In their research, the authors of Frazao Santos et al. [16, 17] explain the issues of sustainability and management of ecosystems and their inclusion in the general framework of MSP. From the EU Green Paper (2006) to the Proposal for the MSP Directive (2014), MSP processes have been identified as necessary to ensure the sustainable development of maritime affairs. Although ecosystem-based MSP is presented as the best way to preserve ecosystems and develop human activities, the authors emphasize that most national and European MSP initiatives follow the blue growth approach. Consequently, the authors emphasize that an adaptive approach is vital so that spatial planning, management, and policy-making in marine areas can be continuously adapted, thus enabling sustainability.

The fundamental determinant of MSP is managing the distribution of human activities in space and time to achieve environmental, economic, and social goals and outcomes. It is a political and social process based on the natural and social sciences. Over the last 20 years, MSP has matured from a concept to a practical approach to the sustainable development of the oceans and seas. About 20 countries have implemented integrated marine spatial plans, and by 2030, at least a third of the world's exclusive economic zones are expected to have government-approved marine spatial plans.

A multisectoral approach is important for establishing MSP, including scientists and experts in various fields and public authorities' stakeholders. According to Olsen [22], it is evident that there are different approaches to management and other priorities. Differences in legislation, policy approach, and expected socio-economic effects are also visible. According to the author, Belgium and Norway have established appropriate horizontal and vertical integration between sectors. At the same time, there is a lack of cooperation between stakeholders in the USA and a lack of legislation, which contributes to weaker vertical integration.

According to Ansong [1], applying a multidisciplinary approach to MSP stems from the nature of marine space as a multidimensional concept that requires insight from many scientific disciplines and types of knowledge. The fact is that the marine space should be viewed as a dynamic whole composed of a large number of interrelationships. There is no single sea space, and any boundary is arbitrary. Instead, there are several overlapping sea areas, each of which has its constitutive relations. For example, many decisions concerning MSPs are made in urban centers far from the coast, which can cause marine space in the regulatory dimension to be disrupted. Namely, the economic strength of the sea area, i.e., many financial benefits generated in the sea, have been realized far in the coast. At the same time, many traditional sea boundaries are shifting.

In their comprehensive research on MSPs, the authors of Keijser et al. [18] find that in 2006 only a few countries spoke and thought about MSP, while in 2016, about 70 countries developed MSP initiatives, ranging from early stages to plan revisions and adaptations. Many of these countries are members of the European Union (EU) encouraged and supported by EU MSP directives [10, 11]. With MSP established and appropriate plans, Croatian coastal regions would have significant economic benefits [19].

3 Legal framework of MSP in Croatia

The implementation of MSP, among other things, includes an analysis of laws and bylaws governing MSPs.

Following this, the legal framework of MSP in Croatia is presented, important legal determinants are explained, and the role of spatial plans in the establishment of MSPs is determined.

3.1 Analysis of legal and implementing regulations governing the MSPs

The marine spatial planning system in Croatia was established by The Physical Planning Act dating from 2013, which has been amended four times. [26] Thus, the Act was amended in 2017, 2018, and twice in 2019. The enactment of the Physical Planning Act formally established the legal framework for spatial planning of the marine area in Croatia to promote sustainable growth of marine economies, sustainable development of marine areas, and sustainable use of marine resources. Following the Physical Planning Act, spatial planning is based on the principle of an integrated approach in planning and management of space that includes land and sea and their mutual interaction [26].

One of the reasons for adopting amendments to the Physical Planning Act was the need to harmonize national law with the law of the European Union. Thus, the amendments to the Physical Planning Act from 2017 enabled the implementation of Directive 2014/89/EU [11] into the Croatian legal system and enabled spatial planning in the protected ecological-fishing zone and the continental shelf of the Republic of Croatia. In addition, the 2017 amendments also adopted a definition of marine spatial planning (previous amendments used the term "special sea planning"), which is a spatial planning process in which spatial planning entities analyze and organize human activities in the marine area to achieve ecological, economic, and social goals [26].

The Physical Planning Act, Articles 15 to 30, determine subjects of physical planning. The importance of legal regulation of spatial planning of the marine area is evidenced by the amendments to the Physical Planning Act from 2017 that introduced a new separate title, "Marine Area Planning," and the provisions on marine spatial planning are contained in Art. 49a to 49f. These provisions prescribe new obligations for Croatia, namely adopting new categories of plans that did not exist until then, which are the Spatial Plan of the Ecological and Fishery Protection Zone (hereinafter: the Spatial Plan of the EFPZ) and the Spatial Plan of the Continental Shelf of the Republic of Croatia. Article 49a stipulates that the marine area is planned by the National Spatial Development Plan, the Spatial Plan of the Ecological and Fishery Protection Zone, and the Spatial Plan of the Continental Shelf within these zones, spatial plans of national parks and nature parks covering the sea area, spatial plans of counties covering the sea area and spatial plans of cities and municipalities, presented in the Register of Spatial Units that is maintained based on particular regulations governing state surveying and real estate cadastre and general urban plans and urban development plans covering the marine area [26]. It is important to point out that establishing the described marine spatial plans makes a significant step forward in applying ecosystem management of the marine environment.

Considering the importance of having an appropriate legal framework for the spatial planning of the marine area and the obligations assumed by EU regulations, the Physical Planning Act also defines the deadlines for the adoption of these plans. Article 61 of the Spatial Planning Act prescribes the obligation to adopt the National Spatial Development Plan by December 31, 2019, at the latest, and the EFPZ Spatial Plan and the Spatial Plan of the Continental Shelf of the Republic of Croatia by March 31, 2021. Unfortunately, according to the data available at the time of writing, none of these plans has yet been adopted, so it can be concluded that Croatia has not fulfilled this part of the obligations.

In addition to legal solutions, the relevant bodies responsible for their implementation also play a significant role in establishing MSPs. The Croatian Institute for Spatial Development and the County Institutes for Physical Planning has been appointed as the bodies responsible for implementing the Spatial Planning Act in part relating to the spatial planning of the marine area.

Among many documents adopted by the Republic of Croatia to establish an appropriate legal framework for marine spatial planning is undoubtedly the Decree on the drafting and implementation of the Marine Strategy and Coastal Management Strategy documents [10].

The Marine Strategy Framework Directive [10] requires the Member States to take measures to achieve or maintain a good state of the marine environment by 2020 by drafting marine strategy documents for marine waters under national jurisdiction. The Framework Directive also encourages cooperation with neighboring countries, regional collaboration under the Barcelona Convention, and collaboration at the level of the European Union. With the adoption of the Decree on the drafting and implementation of the Marine Strategy and Coastal Management Strategy documents, the Marine Strategy Framework Directive was transposed into national legislation [8]. Thus, the Republic of Croatia took another step towards establishing a legal framework for marine spatial planning.

The Decree on the drafting and implementation of the Marine Strategy and Coastal Management Strategy documents defines the framework and criteria for developing, performing, and monitoring the Marine Environment and Coastal Zone Management Strategy. Art. 4 of the Decree defines the spatial scope of the Decree, which applies to the marine environment and the coastal area which are under the sovereignty of the Republic of Croatia, i.e., in which the Republic of Croatia exercises sovereign rights and jurisdiction, while Art. 6 provides a regional approach to achieving the objectives of protecting the marine environment. The Decree stipulates that the Program of mea-

sures determines the measures that need to be taken to achieve and maintain good environmental status and achieve the marine environment and coastal zone management objectives. The Decree also provides an outline of the Program of measures. Methodological approaches to defining implementation measures related to the protection and management of the marine environment and coastal zone management differ primarily because the actions associated with the marine environment result from a strictly defined procedure through the Marine Strategy Framework Directive [10]. Coastal zone management this procedure is somewhat more flexibly set.

As a document that forms a reasonable basis for the development of the Strategy for the Management of the Marine Environment and Coastal Areas in 2017, the Program of Measures for the Protection and Management of the Marine Environment and Coastal Areas was prepared based on Articles 55 and 56 of the Environmental Protection Act [15] and Decree on the drafting and implementation of the Marine Strategy and Coastal Management Strategy documents. [10]

According to the Marine Strategy Framework Directive (Article 13.3), the social and economic impacts of the envisaged measures need to be carefully considered when drafting the Program of Measures [10]. Namely, the measures should be cost-effective and technically feasible. Before introducing any new action, an assessment of its acceptability should be carried out, including a cost-benefit analysis. When selecting new measures, they should be ranked according to their costs and contribute to the given goal, starting with the highest impact at the lowest price. In this way, by combining the most cost-effective measures, the most cost-effective Program of Measures is obtained, which should bridge the gap between the current and good state of the environment. The Program of Measures identifies problem areas of particular interest to the Strategy, defines starting points for defining strategic priorities, and agrees on priorities for protecting and managing the marine environment and the coastal area. Each strategic priority is divided into several different objectives, each containing a number of measures. The Program of Measures includes existing and new measures. Current measures include measures adopted within the relevant sectoral policies that fully or partially preserve the marine environment. In contrast, new measures include proposing measures necessary to achieve a good state of the marine environment by 2020 in cases where existing measures are insufficient. These can complement existing or entirely new measures and may include recommendations for activities implemented at the national, EU, or international level.

Within a number of laws and bylaws adopted by Croatia to establish the legal framework for MSP, there is also the Decree on Spatial Planning Information System [9] which prescribes the structure, content, mode of operation, form, and electronic standard of spatial planning information system, jurisdictions and obligations in the management and administration of this system, and public law bodies that are obliged to make spatial and other data available through the spatial planning information system and how they are obliged to do so.

In accordance with Article 16, paragraph 2 of the Decree on the drafting and implementation of the Marine Strategy and Coastal Management Strategy documents, the monitoring system is adopted by the Government of the Republic of Croatia at the proposal of the competent ministry. The Government adopted the first such document in 2014. Taking into account the obligation from the Framework Directive to review all elements of marine strategies every six years and their harmonization with the changes, the Republic of Croatia should update the existing document to harmonize it with new knowledge and current conditions. Therefore, in 2021, a Decision was brought about the adoption of the Action Program of the Marine Environment and Coastal Zone Management Strategy: a monitoring system for continuous assessment of the Adriatic Sea for the period 2021-2026. [6] The monitoring system is based on eleven descriptors of suitable environmental status related to anthropogenic pressures, namely: biological pressures, physical pressures, substances, waste and energy, and descriptors associated with the state of the corresponding elements of the ecosystem. Criteria and methodological standards applied when determining the state of the environment are in accordance with Article 9, paragraph 1 of the Framework Directive. According to the Decree, the definition of a good environmental state means an ecological condition in which the marine and coastal environments are preserved, ecologically diverse and dynamic, and are clean, healthy, and productive in their natural conditions.Furthermore, their use is sustainable, thus keeping the potential for current and future generations (Art. 5 para. 1 item 7).

3.2 The role of spatial plans in the establishment of marine spatial planning

Spatial planning ensures preconditions for improving economic, social, natural, cultural, and ecological starting points for sustainable development, with spatial planning plans being the main instruments for implementing the state spatial planning policy at all three levels (national, regional, and local). Therefore, spatial planning plans are an important segment of MSP establishment. Article 49a of the Spatial Planning Act stipulates that the marine area is planned: a) by the National Spatial Development Plan, b) by The Spatial Plan for the Ecological and Fisheries Protection Zone of the Republic of Croatia, c) by the Spatial Plan of the Continental Belt of the Republic of Croatia, d) by spatial plans of national parks and nature parks covering the sea area, e) spatial plans of counties covering the sea area, f) spatial development plans of cities or municipalities within their borders, and g) general urban plans and urban development plans covering the sea area. Content and topics of the National Spatial Planning Plan

are defined by the Regulation on the State plan for spatial development [24] and by the Decree on the determination of buildings and other spatial interventions in the areas of state and regional planning significance [7]. The national spatial development plan is a spatial plan of the state level and is adopted for the territory of Croatia. The plan's development enables the planning of interventions in the area of national importance at the state level and their implementation without the adoption of lower-level spatial plans, which should represent a more effective implementation of strategic guidelines.

The National Spatial Development Plan prescribes the conditions for implementing interventions in space for buildings of national importance, the obligation to adopt a spatial plan for areas of special features if necessary, and guidelines for the development of urban development plans in separate construction areas outside settlements for economic purposes of state significance. Areas of the infrastructure of national importance in maritime transport are listed in Annex II of the Regulation.

In addition to the National Spatial Development Plan, the MSP is also subject to the Spatial Plan of the Continental Shelf of the Republic of Croatia. In accordance with Art. 49a paragraph 1, point 3 of the Spatial Planning Act, the Republic of Croatia is obliged to adopt the Spatial Plan of the Continental Shelf because it is one of the plans regulating the spatial planning of the sea area, and given that in the area of the continental shelf the Republic of Croatia exercises sovereign rights to explore and exploit the natural resources of the seabed and subsoil. By applying the principles of spatial planning in the development and adoption of spatial plans and to achieve spatial planning goals in accordance with the guidelines of the Spatial Development Strategy of the Republic of Croatia, the Spatial Plan of the Continental Shelf will pay due attention to the specific ways of using the marine area and their impacts on the environment and safety of navigation, as well as natural resources. As previously pointed out, Croatia has not yet adopted the Spatial Plan of the Continental Shelf of the Republic of Croatia, although the deadline expired on March 31, 2021.

The obligation to adopt the Spatial Plan of the protected ecological-fishing zone of the Republic of Croatia is based on Art. 49, paragraph 1, point 3 of the Physical Planning Act. According to the available data, the plan has not been adopted. As Croatia has declared an exclusive economic zone, it is necessary to harmonize the plan's title and amend the relevant provisions of the Physical Planning Act relating to the protected ecological fishing zone.

After analyzing the obligations of the Republic of Croatia to establish the legal framework for marine spatial planning and activities, the authors conclude that the Republic of Croatia is making significant efforts to implement relevant international and EU regulations. Still, a series of activities are also to be undertaken, especially in adopting spatial plans for the EFPZ and the continental shelf.

4 Contribution of GIS to the establishment of marine spatial planning

This chapter explains the importance of establishing the MSP in Croatia and the role of GIS in spatial planning, especially for the local governments.

4.1 The importance of marine spatial planning establishment

The authors Baldwin et al. [3] state that analogous to land use planning in the terrestrial environment, MSP aims to strike a balance between social and economic development requirements while protecting the health and resilience of ecosystems. Planning of marine space and interventions in the sea must be based on a structural analysis of all permanent and changing components that define space and operate in it today and those that can be predicted in the future. Spatial management and governance in general and coastal and marine in Croatia require legislative and institutional solutions to function in spatial development. Zekić and Luttenberger [30] emphasize that marine spatial plans and integrated coastal zone management strategies must be mutually coordinated, ensure practical cross-border cooperation between the Member States and between national authorities and stakeholders of relevant sectoral policies. Croatia needs to identify cross-border effects that bring direct and indirect benefits. In general, the problems of marine space are very complex and must be addressed at all levels, taking into account the interrelationships of individual elements. Kovačić et al. [21] point out that in solving the problem of marine space from the very beginning, all social and especially interested structures must be involved, whereas the public and citizens play an important role. According to Kovačić [20], it is essential to respect the spatial component already in the preparatory phases to examine all aspects and possible effects of space interventions and avoid conflicts.

Establishing an MSP enables each new intervention in the area to examine deviations from the set development goals and determine the possible consequences. However, it can be expected that compromises to the detriment of one or another stakeholder will often be necessary when making reasonable decisions. It is imperative to understand that the marine system is dynamic and has no territorial boundaries. It should therefore be viewed in a broader context.

In 2011, Croatia and other countries located on the Adriatic Sea developed a methodological manual on MSPs, but the MSP system is still not fully established [13].

The methodological handbook on MSP in the Adriatic Sea (2011) was developed within the project SHAPE "Shaping a Holistic Approach to Protect the Adriatic Environment between coast and sea," co-funded by the IPA Adriatic CBC Program 2007-2013 [23]. SHAPE aimed at developing a multilevel and cross-sector governance system for MSP and ICZM in the Adriatic Sea, based on a

holistic approach and integrated management of the natural resources, risk prevention, and resolution of conflicts among uses and users of the Adriatic coast and sea. SHAPE started in May 2011 and was concluded at the beginning of 2014. The project involved 13 partners representing all Italian coastal regions and eastern Adriatic countries.

The handbook results from many MSP initiatives, such as BaltSeaPlan, Plan Bothnia, PlanCoast, MASPNOSE, the DG MARE studies on MSP in the Mediterranean, and the Adriatic Sea (2011), and the UNESCO-IOC guideline on MSP [23].

4.2 The role of GIS tool in marine spatial planning establishment

Decision-making on the use of space and the establishment of activities is a complex issue [29] where tools such as GIS provide a computationally supported system for spatial data analysis. GIS is a computer system for integrating, analyzing, displaying, storing, and editing geographic information and allows users to create interactive questionnaires, edit data and analyze spatial data. The spatial data processed by the GIS is information related to the spatial position, which means that it allows the connection of spatially related activities. Since GIS enables data visualization, it will enable multi-criteria decision-making. The author Tutić (Tutić et al, 2002) point out that using spatial data and GIS leads to better information management based on appropriate analyses. [27] Although GIS is a tool of geospatial technology, it enables the understanding of spatial relations and essential decisions and plays a critical role in mapping marine space.

Bartlett (2000) states that if the goals of sustainable coastal development are to be achieved, experts from different professions in coastal research, individuals, civil society, and the public and private sectors should demand timely access to a wide range of reliable spatial information about the sea and coastal area. [4] There is also a need to connect different stakeholders, which results in complex information requirements for interdisciplinary, multi-interest, and spatial land-sea integration. Furthermore, according to the author, monitoring changes in requirements and vertical and horizontal integration through different periods and harmonizing information and information policy at the regional, national, and global levels.

The tools needed to design and map marine space are provided by GIS, which enables visualization, spatial analysis, and modeling.

In Croatia, several individual applications have been developed, mainly at the regional level, which relate to the use of the maritime domain, concessions, maritime domain boundaries, mapped sea discharges, and more. To assist in the tasks of protection of maritime assets and future spatial planning in local governments, the State Geodetic Administration (SGA), in cooperation with the Ministry of Environmental Protection, Physical Planning and Construction, designed and developed a GIS application for protected coastal areas. According to authors (Bačić et al., 2005), the application clearly and functionally allows users to search for data, positioning at a location of their choice and insight into a protected coastal area. [2]

5 Recommendations for further action

With the establishment of the MSP, all Adriatic countries, especially Croatia, which has the longest and most indented coastline, can achieve significant economic, social, environmental, and managerial benefits. According to the authors [25, 12, 14, 29], the general advantages of MSP can be summarized as follows:

- Better vertical and horizontal coordination within countries;
- Development of cross-border cooperation on maritime issues between EU and non-EU countries, including the adoption of integrated approaches at the level of the maritime region and sub-region;
- Contribution to the improvement of data management, in particular through the Maritime Atlas, ensures stakeholder involvement, implying greater transparency at all stages of MSPs and better visibility of step-by-step results;
- Reduction of conflicts and development of coordination and synergy between marine and maritime activities;
- Encouragement of investments and innovation by defining and implementing a transparent and proactive process based on clear rules and roles;
- Increase of protection of the marine environment and biodiversity through early identification of pressures;
- Reduction of conflicts between marine use and marine conservation, reduction of cumulative impacts, and development opportunities for sustainable use of marine resources.

With all the experience so far, it is becoming increasingly clear that MSP requires a systematic approach and should be a component of research and education processes in Croatia. Today, MSP requires a new generation of professionals and planners. The authors, Keijser et al. [18], conclude that an increased interest in learning and teaching about MSP exists, both scientific and professional. Those modern learning methods should be supported since MSPs are not a one-time exercise but a two-way understanding and knowledge acquisition and experience.

At the same time, it is an opportunity for Croatia to stop the growing oversaturation of activities, especially coastal tourism and the increasing over-construction and concreting. Furthermore, it is also an opportunity to contribute to the development of the blue-green growth sector through MSP. Tourism, especially coastal tourism, should not be the most significant Croatian source of income. The broader application of GIS tools can signifi-

cantly contribute to spatial data storage to create unique (national and other) previews of the coastal area and the marine environment mapping. This is particularly important for achieving economic benefits while respecting the coastal area's environmental requirements and other socio-social characteristics.

6 Conclusion

Marine spatial planning is a process in which spatial planning entities analyze and organize human activities in marine areas to meet all sustainable development elements. It must be based on economic, social, and environmental principles.

A large number of countries around the world, especially in Europe, have established an MSP system. The reasons are multiple. Croatia's efforts to develop an appropriate legal framework for marine spatial planning are recognized in the continuous adoption of new implementing acts or amendments to existing legal and implementing regulations. A significant step was undoubtedly made with the adoption of the Act on Amendments to the Spatial Planning Act of 2017, which enabled the implementation of Directive 2014/89/EU in the Croatian legal system and prescribed the obligation to adopt very important plans, namely the Spatial Plan EFPZ and the Spatial Plan of the Continental Shelf of the Republic of Croatia. The deadline for adopting plans was March 31, 2021. As Croatia failed to adopt the plans within the prescribed deadline, one of the priority tasks in achieving the set goals in establishing marine spatial planning will undoubtedly be precisely that.

The authors also emphasize the importance of the Decision [6], to adopt the Action Programme of the Strategy for the management of the marine environment and coastal area: Monitoring and observation system for permanent assessment of the state of the Adriatic Sea (2021-2026) to review the environmental status and objectives. The importance of the connection between the marine spatial plans and the plans and the Integrated Coastal Zone Management Strategy is emphasized to ensure desirable and practical cooperation between the legislature, relevant stakeholders, and the public. The authors believe that establishing an appropriate legal framework would initiate the processes of activating the maritime and coastal space to bring sociological, economic, and environmental benefits for all stakeholders.

The use of GIS tools for MSP is important as it provides a source of data for all further analyzes and projects, and its usage results in a number of benefits. For example, GIS reduces planning and design errors, enables better community development planning, and assists in reaching complex decisions about the selection of activities to be carried out in a certain area.

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