

# Maritime Spatial Planning history in Romania

<sup>1</sup>Laura ALEXANDROV

<sup>1</sup>NIMRD G.Antipa, Constanta, Romania, Mamaia Blvd. 300,  
[laurenta@alpha.rmri.ro](mailto:laurenta@alpha.rmri.ro)

**ABSTRACT.** This paper presents the main experience gained in Maritime Spatial Planning which has been developed and improved during last 10 years in Romania, before and after the **EU Directive on Maritime Spatial Planning (2014/89/EU)** entering in force in Europe. The presented results, are starting with Plancoast Project (CASES, INTERREG III), coordinated in Romania by Ministry of Regional Development, Public Administration and European Funds. Based on NIMRD - Reports for Marine Environment Status (2010-2016) and the progresses registered after the Emergency Ordinance 18/2016 elaboration, about the Maritime Spatial Planning in Romania, the paper aims to contribute to 2014/89/EU Directive implementation wich plan to finalize the cross-sectoral maritime spatial plans preparing by 2021 in the Black Sea region, including Bulgaria, as main required objective to all coastal EU Member States.

**KEYWORDS.** Maritime Spatial Planning; MSP Projects; Black Seas; Romanian coast and marine space; marine research; maritime activities.

## I. INTRODUCTION

The process of terrestrial planning is imposed in present policy to answer to the global impact of climate changes prevention, the development and population mobility, international market standardization and to the necessity for boundaries states abolition. The territorial planning it is a process and take place at the continental national, regional, zonal and local level.

At the European level the field of Maritime Spatial Planning (MSP) was innitially considered part of the Integrated Coastal Zone Management (ICZM) and a sustainable development tool. From 2008, the definition of this concept has undergone significant changes. Due to ambiguities in the nomenclature of the maritime spatial planning process, there were different expressions of MSP synonyms, such as marine spatial planning, maritime spatial planning, “off-shore“ planning, maritime spatial development and so on.

In Romania, some projects related marine research, coastal and maritime spatial planning have been performed starting with 2016, by NIMRD Constanta (PLANCOAST, COCONET/FP7, ICZM/CBC-BLACK SEA JOP, CBC-JOP/SRCSSMBSF, SYMNET, NP II - ECOMAGIS, PERSEUS/FP7, CEMAR-NUCLEU-09-320302/2009-2012), by NIRD URBAN-INCERC (*Fundamental research for the Spatial Development Strategy Romania 2030, Zoning Plan Black Sea Coastal Area, Common Territorial Planning Methodology for Romanian-Bulgarian Cross border Area*), adding some others, performed by Maritime University Constanta (EsTADOR), “Ovidius” University Constanta (MARSEA), NIRD GeoEcoMar (regarding hazards and underwater heritage) and NIRD Danube Delta (PEGASO/FP7). According to the analysis conducted in the MISIS project ([www.misisproject.eu](http://www.misisproject.eu), NIMRD), further progress seems to have taken place. All these projects contributed to the assessing of the risks, vulnerabilities, main environmental variables, pressure impact, natural resources, including marine fisheries, maritime activities and uses, connections and interactions between land and sea. Almost all of these intitutes

arer in present partners of the MARSPLAN BS Project (2015-2017), led by Ministry of Regional Development, Public Administration and European Funds, Romania.

National Institute for Marine Research and Development G. Antipa Constanta have been involved more than 10 years in the activity of Maritime Spatial Planning and has in present under developing the projects, MARSPLAN, ECORYS and ECOAST.

The PLANCOAST project, CADSES-INTERREG III Program (2006-2008) implemented for the first time in Romania the concept of MSP, by NIMRD G. Antipa Constanta and URBAN-Proiect Bucharest and :

- developed pilot projects, in Romania, to show the usefulness and strength of spatial planning instruments for effective ICZM and maritime management: Sulina Study Case – the Danube gate – Middle Branch; Constanta Study Case–Harbor Area; EEZ maritime spatial planning
- contributed to the PLANCOAST *Handbook* on Integrated Maritime Spatial Planning (translated also in Romanian language) featuring MSP guidelines and tools.
- Elaborated the Romanian National Report on coastal and maritime spatial planning (Coman Caudia), which highlights the implementation process of ICZM and its tools; [http://www.nodc.org.ua/ukrncora/index2php?option=com\\_docman&task=doc\\_view&gid=77&Itemid=35](http://www.nodc.org.ua/ukrncora/index2php?option=com_docman&task=doc_view&gid=77&Itemid=35)
- PLANCOAST conclusions proved that the success of IMSP depends on co-operation across sectors and spatial scales, translating for the first time the Baltic and Adriatic basin experience in MPS to the Black Sea, (as part of Mediterranean Basin), for Romania and Bulgaria, too, having as partners the Varna City Hall and IOBAS..

## II. MAIN REASON, APPROACH AND METHODS

Romanian Black Sea coast is characterized by great instability, due to strong winds, waves, storms, open marine zone, with no sheltered areas, vertical and horizontal currents, variable temperature, salinity and density, the impact of Danube freshwater etc. Consequently, there is a strong bi-directional influence, between shoreline and sea and viceversa. All these specificities have been demonstrated by NIMRD studies and research.

NIMRD “Grigore Antipa“ Constanța HAS a long tradition of over 40 years in data collection, monitoring, in a network of established stations in the marine space. IT holds an Oceanographic Data Center and performs mapping of marine uses and coastal pressures, based on data collection. Using the Geographic Information System (GIS) enables a large number of relevant maps, which is why this kind of representation for marine and coastal space monitoring was institutionalized in European countries. The experience demonstrates that the national responsibility for the MSP Directive implementation has been recommended to belong to a single institution that can have local or regional branches. A focal point for the collection and distribution of marine spatial data is deemed useful and necessary. It has to receive financial and methodological support for this. The exchange of best practices, capacity building in the Black Sea region and the interest and confidence attracting from stakeholders belongs to the first targets of interest.

This approach of Maritime Spatial Planning (MSP) is supported by NIMRD by the activity of marine environment monitoring. The influence of rivers flowing into the Black Sea is similarly significant, along with the new pressures such as urban sprawl, tourism, shipping industry, use of natural resources, with a high impact on the marine environment.

At the Romanian coast, marine activities and uses are not separated from coastal activities and uses, but they overlap and greatly influence each other. Land pressures are high, affect the coast and, therefore, their integration is a prerequisite for joint regional measures.

The **major difference** between **land spatial planning** and **maritime spatial planning** derives from **different ownership** types: the marine area is of a public nature, is open to

everyone and to changes and all modes of use, while the land area, better structured and known, is divided into public property, private and state property. So far, NIMRD contributed to the first inventories of human activities on which the primary elements of maritime spatial plans were established.

The modern methods used and organizing the data on GIS informational support allowed the creation of new theme, temathical and integrated maps, enabling the information flow at local, regional, national and international level.

NIMRD has a team of specialists in the use of GIS, a significant endowment and created a Competence Center for Space Technologies - COSMOMAR for “*Space Technology for Sustainable Development in the marine and coastal area of the Black Sea*“. This aims to use space technology and remote sensing data to support the development of environmentally friendly bio-technologies, for technical solutions with applications in the space programs. Results can support local and regional economic initiatives, to be developed in the marine space, accessing opportunities offered by national or European spatial programs. The Center aims to collect and archive oceanographic data in order to maximize their use, promoting the exchange of information on national and international level.

A coastal law (Law no. 280, 24 June 2003, approving The Emergency Order of the Government no. 202/2002 for ICZM), put in place, maritime spatial planning. Existing uses and pollution hotspots were mapped since 2008 to develop a Maritime Spatial Plan for the Southern Romanian Black Sea as part of the PLANCOAST project ([www.PLANCOAST.eu](http://www.PLANCOAST.eu)).

The MSP Directive, was developed SINCE 2014, as part of the EU Integrated Maritime Policy and aims the sustainable development of the marine environment, being in accordance with mainly 2008/56/EC Framework Directive Marine Strategy.

In Romania, in 2015, the Maritime Spatial Planning activity was linked with:

- EU regulations elaborated concerning maritime space, in the frame of the Maritime Spatial Planning Directive 2014/89/EU,
- gained experience from previous years projects,
- new international projects approved and opened since 2015,
- nomination of the national authority for Maritime Spatial Planning in Romania.

### III. EXPERIENCES AND PROJECTS CARRIED OUT ON MSP

In 2009, the main purpose of the activity of maritime spatial planning in Romania has aimed to promote the Integrated Maritime Spatial Planning Manual (PSMI) *Handbook* to streamline the economic potential of coastal and marine areas in a uniform, continuous and sustainable way, avoiding conflicts and creating maximum of understanding and synergy between different stakeholders’ interests of maritime space. In this respect has been achieved:

- The terms identification and patterns defining for the *Handbook* of Integrated Maritime Spatial Planning dissemination, public and stakeholder involvement.
  - Stakeholders and groups of interest identification among specialists, planners, communities and social groups, policy makers and the general public.
- 1) **Implementation** of the *Handbook* has taken into account the dissemination, the beginning of the results exploitation starting with the identification of transmission and multiplication flow as planned process for individual users/groups convincing, to adopt and/or implement the included recommendations. For the gained and put in practice experience and recommendations elaboration the ICZM Secretariat needs for reactivation is noted, adding its specifically meetings and discussions.

- 2) **An informational support for a database creation** has developed; the results and practical examples were described regarding the maritime spatial planning, accompanied by graphics and thematic maps. For this goal achieving have been done:
- Informational support preparing, highlighting needs, requests and approaches;
  - Specific domains, parameters and indicators identifying;
  - New data collection and practical explanation of the main areas of interest, including terrestrial data, environment protection, including SPA-s, aquatic protected areas, land coast and agriculture surfaces;
  - Operational GIS system preparing to answer to MSP activities, offering mapping facilities designated to the complex spatial analyses, to the spatial information automatical generation, geographical coordinate processing and cartographical design/projection;
  - Vulnerable coastal locations identifying as analytic instrument in establishing zones with specifically kind of activities, developing knowledge on the cause-effect relation support for the sectoral plans development.

The results were presented at the NIMRD "Grigore Antipa" International Symposium "*Protection and sustainable development of the Black Sea ecosystem, imperative of the Third Millennium*", (October 29 – 30, 2009), on the International Black Sea Day, under the auspices of the Romanian National Committee of Oceanography (RNCO). They were dedicated to the combined effect of coastal erosion and global warming, including to Harbour activities (Fig.1), Tourism, Marine Transport, Industry, Energy, (Fig.2), Climate and anthropogenic impact (Fig.3), Coastal urban planning (Fig.4).



Fig. 1. Harbour activities; Fig. 2. Tourism. Marine Transport. Industry. Energy;  
Fig. 3. Climate and anthropogenic impact; Fig. 4. Coastal urban planning

During 2010, the maritime spatial planning studies and research as a process of analysis and allocation of spatial and temporal distribution of activities in the Romanian marine area were continued and developed, taking into account the fact that Maritime Spatial Planning (MSP) is an instrument used as innovative approach of Integrated Maritime Policy.

In this process, GIS applications and research in remote sensing satellite system were made. Based on the synoptic scale, the proposed aims were the understanding of the coastal processes of the Romanian shore and also the possibility for essential selection of different variants of planning solutions, in order to avoid predictable and unpredictable conflicts, at overall and sectorial levels. Some of the steps taken for these researches were:

- Realizing GIS base support and IT (GIS and ESRI-GIS station 9.3);
- Establishing GIS products, contours (shapes), primary thematic maps;
- Obtaining integrated thematic maps, regarding the integrated marine monitoring network, anthropogenic impact sources, coastal risks and vulnerabilities, including coastal erosion, operating activities, transportation and navigation lines, harbour platforms, coastal and marine protected areas, exploitable natural resources, suitable areas for marine aquaculture and for shellfish water quality;
- quality testing for programs and satellite images processing (BEST BEAT/VISAN, ERDAS IMAGINE)

Three case studies were developed in 2010 in the northern part of the Romanian coast, under direct and double influence of continental and marine factors. Establishing the reference area, identifying activities and pressures, assessing the anthropogenic impact were taken into consideration:

1) Case 1. Sulina - Musura Bay area, an urban type spatial complex, port, international waterway with sedimentation impact, included systematic planning spaces, wetlands, protected areas, areas of multicultural and archaeological interest, deltaic and marine tourist areas, with conflicting activities, stressing in particular the formation of a new land area, having territorial, political, ecological implications. These aspects are shown in Fig. 5-10.



Fig. 5-10. Sulina, urban area plan, (5, 6, 7), urban waters network systematization programs, coastal area/tourist beach and island territory under formation/Musura island, (8-10) Ships stranded on the sand belt at 1 m depth - in front of the Musura island and in the coastal area of Sulina - 14.04.2010; 4 km south of the Danube mouth in Sulina, impacting on the typical habitats and organisms.

2) Case 2. Sinoe Lagoon - Chituc Levee area and their related maritime space, including the coastal area of the Portița - Vadu sector, have traditional aspects of climate instability (hydrology, winds, waves, floods, droughts, storms etc.).

Coastal and marine activities are limited by the imposed status of protected area of the area, the dominant component remaining the fishing activity. The maritime waterways and different exploitations are more distant from the shore; in consequence, they have impact on natural resources in the offshore area.



3) Case 3. Maritime activities in the Periboina, Edighiol, Corbu - Midia-Năvodari industrial sector - Mamaia Sat, Tașaul-Corbu Lakes area (Natura 2000 site/ROSPA 0060) have predictable effects on the environment and living organisms, by emissions and transport of possible hazardous substances.

The obtained research results carried out by NIMRD Constanța proved the significant natural self-potential of the marine ecosystem.

Fig. 11. Integrated Map of Maritime Activities on the Romanian coast (Alina Spinu-NIMRD)

Zonal imbalances signals are still present and it is necessary to remove all the causes that produced them, which require the maintenance of monitoring, protection and careful planning measures (Fig. 11.)

The obtained results contribute to the current situation knowledge validation for coastal and marine areas, concerning the natural processes, new territorial structure issues, socio-demographic and economic activities (including industrial, ports, agriculture, tourism, energy, services). It is also important to maintain the operational type monitoring.

In 2011, the European Commission organized a public consultation for MSP (March to May), to know the opinion of Member States stakeholders. In March 2011, the Integrated Management of the Coastal Zone - ICZM Protocol entered into force, signed especially by Member States neighboring the Mediterranean. Within the FP7 project PEGASO, the study of the implementation and dissemination of this protocol was conducted. As a partner in this project, Romanian Danube Delta NIRD Tulcea, supported by NIMRD, actively contributed.

The objectives realized during 2011 implied the scientific and technical support for new case studies of the central and southern coast, main cities, resorts, marine protected areas: Mamaia Bay, Eforie and Vama Veche.

The studies were substantiated upon: collecting various information concerning the ecological aspects and human pressures and uses, including the assessment of their impact; describing the 10s pecific MSP steps according to the *Handbook for Maritime Spatial Planning* towards integrated spatial planning pursuant to European Directives and maritime policies; simple zonal approach of activities and resource use with the view to minimizing the impact on the marine environment.

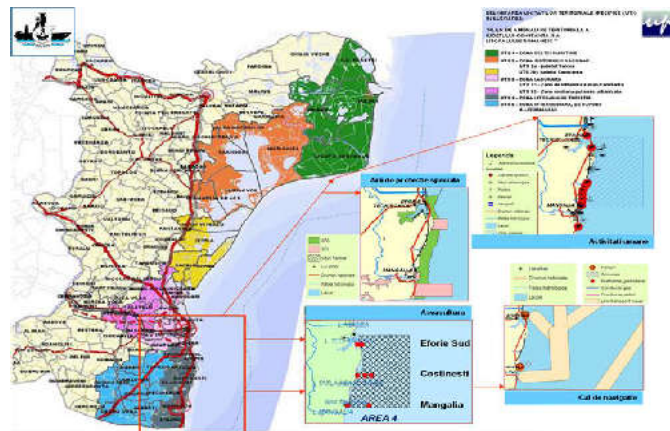


Fig. 12. Study area.  
Integrated theme map

The case studies approached lagoon area, highly anthropogenic coastal area influence of Danube, Constanța City domestic and harbour impacts, tourist littoral area, Midia Petrochemical Plant hydrotechnical works and pressure (Fig. 12).

They are all under the double and direct influence of natural continental and anthropogenic factors (new building areas, traffic communication routes, railways, tourist activities, shore consolidation works) and marine factors (erosion, algal blooms eutrophication, and mining and leisure activities, oil platforms, oil pipelines, shipping, anchorages etc.). All the above are located, surrounded or represented by settlements, SPAs, SCIs, RAMSAR sites, etc (Fig.13-20).

Case Study 1. Mamaia area: is a complex space exclusively for tourism-municipal planning-leisure of international interest, comprising areas undergoing land arrangement with double access to the coastal zone, lake (Natura 2000 site/SCI) and sea, affected to certain extents, by coastal erosion and industrial impact, against which there are protection plans already drawn-up (Fig. 13).

NIMRD performed studies for identifying the barren areas and specific biodiversity under the impact of traditional hydro-technical constructions, as well as for ecological rehabilitation solutions.

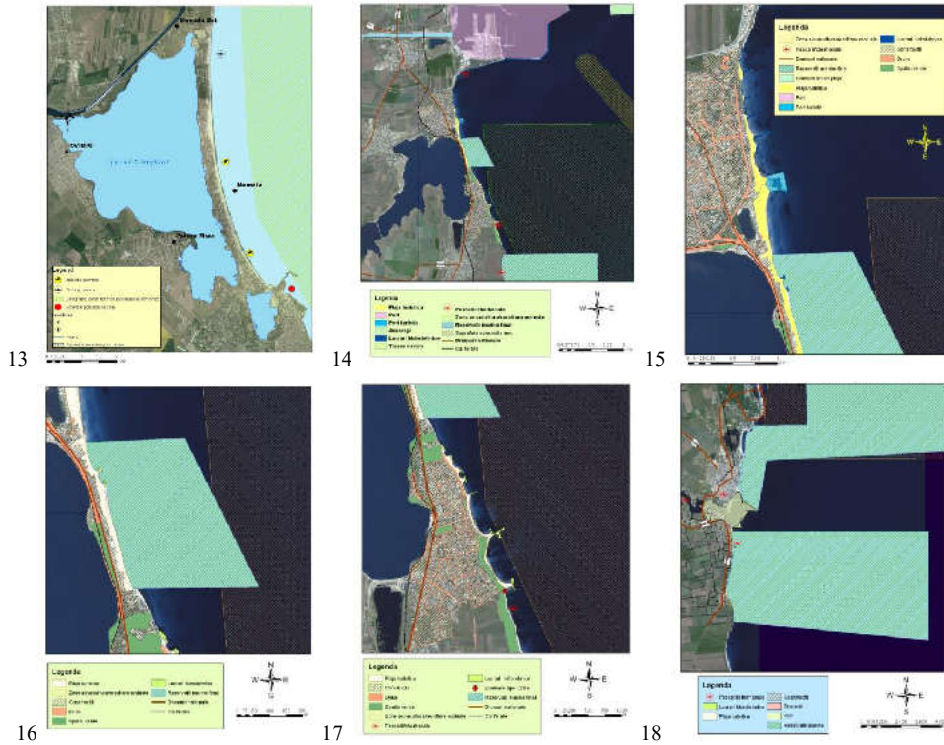


Fig. 13-20. Mamaia, Eforie North, Eforie South, Mangalia, Vama Veche (Alina Spinu-NIMRD)

Case Studies 2 and 3. Eforie North and South, as hydropathic-tourist resorts, currently have coastal arrangement plans, for shore consolidation and urban protection, areas with leisure harbor activities, constructions erected in risk areas, airports, hydrological networks, conflicting activities, national roads, unique community interest

protected areas (Lake Techirghiol) and land, ecological follow-ups (Fig. 14-17).

As shipping routes and maritime exploitations located at considerable distance from the shore, they impact solely on natural resources in the offshore area. The activities carried out in the maritime area have a predictable effect on the marine environment and living organisms, in case of assessing the emissions and the effect of potentially hazardous substances transportation.

Case Study 4. Mangalia - Vama Veche: case study focused on the area of great industrial and specific tourism interest. Tourist activities, harbor activities, coastal lakes, mollusk population areas (suitable for exploitation or for aquaculture), multicultural interest sites, wrecks, unstable climate areas, traditionally unstable hydrological areas (waves, floods, droughts etc.), traditionally unstable wind areas (strong winds, storms etc.) have been identified. In the extreme southern area, marine activities are limited due to the protected area status of the zone, mainly regarding fisheries (Fig. 18-20).

The assessment of the main functions and economic activities, meant to evaluate the type of relationships (conflict, negotiation, compatibility) in the study areas (Năvodari, Mamaia, Constanța, Eforie, Limanu and Mangalia) were focused on the main activities and coastal and marine uses: harbor activity, tourist activity, land and marine protected areas, waste discharge or storage areas, shipping routes, fisheries, coastal protection, tourism, leisure, services, land military zones.

The thematical plans of these are exercises and need continually updating MSP provides expertise and knowledge in elaborating long-term scenarios, as integral part of a vision created in agreement with coastal management requirements (ICZM). The results obtained during 2011 contribute to the validation of the current knowledge on natural processes, coastal land structure, certain industrial, harbor, tourist issues, characteristic for the maritime area (Fig. 21, 22 a-f)

The progress recorded in the field of MSP have been essential mainly for tracing the shore line, effective upon the establishment of the construction area from the shore line towards the land zone and the delimitation of private property from state property.

During 2012, ICZM and MSP definitions changed again and currently they are both tools for the sustainable development of the coastal zone, as follows:

- ICZM - is a tool for the integrated management of the coastal area, and
- MSP - is a tool and public process for analyzing and planning the spatial and temporal distribution of human activities in the maritime area.

The informational support (documentary and imaging) required to demonstrate that some of the important activities and marine uses, such as fisheries, can be seen as part of maritime spatial planning. Our studies included aspects related:

- Identification of the Common Fisheries Policy aspects;
- Inventory of European legislation, harmonization and implementation to Romanian conditions;
- Study of the Exclusive Economic Zone (EEZ), the role of zoning and reporting of legal issues, conflicts (essential components of MSP) on the application of environmental legislation for the protection of marine areas and exploitable resources at the Romanian coast and across borders.

The results obtained in 2012 can be summed-up as following (Fig.23):

- In the waters of seas and oceans, including the Black Sea, fish and other aquatic organisms are renewable exploitable natural resources that can be caught in terms of durability if rational policies are implemented.
- Through MSP, the exploitable natural stocks can not be reduced by future exploitation and overuse, the urgent moral duty of all is to advocate for conservation and operation policies in accordance with the carrying capacity of ecosystems.
- European policies recommend to apply global and integrated policies on the long term and short term, to maintain natural resources stocks for a long time.
- According to the European legislation this year (2012) started to rise the necessity to 1. Nominate the authority responsible for MSP; 2. Develop national norms; 3. Harmonize the European legislation and implement EU directives to national/local conditions; 4. Develop the capacity of translating data into GIS format in NIMRD. 5. Involve NIMRD



in making plans and activities in marine, coastal and cross-border areas, as national multidisciplinary marine research institute; 6. Cooperate with other institutions involved in marine component inventory and spatial plan development.



Fig. 21. Coastal zone;

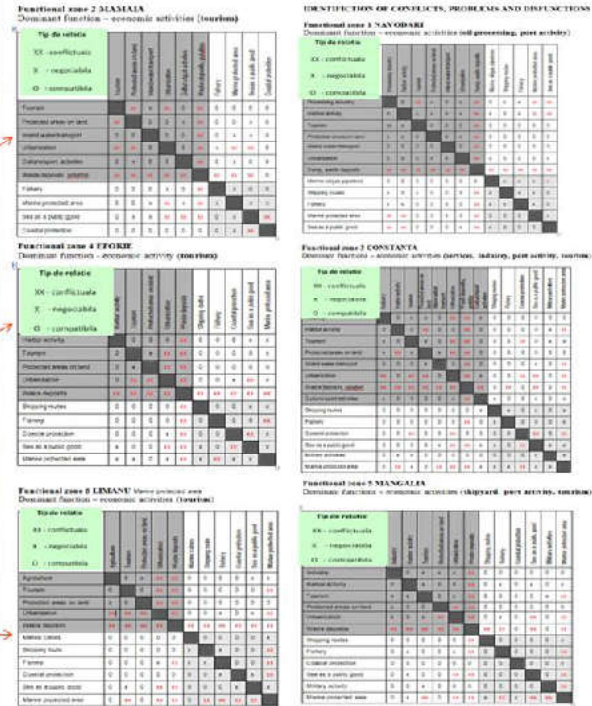


Fig. 22. a – f.  
 Conflict matrices in the studied coastal areas

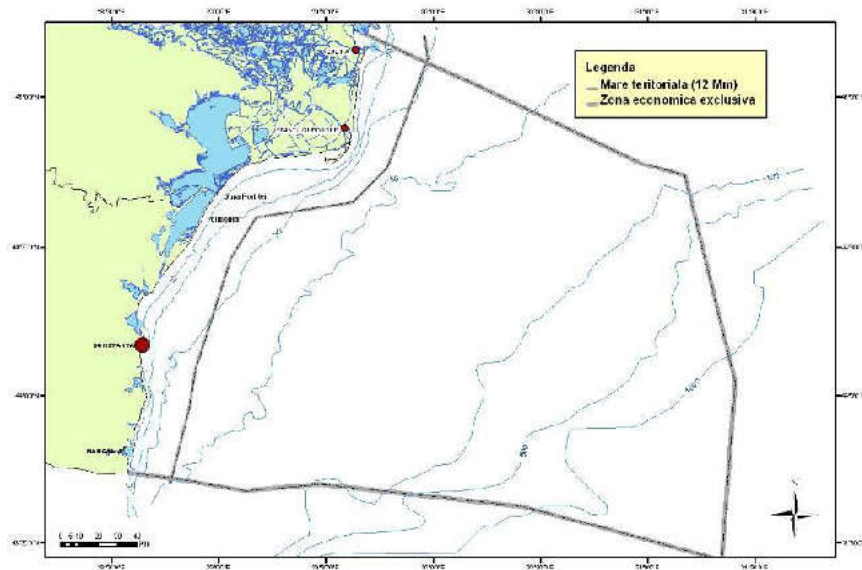


Fig. 23. Maritime Spatial Planning study area in Romania (Alina Spinu-NIMRD)

In 2013, the MSP was carried-out in strong relation with the information support and different competent authorities in the field. Main **opportunities were provided by the new regulations, norms and European legislation**, among which we mention the UE Framework Directive for Maritime Spatial Planning and Integrated Coastal Zone Management, EU Marine Strategy Framework Directive (MSFD - 2008/56/CE), Limassol Declaration (8.10.2012) for the Integrated Maritime Policy of EU member states.

The new proposed MSP and ICZM Framework Directive (EC - COM (2013) 133 final) was studied, aiming the national objective harmonizing with EU legislation, taking into local conditions.

According to the present Draft of ICZM and MSP Directive, NIMRD listed the main results obtained up to date corresponding to the articles stipulated in the MSP and ICZM Directive and agreed by the Ministry of the Environment and Climate Change, Ministry of Regional Development and Public Administration and Ministry of Transportation, Bucharest, Romania:

- Maritime space arrangement plans and potential contributions to elaborating the integrated coastal zone management strategy in Romania (*Art. 4,5,6,7,8*);
- Specific projects in the field of ICZM and MSP (Interreg-CADSES-PlanCoast, FP7/PEGASO, NATIONAL PROGRAM) dedicated to maritime space arrangement and integrated coastal zone management (*Art. 9*);
- Marine data and information collected in support of elaborating the coastal and maritime space arrangement plans within projects and continuous updates of data (*Art. 10*);
- Assessment of coastal and marine activities effects, including maritime space arrangement (*Art. 11*);
- Bilateral and multilateral cooperation between institutions of EU Member States and Black Sea basin riparian countries (*Art. 12*).

In this respect, NIMRD has the (for present and future) capability to:

- Actively collaborate with competent authorities for the implementation of this Directive (*Art. 14*) and participate in reporting the progress made (*Art. 15*);
- Support the entering into force of the Directive and contributes to harmonizing its articles at national/local conditions;
- Contributes to norms setting for transposing the Directive to Romanian marine and coastal zone (*Art. 18*).

**Existing and newly established bodies** for Integrated Coastal Zone Management (coordinated by the Ministry of Environment and Climate Change), Maritime Surveillance and Integrated Maritime Policies (Ministry of Transport), able to contribute to implementing European directives in Romania.

In the field of Integrated Coastal Zone Management, in compliance with the provisions of Romanian ICZM legislation, the National Coastal Zone Committee (NCCZ) continued its activity.

For Maritime Spatial Planning in Romania, the only operational expert group so far has been the interministerial group for implementing the CISE track sheet (*Common Information Sharing Environment/2010*), which set, the national information exchange, established by the interministerial committee on Integrated Maritime Policy, where NIMRD has been nominated with representatives for the fields of MSP, marine pollution, database and GIS. The **Technical perspective** demonstrates the ownership of **MSP knowledge/information** held by the Integrated Maritime Policy Committee, due to the data collected and stored and the experience of its members, in various maritime space fields of activity. In this respect, the Ministry of Regional Development and Public Administration leads land planning, with potential expansion in the maritime space. The Ministry of Environment and Climate Change

monitors the marine environment quality in coastal and marine areas. The Ministry of Transportation coordinates transport routes and shipping management. Other ministries cover all marine activities, water uses and the security of the Romanian Black Sea area.

The Ministry of Environment and Climate Change coordinates the National Coastal Zone Committee - MECC, hosted by NIMRD and defined responsibilities, for:

- Permanent connection and reporting at government and ministry level of ICZM/MSP data;
- Monitoring the implementation of EU directives on environmental issues and managing various EU projects in the field;
- Coordinating various authorities with responsibilities on integrated management of water resources, monitoring and marine fisheries management (national agencies);
- Involving institutions, stakeholders for coastal waters (tourism, shipping, industry etc.) under a single co-management "umbrella", in order to elaborate visions, strategies, actions plans, synergies;
- Creating archives to inventory environmental data concerning coastal and marine waters quality, the biopotential of natural resources, collected from research institutions and other relevant bodies, NGOs etc.;
- Fund raising and organizing various meetings with stakeholders, civil society, experts, students, local and regional professional groups etc.;
- Consultancy for useful data and case studies in coastal, marine zones and the Danube Delta.

The proposals for the future were the following:

- Developing the cross-border cooperation with the Bulgarian side, by expanding the MSP process at the southern border of Romania, between two EU Member States;
- Sharing the gained experience with the entire Black Sea basin, which is common for countries outside the EU, for a better overview of ICZM and MSP issues at regional level, exchanging information and knowledge, standardizing methods, with the aim of a coordinated and similar approach;
- **Initiative for PEGASO's contribution to the new governmental framework, by:**
  - o Involving corresponding authorities for the dissemination and expansion of the results obtained;
  - o Developing "geonode" type components, pilot cases and case studies etc.;
  - o Using the *Memorandum of Understanding* between the International Commission for the Protection of the Danube River (ICPDR) and the Black Sea Commission, for the particular case of the Danube Delta;
  - o Continuing the elaboration of new regulations for a better operation of interested authorities;
  - o Elaborating new project applications in the field of ICZM and MSP;
  - o Continuing to endorse the experience of countries with advanced knowledge in the field;
  - o **Creating a "virtual coastal information center", with informative character, which is going to be developed with the support of the National Coastal Zone Committee, the Technical Secretariat and working groups for delimiting the coastal zone, land planning and land arrangement.**

NIMRD continued to produce thematic and integrated maps of the coastal and maritime space, covering coastal waters, transitional and marine waters, coastal and marine habitats, marine protected areas, natural resources surveys and uses, pressures, maritime activities, tourism, resource extraction, shipping and transportation routes (Fig. 24-26).

Since 2014, the Maritime Spatial Planning activity was linked with the elaborated EU regulations concerning maritime space in the frame of Integrated Maritime Policy - IMP. In July 23, 2014 it was elaborated the Directive 2014/89 / EU establishing the frame of Maritime Spatial Planning. It underlined important objectives and stages for MSP plans applicable in all European Union countries and seas, including Romania (Fig. 24-26).

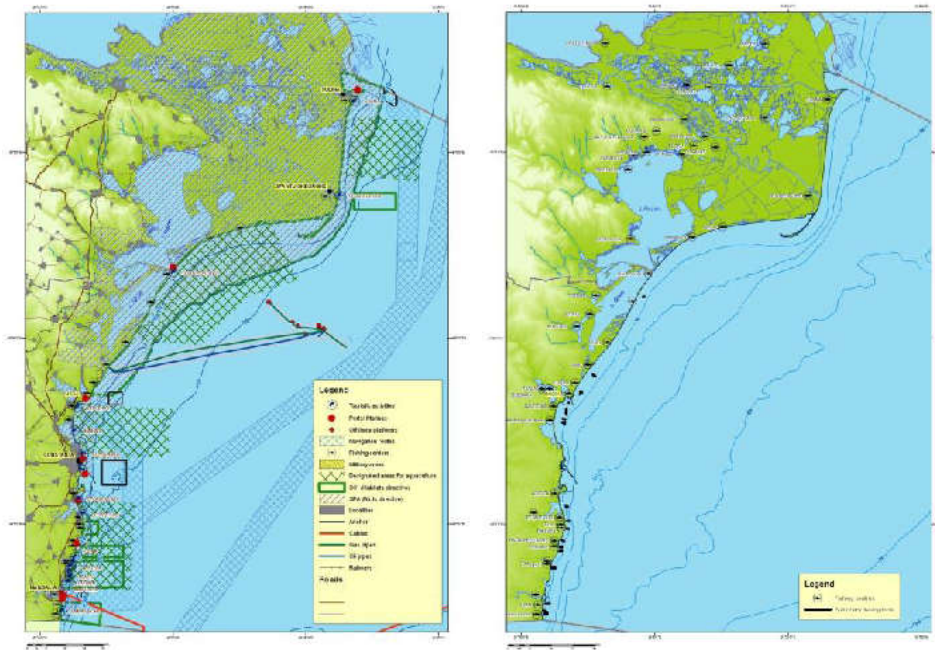


Fig. 24. Examples of Integrated MSP maps - main maritime uses (NIMRD Constanța, 2009-2014)

Fig. 25. Examples of Integrated MSP maps – fisheries (NIMRD Constanța, 2009-2014)

- Alina Spinu-NIMRD-

This MSP Directive, long debated, disputed and anticipated, was developed as part of the EU Integrated Maritime Policy and aims the sustainable development of the marine environment, maritime economy increasing and the wise use of natural resources of the oceans, seas, islands, coastal and marine areas, outermost regions and sectors, providing good environmental status, in accordance with 2008/56/EC Marine Framework Directive Strategy.

The debates organizing, stakeholder and public involvement in the decision making for MSP, in Romania, are extremely important, adding the transnational consultations, particularly with Bulgaria, as Black Sea countries and EU Member States. Maritime Spatial Plan must be elaborated and implemented by the mentioned ministries, specialized institutions for marine research, tourism, urban transport and different responsible for port areas, navigation, etc.

The study area was embodied in Romanian territorial waters and adjacent area (Fig. 26). The mapping exercise identifying the dominant sources of impact and pollution risk areas along coastline and on the sea.

The MSP Directive implementation is costly and challenging for authorities holding electronic maps and spatial databases; it was underlined during our contribution in preparing a project proposal under the coordination of Regional Development and Public Administration Ministry, project with a future significant contribution in the directive implementation. The data and metadata must be continually updated, current information

must be continually integrated. This will significantly improve the possibilities for spatial plan of coastal and marine zones.

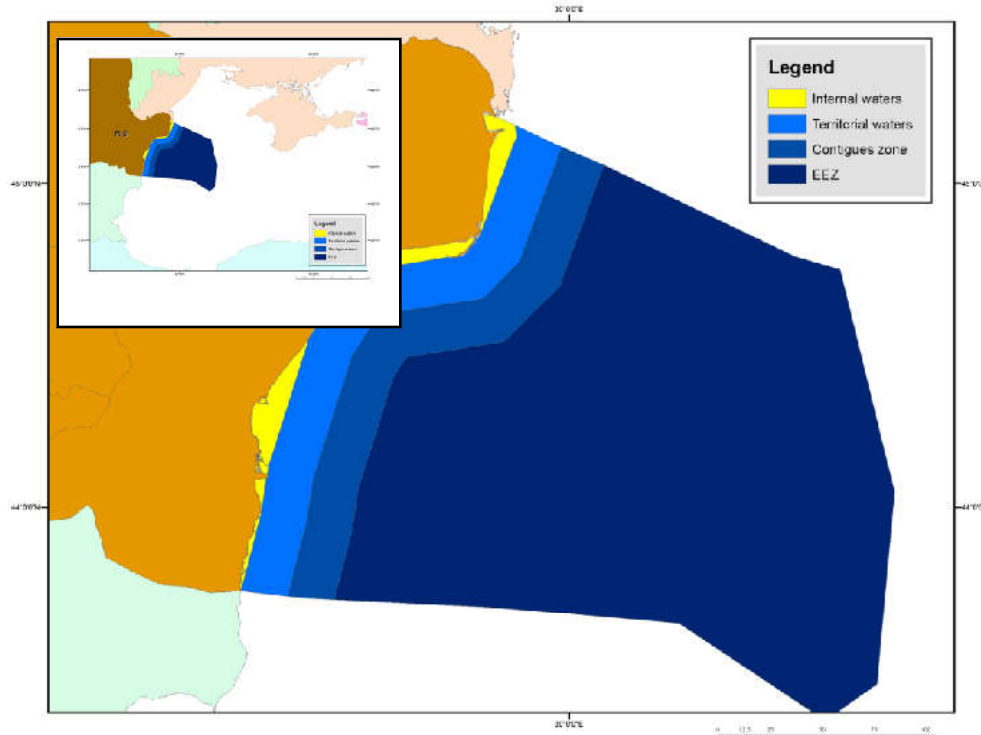


Fig. 26. Romanian marine waters: Baseline, Territorial waters and EEZ (Alina Spinu-NIMRD)  
Source: NIMRD "G.Antipa" Constanta 2016 (<http://www.msp-platform.eu/>)

**Basic facts on Marine Waters**, essential for the establishment of MSP National Plans

- EEZ and Territorial Sea between Bulgaria and Ukraine was agreed in 2009 after referring it to the International Court of Justice,
- EEZ and Territorial Sea between Bulgaria and Romania was not yet established,
- **Stocktaking of current activities.** The Romanian Coast is under pressure from increasing population density during summer season, urbanization for tourism purposes, marine transport, coastal erosion and pollution, mainly due so Danube influence and new building areas,
- Coastal industries and buildings have had negative effects by depreciation of the natural landscape, water quality, sandy dunes, vegetation and marine ecosystem,
- Other registered activities: agriculture; existing tourist ports expanding and upgrading: dredging activities; ports and shipping; port and underwater construction; shipbuilding; petrochemical industry, refineries; oil plants activities; mining industry: sand extraction; nuclear energy industry; windmills power plants installing only on the coast; airport and air transport; manufacturing industry; food products industry; steel processing industry; military and defense activities,
- Concerns: nature protection and recreation under the Habitats Directive,
- Future uses: Increasing interest as energy hub.
- Elaborated coastal plans were under public consultation stage and government decision; they are elaborated under EU rules for ICZM (Fig. 27, 28, 29).

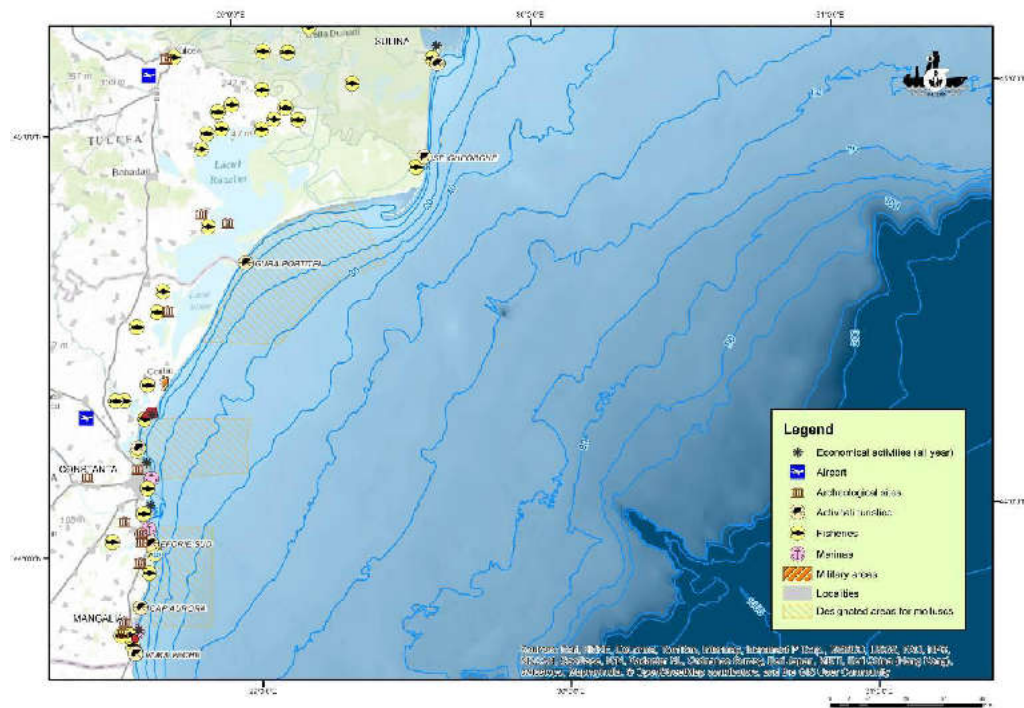
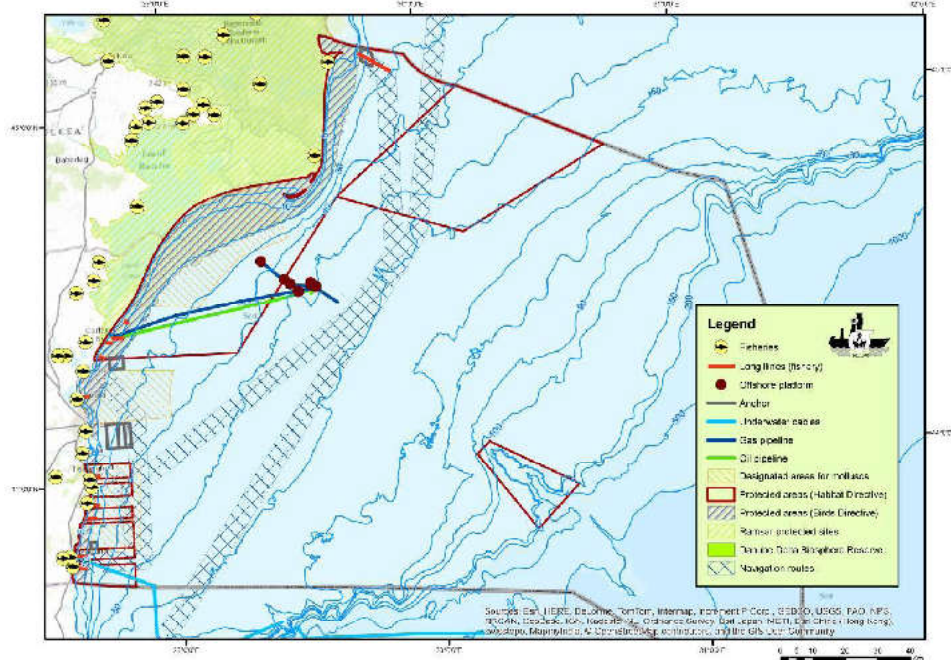
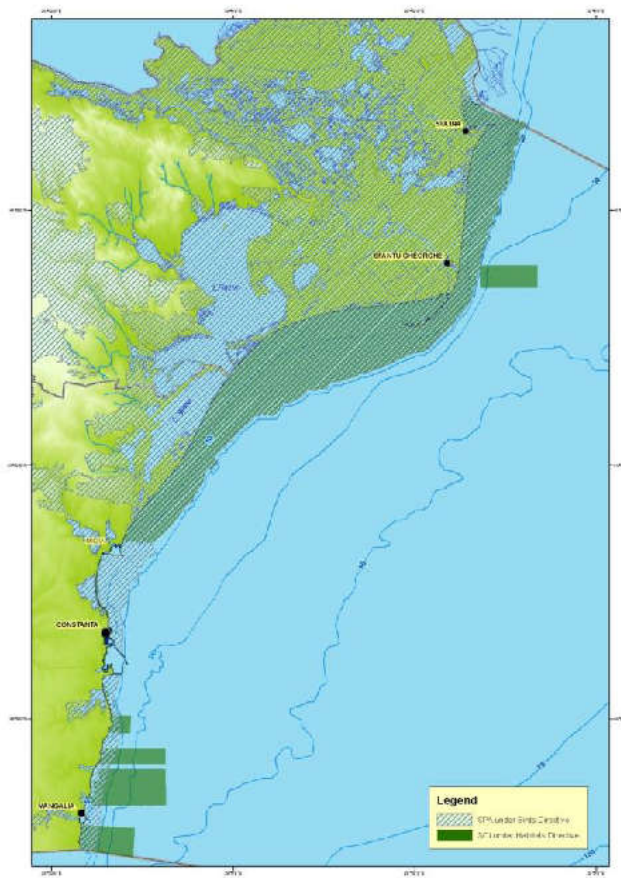


Fig. 27. Romanian coastal zone main activities: *tourism resorts, harbors, aquaculture*, 2016 (Alina Spimu-NIMRD)

All coastal and marine initiatives for development and infrastructures (private or official) had to be discussed and approved by the National Committee of Coastal Zone.





(Alina Spinu-NIMRD)

Fig. 29. Integrated MSP map–Marine Protected Areas (NIMRD Constanța, 2009-2014)

Fig. 28. Integrated thematic map showing coastal line, offshore oil platforms, gas and oil pipelines, navigation routes, Protected Areas according Birds and Habitats Directives, designed areas for molluscs, fisheries areas for fixed tools, local fisheries points. (NIMRD “G.Antipa” Constanta – 2016) (Alina Spinu-NIMRD)

**The minimum requirement for MSP:**

Plans for the MSP Directive implementing must be established competent authorities, commissions with duties on information changes in Romania, with the obligation in their communication to EU within six months after the entry into force of the Directive. For the member countries, including our country, there are planned the following steps:

- Directive came into force 20 days after its publication in the Official Journal of the European Union (28 August 2014)

- Transposition into Member States’ legislation and its regulations, according to the possibilities and needs of each country, will be performed till 18 September 2016,
- Marine spatial plans should be established at national level no later than 31 March 2021,
- The plans have to be reviewed at least once at every 10 years and should be continuously updated,
- The link between coastal and marine activities add to the need to consider interactions between terrestrial and marine waters was specified first time in 30 May 2002 on the implementation of Integrated Coastal Zone Management (ICZM) in Europe, followed by the ICZM Protocol elaboration in the Mediterranean basin (13 September 2010) and the Barcelona Convention (2010/631 / EU) setting,
- The MSP Directive requires the application of the ecosystem approach,
- MSP Directive does not interfere with the Member States competence for terrestrial or urban planning, including any land system or land planning.

In conclusion, the MSP Directive implementation becomes a priority for government, authorities, and research institutions, as well as for stakeholders of the marine environment; it is conditioned, by:

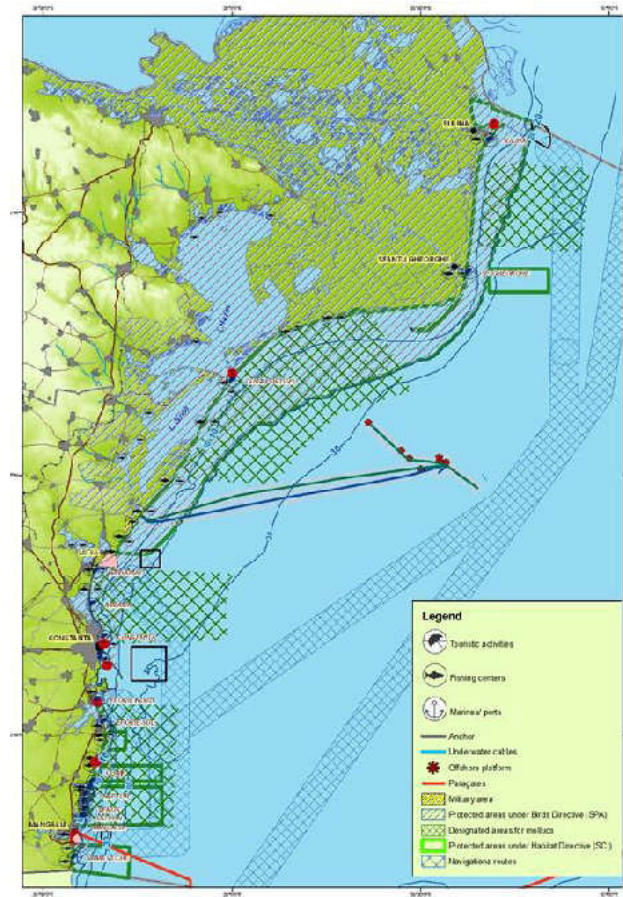
- Inventory of existing measures applied in coastal areas;

- Spatial and temporal distribution mapping of current and potential maritime activities;
- Existing tools and developed strategies using, established under EU projects and initiatives;
- Needs for further actions analyze regarding the coastal and maritime activities management;
- Coordination of maritime spatial plan and strategies for the Directive integration and review;
- Stakeholders and authorities consulting on maritime spatial plans and strategies with available results;
- Cooperation for MSP strategies consistency, with Member States and with third countries of the Black Sea basin, after designating authority/authorities for MSP.

During 2016 the activity of Marine/Maritime Spatial Planning (MSP) field was much developed, in parallel with MSP Directive implementation, national MSP authority nomination, being Ministry of Regional Development, Public Administration and European Funds and MARSPLAN BS Project on-going, elaborating a complete study analysis.

Elaborating the *Study on Complete Analysis within the Romanian and Bulgarian maritime space*, NIMRD had also the responsibility of Study Cases:

Fig. 30. Main maritime uses and activities (Alina Spinu-NIMRD)



Eforie and Marine Fisheries and Aquaculture under the MSP frame (Fig.36-37), taking into account the aspects of *Coastal Erosion and Land Sea interaction*, respectively *Special case of marine fishery and aquaculture under MSP – approaches towards integration*.

**The Eforie Case Study** aimed to follow the land-sea interactions with a special focus on coastal erosion within Eforie shore sector, thus identifying the impact of induced coastal erosion by built environment/port infrastructure on maritime space / ICZM / tourism, and a suitable solutions for the harmonization of the tasks related environmental protection/biodiversity conservation of all surrounding lakes, wetlands and effective use of natural resources. It was planning to underline and evaluate some pressures and conflicts, based on literatures, local authorities consultation and stakeholders' meeting.



Identified potential barriers are a lack of spatial explicit information on fisheries related parameters such as:

- occurrence of productive areas,
- habitats relevant for recruitment and spawning of target fish, or
- priority areas for fish stocks concentration and for fishing.



Fig. 31-33. Study on Marine Space MSP initial assessment; Study Case Eforie, Study Case Marine Fisheries and Aquaculture

During 2016, NIMRD was involved in the European PLATFORM MSP activity, as partner of **DG MARE/2014/23 Project, Assistance in MSP**, supporting all information about MSP of Romania and Black Sea Basin (<http://www.msp-platform.eu/>). Fig. 34-35.

- 1) Under this project umbrella, NIMRD was nominated and has developed an activity as **MSP Focal Point for Black Sea Basin** (European MSP Platform/DG-MARE) since 2016.

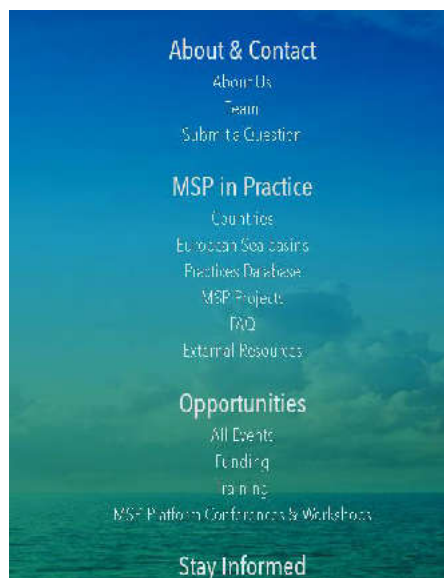


Fig. 34. European-MSP Platform



Fig. 35. European-MSP Platform Focal Points

2) NIMRD contributed to the elaboration of **MSP Country Fiche, Black Sea Fische, Romanian MSP Projects Fishes, MSP Practices** and other inventories, with MSP aim like conferences, workshops, meetings, trainings, etc. (European-MSP Platform Practices). (<http://www.msp-platform.eu/>)

3) NIMRD has spread EU-MSP Platform information at international (European and Black Sea Countries) and national level (national, regional and local and professional communities)

4) NIMRD has given its contribution to the main studies elaborated by the EU-MSP Platform team, including that dedicated to "Evaluation of data and knowledge gaps to implement MSP" (MSP Data Study) aiming to provide administrative and technical assistance to Member States in the implementation of the Directive 2014/89/EU, for:

- Analyse, per Sea Basin, data for MSP purposes, in actually use, technical and political issues concerning accessibility and availability of the data;
  - Delivering a basis for common knowledge across the Black Sea Basin by providing Member States experiences and any innovations made;
  - Considering the existing data collection mechanisms, data products and metadata from diverse sources in a uniform way through the Black Sea Region Marine Observation and Data Network (EMODnet), potential EMODnet sea basin portal, aiming to help coordination of MSP at a regional level;
  - Evaluating the potential revisions to be made concerning INSPIRE specifications for MSP purposes.
- 5) Based on all of these, NIMRD started to contribute to the Romanian MSP Data Base with its own data, which is a very difficult and tramandous work, taking into account the aim, under the leadership of Ministry of regional Development account the aim, under the leadership of Ministry of regional Development, Public Administration and European Fuds; this is focused on:
- Analysis of planners' needs,
  - Detailed review of projects and initiatives with relevance to MSP data needs,
  - Detailed review of data infrastructures with relevance to MSP data needs.

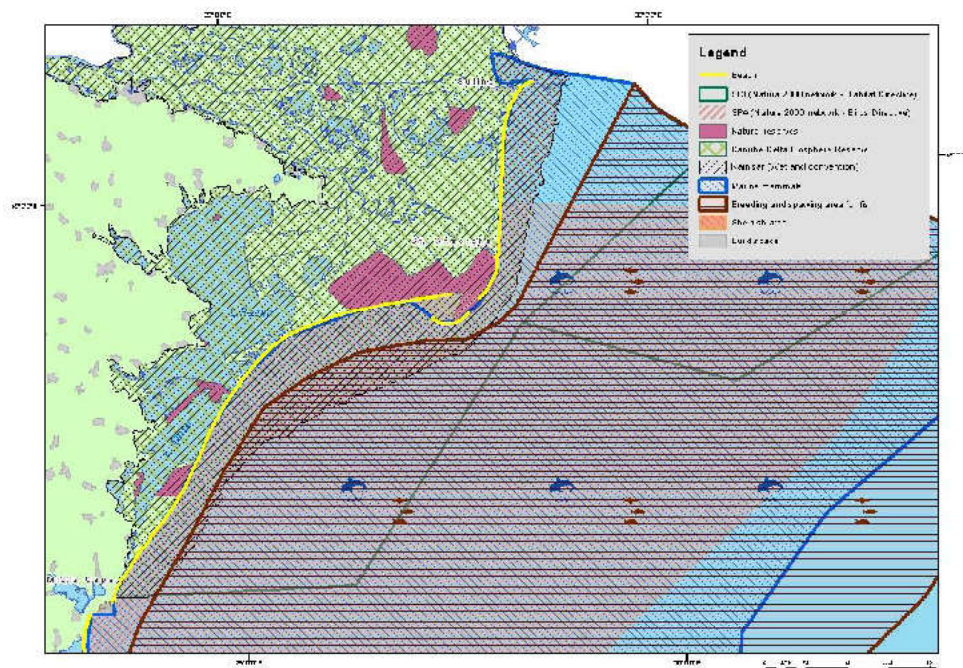


Fig. 36. Natural Resources – Romanian sea space - northern part (Alina Spinu-NIMRD)

The steps of investigation, planned by EU-MSP Platform, are:

- *Data categories*: overview of data and information categories and datasets commonly used in the MSP processes;
- *Data infrastructures*: overview of data infrastructures with potential relevance to the MSP process;
- *Complete projects / initiatives*: analysis of complete EU projects and national initiatives identifying important MSP data-related outputs;
- *Ongoing projects / initiatives*: analysis of ongoing EU projects and national initiatives identifying important MSP data-related outputs;
- *Knowledge gaps*: preliminary list of known data deficiencies and knowledge gaps.

6) NIMRD has planned the infrastructure development for **MSP Focal Point Development**, opening a MSP site and GIS MSP Portal for an active contribution to EU MSP Platform.

7) European MSP Platform, including NIMRD, has been involved in:

- International MSP (including DG MARE) Events organisation and participation,
- MSP programs and documents preparing for MSP Members States Experts Groups.
  - *Coastal and Marine Natural Resources*: Natural living (fish, shellfish, algae,) and non living resources (oil, gas, gravel, sand, water resources, soils, beaches, etc.), Fig. 36, 37.

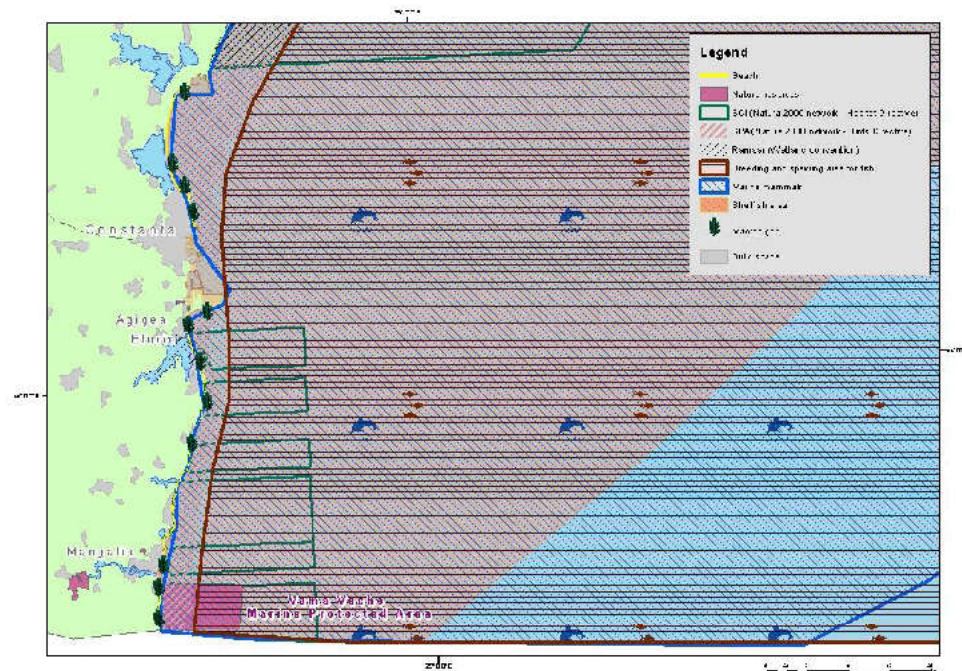


Fig. 37. Natural Resources – Romanian sea space - southern part (Alina Spinu-NIMRD)

#### IV. CONCLUSIONS

The maritime activities carried out the Romanian littoral were limited and little known in relation to the coastal area, as the Romanian coast has an unique geographical status, typical open sea, with an instability degree strengthening the administrative capacity; setting the appropriate mechanisms for the promotion of the tight collaboration among all stakeholders. Most than this, the number and fields of maritime activities are comparable reduced with other developed countries in Europe.

Till 2016, in Romania, three main beneficiary ministries or played the role of partially using of European Directives for maritime space, but coordination role of MSP is being developed to be established. These ministries are:

- Ministry of Environment, Waters and Forests, as coordinator of the National Committee of the Coastal Zone (NCCZ / 2004) in accordance with the Law 202/2002 for Integrated Coastal Zone Management;
- Ministry of Transport, with the inter-ministerial group for the implementation of the roadmap for information system creation and exchange on national maritime space (by Maritime Surveillance Commission - CISE established in 2010), and the inter-ministries committee on Integrated Maritime Policy initiative (hereinafter IMP Committee/2014, including MSP);
- Ministry of Regional Development and Public Administration, responsible for territorial planning in Romania.

Each of these ministries could assume the MSP responsibility and coordination.

Considering the experience of the last 10 years, gained in various projects or based on national legislation on Integrated Management of Coastal Zone, discussions and debates in the MSP in Romania have made progresses, also by NIMRD's contribution; it is exemplified:

- Achieving a better delimitation of the coastal zone,
- Creating better links between marine and coastal environment (erosion control, beaches quality)
- Improving the management information about the vicinity areas of beaches, including the habitats description, established marine protected areas, location of specific activities (e.g. fishing)
- Increasing efficiency in the preparation of documents for MSP decisions makers.

The main **objectives for maritime spatial plans and integrated coastal management strategies** consisted in **ecosystem-based approach**, facilitating the co-existence and **prevention of conflicts** between competing activities in marine waters and coastal zones, nominating needs:

- Common requirements for maritime spatial plans and integrated coastal management,
- Inventory of existing measures applied in coastal areas and the analyze of the need for further actions, to achieve the set objectives,
- Integration and implementation of inter-sectorial policies and interactions between land and sea activities,
- Identification of the purpose and objectives of spatial plans, etc.

Due to the 89/2014/MSP Directive entering in force, in Europe, also in Romania the legislation started to be harmonized. Since 2016, the Emergency Ordinance 18/20.08.2016 permitted to officially define the MSP field in Romania.

The MSP action plan drawn-up points out the management objectives of the studied areas, aiming at: sustainable development; conservation of important species and ecosystems, including landscape issues as well; increasing tourism attraction by expanding the holiday season; developing eco-tourism, promoting natural, traditional, historical and cultural values of the region; creating opportunities for the development of the local economy.

In parallel with MSP authority establishing, it started to be planned the MSP legislation drafting; the national authority organizing and the establishment of groups of specialists and expertise are followed, aiming the directive implementation preparing. The collection of available data from all data suppliers (involved and interested in the coastal and marine areas) is started.

Starting with PlanCoast Project, leaded by s.Pro experts, Germany, NIMRD continually developed MSP Projects

- National Program CEMAR – Conservation of the marine ecosystem and its sustainable use promotion – developed during 2010-2014, under the Ministry of Education and Science Fund, the Project PN 09-320302/2010-2014, “*Preparation of the information support and database up dating to sustain an Integrated Maritime Spatial Planning Strategy*”, Contract 32N/ 27.02.2009 – <http://www.rmri.ro/Home/Downloads/Programmes.NationalProjects/Raport%20Nucleu%202009-2015.pdf>

In present, NIMRD contributes to three important international projects, in developing:

- DG-MARE 2014/24, MARSPLAN (2015-2017) as the first project on MSP in the Black Sea basin is preparing an initial assessment and a cross-border cooperation in MSP between Bulgaria and Romania. Relevant experience in cross-border planning has been gained by the strategic project – *Common territorial strategy for the cross-border area Romania-Bulgaria* implemented during 2012-2015 ([www.spatial.mdrap.ro](http://www.spatial.mdrap.ro)).
- DG-MARE 2014/23, ECORYS Project, *Assistance Mechanism for the Implementation of Maritime Spatial Planning* (2015-2016) is a new project started in December 17, 2015, which provide technical assistance and advice for the implementation of the MSP Directive and the establishment of the plans, through the web-site and through a network of focal points, one per sea basins in Baltic, North Sea, Atlantic, Western Mediterranean, Eastern Mediterranean, and also Black Sea. The MSP focal points should keep themselves informed of all development in the sea basin of their responsibility.
- COFASP – ECOAST Project (2016-2019) it is also a new one, approved in 2015, for 2016-2019 period development. ECOAST project plans to identify, develop and test *new methodologies for spatial and temporal management of fisheries and aquaculture*, including essential fish habitats and conservation priority habitats, as well as synergies and conflicts between human activities in the sea space.

## REFERENCES

- Alexandrov M.L., Coman C., Golumbeanu M., Mateescu R., Vasiliu D., Rosioru D., Cernisencu I., Tofan L., 2008 – *Specificity of Romanian Black Sea Coast. Changes under Climate and Human Impact*, NATO Science for Peace and Security Series C: Environmental Security. Regional Aspects of Climate-Terrestrial-Hydrologic Interactions in Non-boreal Eastern Europe, (ISSN1874-6519/print1874-6543/Online), <http://www.springerlink.com/content/r5gl86452p623x7p/>
- Alexandrov M.L., Nicolaev S., Mateescu R., Bologa A., Staras M., Spinu A., Abaza V., Zaharia T., Golumbeanu M. – *Integrated approaches to risk mitigation targeting conservation and sustainable development along the Romanian Black Sea coast*, Marine Nature Conservation and Management at the borders of the European Union, ISBN 978-3-8329-6351-4, Nomos Verlagsgesellschaft, 2011
- Begun T., Muresan M., Zaharia T., Dencheva K., Sezgin M., Bat L., Velikova V., 2012. Conservation and Protection of the Black Sea Biodiversity. Review of the existing and planned protected areas in the Black Sea (Bulgaria, Romania, Turkey) with a special focus on possible deficiencies regarding law enforcement and implementation of management plans. EC DG Env. MISIS Project Deliverables
- Coman C. (Black Sea Coastal Centre): *Integrated coastal zone management in Romania*, (Climate of Coastal Cooperation, EUCC, 2011)
- Golumbeanu M. & Nicolaev S.(editors), 2015, *Study on Integrated Coastal Zone Management*, 454p, Ex Ponto Publishing House, 2015, Original English version © 2015, All rights reserved ISBN: 978-606-598-397-7, CIP: 579.68, 65.012

Laura Alexandrov

---

Mateescu R, Spinu A., Alexandrov M.L., Iordache G.: *Criterii metodologice de delimitare a spatiului public din zona costiera*, Buletinul Directiei Hidrografice Maritime, vol II/2010

Schultz-Zehden Angela et al (2008): PLANCOAST Handbook on Integrated Maritime Spatial Planning (<http://ec.europa.eu/ourcoast/index.cfm?menuID=7&articleID=307>, accessed on 03/09/2014

MANUALUL Planificarii Spatiale Maritime Integrate, varianta in lb.romana, [www.PLANCOAST.ro](http://www.PLANCOAST.ro), 2009

xxx National Institutes for Research and Development (NIRD) Reports

xxx NIMRD Reports on Marine Environment Status 2008-2016 [http://www.rmri.ro / Home/ Products.EnvStatusReport.html](http://www.rmri.ro/Home/Products.EnvStatusReport.html)

xxx NIMRD Reports for Marine Environmental Srtatus

[http://www3.moew.government.bg/files/file/Legislation/Naredbi/vodi/N\\_morskite\\_vodi.pdf](http://www3.moew.government.bg/files/file/Legislation/Naredbi/vodi/N_morskite_vodi.pdf)

<http://www.perseus-net.eu/site/content.php> accessed on 04/09/2014

<http://www.coastalcooperation.net/part-I/I-3-1.pdf>, accessed on 04/09/2014



**Laura Alexandrov:** Senior Researcher I - National Institute for Marine Research and Development “G.Antipa”, Constanta, Romania; graduated in Fisheries and Aquaculture technologies and has PhD in Industrial Engineering at University “Lower Danube”, Galati. Postgraduated in: Marine Ecology, Aquaculture and Marine Spatial Planning (MSP), ecological effects of pollution (UKA), Maritime Spatial Planning(Belgium), recirculated system (France), fisheries and environment development (Japan), eutrophication (Swiss), fisheries production and management (Israel, Turkey). Representative of MSP Focal Point for the Black Sea under the MSP Platform. NIMRD project coordinator: MARSPLAN BS Project. PlanCoast-INTRREGIII, Tasaul-ESTROM, PEGASO-FP7, SRCSSMBSF-JOP Black Sea-CBC, ECOAST-COFAST. She has been lector affiliated to the University Constanta “Ovidius” Constanta and to Balkan Training Centre (BENA). She is member of Romanian CISE Commission for Maritime Surveillance (under the Ministry of Transport coordination); member of the National Committee of Coastal Zone (coordinated by the Ministry of Waters and Forests) and member of the Scientific Council of NIMRD “G.Antipa”. Author of more than 80 publications.