



METHODOLOGICAL HANDBOOK ON MARITIME SPATIAL PLANNING IN THE ADRIATIC SEA





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Shape partners



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SUNSET IN VENICE LAGOON - PHOTO BY THETIS

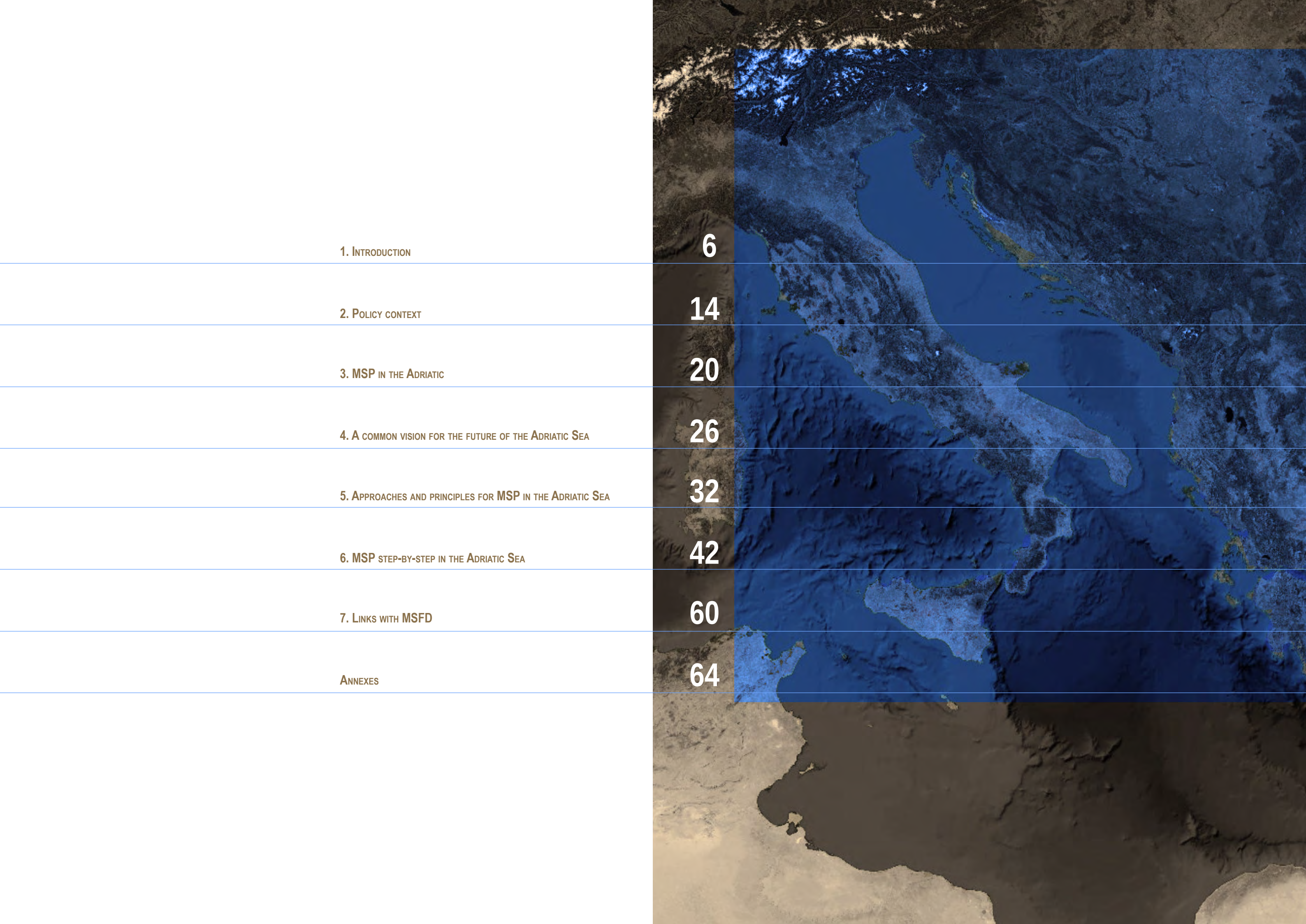
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Introduction



The Adriatic Sea

The Adriatic Sea is a semi-enclosed sea with a surface area of about 138,600 km² and a volume of 33,000 km³; its shape can be approximated to a rectangle extending north-northwest, about 800 km long and 200 km wide (Gacic et al., 2001). Adriatic oceanographic properties are influenced by geographic, orographic and bathymetric characteristics of the basin as well as by interactions with the rest of the Mediterranean Sea. To this regard, with total annual average reaching about 5,700 m³/s river inputs play a significant role, in particular in the north-western part of the basin where Po river accounts for about the 28% (1,585 m³/s) of the total annual river contribution and where other relevant rivers flow (e.g. Adige and Brenta). The second most relevant freshwater inflow comes from the Albanian rivers, however having a weak influence on the circulation in the region (Gacic et al., 2001). The Strait of Otranto (72 km wide and 780 m deep) ensures the connection with the rest of the Mediterranean, thus enabling water exchanges and influencing the circulation pattern between the Ionian and the Adriatic Seas.

The Adriatic Sea bathymetry is also characterised by important transversal and longitudinal differences. The North Adriatic sub-basin (extending between Venice-Trieste and Ancona-Zadar lines) rarely exceeds the depth of 100 metres and its north-western part is particularly shallow. The depth firstly increases slowly southward and then sharply reaches about 270 m of the Middle Adriatic Pit (also called Jabuka Pit or Pomo Depression). Further to the south, the seabed rises to the Palagruza Sill (about 170 m) that separates the Middle Adriatic Pit from the much deeper South Adriatic Pit (and the Middle Adriatic sub-basin from the South Adriatic sub-basin). This pit marks the deepest part of the Adriatic Sea with a maximum depth over 1200 m. Further south the seabed rises again to the Otranto Sill (about 780 m).

The Adriatic Sea is bordered by six coastal states; three are EU countries (Italy, Slovenia and Croatia), one is a EU candidate country (Montenegro) and the other two are EU potential candidates (Albania and Bosnia and Herzegovina). The Italian coasts are relatively smooth and regular, in particular in the north-western part of

the basin, while the eastern part of the coast (mainly in Croatia) is characterised by an irregular bottom that increases sharply in the offshore direction and a high number of islands and islets (in particular along the Istria and Dalmatia coasts) (Gacic et al., 2001).

The eastern side is also characterised by the close proximity of the Dinaric Alps, while in the western side the main orographic reliefs (the Apennine) are more distant from the coast. North-western coastal areas also includes large wetlands (as the Po delta and Venice lagoon) of high ecological relevance.

The Adriatic Sea, one of the most valuable inland seas of the world, is strategic for the wellbeing and prosperity of all the countries facing this basin, as also stressed by the EC Maritime Strategy for the Adriatic and Ionian Seas (EC COM(2012) 713) and the on-going initiative drafting the overarching EU Strategy for the Adriatic and Ionian Region - EUSAIR.

This marine region has a relevant ecologic, economic and social value, as route for maritime transport, food and energy source, site for residence and recreation, destination for coastal and marine tourism, relevant site for nature protection and biodiversity preservation, climate regulator, area for cross-border cooperation, site for innovative ad cross-border research, etc. However its coastal and marine areas are experiencing increasing pressures due to growing human activities; these often come into conflict with each other and with needs of habitats and landscapes protection. Human uses compete each other for vital space and natural resources, threatening some of the most sensitive and precious habitats of the Adriatic Sea. Global challenges as climate change and the related sea level rise could in future strongly affect Adriatic coastal and marine areas, exacerbating current problems with effects often going beyond national or regional boundaries.

The Shape project

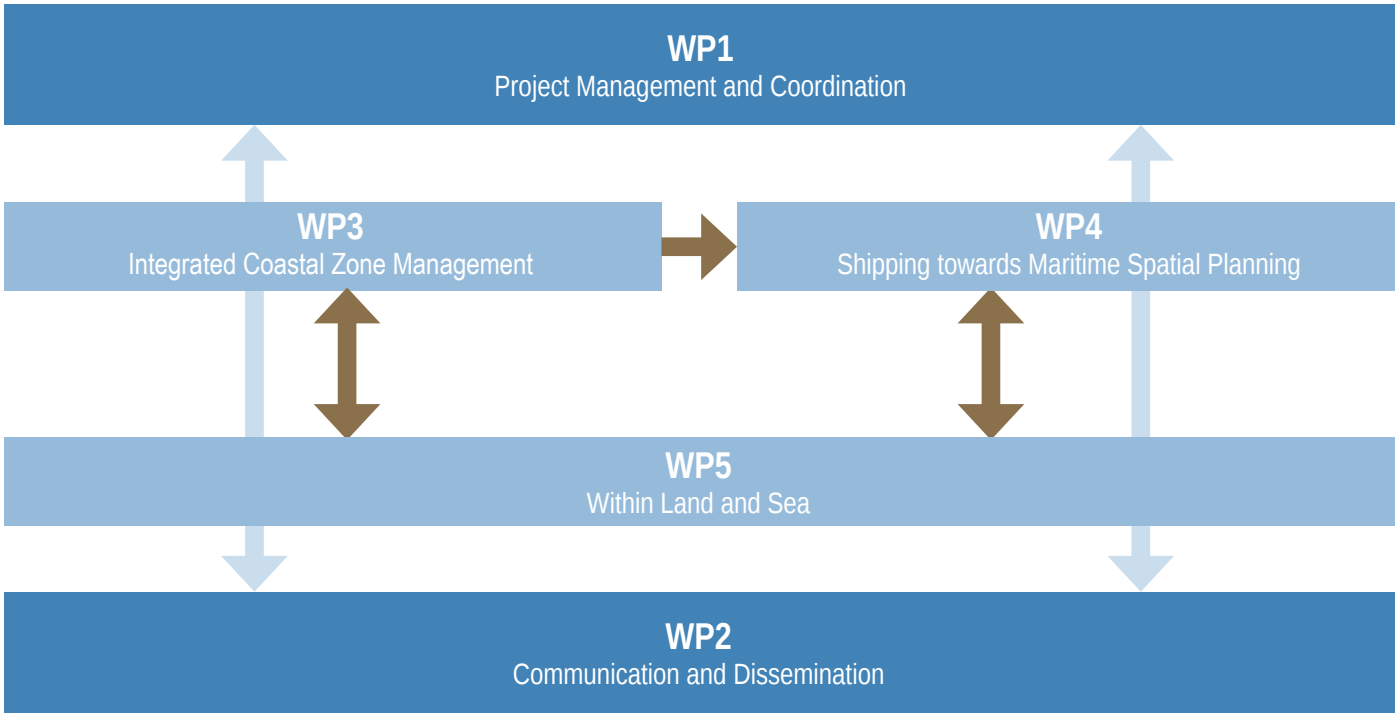
The increasing attention on issues related to the maritime and coastal development has led the international communities to create specific approaches for the management and planning of these spaces, as in particular Integrated Coastal Zone Management (ICZM) and Maritime Spatial Planning (MSP), strongly supported by the European Union and Mediterranean transnational organizations such as UNEP-MAP. Shape “Shaping an holistic Approach to Protect the Adriatic Environment between coast and sea” is a project co-funded by the IPA Adriatic Cross-border Cooperation Programme of the European Union, involving thirteen partners representing the Italian Adriatic regions, countries of the eastern Adriatic border and the UNEP-MAP Priority Actions Programme - Regional Activity Centre (PAP/RAC). Partners involved in Shape recognise the Adriatic Sea as a single water body. In this perspective, the project aims to develop a multilevel and cross-sector governance system for the Adriatic Sea, based on an holistic approach and aiming to: integrated management of natural coastal and marine resources, risk prevention and conflicts resolution among uses and users. In line with EU horizontal and vertical policies and in the frame of the IPA Adriatic programme’s strategy, the project promotes the strengthening of the institutional capacity needed to face these challenges. The focus is on Integrated Coastal Zone Management and Maritime Spatial Planning; project activities wish to promote the application and successful implementation in the Adriatic Region of the ICZM Protocol in the Mediterranean (UNEP/MAP/PAP, 2008) and the EC proposed Directive establishing a framework for MSP and ICZM (EC COM(2013) 133). The Shape project is structured in 5 Work Packages:

- WP1 - Cross-border Project Management and Coordination; focusing on achieving and assuring an efficient and effective transnational project coordination and financial management.
- WP2 - Communication and dissemination; addressing the wider public and all interested stakeholders on ICZM and MSP, EU and Adriatic

- policies, national and local frameworks, and aiming to promote coordination with other similar initiatives within the EU context.
 - WP3 - Integrated Coastal Zone Management; bringing regional partners together for successful cross-national and cross-sectoral cooperation within the ICZM framework, referring in particular to the UNEP-MAP Protocol on ICZM in the Mediterranean.
 - WP4 - Shipping towards Maritime Spatial Planning; aiming to support MSP evolution in the Adriatic basin through the creation of an ad hoc methodology for maritime planning and testing of MSP at the regional and local scale by common data processing, mapping and pilot actions.
 - WP5 - Within land and sea; promoting integration between ICZM and MSP in the Adriatic, in particular through the development of a demonstrative Web-GIS Atlas at the basin scale.
- MSP is specifically addressed by WP4, that is articulated in five actions dealing with the following topics: (i) analysis of the legal and policy framework in a multi-scale perspective (from the European to the regional level), (ii) ecosystem assessment based on MSFD requirements as basis for MSP, (iii) analysis of problems and opportunities related to MSP implementation in the Adriatic Sea and mapping of main Adriatic Sea uses, (iv) pilot projects on MSP and its integration with ICZM and MSFD, (v) development of a common methodology for MSP in the Adriatic Sea.



Shape partners



Shape project structure

Shape event	Focus
Kick-off meeting May 2011, Bologna, IT	Communication tools and activities Project activities on MSP and ICZM
Shape international meeting February 2012, Bari, IT	International context for MSP and ICZM Legislative and policy framework for MSP and ICZM Adriatic experiences on MSP and ICZM at the regional and local level
Shape international conference June 2012, Venezia, IT	International experiences and best practices on MSP and ICZM Experiences on MSP in the Adriatic Sea Adriatic Stakeholders round-table discussion
Mediterranean Coast Day 2012 September 2012, Split, HR	Technical meeting with PAP/RAC NFPs Workshop on the National ICZM strategies for the Adriatic countries Pegaso, Maremed and Shape joint meeting Awareness raising events
Shape project meeting April 2013, Pescara, IT	MSP in the Adriatic Sea: problem and opportunity analysis MSFD implementation at the Adriatic scale and link with MSP
Mediterranean Coast Day 2013 September 2013, Rimini, IT	ICZM in the Mediterranean: experiences and future evolution Technical meeting with PAP/RAC NFPs Workshop on MSP pilot projects Awareness raising events
Shape project meeting October 2013, Lignano, IT	Final Shape project meeting Methodological handbook on MSP in the Adriatic Sea
Shape final conference February 2013, Bologna, IT	Dissemination of Shape results

Main Shape events

Pilot projects on MSP

Shape developed nine pilot projects approaching MSP issues at the local or regional scale. Some projects directly dealt with the intrinsic holistic and integrated nature of MSP while other focused on specific themes as: data gathering and monitoring to support MSP, bridging the gap between science and decision making, analysis of socio-economic aspects, links between MSP and MSFD or ICZM. The following pilot projects were elaborated:

- Maritime perspectives on sea space, coastal areas and their use. Shaping technical tools to resolve conflicts according to MSP approach (partner: Emilia Romagna Region).
- From scientific knowledge to the sustainable management of the Veneto maritime space (partner: Veneto Region).
- Monitoring of environmental issues in defined areas of the Central-Southern Adriatic basin through the use of the biological early warning system (partner: ARPA Molise).
- Developing ICZM & MSP indicators for a more sustainable management of the costal and marine area of pilot site (partner: ECAT Tirana).
- Technical basis for municipal spatial structure plan - Strunjan (partner: Regional Development Centre Koper).

- System for monitoring sea water quality using toxicology data on cetaceans (partner: Abruzzo Region).
 - Transitional water monitoring system: the case study of the Marano and Grado Lagoon (partner: ARPA Friuli Venezia Giulia).
 - Profitability analysis of a beach: economic analysis applied at a public marine domain (partner: Marche Region).
 - Analysis of multiple stressors operating in the MPA of Torre Guaceto and neighbouring costal area of Brindisi port with inclusion of the industrial area: a DPSIR approach (partner: Puglia Region).
- Conclusive findings of the pilot projects were summarised through a 4-pillars matrix highlighting: (i) main outcome and deliverables of the pilot project (What we have done), (ii) improved skills (What we have learned/ skills improved), (iii) possible future uses of the project outcome (How we can use output in the future), (iv) future opportunities and criticalities related to the evolution of pilot project contents in an MSP perspective.



Areas of interest of pilot projects on MSP issues

OUTPUT	
What we have done	How we can use output in the future
Thematic maps of maritime uses and other MSP-relevant elements. Maps showing overlay of main maritime uses. Historical data series of meteo-oceanographic data. Examples of graphs showing the temporal evolution of meteo-oceanographic data during particular events. Table summarising main potential uses of meteo-oceanographic data in supporting MSP.	Use the produced deliverables as initial knowledge base for MSP and MSFD. Evolve recommendations to actions aiming to improve the use of scientific knowledge in MSP.
What we have learned/skills improved	Opportunities
Importance of stakeholder involvement in the process: data acquisition, data sharing and identification of useful information. How to use (some) spatial and point data to support MSP. Recommendations to improve the use of scientific knowledge in the MSP process.	Stakeholder involvement; data sharing and integration in CIS and models; future knowledge (e.g. Ritmare, MSFD implementation, etc.) and projects on MSP and ICZM, future policy initiatives as in particular EUSAIR.
	Criticalities
	Data and information updating and elaboration according to policy and decision making needs (effort demanding); long-term commitment; stakeholder motivation; availability of adequate economic and technical resources.
SKILLS	

OUTPUT	
What we have done	How we can use output in the future
Identification of conflicts and inconsistencies between marine and land uses. Proposals of spatial plan corrections (marine and land use). Proposals for detailed spatial plan concepts for selected areas (7 areas). Proposals for a traffic scheme of the area.	In preparation of future spatial planning and more detailed documents on municipal level (contributing to the analytical part, list of stakeholders and their interests, proposals for projects/interventions). In Strunjan Landscape Park development: inclusion in the Protection and Development Programme of the Landscape Park Strunjan; the pilot project developed concrete proposals for new projects.
What we have learned/skills improved	Opportunities
Spatial planning of the coastal area should include marine and coastal land areas, since the majority of conflicts result from inconsistencies between the uses on land and sea and split competencies between the national government and municipalities. A governance structure, including competent ministries and municipal administrations should be established for the purpose of MSP. Participation of stakeholders should be assured in order to build a broad consensus (and support) on future coastal development. It is crucial to provide a solid data and information support in all phases of MSP.	Implementation of the provisions of art. 8 of the ICZM protocol. Implementation of the proposals, related to the establishment of a special "coastal" management unit and governance structure for the ICZM and MSP, formulated in Shape. Implementation of the GIS for the coastal strip, developed within Shape.
	Criticalities
	Clear long-term vision and goals should be adopted; in absence of this, short-term interests could lead the whole process away from sustainable solutions. Cooperation between national and local level administrations: absence could block the process solutions: contributing to local development while not compromising, natural and cultural assets. Providing data and information support: if not, the whole process would be threatened.
SKILLS	

4-pillars matrix Veneto (1) and Slovenia (2) case studies

Shape pilot project
Technical basis for municipal spatial structure plan - Strunjan
The Strunjan Landscape Park, situated on the Slovenian coast in the Piran and Izola municipalities, is a protected area, covering land and marine zones. The area is one of the most developed tourist areas in Slovenia, characterised by exceptional landscape and nature assets. The area faces pressures, such as high number of visitors in summer and the related traffic, recreational boating, fishery, mariculture, etc. There are conflicts in sea uses, such as in the case of fishing reserve, mariculture and marine transport.
The goals of the project were to: contribute to sustainable development of the area; test MSP on local scale; reduce pressures on natural resources, environment, landscape quality and cultural heritage of the area; harmonise marine and land uses and eliminate conflicts between different uses at sea and on land; raise the quality of landscape and architecture design of the area; increase public opinion awareness on spatial planning and development issues.
The pilot project was implemented through the following steps: (i) data collection and preparation of expert meetings, (ii) public presentation of collected data, expert meetings and SWOT workshop with stakeholders, (iii) preparation of spatial planning proposals and spatial arrangement concepts for selected areas, (iv) public exhibition, presentation and public discussion on the achieved results.
The pilot project proved that MSP is a powerful management tool for the Strunjan Peninsula, also in relation to its specific characteristics: small size of the area (local level), high density of different marine and land-based activities, and high landscape and natural value of the area.



Slovenia pilot project area

Source: Regional Development Centre Koper

Handbook objective and target

The present handbook is intended as a methodological and practical guide aiming to support the future evolution of the MSP approach in the Adriatic Region. In this view it mainly addresses institutional officials, planners and experts on MSP issues, illustrating what they can do to further disseminate and concretely plan and implement MSP in an Adriatic cross-border perspective.

The following two chapters of the handbook provide summary information on the current policy context of MSP at the European, Mediterranean and Adriatic level and describe what are the perceived benefits and expected challenges of MSP implementation in the Adriatic Sea. Chapters 4 to 6 represent the core of the methodological handbook, i.e.: providing input for the development of a common vision for the future of the Adriatic Sea (chapter 4), identifying the key principles for MSP in the basin (chapter 5), and illustrating a step-by-step approach for its implementation (chapter 6). Finally, chapter 7 stresses the importance of establishing clear links between MSP and MSFD, also to coherently contribute to the goals set by the Integrated Maritime Policy of the European Union (EC COM(2007) 575; EC COM(2009) 466) and the related Blue Growth (EC COM(2012) 494).

The methodological handbook is based on the results of actions 4.1 to 4.4 of Shape WP4; it is therefore base based on a joint effort of Shape partners, reflecting a wide range of backgrounds and experiences. Furthermore, it gets inspiration from a number of MSP initiatives and projects, including: BaltSeaPlan, Plan Bothnia, PlanCoast, MASPNOSE, the DG MARE studies on MSP in the Mediterranean and the Adriatic Sea (PRC, 2011a; 2011b) and the UNESCO-IOC guideline on MSP (Ehler and Douvere, 2009). To this regard, an international conference was specifically organised by Shape in Venice (May 2012) in order to grasp suggestions from those experiences and other MSP-related initiatives, such as the English and Dutch ones or the C-SCOPE project.

The Venice International Conference: examples of contributions to Shape discussion on MSP



Policy context



The sea is a complex system that cuts across administrative borders. It is subject to considerable pressures from human uses, competing each other for vital space and resources and threatening sensitive and precious coastal and marine habitats. To face these conflicts, explore the opportunities of synergies and mitigate the environmental impacts, it is necessary to elaborate and adopt an holistic approach supporting the development of coherent pictures and the creation of spatial plans and examining the issue of the needed integration among different policy and planning tools. The challenge is to plan and regulate marine and maritime activities, overcoming the sectoral approach and integrating horizontally and vertically different competences do not expertises. In this perspective, cross-border issues are often to be taken into account. The need for a more holistic approach to the sea was recognized by the EU and an overarching framework, the Integrated Maritime Policy (IMP), was developed in order to integrate sectorial issues with an ecosystem based management view. IMP was launched by the EU through the Blue Paper on 10 October 2007 (EC COM(2007) 575); it applies to the oceans and seas an holistic, integrated approach and promises to replace fragmented resource management approach with an ecosystem based management view. The IMP Blue Paper announced some strategic initiatives subsequently developed by the EU (see EC COM(2012) 491), including among the others: a European maritime transport space without barriers (EC COM(2009) 10), a European strategy for marine and maritime research (EC COM(2008) 534), a European strategy on Marine Knowledge (EC COM(2012) 473), support to national integrated maritime policies to be developed by Member States (see EC COM(2009) 540), European network for maritime surveillance (EC COM(2009) 538 and EC COM(2010) 584), roadmap towards Maritime Spatial Planning (EC COM(2008) 791 and EC COM(2010) 771), strategy on climate change adaptation of marine and coastal issues (EC SWD (2013) 133), etc. The Blue Growth (EC COM(2012) 494) is the IMP's contribution to the goals of Europe 2020 strategy for

smart, sustainable and inclusive growth (EC COM(2010) 2020). It is the EU long-term strategy to support sustainable growth in the marine and maritime sectors, recognising the great potential of seas and oceans for innovation, in particular in the following key areas: blue energy, aquaculture, maritime and coastal tourism (including cruising), marine mineral resources and blue biotechnology.

On June 2008 the European Commission adopted the Marine Strategy Framework Directive (MSFD; Directive 2008/56/EC) to promote the sustainable development of the seas and the protection of the marine ecosystems. MSFD is the environmental pillar of IMP and its objective is the achievement of Good Environmental Status (GES) of the EU's marine waters by 2020 and the protection of the resource base upon which marine-related economic and social activities depend. From a normative perspective it provides a solid legal basis for the application of an ecosystems based approach to the management of human activities affecting the marine environment and ecological systems, all with a view to ensuring that they are not irreversibly damaged by the cumulative effects of natural and anthropogenic pressures (Long, 2011). MSFD expressly recognizes the importance of managing the sea on a regional basis, and highlights the role of cooperation across bordering countries. Marine regions and sub-regions are defined taking into account hydrological, oceanographic and biogeographic features.



European sea basins (source: European Atlas of the Sea)

Qualitative descriptors for determining GES - 2008/56/CE Annex I		EOs identified by EcAp CG and COR-GEST of UNEP/MAP	
D1	Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions	→	EO1 Biodiversity is maintained, including both species and habitats
D2	Non-indigenous species introduced by human activities are at levels that do not adversely alter ecosystems	→	EO2 Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems
D3	Population of all exploited fish and shell-fish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock	→	EO3 Population of selected commercially exploited fish and shellfish are within biologically safe limits, exhibiting a population age and size distribution that is indicative of a healthy stock
D4	All element of the marine food-webs , to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring long-term abundance of the species and the retention of their full reproductive capacity	→	EO4 Alterations to components of marine food webs cause by resource extraction or human-induced environmental changes do not have long-term adverse effects on food-web dynamics and related viability
D5	Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters	→	EO5 Human-induced eutrophication is prevented, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algal blooms and oxygen deficiency in bottom waters
D6	Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected	→	EO6 Sea-floor integrity is maintained, especially in priority benthic habitats
D7	Permanent alteration of hydrographic conditions does not adversely affects marine ecosystems	→	EO7 Alteration of hydrographic conditions does not affect coastal and marine ecosystems
D8	Concentrations of contaminants are at levels not giving rise to pollution effects	→	EO8 The natural dynamics of coastal areas are maintained and coastal ecosystems and landscapes are preserved
D9	Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards		EO9 Contaminants cause no significant impact on coastal and marine ecosystems and human health
D10	Properties and quantities of marine litter do not cause harm to the coastal and marine environment	→	EO10 Marine and coastal litter do not adversely affect coastal and marine environment
D11	Introduction of energy , including underwater noise , is at levels that do not adversely affect the marine environment	→	EO11 Energy and noise from human activities causes no significant impact on marine and coastal ecosystems

Comparison of GES descriptors according to MSFD and Ecological Objectives defined by UNEP/MAP

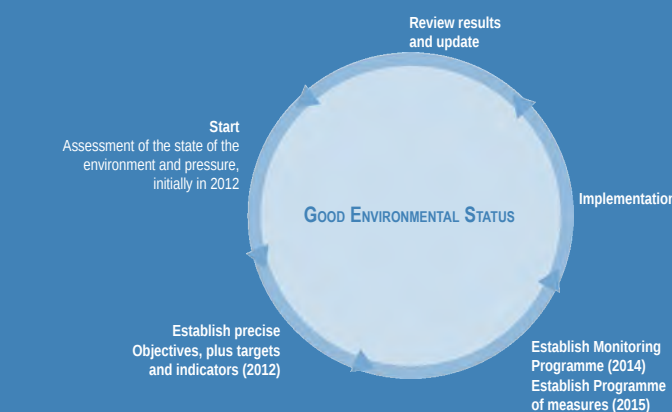
Integrated Coastal Zone Management and Maritime Spatial Planning are identified by IMP as fundamental tools/processes for integrated policy-making. The EU Recommendation of 30 May 2002 on ICZM (Recommendation 2002/413/EC) encourages a strategic approach to assure the sustainable development of coastal areas. Following the EU Recommendation, Member States begun to use ICZM to regulate the spatial deployment of economic activities and to set up spatial planning systems for Europe's coastal areas. Nevertheless, there is still a lack of experience, instruments, tools and capacities available to the policy makers and practitioners to fully and successfully implement this recommendation. In January 2008, 14 Mediterranean Countries signed the Protocol on Integrated Coastal Zone Management in the Mediterranean (UNEP/MAP/PAP, 2008), in the framework of the Barcelona Convention, marking a milestone in the implementation process of ICZM. To date, eight countries and the EU have ratified the Protocol; consequently, on 24th of March 2011, the Protocol entered into force, becoming binding for all the contracting parties. In implementing the Protocol, the Parties shall be guided by general principles of integrated coastal zone management, which lay on the application of an ecosystem approach, of a broad overall perspective (thematic and geographic) which takes into account local specificity, on the enhancement of vertical and horizontal coordination among institutions, on the promotion of public participation in a transparent decision making process.

The IMP calls for Maritime Spatial Planning. The main objective of MSP is to allocate marine space in a rational manner and thus to arbitrate between different sectoral or user's interests. MSP extends beyond managing and protecting the marine environment; it seeks to integrate all relevant maritime sectors - no sector is given priority over the other. MSP seeks to reconcile competing claims on the use of the marine space and in doing so make use of plans and maps as well as of zoning of different areas for different purposes. To be effective, MSP must operate in three dimensions by simultaneously

Marine Strategy Framework Directive

The Marine Strategy Framework Directive (MSFD; 2008/56/EC) is the environmental pillar of IMP. It aims to protect more effectively the marine environment. Its objective is to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend.

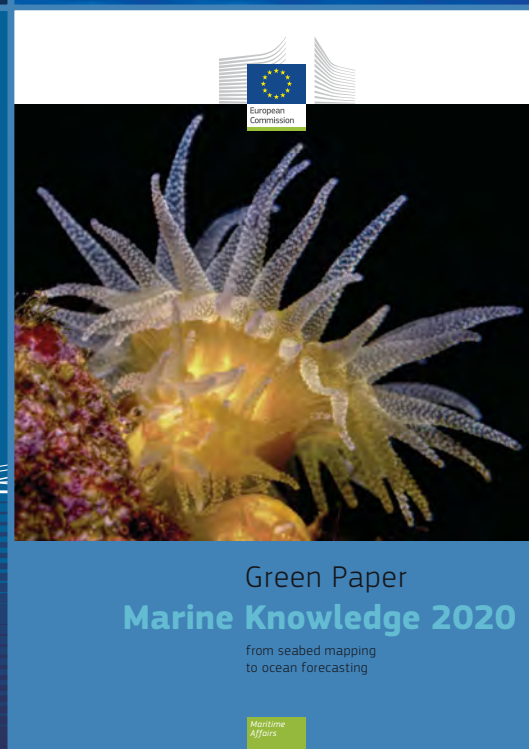
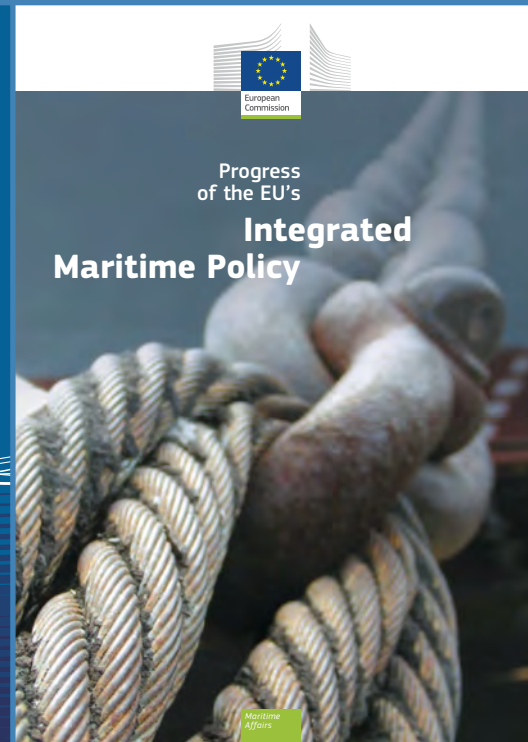
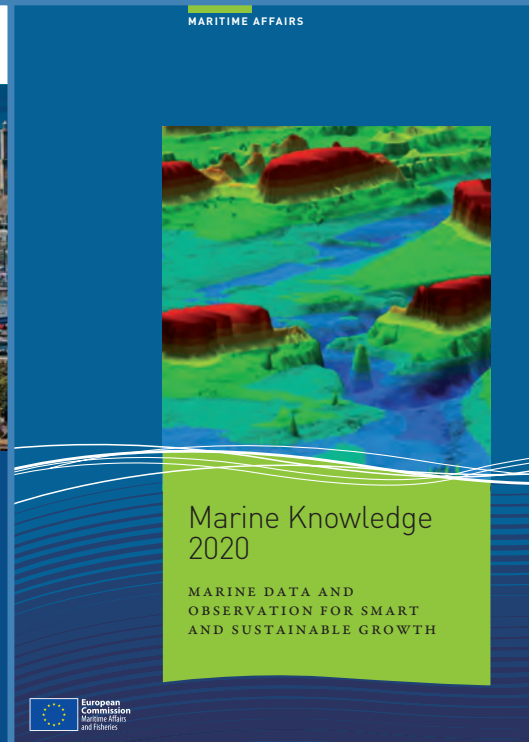
One of the most notable changes brought about by the MSFD to the regulation of the marine environment is the introduction of the concepts of "marine region" and "marine sub-region" into EU law. More specifically, the Directive requires Member States to cooperate and coordinate their actions with other Member States in designing and implementing marine strategies within the following marine regions: the Baltic Sea, the North-east Atlantic Ocean, the Mediterranean Sea, and the Black Sea. Provision is also made for the establishment of sub-regions in the North-east Atlantic and the Mediterranean Sea; in the latter case they are: the Western Mediterranean Sea; the Adriatic Sea; the Ionian Sea and the Central Mediterranean Sea; the Aegean-Levantine Sea. In respect to these regions and sub-regions Member States are required to develop marine strategies (art. 5), accordingly with a plan of action for which they are requested to follow a common approach with important milestones.



Process of attaining GES under the MSFD (Long, 2011)

In determining the GES Member States shall detail a set of eleven qualitative descriptors (Annex I of the Directive). For each descriptor the criteria and indicators for good environmental status of marine waters are the object of a specific Commission Decision published in 2010 (2010/477/EU). In the Mediterranean Sea MSFD-related initiatives are also being developed by UNEP-MAP. In particular, Decision IG.20/4 established an Ecosystem Approach Coordination Group (EcAp CG). EcAp CG and COR-GEST identified eleven Ecological Objectives (EOs) for the Mediterranean, substantially corresponding to the eleven MSFD GES descriptors.

Source: Directive 2008/56/EC and UNEP-MAP



addressing activities that take place on the seabed, the water column, and the surface. Moreover, MSP must take account of both fixed structures (e.g. offshore windfarms or aquaculture) and temporary activities (e.g. navigation and fishing). The time dimension is therefore of high importance in MSP which makes it in fact a four-dimensional process. The compatibility of uses and the resulting management needs of a particular maritime region might significantly vary over time. This variation has to be taken into account when management decisions are made. With the EC COM(2008) 791 the Commission aimed “to facilitate the development of Maritime Spatial Planning (MSP) by Member States and encourage its implementation at national and EU level”. It sets out 10 key principles for MSP and seeks to encourage the development of a common approach among Member States.

Achieving consistency between land use and maritime planning systems is a challenge. Coastal zones are the “hinge” between maritime and terrestrial development. Drainage areas or land-based impacts from activities such as agriculture and urban growth are relevant in the context of MSP. This is why land spatial planning should be coordinated with MSP. Recognising the complementarity and the need to achieve coherence between the ICZM and MSP policies, in March 2013 the European Commission adopted a proposal for a Directive establishing a framework for Maritime Spatial Planning and Integrated Coastal Management (EC COM(2013) 133).

Key principles of MSP Roadmap in the EU

1. **Using MSP according to area and type of activity;** management of maritime spaces through MSP should be based on the type of planned or existing activities and their impact on the environment.
2. **Defining objectives to guide MSP;** MSP should be used to manage on-going activities and guide future development in a sea area. A strategic plan for the overall management of a given sea area should include detailed objectives.
3. **Developing MSP in a transparent manner;** transparency is needed for all documents and procedures related to MSP.
4. **Stakeholder participation;** in order to achieve broad acceptance, ownership and support for implementation, it is equally important to involve all stakeholders, including coastal regions, at the earliest possible stage in the planning process.
5. **Coordination within Member States - simplifying decision processes;** MSP simplifies decision making and speeds up licensing and permit procedures, for the benefit of maritime users and maritime investment alike. Coordinated and cross-cutting plans need a single or streamlined application process and cumulative effects should be taken into account.
6. **Ensuring the legal effect of national MSP;** MSP should be legally binding if it is to be effective. This might also raise the issue of the appropriate administrative framework for MSP.
7. **Cross-border cooperation and consultation;** ccooperation across borders is necessary to ensure coherence of plans across ecosystems. It will lead to the development of common standards and processes and raise the overall quality of MSP.
8. **Incorporating monitoring and evaluation in the planning process;** MSP operates in an environment exposed to constant change. It is based on data and information likely to vary over time. The planning process must be flexible enough to react to such changes and allow plans to be revised in due course. To meet these two requirements, a transparent regular monitoring and evaluation mechanism should be part of MSP.
9. **Achieving coherence between terrestrial and maritime spatial planning - relation with ICZM;** achieving consistency between terrestrial planning (including coastal zones) and maritime planning systems is a challenge. The respective services should cooperate and involve stakeholders so as to ensure coherence.
10. **A strong data and knowledge base;** MSP has to be based on sound information and scientific knowledge. Planning needs to evolve with knowledge (adaptive management).

Source: EC COM(2008) 791

Proposal for a Directive establishing a framework for MSP and ICM

The proposed Directive establishes a framework for MSP and ICM aims “to promote the sustainable growth of maritime and coastal economies and the sustainable use of marine and coastal resources” (art. 1). According to art. 4 “Member States shall establish and implement maritime spatial plan or plans and integrated coastal management strategy or strategies”. ICZM strategies will have to be built on the principles and elements set out in the 2002 ICZM Recommendation and in the ICZM Protocol to the Barcelona Convention that entered into force in March 2011, thus defining a common legal framework for ICZM in the Mediterranean Sea. Maritime spatial plans will have to be developed considering common principles set at the EU level by 2008 and 2010 EC Communications. In the following articles, the proposed Directive identifies:

- objectives of maritime spatial plans and integrate coastal zone management strategies (art. 5);
- common minimum requirements for maritime spatial plans and integrated coastal zone management strategies (art. 6);
- specific minimum requirements for maritime spatial plans (art. 7);
- specific minimum requirements for integrated coastal zone management strategies (art. 8).

In line with previous policy documents on MSP and ICZM, the proposed directive gives particular importance to public participation in the development of maritime spatial plans and integrate coastal management strategies (art. 9), as well as to information sharing (art. 10). Finally, chapter III defines the specific steps to be implemented by each Member State, in particular:

- designation for each coastal zone and marine region or sub-region concerned of the authority or authorities competent for the implementation of the Directive;
- reporting to the Commission on the implementation of the Directive.

Source: EC COM(2013) 133

Examples of MSP and MSP related EU policies

MSP in the Adriatic



Maritime Spatial Planning, compared to land use planning, is a fairly new and emerging process in the Adriatic Sea. The process is at its embryonic stage and is influenced by differences among countries and Adriatic areas, related to the different needs within the basin and to the longer or shorter membership to the European Union. The single countries and regions (sub-national level) analysed within the Shape project had not developed until May 2013 an Integrated Maritime Policy; the management of maritime space and resources is highly fragmented and MSP had not been implemented, yet. Vertical and horizontal coordination seems to be particularly complex, in many cases multiple and sector ministries and/or regional departments are responsible for IMP/MSP related topics.

Several sector laws, plans and operative instruments related to the management of the marine space and maritime activities are well developed in all the countries of the basin, with differences also depending on the EU membership; these all together represent a good and well developed starting point for the future development of MSP in the macro-region.

Moreover, MSP seeds have been planted and are starting to sprout in the Adriatic, including for example: the Croatian Coastal and Marine Strategy to be developed in the next future, the Italian Ritmare Flagship project on marine research including a sub-project on MSP, the Slovenia Resolution on the National Maritime Development Programme (OG RS, No. 87/2010) taking into account IMP principles and goals, the Strategic Plan for Marine and Coastal Protected Areas under development in Albania, the Spatial Plan for the Coastal Zone of Montenegro including territorial waters and the connected CAMP project.

At the Adriatic basin level, actions and resources are needed to further improve cooperation and coordination among countries and regions on MSP themes, including in particular: enhanced stakeholder involvement, more effective knowledge sharing, data acquisition on offshore areas (in particular the “open sea”), improved coherence between MSP and terrestrial spatial planning (PRC, 2011b). Existing cross-border initiatives can

directly or indirectly facilitate the dissemination of MSP concepts, providing a fertile substrate for improved Adriatic cooperation on these issues, as in the case of: the Joint Commission for the protection of the Adriatic Sea and coastal area from pollution, the Adriatic - Ionian Initiative, the same Shape project, and the recently started DG MARE ADRIPLAN project focusing on MSP in the Adriatic and Ionian Region.

A big boost to coordinated actions, also on MSP and ICZM issues, will derive from the adoption and implementation of the EU Strategy for the Adriatic and Ionian Region - EUSAIR and the related Action Plan under development. A macro-regional strategy is an integrated framework to address common issues of countries located in the same geographic area, which thereby benefits from strengthened cooperation. This includes challenges and opportunities that can be more efficiently and effectively tackled in a regional cooperation perspective.

EUSAIR covers eight countries: four EU Member States (Croatia, Greece, Italy and Slovenia) and four non-EU countries (Albania, Bosnia and Herzegovina, Montenegro and Serbia). The new strategy will build on the experience gained in existing macro-regional strategies (Baltic Sea and Danube) and will integrate the Maritime Strategy for the Adriatic and Ionian Seas, adopted by the Commission on 30 November 2012 (EC COM(2012) 713). The main objective of EUSAIR is to promote economic and social prosperity and growth in the region by improving its attractiveness, competitiveness and connectivity, while at the same time preserving the environment and ensuring healthy and balanced marine and coastal ecosystems. The Strategy is also expected to play an important role in promoting the EU integration of the candidate and potential candidate countries in the region. Following the results of an extensive consultation, the Strategy will be developed in the form of a draft Communication accompanied by an Action Plan, with a view to adoption by the European Commission during the first semester of 2014. The Communication and the Action Plan will be submitted to the Council of the European Union for endorsement in the second half of the year.

The new Croatian Coastal and Marine Strategy

Convinced that only an integrative and strategic approach providing for the adoption and implementation of sustainable measures based on an ecosystem approach can reduce negative impacts of the increasing human pressures on coastal and marine zones as well as prevent natural risks threatening them, the Croatian Parliament ratified the ICZM Protocol on 12 October 2012. Moreover, as a new EU member state, Croatia has started a process of harmonisation with the EU legal acquis, namely by adopting relevant approaches and policies, some of which deal with coastal and marine environment protection and management. More precisely, in 2011 Croatian government adopted a Regulation establishing a framework for action in the field of marine environment protection (OG 136/11), which sets the basis for the development, implementation and monitoring of national marine strategies according to the requirements of the EU MSFD. It is also important to note that Croatia has adopted WFD in 2008, and that it has drafted Water Management Plan 2012-2015, all according with the requirements of the EU Water Framework Directive.

Having in mind the variety of policies dealing with the management of coastal and marine environments, as well as the definition of the coastal zone according to the ICZM Protocol (e.g. its land and sea components), the Croatian Ministry of Environment and Nature Protection decided to link the obligations arising from the ICZM Protocol and MSFD in a way to prepare a unique national strategic document for the Croatian Adriatic Region that would integrate both - the coastal and the marine parts. Therefore, it is expected that improved coordination and coherence of actions for sustainable coastal and marine areas management would be achieved, respecting and applying the ecosystem-based management of human activities and securing the sustainable use of goods and services. The proposed new national strategy will hence introduce consideration of the marine side, following the EcAp approach and using the experience and guidelines of the EU MSFD, as well as the new draft Directive on MSP and ICM. In addition, within the MedPartnership project on Climate Variability and ICZM, PAP/RAC is preparing a methodological document on integrating climate variability and change into ICZM and assessing the environmental and socio-economic costs of the climate variability and change for Croatian coast. These results will be also integrated in the new Croatian Coastal and Marine Strategy. Therefore, the proposed strategy will for the first time provide an integrated policy solution for the sea and the coast, taking into account climate variability and change and being harmonized with the national water strategy.

Source: PAP/RAC

EU Strategy for the Adriatic and Ionian Region - EUSAIR

In line with the EC recommendations of the evaluation of the macro-regional approach (adopted in June 2013) and the results of the stakeholders' consultation, EUSAIR will focus on a limited number of issues of common interest where the added value of cooperation is clear, in particular in relation to four pillars:

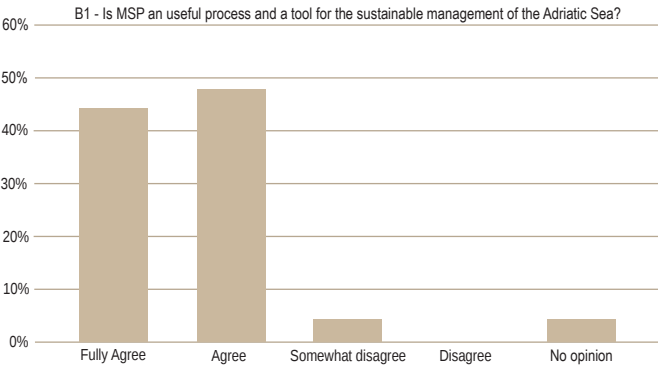
- Pillar 1 "Driving innovative maritime and marine growth", aiming to promote sustainable economic growth, jobs and business opportunities in the region from blue economy sectors. Main sectors identified at the moment include: fishery, aquaculture, seafood processing, blue biotechnology, marine equipment, shipping, boating and other maritime services.
- Pillar 2 "Connecting the region", aiming to improve transport and energy connections within the Adriatic and Ionian Region. Better connections are a compelling need for the macro-region and a pre-condition for its economic and social development. This pillar focuses on three strategic topics: maritime transports, intermodal hinterland and energy networks.
- Pillar 3 "Preserving, protecting and improving the quality of the environment"; focusing on environmental issues where macro-regional cooperation can have a high added-value compared with individual actions taken by countries, i.e.: (i) protection of the marine environment, including preservation of marine biodiversity and habitats and improvement of environmental quality; (ii) sound management of transnational terrestrial habitats and biodiversity. Climate change adaptation, ICZM and MSP are horizontal activities of pillar 3, with strong connections with all other EUSAIR pillars.
- Pillar 4 "Increasing regional attractiveness"; aiming to increase tourism attractiveness of the region by: supporting sustainable coastal and maritime tourism and diversified offers, improving the quality of tourist services, preserving and promoting cultural heritage, promoting common regional branding and reducing the seasonality of tourist demand.

Moreover, "Research, innovation and SME" and "Capacity building" have been identified as two cross-cutting aspects involving every pillar.

Source: background papers of the Stakeholder Conference on EUSAIR, 6-7 February 2014, Athens, Greece

Why do we need MSP at the Adriatic level?

In the Adriatic Sea, the need for MSP is particular high, considering the intense use of this marine area and the potential growing conflicts among increasing users' needs and ecosystem protection objectives that also have great relevance at the basin scale. At the same time, the Adriatic Sea has great potential for MSP implementation (PRC, 2011a; 2011b) considering: (i) the availability of a good level of marine knowledge, although mainly concentrated on marine areas close to the coast, (ii) the good attitude in sharing data, (iii) the cooperative tradition and the on-going cross-border initiatives, (iv) the good development of sectoral laws, plans and tools related to the management of the marine space and maritime activities, (v) the sprouting of first MSP initiatives.



Relevance of MSP in the Adriatic Sea according to Shape partners

The future development of MSP will be strongly influenced by the need of an holistic and ecosystem-based approach that allows the contemporary management of an increasing demand for sea space and an ecologically responsible decision-making. For the implementation of this process, it is important to reach a more efficient vertical and horizontal coordination between national and regional authorities and among countries. Indeed, the interconnection of sea spaces, the cross-boundary impact of sea uses and the broader scale needed to be ecologically meaningful, require the development of an Adriatic perspective. An MSP cross-border perspective is also required to capitalize Blue Growth opportunities

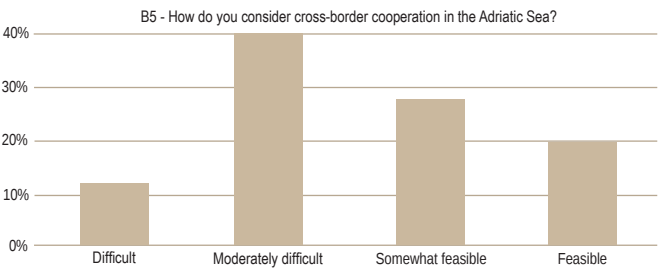
Efficient model for financing coastal and maritime activities in Montenegro

Montenegro is one of the few Mediterranean countries that have designated a regional institution focusing on coastal zone management. According to the 1992 Coastal Zone Law, the Public Enterprise for Coastal Zone Management was established to manage the use of and protect the coastal area, including the coastal land strip, territorial waters of Montenegro and living and non-living resources within. The law also entitles the Public Enterprise to rent the state owned coastal areas for the seasonal (temporary) activities in accordance with plans and programmes adopted by the Ministry for Sustainable Development and Tourism. Over the years the generated annual budget constantly increased to about 6 million euros in 2013. According to the law, all income generated from the use of the coastal zone must be reinvested in the protection, improvement and maintenance of the Montenegro coast; 50% of the generate income is re-directed to coastal municipalities. Every year, Public Enterprise for Coastal Zone

at the Adriatic scale, as for example:

- the development of a sustainable and competitive Adriatic maritime transportation system (of goods, passengers and tourists);
- the proper location of increasing aquaculture activities;
- the development of projects showing the potentiality of synergic uses of the sea (as for example multi-use offshore platform);
- the implementation of win-to-win solutions for environmental protection and socio-economic development in the Adriatic MPAs, as for example in terms of co-existence of: environmental protection, biodiversity preservation, fishing activities that can beneficiate by sustainable management of fish stocks, sustainable tourism, sustainable forms of aquaculture;
- the proper location of sites for research on new maritime uses, as for example blue biotechnology and innovative renewable energy sources;
- the allocation of priorities in the use of limited marine resources, as for example marine sand deposits for coastal nourishment;
- the shared (at the basin scale) sustainable management of fish stocks.

Finally, the adoption of an MSP holistic approach at the Adriatic level is essential to take care of the sustainable management of the marine space (and its resources) falling beyond areas under countries' jurisdiction, thus properly considering "open sea" specificities and problems.



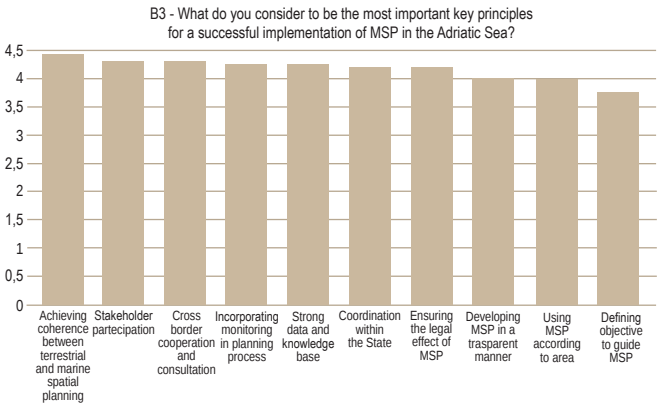
Feasibility of cross-border cooperation in the Adriatic Sea according to Shape partners

Management, in accordance with the Annual Investment Plan adopted by the Montenegro Government, reinvests its budget in: building of coastal and maritime infrastructure (such as ports, docks, sea-walls, coastal promenades, parks and other open areas on the coast, etc.), organisation of beaches, maintenance of the public areas, management and improvement of coastal protected areas, environmental monitoring programs and environmental projects. The New Coastal Zone Law expected to be adopted during 2014 proposes the transformation of the Public Enterprise into the Coastal Zone Management Agency with wider jurisdiction over the activities on the coast and the territorial sea. This will represent a strong basis for better and more efficient management of coastal and maritime activities in Montenegro.

Source: Public Enterprise for Coastal Zone Management

The Shape project underlines the relevance of all the 10 key principles identified by the "Roadmap for Maritime Spatial Planning" (EC COM(2008) 791) for a successful implementation of MSP in the Adriatic Sea. In the analysis performed, all principles got a high average score (greater than 3.5 according to a 0-5 score scale; first 7 principles got average score greater than 4); score variability is rather limited varying between 3.8 and 4.4. This implies that all principles are considered more or less equally relevant.

The highest ranked principle confirms the importance to pursue a coordinated and integrated application of ICZM and MSP in the Adriatic Sea, probably due to the nature of this basin being a semi-closed sea where coastal (natural and anthropic) processes and pressures exercise great influence on marine dynamics and maritime uses. Stakeholder consultation and cross-border cooperation are also ranked among the most relevant principles for a successful MSP implementation, stressing again the relevance of added-values provided by collaborative efforts and shared objectives and actions.



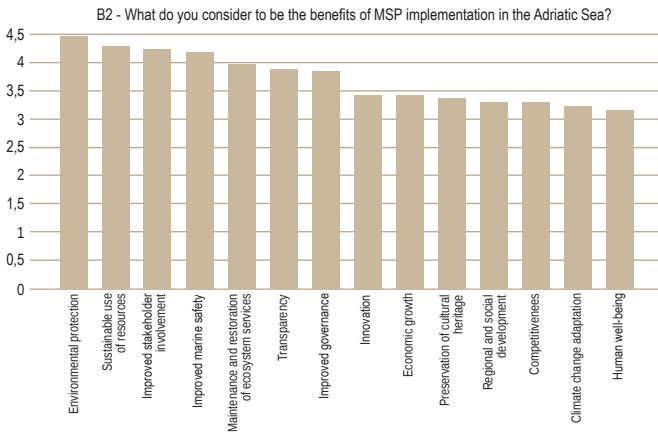
Most important key principles (0-5 score) for MSP in the Adriatic Sea according to Shape partners

Expected benefits

MSP can have significant economic, social, environmental and governance benefits. Based on the results of previous projects and available literature (see in particular Schultz-Zehden et al., 2008; Ehler and Douvere, 2009; Gee et al., 2011; EC DG MARE website), main general benefits of MSP can be summarised as follows:

- increase vertical and horizontal coordination within countries, supporting the adoption of integrative approaches going beyond sector divisions;
- develop cross-border cooperation on marine and maritime issues among EU and non-EU countries, including the adoption of holistic approaches at the marine region and sub-region scale (considering the analysis of “open sea” problems and specificities);
- improve shared information and data management, in particular through marine Atlas;
- ensure stakeholder involvement, implying greater transparency in all MSP phases and better visibility of step-by-step results;
- enable the adoption of a multiscale approach, implying MSP implementation at various levels, with the possibility to develop coherent nested processes;
- adopt proactive/adaptive rather than reactive management, including long-term vision, scenarios building and proper assessment of future uncertainties;
- reduce conflicts and develop coordination and synergies among maritime and marine activities, including facilitation of co-use;
- encourage investment and innovation, by defining and implementing a transparent and proactive process based on clear rules and roles and able to increase security for investors;
- increase protection of the marine environment and biodiversity, through early identification of pressures, reduction of conflicts between maritime uses and marine protection, reduction of cumulative impacts, and development of opportunities for the sustainable use of marine resources;

- facilitate equitable access to marine resources to all involved countries and regions, including preservation of such resources for future generations;
 - improve protection of cultural heritage and preservation of intangible values of the sea (including for example the sea as an open space).
- According to Shape project greater benefits of MSP implementation in the Adriatic Sea are specifically related to:
- environmental protection;
 - sustainable use of marine resources;
 - improved stakeholder involvement;
 - improved marine safety;
 - maintenance and restoration of ecosystem services.
- Benefits ranked as most relevant ones confirm the multi-objective nature of the MSP process, including not only environmental protection, but also other relevant aspects, some of which are at the basis of Blue Growth (EC COM(2012) 494), as in particular the sustainable use of marine resources, also depending on the preservation and improvement of ecosystem services.



Benefits (0-5 score) of MSP in the Adriatic Sea according to Shape partners

Success factors and challenges

Shape developed nine pilot projects approaching MSP issues at the local or regional scale. Together with dedicated meetings and results of Shape WP4 actions, these projects enabled to identify existing and future

success factors (i.e. opportunities) and challenges for future actions (i.e. criticalities) related to the implementation of MSP aspects in the Adriatic Sea.

Success factors	Challenges
EUSAIR - EU Strategy for the Adriatic and Ionian Region and the related Action Plan. Inspiration provided by other cross-border initiatives, including: BaltSeaPlan, Plan Bothnia, MASPNOSE, TPEA. Instruments for pre-accession assistance.	Long-term and clear commitment (together with vision and goals) of all Adriatic countries and regions to implement MSP, within EUSAIR and based on a specific agreements. Availability of adequate financial and technical resources supporting MSP implementation at the macro-regional level. Improved implementation - through cooperation - of UNCLOS in the Adriatic, to solve existing undefined situation and provide the legal framework for MSP.
EC proposal for a Directive establishing a framework for MSP and ICZM. Links with the protocol on ICZM in the Mediterranean.	Integration of terrestrial and maritime planning, towards a coherent ICZM-MSP approach.
Culture of cooperation and on-going cross-border initiatives and project, that can facilitate the dissemination of MSP concepts. Shape project partnership (involving all Adriatic countries) and results. DG MARE ADRIPLAN project focusing on MSP in the Adriatic and Ionian Region.	Increased cross-border cooperation on MSP, also to ensure the sustainable management of the “open sea” space. Increased stakeholder involvement through an open, transparent and inclusive process, thus ensuring the participation of all actors and Adriatic countries and regions. Effective links between national MSP initiatives and the MSP process at the Adriatic scale.
Availability of a good level of marine knowledge on areas near the coast. The Italian Ritmare Flagship project on marine research including a sub-project on MSP. Good attitude in data and information sharing (e.g. “Adriatic Atlas to support ICZM and MSP” developed by Shape).	Data acquisition on off-shore areas to cover existing gaps. Commitment to further develop/improve and maintain alive existing data sharing platforms and initiatives. Improved standardisation in data sharing and free access to data needed for MSP. Elaboration of data according to real policy and decision making needs.
Good development of sectoral laws, plans and tools related to the management of the marine space and maritime activities.	Horizontal and vertical coordination among sectors and administrations acting at different levels (from local to national); i.e. going beyond fragmentation and sector approaches.
Implementation of MSFD, in particular if connections with MSP will be explored.	Application of MSFD in a cross-border perspective to approach environmental problems at the Adriatic scale. Capitalisation of synergies between MSP and other EU marine-related policies and directives (e.g. MSFD, WFD, Natura 2000, Blue Growth, CC adaptation, etc.).

A common vision for the future of the Adriatic Sea

The sea is a dynamic environment, where changes occur in 4-dimensions. The importance of spatial and temporal variations is well reflected in the MSP definition, i.e. "a public process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process" (Ehler and Douvère, 2009). To properly take in consideration the temporal dimension, MSP must extend beyond current circumstances and short-term objectives, adopting a long-term approach. Common goals, values and priorities need to be therefore identified and structured in a shared vision of the future of the Adriatic Sea. This vision can be simply defined as the description of what is desired for the considered area and represents the guiding light of the entire MSP process. Given the small size of the Adriatic Sea, and the crowded and growing number of interests, it is essential in orientating the process towards the final goal of achieving a balanced and sustainable use of the marine space and resources.



Elements for a common and shared vision

The definition of a common vision for the future of the Adriatic Sea is an essential step of the implementation of the MSP process. As highlighted in the BaltSeaPlan Vision 2030 (Gee et al., 2011), a common and shared vision can:

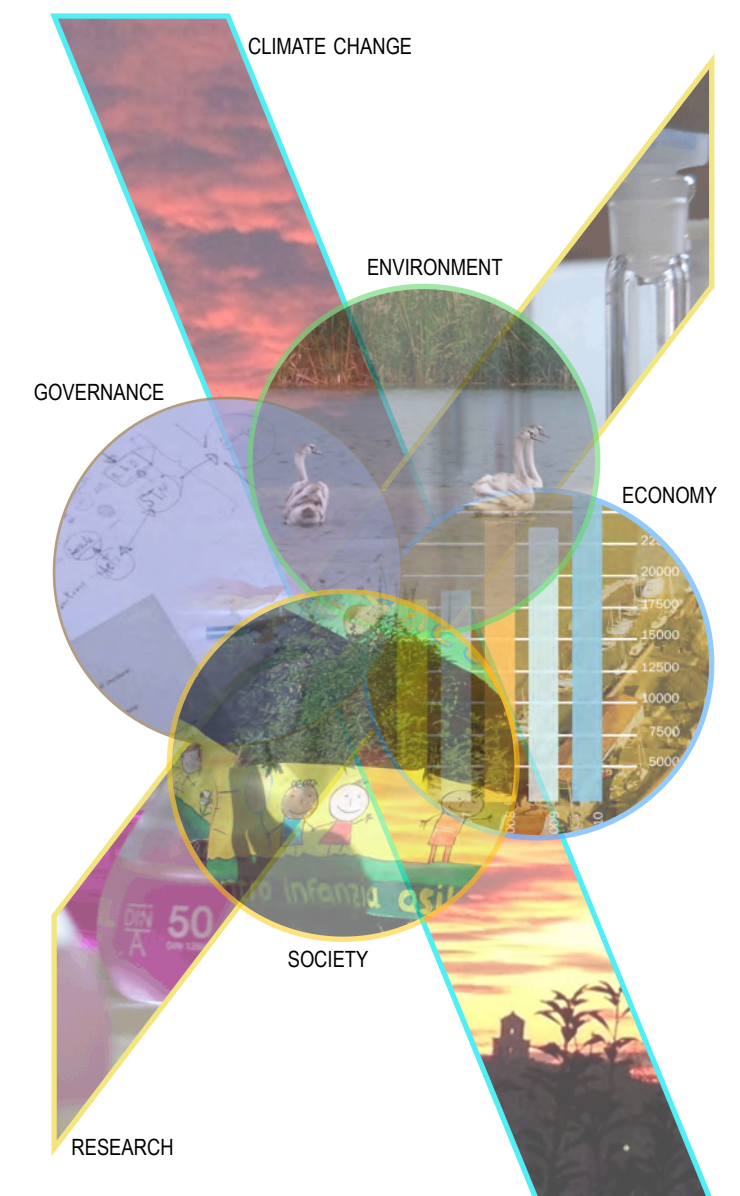
- make clear why forward-looking thinking (and long-term perspective) is essential;
- provide an holistic cross-sectoral view on issues that are often regarded separately;
- help to communicate benefits of the MSP process;
- facilitate the stakeholder dialogue;
- help to achieve transnationality in MSP and cooperation among Adriatic countries on marine and maritime issues.

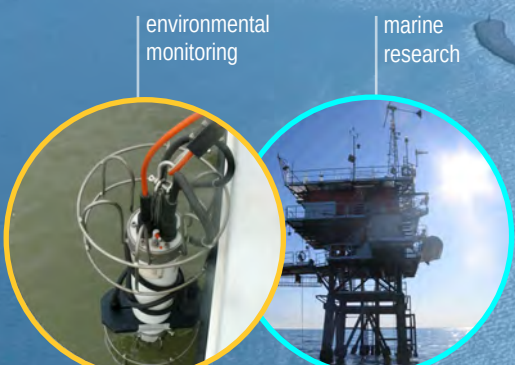
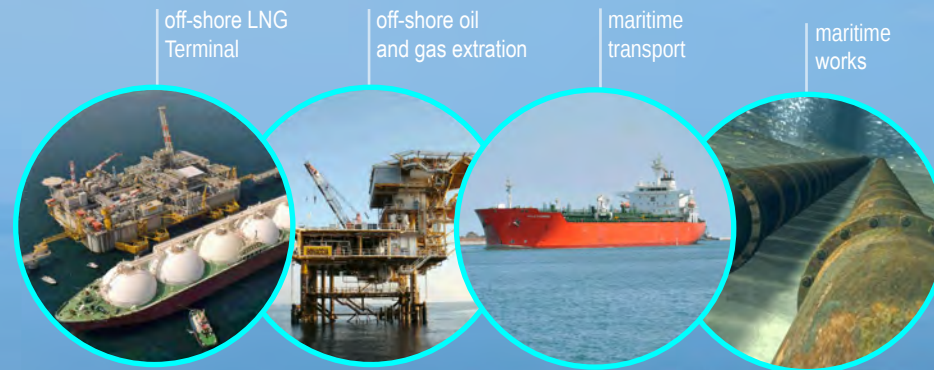
Given its central and guiding role in the whole MSP process, the elaboration of a common and shared vision at the Adriatic scale needs a full stakeholder involvement and enough time for drafting, discussion and finalisation. As argued in the following chapter, it is therefore a key step of the initial phase of MSP. Initial input for the shared vision can be derived from existing policy documents; in the case of the future evolution of the Adriatic Sea the following documents and initiatives can be in particular considered:

- the EC communication "Blue Growth, opportunities for marine and maritime sustainable growth" (EC COM(2012) 494);
- the Bologna Charter 2012; the European Regions Charter for the promotion of a common framework for strategic actions aimed at the protection and sustainable development of the Mediterranean coastal areas;
- the EC Maritime Strategy for the Adriatic and Ionian Seas (EC COM(2012) 713);
- the on-going initiative elaborating the EU Strategy for the Adriatic and Ionian Region - EUSAIR.

The initial input to a common vision for the future of the Adriatic Sea that are illustrated further below in this chapter were discussed and agreed with Shape partners, in particular during the Lignano (Italy) Shape meeting held in October 2013. These are intended to stimulate the future discussion.

Considering above documents, and the overarching Europe 2020 strategy (EC COM(2010) 2020), the timeframe for the following initial inputs to the vision of the future evolution of the Adriatic Sea can be identified in the year 2020. The common vision needs to be based on the integration of the four pillars or four dimensions of sustainability: environment, economy, society and governance; climate change adaptation and improved research are configured as cross-cutting elements of the whole vision.





aquaculture



Environmental vision

According to the environmental vision, the Adriatic Sea is a healthy and resilient marine ecosystem satisfying requirements and goals set by the MSFD, the UNEP-MAP Barcelona Convention and its protocols, as well as the objectives of the Joint Commission for the Protection of the Adriatic Sea and its Coastal Areas. The environmental vision also foresees an adequate protection of the Adriatic marine and coastal areas with high natural and ecological value and the preservation of Adriatic biodiversity.

This is in particular reached through the improvement of the ecological network of marine protected areas, according to Natura 2000 and Barcelona Convention objectives. A healthy and resilient marine environment can provide ecosystem services for the human well-being, thus supporting the sustainable economic development based on the Green and Blue economy. The implementation of the environmental vision goals requires a joint effort towards an integrated environmental monitoring system at the Adriatic Sea scale, taking into account also marine areas that do not fall under national jurisdiction.

Bologna Charter 2012 – Initiatives for adaptation to climate change

The Bologna Charter 2012 is a strategic document signed on 21st march 2013 by a number of Mediterranean coastal regions, promoting a common framework for actions aimed at the protection and the sustainable development of the Mediterranean coastal areas. The Charter identifies a number of initiatives related to coastal zone management and adaption to climate change. The Adriatic Sea could play the role of test-bed for these initiatives and for their integration with related climate change actions focusing on the marine and maritime sectors. Initiatives identified by Bologna Charter includes:

- building a network of existing coastal observatories and promoting the establishment of specific structures, if needed, at the local and regional level for coastal monitoring, the management of coastal zone risks, erosion phenomena and defence interventions;
- surveying erosion status and flood hazard along the Mediterranean coasts;
- promoting the sustainable use of the strategic resources like the coastal territory to face the "littoralization" process and respond to the need of integrated planning along with the ICZM Protocol;
- individuating, characterising and promoting the sustainable use of the strategic resources like the coastal and submarine stocks of sediments to face the coastal erosion also induced by climate change;
- fostering integrated territorial planning, along with principles of ICZM and MSP;
- designing and executing structural works along Mediterranean coasts consistently with ICZM requirements, for the concrete implementation of CCA;
- fostering project-clustering initiatives, focusing on CCA.

Source: Bologna Charter

Economic vision

Potentials of the Adriatic marine and coastal areas for jobs and sustainable economic growth are identified, explored and capitalised. The Adriatic Sea generates high quality employment, in particular based on innovative Green and Blue forms of economy. The role of ecosystem services in supporting economic development is properly recognised and economically valorised. The economic development occurs without compromising the environmental quality of the Adriatic ecosystem and habitats and respecting the principle of equity across the basin. The following marine and maritime sectors are considered highly relevant for the future Blue Growth of the Adriatic Sea: shipping (including commercial, industrial and passenger maritime transportation), port activities, coastal and marine tourism (including cruising and boating), aquaculture and fishery.

Other significant sectors related to the previous ones are: seafood processing, marine equipment and maritime services (e.g. to shipping and boating). Innovative Blue economic sectors are investigated and assessed in terms of feasibility and sustainability and possibly developed; these include: energy production from renewable sources (including innovative modalities as current and wavepower devices) and blue biotechnology, i.e. the production of metabolites and primary compounds from Adriatic biologic resources as inputs for food, feed and chemical industries.

Social vision

The Adriatic Sea is an attractive and safe place to live and work; education and job opportunities are granted to all Adriatic people.

The Adriatic culture and traditions are acknowledged and strengthened, and represent one of the basis for innovation and economic development. Improved connection reinforces the culture of cooperation across the basin. Stronger cooperation is implemented to address relevant social issues in a pan-Adriatic perspective, as for example in the case of irregular migration and peace keeping. Sustainable and safe land

and seaborne connections (including intermodality) are fundamental to strengthen social and commercial links across and outside the Adriatic region.

Government vision

The management of the Adriatic Sea is based on an integrated, ecosystem-based and adaptive approach. Adriatic countries elaborate and implement national Maritime Spatial Plans, integrated with ICZM Strategies. The reinforced culture of cooperation enables the common management of the Adriatic Sea also beyond national jurisdiction; the marine space and resources are shared fairly in a way that benefits and disadvantages are evenly distributed among countries. Governance of MSP elements at the Adriatic Sea scale is ensured either through an existing structure or a new cooperative initiative specifically launched for this scope.

Cross-cutting elements of the vision

Climate change adaptation in the coastal and marine sectors is strongly reinforced, requiring and generating actions (mainstreaming) in the environmental, economic, social and governance sectors. This implies that the Adriatic basin is more prepared to cope with climate change impacts and related risks for people and socio-economic activities. Particular attention is given to climate change adaption in the marine and fisheries sectors, given the fact that at the moment this is poorly investigated. Adriatic countries cooperate on climate change mitigation as well, committing to reduce the emission of greenhouse gases derived from marine-based human activities.

Improved **research** represents another key cross-cutting element of the Adriatic vision. The cooperative attitude can facilitate the creation of maritime clusters and research networks that aim to spur **innovation**. Research and innovation support the Blue Growth based on sustainability principles and the preservation of Adriatic habitats and biodiversity.

AdriaPAN – Adriatic Protected Areas Network

Within the Adriatic Sea and along the Adriatic coast, there are more than 200 protected areas recognised by national and international laws. The need for effective coordination and cooperation among Adriatic MPAs led in 2008 to set up AdriaPAN, the Adriatic Protected Areas Network. AdriaPAN is an integral part of the wider MedPAN (network of Marine and Coastal Protected Areas managers in the Mediterranean); within such network it represents and promotes the ecological, cultural and economic specificities of the Adriatic Sea and coast.

The main objective of the network is to initiate a technical process in support of all MPA managers and staff in the Adriatic, by providing services to improve effective management. It aims at sharing energies and knowledge to promote common programmes of international and regional cooperation for environment protection, sustainable development, green tourism and biodiversity conservation.

10 Italian Protected Areas, both marine and coastal, initially signed the Cerrano Charter, the founding act of AdriaPAN. Now the number has increased. It counts about 40 members from all countries bordering the Adriatic Sea, and more than 30 associated organizations (institutions, NGOs, businesses, etc.) interested in collaborating on AdriaPAN initiatives.

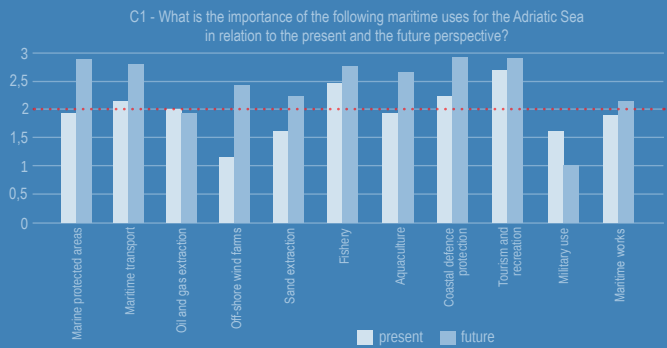
Source: AdriaPAN web-site

Relevance of current and future maritime uses for Shape project

Shape partners were asked to indicate importance of current and future maritime uses in the Adriatic Sea according to a 0-3 score scale. Uses perceived as mostly important at present time are: tourism and recreation, fishery, coastal defence protection and maritime transport. In the future the importance of all uses is considered to increase, except for military operation (probably hoping in a pacified Adriatic region) and oil and gas extraction (looking towards the increase in renewable energy production and delivering).

Offshore renewable energy production is the sector perceived to increase most consistently, confirming the relevance of this emerging use of the maritime space, as stressed by the EC Blue Growth. However, its concrete development in the Adriatic Sea needs an accurate feasibility analysis to assess, among the other factors, the consistency of wind resources and identifying most promising areas. Other uses considered to increase more consistently are:

- Marine protected areas, expressing the wish that Adriatic areas with high ecological and naturalistic value will be properly protected and managed. This will also imply the improvement of MPAs' network and connection.
- Sand extraction, mostly to deal with beach nourishment in coastal protection, also related to projected effects of climate change and sea level rise induced impacts (increased flooding risk and erosion).
- Aquaculture, considered as one of the Blue Growth focus areas and identified as one of the relevant maritime sectors by Pillar 1 of EUSAIR.
- Maritime transport, as generally expected due to the increased demand of goods and transportation facilities for passengers. EUSAIR considers both maritime transport and maritime tourism (including cruising and boating) among the relevant maritime sectors supporting the blue economy in this region.



Source: Shape project

Approaches and principles for MSP in the Adriatic Sea

Marine processes that are essential in providing ecosystem services for human uses of the sea and its resources go beyond the limits defined by arbitrary boundaries and sector approaches. Maritime Spatial Planning at the scale of the Adriatic Sea must deal therefore with the ecosystem as a whole, and at the same time must be able to address the intrinsic dynamic and evolving nature of the sea. These issues immediately call for the adoption of two key approaches in the implementation of MSP, i.e.: ecosystem-based and adaptive management approaches.



Albania coast - photo by ECAT Tirana

Ecosystem-based approach and adaptive management

According to Ehler and Douvère (2009) the ecosystem-based approach or the ecosystem approach (EcAp) can be defined as “an integrated approach to management that considers the entire ecosystem, including humans. The goal of ecosystem-based management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the goods and services humans want and need. Ecosystem-based management differs from approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors”. The adoption of this approach:

- “emphasizes the protection of ecosystem structure, functioning, and key processes;
- explicitly accounts for the interconnectedness within systems, recognizing the importance of interactions between many target species or key services and other non-target species;
- acknowledges interconnectedness among systems, such as among air, land and sea;
- integrates ecological, social, economic, and institutional perspectives, recognizing their strong interdependences; and
- is place-based in focusing on a specific ecosystem and the range of human activities affecting it” (Ehler and Douvère, 2009).

MSFD acknowledges the relevance of the ecosystem approach, requiring its application (art 1.3) in the elaboration of marine strategies. This approach is in particular required to ensure that the collective pressures of human activities “is kept within levels compatible with the achievement of good environmental status and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while enabling the sustainable use of marine goods and services by present and future generations”.

The connection of EcAp with MSP is rather evident; optimising the use of the maritime space and marine resources MSP aims to reduce conflicts and increase synergies among human uses, including the reduction of pressure on and the preservation of marine ecosystems and biodiversity. Indeed, the application of EcAp within

MSP (and ICZM) is required by the same framework directive proposed by EC COM(2013) 133.

As stressed by the EcAp principle (5) defined by the Convention for Biological Diversity (CBD COP-5 Decision 6), EcAp priority target is the conservation of ecosystem structure and functioning that is essential in maintaining ecosystem services and that, in turn, is the basic foundation of maritime human uses to be managed through MSP. Links between MSP and EcAp can be found in other principles as well. For example both stresses the relevance of involving stakeholders in the planning and managing process (EcAp principle 12 and MSP principle 4) or of basing the analysis on a strong and wide data and knowledge base (EcAp principle 11 and MSP principle 10). According to EcAp ecosystems must be managed within the limits of their functioning (principle 6) implying that planning and management must go beyond administrative limits. At the regional or macro-regional scale this requires cooperation across borders (MSP principle 7) to ensure coherence of plans across ecosystems; links with the MSP principle 9 “achieving coherence between terrestrial and maritime spatial planning” is also evident.



Scorpaena scrofa - photo by Institute for Physical Planning Region of Istria

MSP cross-border initiatives

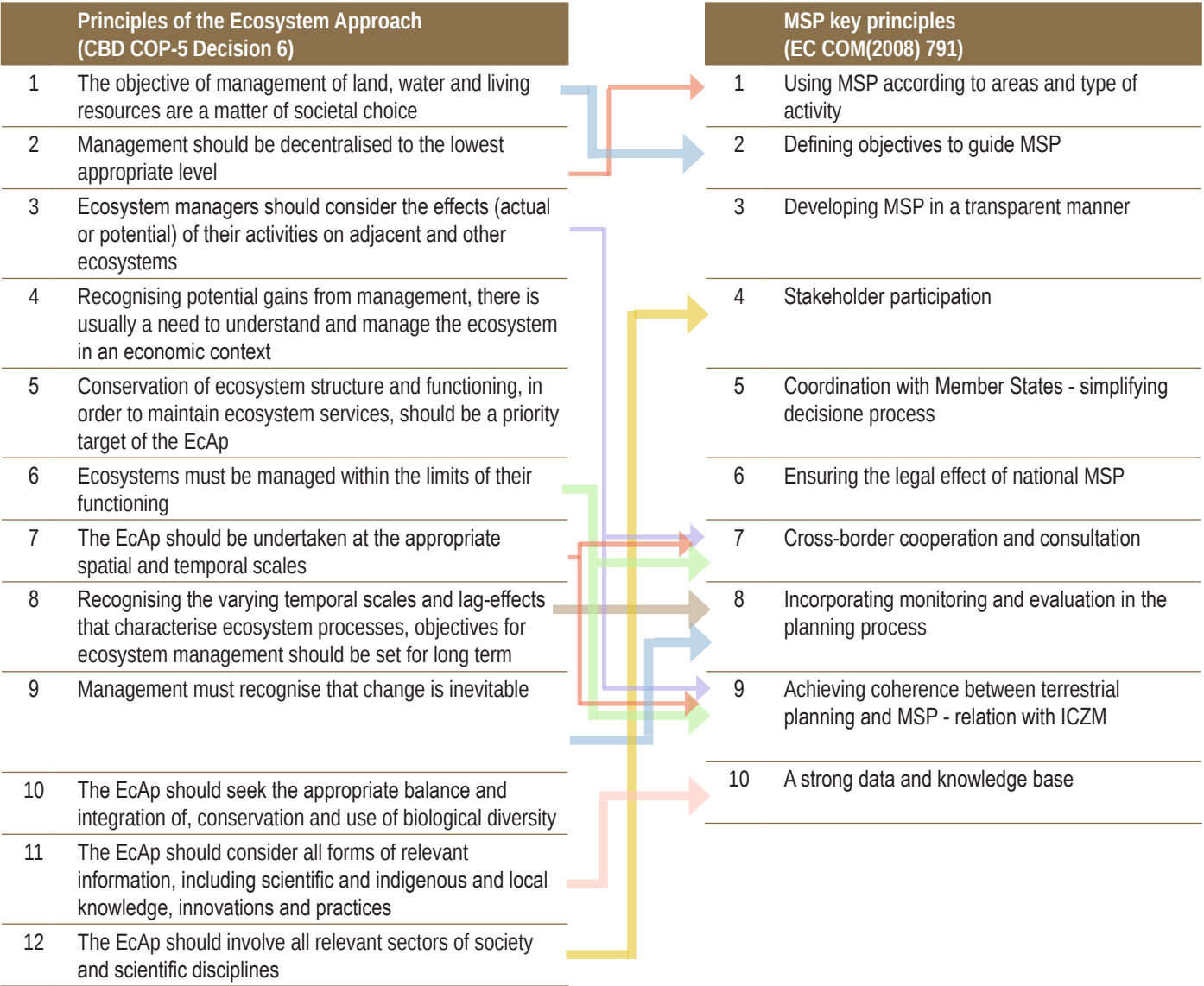
“BaltSeaPlan – Introducing Maritime Spatial Planning in the Baltic Sea” (2009-2012) was led by the German Federal Maritime and Hydrographic Agency and involved 14 partners from EU Baltic Sea Region states that worked together in order to promote the implementation of MSP throughout the Baltic Sea Region. Based on the findings of previous regional, national and transnational projects BaltSeaPlan activities were designed to provide support to all aspects of MSP within the Baltic Sea where gaps had been identified. The focus of BaltSeaPlan was on Integrated MSP, seeking to extend the principles of terrestrial spatial planning and ICZM to the open sea.

The Plan Bothnia project (2010-2012), co-ordinated by the HELCOM Secretariat, tested transboundary MSP in the Baltic Sea. The project used the Bothnian Sea area between Sweden and Finland as a case study of Baltic transboundary MSP. The final result is a MSP plan document “Planning the Bothnian Sea” which was created as a collective effort by six partners and numerous participants from regional and national authorities. The project made use of a Map Service tool to visualise all spatial layers that were analysed; this tool is available at the project web-site.

MASPNOSE was a preparatory action on MSP in the North Sea. MASPNOSE facilitated two concrete, cross-border MSP case studies on the North Sea: (1) the Belgian-Dutch collaboration on the Thornton Bank in the southern North Sea, and (2) the development of an international fisheries management plan for the Dogger Bank in the central North Sea.

TPEA - Transboundary Planning in the European Atlantic (2012-2014) is developing a commonly-agreed approach to cross-border MSP in the European Atlantic region. TPEA involves ten governmental and research partners from Ireland, Portugal, Spain and the UK, and expert advisors from the whole region are also actively involved. The project is carrying out cross-border planning exercises in two pilot sites, one in the north of the region (within the waters of Northern Ireland and the Republic of Ireland) and another in the south Atlantic (within the waters of Spain and Portugal situated around Guadiana).

Source: Projects' web-sites and final deliverables



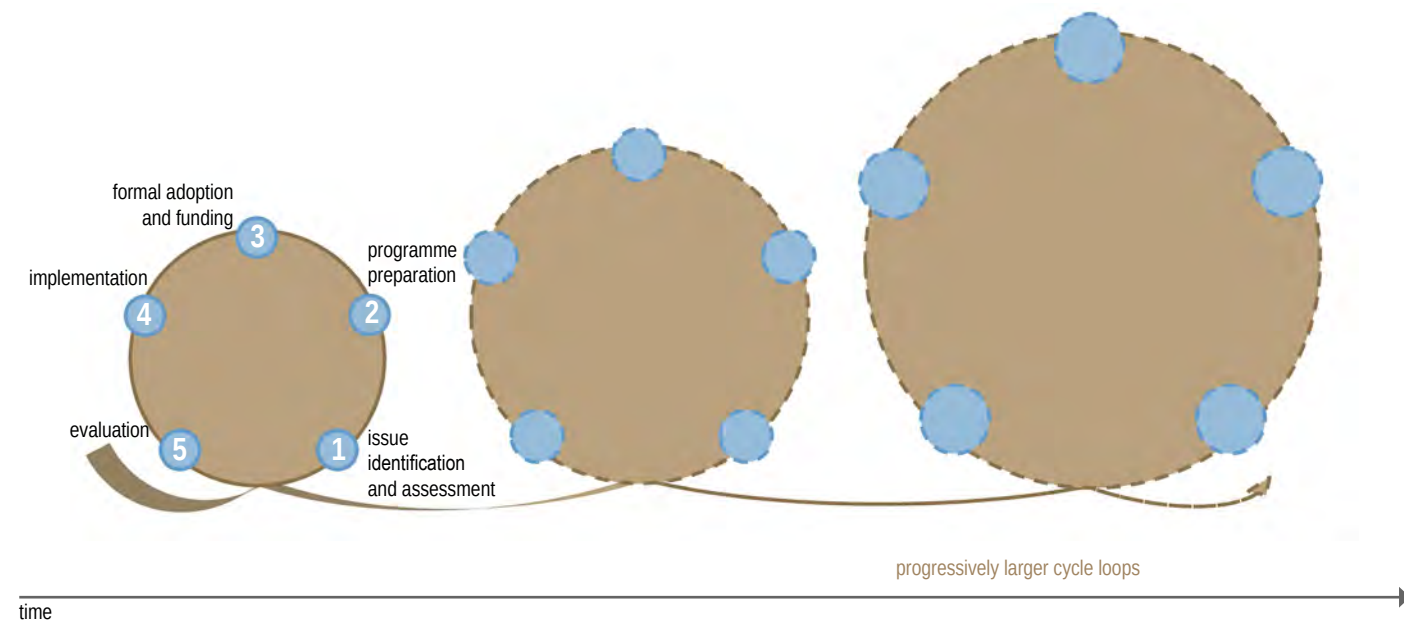
Links between EcAp and MSP principles

Both EcAp (principle 9) and MSP (principle 8) recognise that natural ecosystems and socio-economic systems are exposed to constant and inevitable changes; this appears particular true in the case of the dynamic marine space. Monitoring, evaluation and adjustment are therefore key steps of the process, in line with the adaptive management approach.

Adaptive management can be defined as an iterative and systematic process for continually improving management policies and practices by learning from the outcome of operational programs. Through this process, policies are elaborated and practices (including actions of plans) are identified on the basis of the assessment of available knowledge, and are then implemented,

and periodically monitored and evaluated. This iterative process enables to adapt over time the identified actions, in particular considering new and emerging knowledge, the evolution of the considered spatial context and the results of already implemented actions. For its intrinsic adapting nature, this approach is particularly useful and suitable in dealing with complex and highly uncertain issues, such as planning of current and future uses of the sea. Its most effective form - “active” adaptive management - employs management programs that are designed to experimentally compare selected policies or practices, by evaluating alternative hypotheses about the system being managed; in the case of MSP this can for example be done through the formulation and analysis of alternative scenarios.

more sustainable forms of marine management



Adaptive management cycle (modified from GESAMP, 1996).

Key principles for MSP

From the EcAp and the adaptive management approaches and the distinguishing features of MSP a number of key principles for the planning of maritime uses at the scale of the Adriatic Sea can be highlighted and needs to be considered in the process implementation.

Pan-Adriatic view

Marine and coastal planners must consider and approach the Adriatic Sea as a whole in all the stages of the MSP process.

This requires the adoption of an holistic perspective, according to which the complexity of the Adriatic system is greater than the sum of its component parts; this complexity cannot be understood by the isolated analysis of the single parts.

Objectives and targets have therefore to be set for the whole Adriatic, putting the common and shared vision into practice.

Multi-scale approach

At the same time MSP must be able to acknowledge specificities of the different Adriatic regions, such as:

- northern, central and southern basins;
- western and eastern Adriatic;
- from coastal waters to open sea.

This implies taking advantages of spatial differences, i.e. defining different priorities for different places and areas, however within the overall objectives and targets responding to the Pan-Adriatic view. A multi-scale approach is therefore needed; the regional to local scale zooming in can allow to properly consider spatial differences and to detail the analysis and the identification of MSP responses in most critical Adriatic areas, where concentration of conflicts among uses is higher.

The multi-scale approach is needed in the other direction as well; a zooming out perspective is useful to establish links with MSP actions and initiatives occurring at the Mediterranean scale or with framing European policies and documents.

Integration

Integration is an essential feature of MSP; indeed it can be found in various MSP principles and can assume different meanings:

- integration among the environmental, social, economic and governance dimensions is required to elaborate solutions able to properly respond to real sustainability objectives;
- integration among sectors enables to go beyond sector policies, plans and legal instruments and provide win-to-win solutions for more than a single use of the sea;
- vertical and horizontal cooperation among administrations and technical agencies is a required step to proceed towards coordination and integration of sector policies and plans;
- integration between terrestrial and maritime planning is essential to harmonise and ensure coherence among parts of the same system that interact each other through a relevant number of socio-economic and ecological processes.

Four dimensions

MSP operates within three dimensions, addressing activities (a) on the seabed; (b) in the water column; and (c) on the surface. This allows the same space to be used by different purposes; for example, the exploitation of the seabed for sand extraction can be managed compatibly with maritime transportation. Time should also be taken into account as a fourth dimension (EC COM(2008) 791). For example temporal zoning can be used to prohibit access to and fishing in areas used by marine species during the reproductive season, allowing these activities during less ecologically critical periods.

In some cases the 4D dynamic needs to be studied in details; contemporary protection of benthic biodiversity and fishing occurring in the water column, however possible in principle, should be avoided if ecological relationships along the vertical dimension are essential for benthic communities.

Long-term perspective

To ensure implementation of the common and shared vision of the Adriatic Sea a long-term perspective must be considered and applied in all the phases of the MSP process. Long-term objectives are essential in dealing with the strategic and anticipatory nature of MSP and allow to plan and implement actions in a period long enough to get concrete results. MSP must therefore ensure that short-term goals do not compromise the long-term goals. The long-term perspective is also essential in dealing with the challenges set by climate change adaptation of the marine and maritime sectors.

Stakeholder participation

Stakeholder participation is required in all stages of the MSP process. Not only stakeholders' involvement can provide sources of knowledge and help in shaping data in forms operationally useful for maritime spatial planning, it is also essential in achieving broad acceptance of the maritime spatial plan and support to its implementation. It is really important that stakeholder participation is organised ensuring a fair balance among various stakeholder typologies (e.g. representatives of: international organisations, national authorities, regional to local administrations, technical agencies, economic sector, NGOs, environmental and social organisations, research institutions, etc.) and among the different geographic areas of the Adriatic Sea. It is also important that the process stimulate the participation of the Adriatic citizens in general, regardless of their partnership to any associations.

The concept of transparency is strictly connected to participation: the mechanism that brings to decision should be easily understood by all participants to the process and any data and document should be freely accessible.

Scientifically-based

Planning of maritime uses, resolution of conflicts and exploitation of synergic opportunities have to be based on a strong and high-quality data and knowledge base.

To this regard, any form of “good” knowledge must be taken in consideration, including that generated by people living and working at the sea. An important effort should be put in processing data in forms really useful for the decision-making process, including among the other thematic maps of current and future uses and maps of main conflicts. Exchange of knowledge (including MSP best practices) among Adriatic countries, with other Mediterranean countries and with MSP international initiatives launched in similar contexts (e.g. the Baltic Sea) should be encouraged and supported.

Legally binding

To be effective maritime spatial plans should be legally binding; this can reinforce commitment of Adriatic actors in ensuring their participation in the long-term. As recalled in the EC COM(2013) 133 premises (point 7) “planning of ocean space is the logical advancement and structuring of the use of rights granted under UNCLOS and a practical tool in assisting Member States to comply their obligations”. However, at the scale of the Adriatic Sea, MSP must address the marine space not falling within national jurisdiction as well; this opens the ground to a relevant and wide discussion on international legal and governance issues.

Suitability and spatial efficiency

Suitability of human uses and spatial efficiency are guiding concept of the maritime planning process and aim to optimise the efficiency in the use of marine resources, minimise conflicts among uses and between uses and habitat protection, maximise synergies among uses.

The application of these principles implies that:

- The marine space and resources are used in the most efficient way, minimising impacts and maximising benefits.
- The sea space is reserved to uses really depending on marine resources and it is not just consider an area where land uses can be transferred. This concept must internalise the efficiency principle; a land use

can be transferred to the sea if it generates higher benefits and produce lower impacts or conflicts.

- Immovable and not-renounceable uses and functions have priority in the space allocation and in the planning exercise. This can be for example the case of existing off-shore infrastructure or even of precious habitats providing essential ecological functions.
- Co-using must be encouraged as much as possible, proving its efficiency in the use of marine resources. Synergy among uses shall be based on the optimal exploitation of the 4-dimensions of MSP.

The concept of spatial efficiency shall also ensure a fair distribution within the Adriatic basin of advantages and disadvantages of MSP.

Connectivity

The connectivity concept implies that maritime spatial plans focus on connections beyond administrative limits, which can generate social, economic, environmental and governance benefits within the MSP perspective. Connectivity can be related to:

- Linear elements, as for example: (i) shipping lanes (e.g. Adriatic Motorways of the Sea) and ports connections to be approached together to develop an integrated and efficient maritime transport system in the Adriatic Sea, (ii) cables and pipelines connecting different countries and regions, enabling to approach energy distribution issues at the basin scale (e.g. Trans Adriatic Pipeline).
- Patches, in terms of connection of areas with similar or interrelated uses or functions. Connection of patches is particularly important for biodiversity preservation, acknowledging within MSP the fundamental ecological role of links between different habitats supporting the life cycle of Adriatic species (e.g. spawning ground, nursery areas, feeding sites, etc.). Together with the habitats (patches), connections should be preserved through blue corridors (linear elements) for living species (similarly to the land concept of ecological network);

both are essential in preserving the needed space for ecological processes. Connection of patch elements is also related to networking of marine protected areas.

- Knowledge sharing, including: data sharing, exchange of best practice, capacity building, monitoring networks evolving towards real integrated monitoring systems, standardisation of operational procedures, etc.

Cross-border cooperation

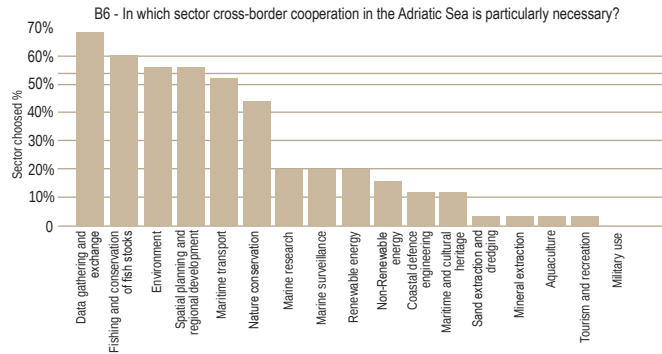
Cross-border cooperation in MSP is essential at all levels: methodological (e.g. common methods, data and information sharing, best practice exchange, etc.), strategic (elaboration of a joint vision; definition of shared principles, objectives and targets; cross-sectoral planning), implementation (including shared monitoring, evaluation and progressive adjustment). Relevance of cross-border cooperation is also stressed by art. 12 of the proposed Directive establishing a framework for MSP and ICZM, that invites Member States to cooperate “to ensure that maritime spatial plans and integrated coastal management strategies are coherent and coordinated across the coastal zone and/or marine region and sub-region concerned. Such cooperation shall in particular take into account issues of a transnational nature, such as cross-border infrastructure”. Cross-border cooperation in the Adriatic Sea is considered particularly necessary by Shape partners on the following MSP-related issues:

- **Data gathering and exchange;** constituting a necessary initial step in any cooperation initiative dealing with planning and management of cross-border issues. Cross-border cooperation could be very useful in covering major existing gaps, as those related to offshore areas and the deep sea.
- **Fishing and conservation of fish stocks;** considering the relevance of this socio-economic activity for both shores of the Adriatic Sea, the intense pressure on natural stocks, the need of basin scale assessment on the real consistency of

- fish stocks and shared rules for their sustainable management.
- **Environment**, recognising the existence of cross-border environmental problems (such as eutrophication of coastal waters, chemical pollution in hot-spot areas, marine litter, marine transport's impacts, biodiversity loss, marine habitat degradation, etc.) and the opportunity provided by the implementation of MSFD at the basin scale. Cross-border cooperation will be strategically important to ensure coherence of MSFD application and the achievement of MSFD goals (i.e. GES by 2020) in the whole Adriatic, including the "open sea", i.e. marine areas not falling under national sovereignty and jurisdiction.
 - **Spatial planning and regional development**, that calls directly for the implementation of an MSP approach at the Adriatic scale, coherently with the strategic objectives and pillars of the EC Blue Growth policy and EU Strategy for the Adriatic and Ionian Region. Particularly relevant for this issue is the coherent and harmonised implementation of MSP and ICZM at the basin scale.
 - **Maritime transport** and the related port services, due to the high and increasing relevance of these activities in the Adriatic basin, including industrial and commercial maritime transportation, passenger shipping, cruising, and coastal and marine tourism. Cross-border cooperation is essential to: develop an integrated and efficient maritime transport system with improved hinterland connections (intermodality), provide the needed connectivity among Adriatic countries and coastal regions, ensure safety and security conditions, develop joint monitoring and response systems to cope with environmental impacts (including major accidental events as oil spills), etc.
 - **Nature conservation**, acknowledging that the Adriatic Sea is not only characterised by intense human uses but also by coastal and marine areas of high naturalistic relevance and stressing the relevant role played by the Adriatic Sea in providing

essential ecosystem services. The issue of nature conservation is strictly related to the need to improve networking among marine and coastal protected areas within the umbrella of the EC Natura 2000 initiative.

Furthermore as highlighted in the chapter of this handbook dealing with the common vision for the Adriatic Sea, **climate change adaptation** and **marine research** and innovation represent cross-cutting issues to be approached in a cooperative perspective. When implementing the MSP process, each of the identified key issues for cross-border cooperation in the Adriatic Sea will require the definition of a shared specific vision and related objectives and actions.



Sectors for which cross-border cooperation in the Adriatic Sea is particularly needed according to Shape partners.



Shape project's events

MSP step-by-step in the Adriatic Sea



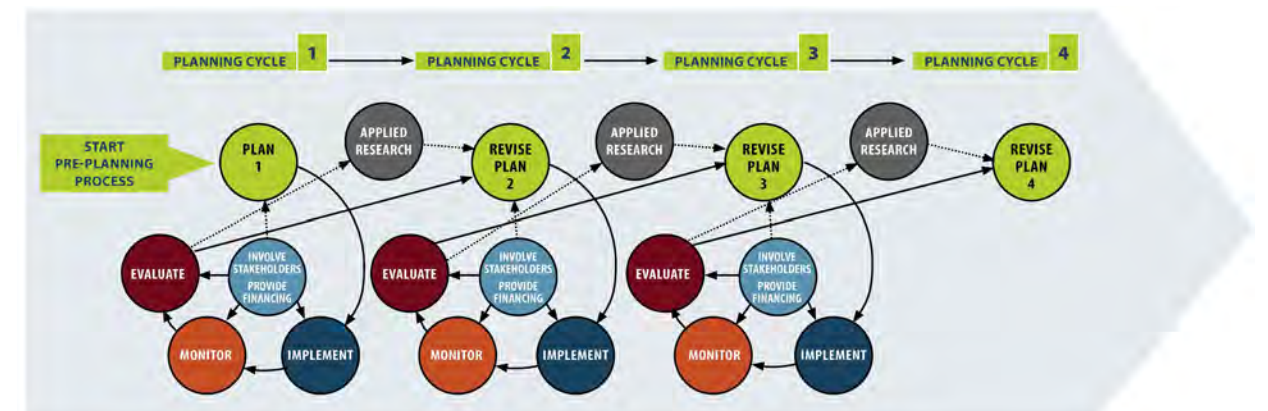
“MSP is a practical way to create and establish a more rational organization of the use of marine space and the interactions between its uses, to balance demands for development with the need to protect marine ecosystems, and to achieve social and economic objectives in an open and planned way” (DEFRA, 2008; Ehler and Douvere, 2009). Coherently with this definition, according to EU policy documents “MSP is a tool for improved decision-making. It provides a framework for arbitrating between competing human activities and managing their impact on the marine environment. Its objective is to balance sectoral interests and achieve sustainable use of marine resources in line with the EU Sustainable Development Strategy” (EC COM(2008) 791).

The variety of definitions is reflected by the variety of adopted methodologies; i.e. there is not a single approach responding to all strategic objectives and adapting to all marine contexts. MSP should be shaped and based on the specificities of individual marine areas that are concretely approached in its implementation. However, there are common steps that are considered in most of MSP initiatives and guiding documents, as: data collection and analysis, stakeholder consultation and the participatory development of a plan, the subsequent phases of implementation, enforcement, evaluation and revision.

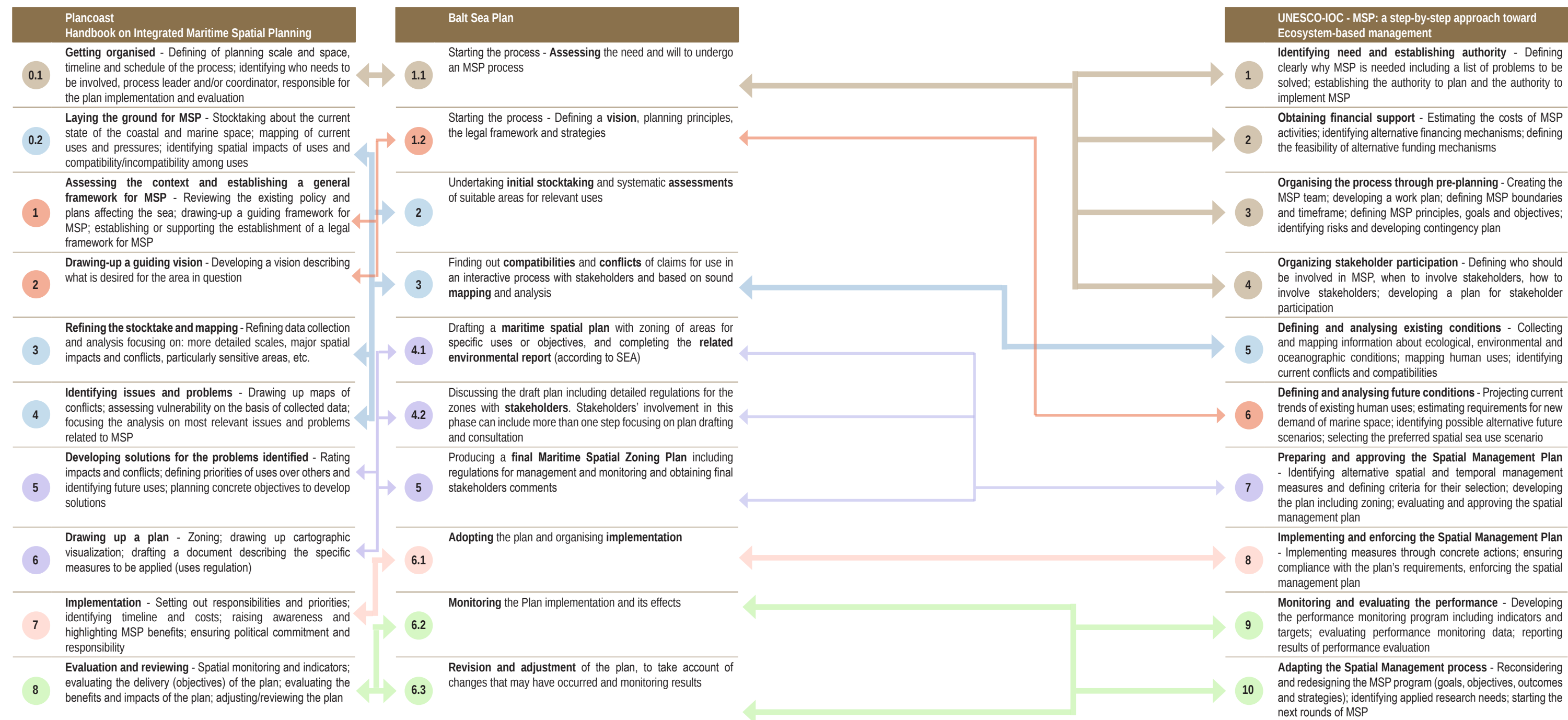
The principal output of the MSP process is a spatial management plan that provides a concrete representation of a future strategic vision of the considered marine area. Given the relevance of spatial suitability and efficiency in MSP, mapping and zoning are essential parts of the spatial management plan, together with a system of regulation of uses that can contribute to limit conflicts and capitalize co-location opportunities. The system of regulation enables also to properly take account for the fourth MSP dimension, i.e. time.

Equally important is the process aspect of MSP; “MSP does not lead to a one-time plan. It is a continuing, iterative process that learns and adapts over time” (Ehler and Douvere, 2009). This process must be able to involve all coastal and marine actors, ensuring that different stakeholder typologies and geographic regions are properly represented.

The maritime spatial plan does not replace other integrated (as in particular ICZM ones) or sector plans. On the contrary it has to integrate with other plans and represent in spatial features the requirements arising from other policy and directives, as for example MSFD or Natura 2000 ones; actually these requirements can even assume the consistency of immovable elements of the MSP process (as for example in the case of Natura 2000 sites).



The iterative MSP cycle (Ehler and Douvere, 2009)



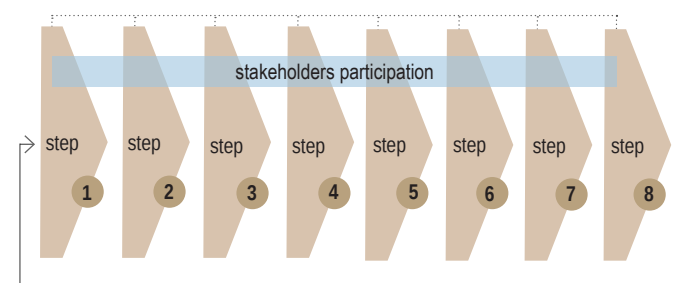
Comparison of MSP approaches

MSP step-by-step in the Adriatic Sea

Three guiding and inspiration documents have been analysed and compared for the purposes of this handbook, i.e.:

- “Marine Spatial Planning: a step-by-step approach towards ecosystem-based management. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guide n. 53”, providing a framework step-by-step approach to the application of MSP.
- BaltSeaPlan documents, as in particular “BaltSeaPlan Vision 2030. Towards the sustainable planning of Baltic Sea space” and “Become a maritime specialist within 10 minutes”, that focus on a transboundary closed sea (i.e. the Baltic Sea) having some characteristics similar to the Adriatic Sea ones.
- “Handbook on Integrated Maritime Spatial Planning” developed by the PlanCoast project, that included in its analysis the Adriatic Sea, together with Baltic and the Black Sea.

The methodological information included in these documents was used as a basis to define the steps for MSP implementation in the Adriatic Sea. These steps focus on aspects that are relevant at the basin scale and that therefore should be approached through cross-border cooperation. The identified eight steps do not simply constitute a linear process; feedback loops can be built into the process, linking different steps. For example the elaboration of future scenarios can trigger the search for new data and information that were not considered initially. Stakeholder participation can (and should) influence most of the planning steps; this may require going back to previous approached steps.



Step 1 - Starting the process and getting organised

This step deals with all the issues that need to be clarified and organised before starting the real planning process. Firstly it is essential to identify why the cross-border MSP process is needed and therefore what are the overall objectives and the expected results; this implies the assessment of needs and will to effectively undergo the process. Strictly related to this point is the identification of the authorities that have the interest and responsibility in MSP and must therefore be involved in the maritime spatial plan's design and implementation. Implementation authorities should be identified as early as possible to be fully part of the process since its beginning and to be constantly in contact with authorities (if different) and experts that are in charge of the plan development. Based on this initial strategic analysis, several specific issues need to be approached in this pre-planning phase, including:

- Development of the process work plan, identifying: specific activities included in each step, outcome of each step and activity, links among steps (including feedback loops), schedule, timeline, milestones, deliverables, risks and possible solutions (contingency plan).
- Identification of the MSP area and scale of application; this should include the evaluation of the need of a nested multi-scale approach.
- Identification of the MSP timeframe, setting the temporal limit of the future vision, scenarios and plan.
- Definition of the MSP working group, including all needed expertise, and detailed identification of roles (e.g. process leader, step coordinators, experts, data analysts, mappers, facilitators, motivators, communication and dissemination experts, etc.).
- Organisation of stakeholder participation, defining who must be involved as well as when and how stakeholders will take part to the process. This activity shall also clarify what is the stakeholders' expected contribution along the various steps of MSP development and implementation.

Finally, step 1 of the MSP process must estimate expected costs and identify possible (internal and external) source of funding.

Step 2 - Assessing the context and defining the overall framework for MSP

Normally, MSP takes place in a dynamic and complex policy context that needs to be assessed, in particular to identify what are the existing inputs to the MSP process and the existing gaps. This step includes the analysis and evaluation of available MSP related legal documents, policies and plans, issued at various levels (international, EU, macro-regional, national, regional and in case local; cfr. chapters 2 and 3). Considering a pan-Adriatic perspective, particular attention must be given to any cross-border policy initiative that may play a relevant role in shaping the MSP process in this basin. Relevant documents are not only those specifically dealing with MSP, but also those approaching related issues, as: ICZM, Blue Growth, IMP, MSFD, Natura 2000, marine knowledge, etc. The analysis should clearly identify what is the status of the legal framework for MSP, in particular in relation to UNCLOS provisions. This aspect assumes high relevance when a cross-border approach is called into question, in particular in the Adriatic Sea, due to the existence of some undefined situations.

The second pillar of MSP frameworking is the definition of a strategic vision of what the marine area should be in the future. The vision shall aim to support the sustainable management of the approached area as a whole, according to an holistic perspective. At the same time it should ensure that sustainable management is spread in all involved countries and regions, taking in consideration specificities of different areas. Initial elements of a pan-Adriatic MSP vision are discussed in chapter 4 of this handbook and intend to be a first stimulus for a deeper and more extensive reflection.

To be effective the vision should be:

- agreed and shared among relevant stakeholders;
- linked and coherent with existing adopted policy documents;

- simple, in a way it is immediately understandable by anyone and easily communicable;
- inclusive of relevant economic, environmental, social and governance aspects;
- holistic, providing a cross-sectoral view of issues that are often regarded separately;
- focused on future benefits of the MSP process, in a way it can orientate MSP implementation towards concrete results;
- long-term viewing.

Once the vision is in place, it must be articulated into objectives and targets. The following steps of the MSP process will then translate the vision in alternative scenarios and in a tangible spatial framework. The vision is not set in a stone; other activities of the MSP process (as scenarios building, plan development and the continuous stakeholders' participation) can contribute to optimise the vision. More consistently the vision can be adjusted and reshaped at any cycle of the MSP iterative process.

Step 3 - Analysing existing conditions

Step 3 heavily relies on data availability, in particular as far as spatial information is concerned. Therefore, it initially requires: an accurate stocktaking of available sources of data and information, quality assessment and control of gathered data, development of data sharing protocols and platforms, and identification of existing gaps. Some of the gaps could be approached during the MSP process; however it is rather important to limit the scope of data collection to avoid too intense use of resources in this step of the process. Other gaps should be covered by specific surveys, investigations and projects to be run independently (and in case in parallel) to the MSP process.

The main goal of step 3 is the understanding and representation of the existing conditions of the marine area. Given the spatial nature of MSP the core of step 3 is represented by mapping of: ecological, environmental and oceanographic conditions; coastal and marine human activities; sensitive areas; spatial impacts (i.e.

the marine space affected by a human activity in terms of direct demand and impacted area), and vulnerability assessment (e.g. to oil spills or marine littering). However, beside maps, other data might be required, in particular to clearly understand the real occurrence of conflicts or synergies. Other useful information can for example include quantitative data on the intensity of marine human activities or their regulations in space and time. Where quantitative data are not available, qualitative experts' evaluation can be used, at least in a first run of the MSP process; in this case stakeholders' contribution can also be relevant (e.g. identification of fishing areas provided by fishermen). Furthermore, the analysis of the existing conditions should not forget to take in consideration the current (environmental and socio-economic) impacts of marine activities on the mainland and impacts of coastal activities on the sea, enabling to understand in details land-marine connections. Based on the collected information, step 3 foresees the identification, assessment and spatial representation of existing conflicts among uses and between uses and (ecologically and environmentally) sensitive areas. The analysis must also identify compatibilities among marine uses and between those uses and the environment, to investigate any possible synergy and chance of co-location of human activities (including biodiversity and habitat preservation). Spatial incompatibilities can be also determined by sea-land interactions, as for example coastal tourism requiring a clean bathing environment and unimpeded views of the marine horizon. The identification of compatibilities and conflicts is surely based on technical analysis and mapping, but should also take in consideration the results of an interactive process with stakeholders.

The analysis of existing conditions, including the identification of conflicts and compatibility, should also carefully consider the opportunity and need of a multi-scale approach. Detailed information can be collected and mapped for those areas identified as most sensitive or promising in terms of MSP, downscaling the analysis and enabling to take in consideration uses that may only take place in specific locations.

The organisation of spatial data in a Marine Information System (MIS) is highly suggested in this phase of the process. The adoption of a web-based solution can be particularly useful in supporting data sharing, comparison and integration, as it is actually required by a cross-border approach. A shared web-based MIS offers a high potential for data and metadata management, implying the following advantages: data and metadata are updated by data producers, responsibility of data and metadata quality check is shared among different subjects (again the data producers), reduction of management costs in particular related to the previous two issues, reduction of limitation to data accessibility related to restrictive data policy.

Shape project (WP5) designed and developed a Web Adriatic Atlas, aimed to collect and organise spatial information supporting ICZM a MSP.



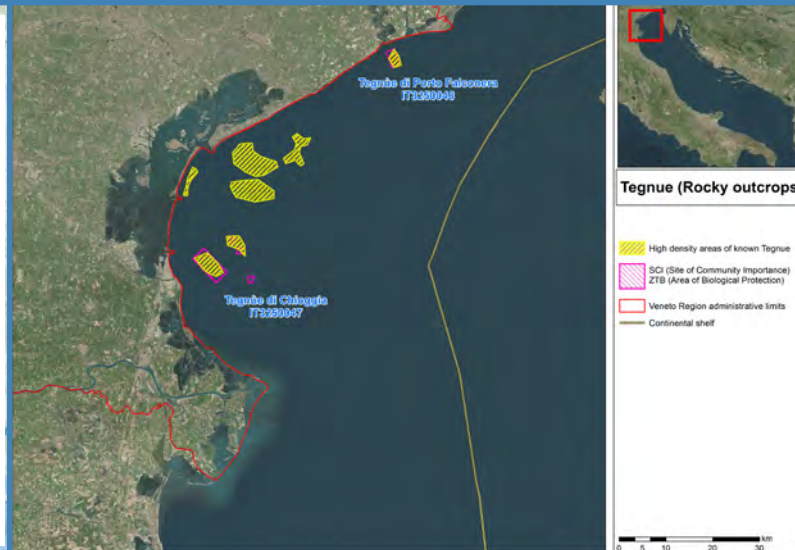
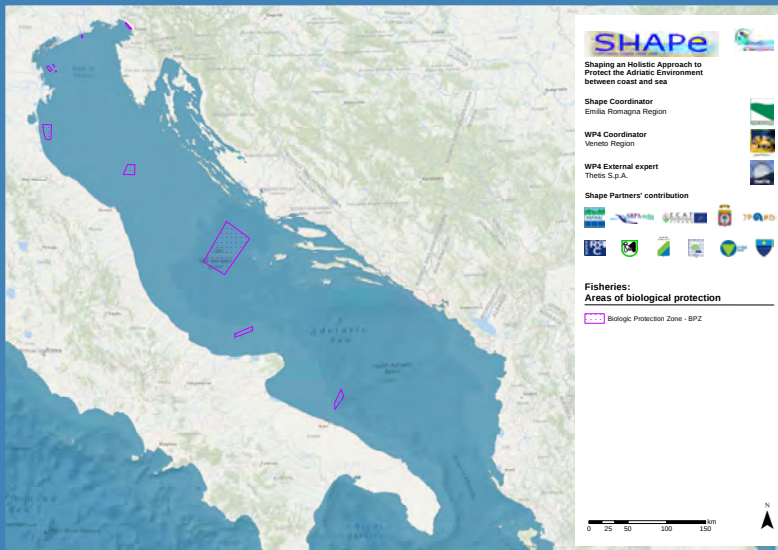
Conger conger - photo by Institute for Physical Planning Region of Istria

	Marine protected areas	Maritime transport	Oil and gas extraction	Offshore wind farms	Sand extraction	Fishery	Aquaculture	Coastal defence and protection	Tourism and recreation	Military use	Maritime works
Marine protected areas											
Maritime transport											
Oil and gas extraction											
Offshore wind farms											
Sand extraction											
Fishery											
Aquaculture											
Coastal defence and protection											
Tourism and recreation											
Military use											
Maritime works											

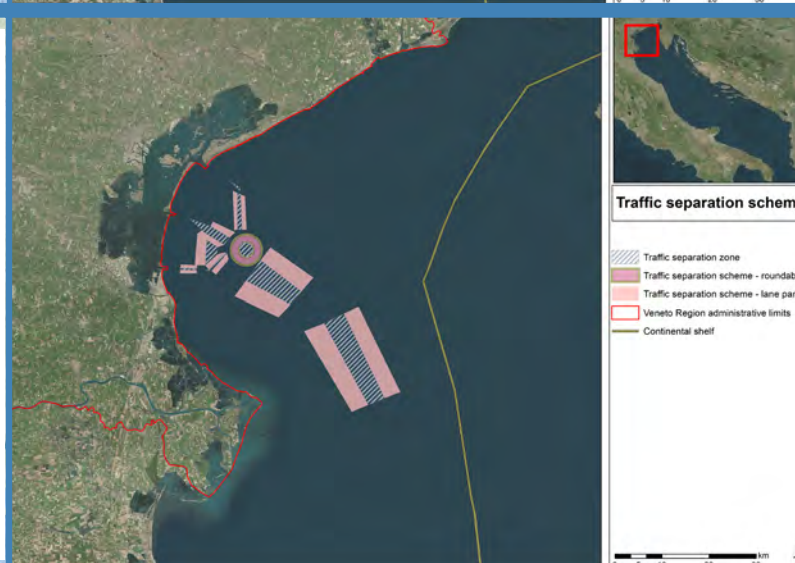
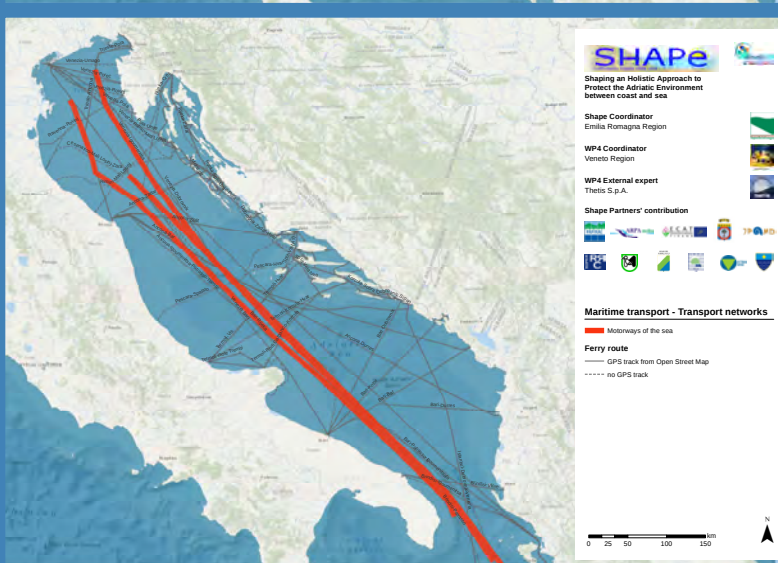
Matrix of compatibility and conflicts between maritime uses in the Adriatic Sea according to Shape partners (green: compatible uses, yellow: conditionally compatible uses, orange: conflicting uses)



Adriatic Atlas to support ICZM and MSP

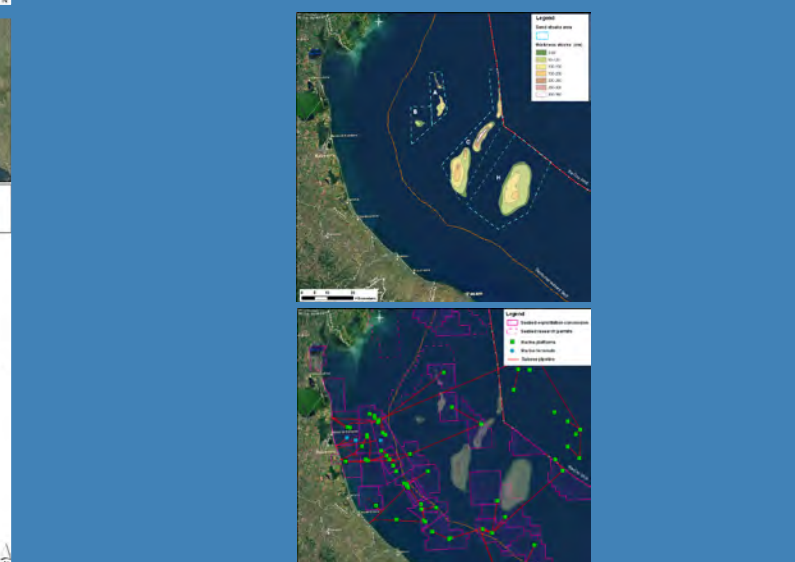
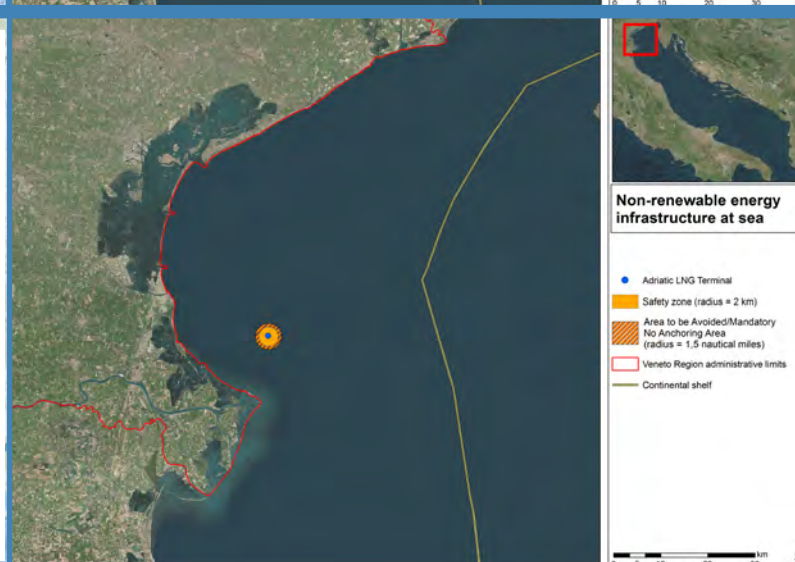


Examples of MSP thematic maps at the Adriatic Sea (partial spatial coverage) and Veneto Region scales

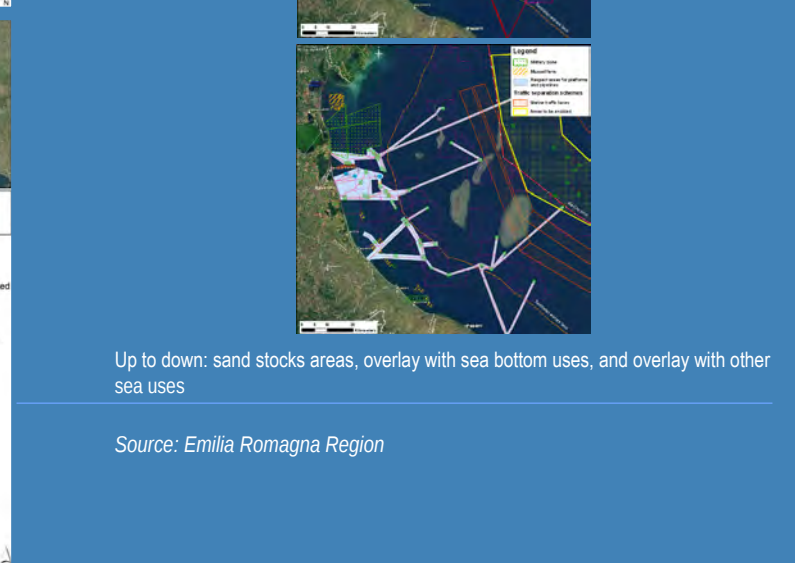
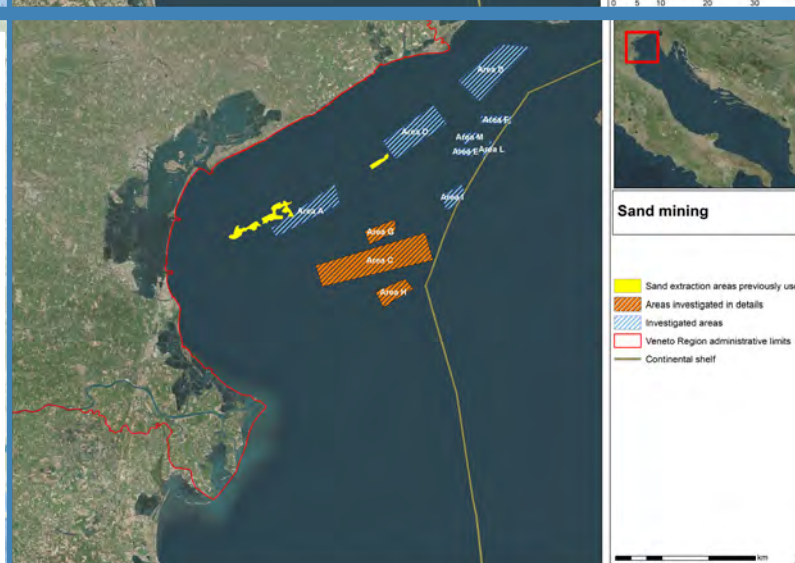
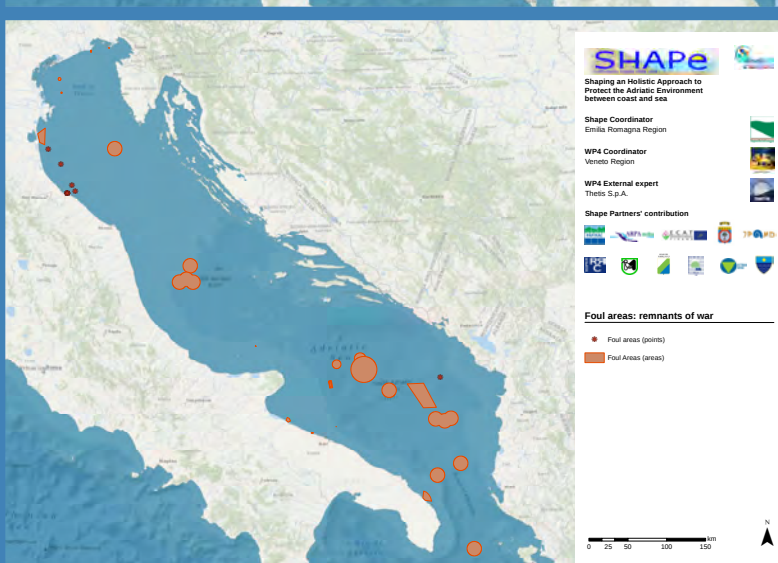


Tools to improve the management of undersea sand deposits
 Emilia Romagna Region has developed a series of databases and tools (some of which have been implemented within the Shape project) aiming to allow a better management of marine resources and a more effective maritime spatial planning. Developed instruments are: the information system of uses of the sea (in_Sea), the information system for the management of the undersea sand stocks (in_Sand), the catalogue of nourishment interventions and coastal defense (in_Defence).
 In_Sand was developed thanks to an agreement with CNR-ISMAR of Bologna and it enables to examine and process all the data (seismic, geological, morphological, etc.) concerning marine sand stocks and, through a dedicated tool, to update the residual sand volumes. Overlapping of data contained in in_Sand with those included in in_Sea has allowed defining more accurately the dredging areas free from other constraints and uses and, above all, to define conflicts, as for example those related to the presence of submarine permanent structures (pipelines, underwater cables, platforms, etc.). In_Sand also provides information on available sand resources, essential for planning the coastal defense strategy in a climate change perspective. Moreover, data relating to dredged sand and areas of replenishment will be also uploaded in the in_Defence database that describes the history and numbers of each nourishment intervention on the coast.

GIS for marine and coastal area management in Slovenia
 Slovenian coastline is approximately 47 km long. It is an area of valuable natural and cultural heritage, natural resources and extraordinary landscape, but also under strong development pressures, such as urbanisation, port operations, tourism, farming, fishing and mariculture. Management of such complex system is therefore of crucial importance. To this end a special GIS tool was developed within the Shape project; the GIS covers: 100 meters coastal zone ("setback zone"), coastal areas protected by sectoral legislation and 200 meters offshore belt. Potential users of GIS are coastal municipalities, national administrative units, ministries, public institutes and their local branches, etc.
 The application is made of two units - control and viewer - interconnected with the database. The viewer unit enables user to observe spatial data in an interactive way and in a 3D environment. User can observe changes in selected spatial zone and analyse all concerning and available spatial data. The application also enables the use of different tools which are being further tested and developed for enhancement of performance.
 Categories of available thematic layers included in the GIS are: spatial units (e.g. cadastres, spatial implementing acts, land use, addresses, protected areas, recreational zones, etc.), municipal infrastructure (e.g. sewage system, water supply, etc.), electricity infrastructure, underwater objects, data processing (the results of processing different layers with available tools), 3D models.



Selected data in 3D viewer



Up to down: sand stocks areas, overlay with sea bottom uses, and overlay with other sea uses

Source: Emilia Romagna Region

Step 4 - Analysing future conditions

MSP is a future-oriented process, thus the answer to the question “Where do we want to be?” is as essential as the understating of current conditions. The strategic vision developed under step 2 orientates the whole MSP process, surely including the definition and analysis of future conditions.

Step 4 activities can initially focus on the analysis of current trends of needs of existing marine human uses and their projections into the future, to understand how the system would evolve without relevant changes of goals and objectives. Particularly important is the analysis of already existing integrated and sector policy and plans, defining strategic and specific objectives as well as concrete actions for the future evolution of the marine area, including those relevant in terms of new demand of the sea space (e.g. new uses or intensification of existing uses).

Results of above activities should then converge into the elaboration of alternative scenarios, coherently with the framework indications provided by the shared vision. Scenarios elaboration and assessment actually represent the core of step 4. A scenario can be defined as an image of the future developed on the basis of assumptions that are coherent with the vision. The scenario therefore does not constitute a forecast, but rather a possible view, or a range of possible views, of how a given marine system may occur in the future. The cross-border approach requires that alternative scenarios are developed through the involvement of all relevant Adriatic actors. It is therefore at this stage, together with the vision definition, that widespread stakeholder consultation becomes really essential. Developed scenario can be illustrated through descriptive storylines. In the MSP process, it is essential that these are then spatially represented through scenarios maps, showing the future evolution of maritime uses. Spatial sea use scenarios can illustrate the concrete consequences of implementing certain assumptions and objectives. This spatial representation does not need to be accurately detailed, since it is finalised to visualise the desired direction of how the marine space would be used in the

future under different conditions. Based on the future uses’ representation, major conflicts and compatibilities should be identified for each scenario, including the business as usual one. Moreover, uncertainty related to the developed scenarios should be clearly illustrated.

The final result will be a number of alternative scenarios, coherent with the previously defined vision, each one providing a view of how the marine area will look in the future, in particular in terms of maritime uses and related conflicts, compatibility and impacts. A preferred scenario has to be selected; this will form the basis for the elaboration of the maritime spatial plan. Selection must be based on shared criteria, considering: socio-economic effects, environmental and ecological impacts, time required to achieve expected results, political effects (e.g. links with other plans, scenario acceptability), equitability of benefits distribution, financial feasibility (Ehler and Douvère, 2009).

Step 5 - Elaborating the Maritime Spatial Plan

The main aim of the maritime spatial plan is the optimisation of existing and future (as defined by the vision and the selected scenario) human uses, in a way that conflicts and impacts are minimised and synergic opportunities are capitalised. The form and contents of the plan heavily depend on the previous analytical and strategic analysis, in particular as far as vision elaboration, objectives and targets identification and scenario development are concerned. This is why the proposed methodology emphasises the role and importance of goals setting and analysis of current and future conditions. At this stage of the process, vision, strategic objectives and scenario must be translated into concrete and possibly quantitative goals (e.g. % of the whole marine area to be protected, maritime uses to be increased and those to be limited, connectivity to be strengthened or even established, etc.).

As a general rule it is stressed the importance that the plan is kept simple and practical (Schultz-Zehden et al., 2008), to maximise the chance of its concrete implementation. This implies that theoretical background

and results of the previous analytical steps, although surely important and necessary, are just summarised in the plan; details can be illustrated in separated technical documents.

A maritime spatial plan mainly consists of two parts: (i) maps showing zoning of areas for specific uses and objectives, (ii) regulations for the management and monitoring of the identified zones, aiming to avoid conflicts in case of co-location of uses and minimise environmental impacts. Zoning and regulation must take in consideration the 4-dimension nature of MSP; co-existing uses could be possible along the vertical dimension (seabed; water column and surface) or considering temporal differentiation.

Based on to the BaltSeaPlan experience (Gee et al., 2011) five main types of areas can be identified for zoning in the Adriatic Sea:

- **Priority areas**; where the priority is given to a specific use or group of uses (e.g. shipping lanes, offshore platforms, aquaculture, marine protected areas, areas for fish and shellfish restocking, diving or snorkelling areas, etc.). Other uses are allowed only if not conflicting with the priority one. Conflicting or conditionally compatible uses are excluded, due for example to security, economic or environmental reasons.
- **Reserved areas**; where a use, or group of uses, receives special attention, although it has not absolute priority as in the case of the first typology of areas. Balancing between uses, in particular conditionally compatible ones, receive particular attention in this typology of area.
- **No go areas for all uses**; where all human uses are prohibited. This typology can identify areas to be integrally protected, for example to preserve highly sensitive habitats playing a particular role in the life cycle of some species or to avoid any disturb to fragile marine species. It can also identify areas to be preserved for future development, although in this specific case temporary uses can be allowed.
- **No go areas for a certain use**; where a specific use is prohibited as incompatible with all the other uses.

- **Open use areas**; where no use has an absolute or conditional priority and all uses are allowed. The identification and delimitation of this kind of areas must be carefully evaluated to avoid underestimation of conflicts and impacts.

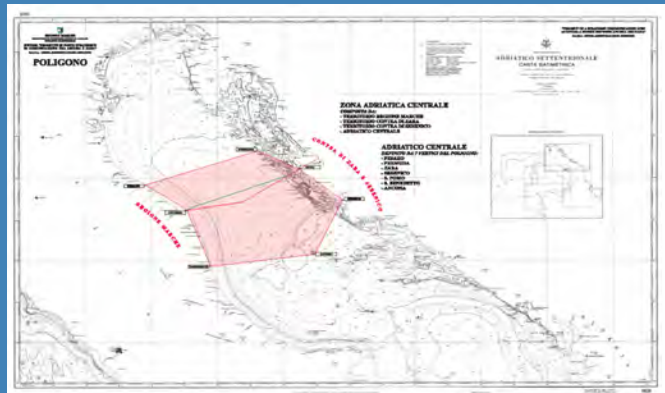
Identification of “immovable” elements is another important activity when dealing with zoning. Immovable and not-renounceable uses (e.g. port facilities, offshore extraction sites, habitats to be protected, etc.) have priority in the space allocation (either in priority or reserved areas). The space needs to be allocated to these firstly, since they cannot be radically moved to alternative locations. Although large spatial shift are not possible, co-use options and optimisation of the marine space demand are measures that must be implemented in the plan to limit conflicts and maximise synergies.

Zoning and the designation of areas are not fixed. Besides being temporary (e.g. closure of a marine area for military operation or limitations of uses during a spawning period) zones must be periodically reviewed taking in consideration the evolving context and the generation of new knowledge. As stressed by step 8 of the proposed methodology, adaptation is essential for the whole process. Because of the dynamic context of MSP, the focus should be on planning (including zoning) rather than on “producing a plan”.

The elaboration of the maritime spatial plan must be run in parallel with the assessment of its environmental effects. As required by the EC proposed Directive establishing a framework for MSP and ICZM (art. 11) maritime spatial plans must be subject to Strategic Environmental Assessment. Indeed it is relevant that assessment is extended to socio-economic effects of the plan, as proposed by the Territorial Impact Assessment approach. Finally, it is stressed the importance that the draft plan (including both zoning and regulation) and the related assessment report (according to SEA) are discussed with all relevant stakeholders, to ensure that the plan is publicly accepted. Discussing the plan can include more than a single consultation step and should foresee a conclusive event, validating the final version of the maritime spatial plan.

The DAMAC Project

DAMAC was a project funded by the Interreg III Program that was developed by Marche Region and Zadar County with the main aim to promote concrete actions supporting the sustainable development of these two areas of the Adriatic basin.



DAMAC area of interest

Within this main aim, DAMAC realised a Geographical Information System to support terrestrial and maritime spatial planning; the GIS collects a variety of spatial information such as: sea mapping of explosive remnants of war (ERW), offshore platforms (gas and oil), main axes of maritime traffic, sea traffic control, sectors of the Mandatory Ship Reporting System of Adriatic Traffic, oil spill detection by satellite, roads, railways, coastal tourist presences, etc. Among the other activities, DAMAC focused on the interdisciplinary analysis of maritime traffic in the Adriatic Sea, including in particular the evaluation of its environmental impact on coasts and marine ecosystems and the resolution of major conflicts with other uses of the maritime space. A monitoring and coastal warning system was therefore realised, based on the integration of different instruments and mathematical models, which are normally used independently, by different government departments and bodies and with different purposes. The system enables to archive and analys data from various fixed and mobile devices, which operate in continuous and in an integrated manner in order to forecast possible maritime traffic pollution.

Some of the installed devices include: (i) a fixed radar providing data on targets in a range of 30-35 nautical miles, (ii) a mobile radar with function of "oil spill detection", (iii) a weather and current model developed in collaboration with the Polytechnic University of Marche - DISVA in order to forecast the movement of pollutants that may be dispersed as a result of an accidental release into the sea, (iv) an AIS (Automatic Identification System) antenna, and (v) a data analysis software for the evaluation of the ships' environmental performance and reliability as well as detection of location. The AIS system is shared with the UNEP-MAP Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) based in La Valletta (Malta).

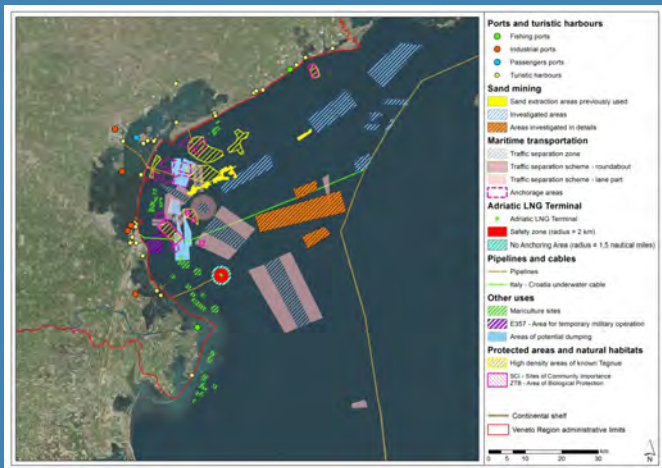
Source: Marche Region

Shape pilot project

From scientific knowledge to the sustainable management of the Veneto maritime space

The Veneto Region pilot project aimed to identify recommendations for the best use of available scientific knowledge to support the sustainable management of marine resources and the maritime space, i.e. MSP and its integration with ICZM. The project considered and analysed two main typologies of data: (i) spatial data needed to elaborate thematic maps of main uses of the Veneto maritime space; (ii) meteo-oceanographic data, in particular those measured by the Veneto Region buoy network.

Elaboration of thematic mapping considered a wide set of maritime and coastal elements identified as relevant for MSP implementation; in particular maps were grouped in four categories: physical and administrative limits, uses of the maritime space, marine areas with high natural value, coastal elements that are relevant in dealing with MSP. Finally, a map showing main maritime uses together was elaborated to identify possible interferences and areas with high concentration of activities. To this regard, three main marine areas were identified: (i) the area facing Venice lagoon where a high concentration of human activities at the sea occurs and (ii-iii) the Rovigo province and north-eastern Venice province areas that are characterised by a lower number of human activities. Buoys network data were used to analyse the evolution of meteo-oceanographic parameters during particular meteo-marine events (e.g. strong winds, exceptional and prolonged cold period, high river input, etc.) and to describe the intra-annual or seasonal evolution of physical-chemical characteristics of the water column. Afterwards, the potential use of meteo-oceanographic data within MSP was investigated. Based on the results of the above activities and the outcome of two stakeholder workshops, a set of recommendations for the sustainable use of the maritime space and marine resources in Veneto were identified, in agreement with principles defined by the MSP roadmap (EC COM(2008) 791) and MSP guidelines (Ehler and Douvere, 2009; Gee et al., 2011). In particular recommendations focused on the role of scientific knowledge and monitoring in supporting maritime spatial planning.



Overlay of main maritime uses identified in the Veneto marine area

Source: Veneto Region and Thetis

Shape pilot project

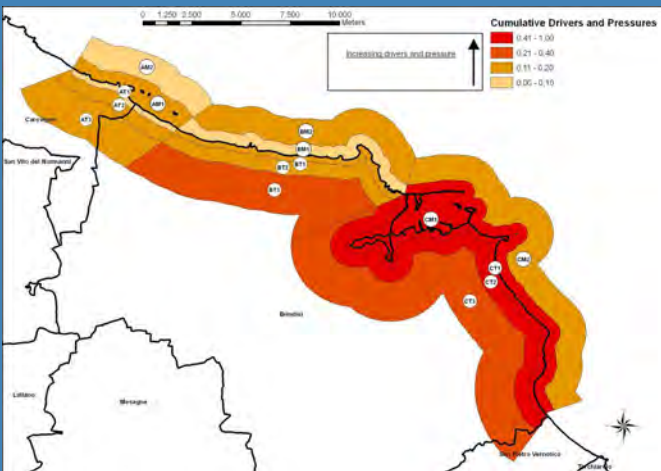
Analysis of multiple stressors operating in the MPA of Torre Guaceto and neighbouring coastal area of Brindisi port with inclusion of the industrial area: a DPSIR approach

The pilot project focused on assessment of the environmental features and problems in the marine and coastal zone of the MPA of Torre Guaceto and the neighbouring port and industrial area of Brindisi. In the first phase updated data and information were collected, focusing on key topics, as: geomorphology, climate, oceanography, marine-coastal biological communities, terrestrial habitats, flora and fauna species, environmental protection, land and sea uses, planning and regulation system. Much of this information was processed and mapped with GIS.

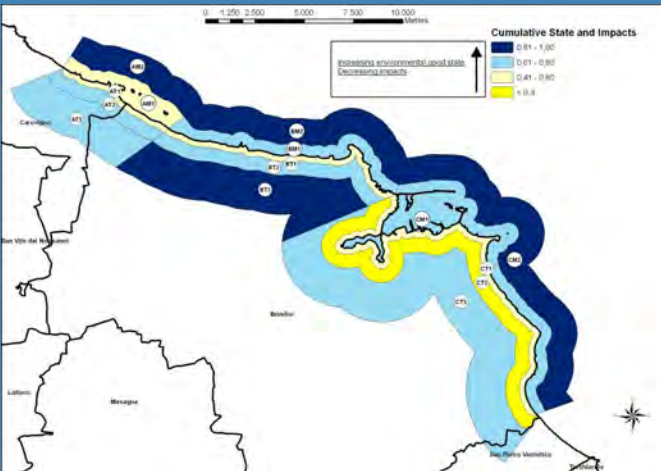
In the second phase 70 indicators were selected and calculated, referring to the DPSIR methodology. In order to better discriminate the environmental status of the marine and coastal zone subjected to different pressures, the study area was divided in three subareas: (a) the Marine Protected Area of Torre Guaceto; (b) the area included between the previously mentioned MPA and the urban and industrial area of Brindisi; (c) the urban and industrial area of Brindisi. These three subareas were further divided into fifteen sectors, nine located on the land side and six located on the sea side.

Among the three subareas, the one including the industrial site and the town of Brindisi (subarea "c") showed higher levels of Drivers and Pressures, the worst Status (with the higher level of Impacts) but also a significant level of Responses. The comparison between Driver-Pressure and State-Impact indexes showed a straightforward linear and inverse relationship. Not the same linear relationship was found between Driver-Pressure and Responses, and this appears to be a weak point of the overall system of policy and environmental management in the investigated area. The results highlighted that the Responses measures are mainly taken into account in two cases: when an area is under a restriction regime (i.e. marine or coastal protected area, as it occurs in the sub area "a") or when the environmental situation has reached a non-return point, as in the case of the industrial area of Brindisi (subarea "c"). The in-between area (mostly occupied by the subarea "b") is the one that has the higher risk to fail a sustainable environmental management.

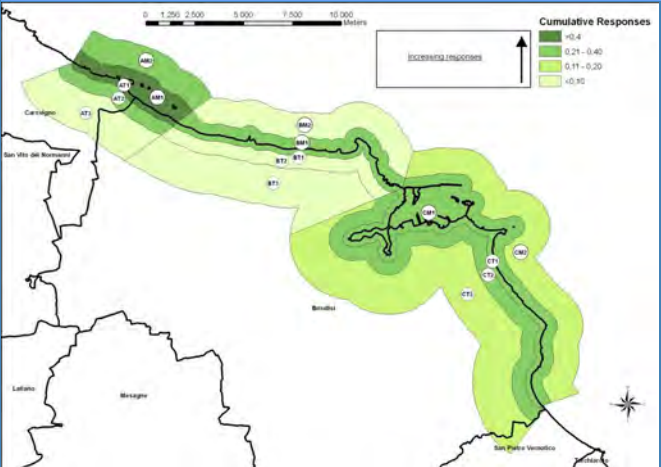
Source: Puglia Region and ARPA Puglia



Map of the Driver-Pressure cumulative values in the 15 sectors of the area studied by the Puglia pilot project



Map of the State-Impact cumulative values in the 15 sectors of the area studied by the Puglia pilot project



Map of the Response cumulative values in the 15 sectors of the area studied by the Puglia pilot project

Step 6 - Adopting the Plan and organising implementation

In general, the plan implementation is not responsibility of spatial planners. However, it is a critical step to give concreteness and credibility to the whole process, and reach the expected benefits. Experts involved in the plan design, and more in general in the other steps of the MSP process, can facilitate the implementation through various organising actions, i.e.:

- Identify implementation authorities as early as possible to fully involve them into the process since its beginning, as foreseen by step 1 of the proposed methodology. The descriptive part of the plan should define who is responsible of what during the implementation phase.
- Technically support the implementation authorities in the endorsement phase and in converting the plan into actual operative programmes, voluntary agreements and specific regulations. The operative program shall specify timeline for implementing the plan, milestones, estimated costs of implementation, estimated costs for priority actions, and possible financial sources. These elements could be even included in the maritime spatial plan (step 5); however it is essential that they are defined in agreement with the implementation authorities.
- Provide technical support to vertical and horizontal coordination mechanisms put in place to implement the plan. This phase can be particularly important to ensure that a cross-border MSP plan is not ignored at lower levels (from national to local). Maps of conflicts, spatial sea use scenarios, zoning maps are all tools that can improve political awareness on MSP benefits and that can trigger interest and actions. Ultimately all possible actions to ensure political long-term commitment should be put in place.
- In parallel with implementation, dissemination of the maritime spatial plan and expected benefits to a stakeholder arena wider than the one involved in the process (with a particular concern for citizens) is important to increase awareness and in turn improve the plan acceptance.

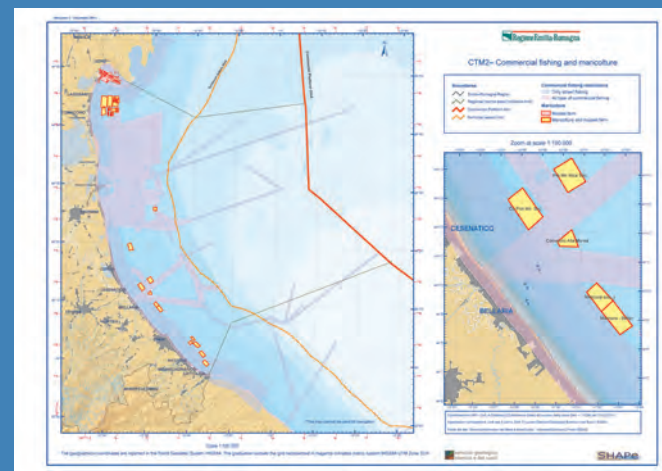
Shape pilot project

Maritime perspectives on sea space, coastal areas and their use: creating technical tools to resolve conflicts according to the MSP approach

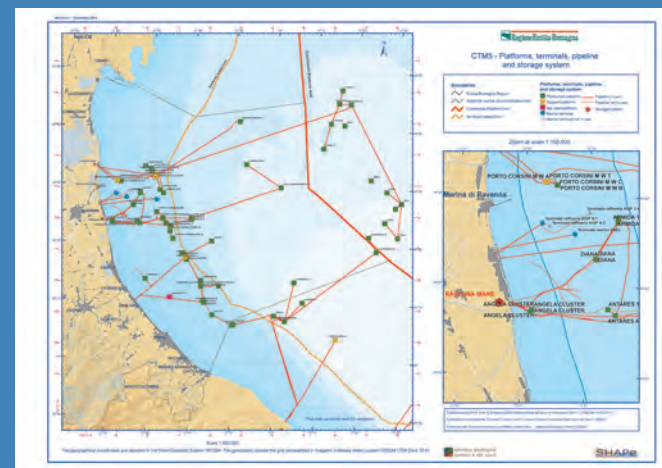
The Emilia Romagna pilot project focused on the development of a specific technical tool - the technical charts of the sea (TCSs) - that can be used to optimise the management of maritime and coastal uses, evaluate the conflict level among these uses and assess the level of human impact on the environment. The area taken into consideration includes the land-sea interface and partly overlaps with the coastal strip. In this case, TCS represents the union of MSP and ICZM, de facto emerging as a shared tool to achieve coherence between one another. Moreover, the knowledge base suggested by TCSs offers the chance to put in relation the three dimensions of the maritime space (surface, water column and seabed), highlighting their level of involvement and impact. Pilot projects output are:

- Implementation of the existing Sea and Coast Information System of the Emilia Romagna SGSS with other data concerning the use of the sea;
- Identification of the main sea uses in the pilot area and cartographic elaboration of data about: environment protection of marine and coastal areas, commercial fishing and mariculture, ports and harbours, shipping routes, offshore infrastructures, pipelines and cables, oil and gas extraction, sand extraction, military operations, recreational bathing, other recreational and cultural uses, artificial elements, waste dumping;
- Building of technical and theoretical compatibility matrices between uses, including: creation of preliminary versions of TCSs, creation of maps for the visualization of conflicts, creation of matrices of sea areas and level of area involvement by use.
- Cataloguing and elaboration of environmental data as provided by the experts from ARPA Emilia Romagna Oceanographic structure Daphne and the Marine Research centre of Cesenatico.

The entire process of building databases connected to the creation of the TCSs was managed by the Geologic Seismic and Soil Service (SGSS) of the Emilia Romagna Region.



"TCS2 – Commercial fishing and mariculture"



"TCS5 - Offshore infrastructures, pipelines and cables"

Source: Emilia Romagna Region

Step 7 - Monitoring the Plan

"Monitoring is a continuous management activity that uses the systematic collection of data on selected indicators to provide managers and stakeholders with indications of the extent of progress toward the achievement of management goals and objectives" (Ehler and Douvere, 2009). At least three types of monitoring and assessment are relevant in MSP:

- monitoring and assessing the state of the marine system;
- monitoring and assessing expected benefits of the maritime spatial plan;
- monitoring and assessing the MSP process.

The state of the system has to be regularly analysed to assess any change (also induced by the maritime spatial plan implementation) in the political, legal and planning context, as well as in the existing conditions of the marine areas (i.e. ecological, environmental and oceanographic conditions, coastal and marine human activities, sensitive areas, spatial impacts and vulnerabilities). The revision of the current condition assessment is also triggered by new data and knowledge on the marine system that can for example lead to better understand crucial oceanographic processes, discover new marine resources or highlight previously underestimated impacts and conflicts.

The second monitoring category is aimed to assess if the plan has delivered or is contributing to deliver the expected benefits. This implies that plan's objectives and targets are clearly identified in the previous steps of the proposed methodology.

In this perspective monitoring shall respond to the following key questions:

- Have impacts on the environment, habitats and species decreased?
- Have conflicts among maritime uses and between uses and (ecologically and environmentally) sensitive areas been successfully resolved?
- Have spatial incompatibilities between marine and coastal uses been successfully approached?
- Have possibilities of co-location of uses been fully investigated and capitalised?

- Have benefits been evenly distributed in the whole area of interest (i.e. the Adriatic Sea) ensuring equal opportunities for all countries and regions?
- Has the plan delivered benefits to all involved stakeholders?
- What are the socio-economic benefits triggered by the plan implementation?

Process monitoring aims to understand if the different MSP steps have been successfully and efficiently implemented, and in case identify corrective actions to improve the process. To this regard particular attention should be given to assess stakeholders' satisfaction in relation to their involvement in the MSP process.

Step 8 - Adapting the Plan

Together with the ecosystem-based approach, adaptive management is recognised as a fundamental framework approach to cross-border MSP in the Adriatic Sea by this handbook, given the intrinsic dynamic, complex and evolving nature of the marine system. It can be simply described as a systematic approach for improving management through learning by monitoring and evaluation of outcomes (i.e. learning by doing).

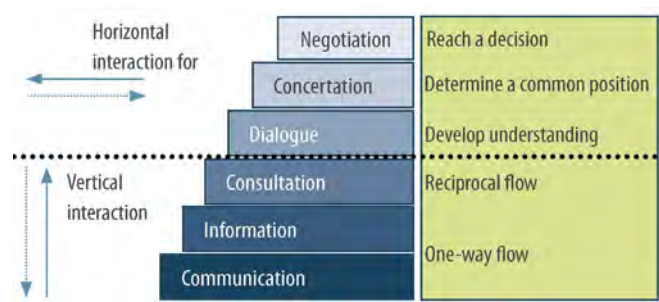
Adjustment of the MSP process is therefore strictly dependent on the monitoring phase. Moreover it can be triggered by: new knowledge on the marine system, changes of strategic objectives about the considered area induced by factors external to the MSP process, changes in MSP related (integrated and sector) policies, adoption of new sector plans related to MSP aspects, new pressures from stakeholders, new technologies enabling more efficient co-existence of uses, etc.

The maritime spatial plan can be adapted to the new conditions acting on different interlinked components, including: the vision, strategic objectives and targets, future scenarios, concrete and operative goals, plan zoning, regulation of specific uses. The revision and adaptation phase is also essential to identify applied research needs, thus contributing to cover the existing knowledge gap.

Stakeholders' participation

Stakeholders' involvement and participation is considered a relevant component of the MSP process by all guiding documents that in great part of the cases highlight the cross-cutting and horizontal nature of this activity. The organisation (step 1) and implementation of stakeholder involvement and participation should consider the following issues:

- Identification of stakeholders; all key Adriatic stakeholders should be involved in the process, ensuring a balance among various typologies (e.g. representatives of: international organisations, national authorities, regional to local administrations, technical agencies, economic sector, NGOs, research institutions, general public, etc.) and among the different geographic areas of the Adriatic Sea. However, the total number of involved stakeholders should not be too large to obstacle constructive discussion. Different typologies of stakeholders might require different “languages”, also to deal with different values and visions.
- Stakeholders should be involved during the whole process, including planning, implementation and monitoring steps. However, their involvement should be focused on essential moments and key required contributions, to avoid unsustainable pressure and possible disengagement.
- There are various modalities to involve stakeholders during the MSP process, including vertical (communication, information, consultation) and horizontal interactions (dialogue, concertation, negotiation). Step 1 should clearly identify what modality has to be activated and what specific tools (questionnaire, newsletter, forum, online-consultation, dedicated workshops, topic groups, interviews, participative mapping, etc.) have to be used for each required interaction with stakeholders.
- The planning phase of stakeholders' participation should also be clear on objectives and expected outcome of each interactive step. It is important to inform stakeholders on how the results of their participation will be used within the MSP process,



Different types of stakeholder consultation (Ehler and Douvere, 2009)

- to give evidence of their concrete contribution to the maritime spatial plan and to avoid unrealistic expectations.
- Use of facilitators might be necessary to guide the participative process, in particular to: clearly introduce objectives and expected results of any participative step, involve all stakeholders in the discussion, take care of all viewpoints and contributions, and orientate the consultation towards concrete inputs for the MSP process.
 - Stakeholders need to be constantly stimulated to take part into the process. The role of facilitators is in this perspective essential. The establishment of a good working atmosphere and constant and transparent communication is equally important. Furthermore, as also stressed in previous points, stakeholders will be more stimulated and involved if they can progressively see how their inputs are integrated in the whole process and how they contribute to the expected deliverable and benefits of MSP.
 - Maps can be more powerful than documents in supporting stakeholders' discussion on MSP topics, enabling to visualise elements to be discussed, as current marine uses, conflicts, spatial impacts, spatial scenarios, zoning, planned measures, etc.
 - Awareness raising, education and training on the field in the initial stage of the participative process can improve stakeholders' contribution to MSP.

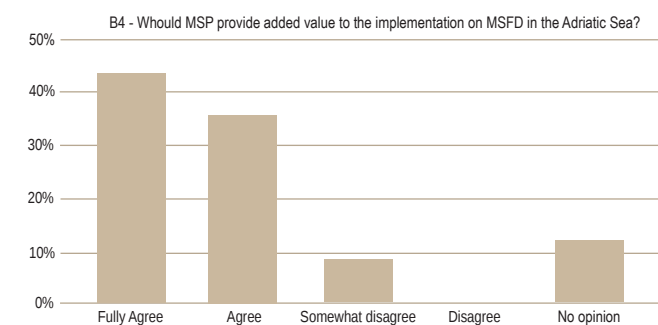
Local shape event	Focus
August 2011, Istria, HR	Marine mapping supporting MSP
September 2011, Istria, HR	Team building in MSP
June 2012, Venezia, IT	MSP and ICZM in Veneto: opportunities and conflicts
October 2012, Koper, SI	Regional workshop on ICZM and MSP
November 2012, Castello di Carovigno, IT	Pilot action in the coastal area between Torre Guaceto MPA and the urban and industrial area of Brindisi
March 2013, Koper, SI	Proposals of technical solutions for spatial planning documents
March 2013, Cavallino-Treporti, IT	Pilot project for the management of coastal SCI within an ICZM framework
April 2013, Pescara, IT	Local workshop on ICZM
April 2013, Strunjan, SI	SWOT workshop for Slovenia ICZM-MSP pilot project
June 2013, Pescara, IT	Local workshop on MSP
June 2013, Venezia, IT	From scientific knowledge to MSP in Veneto
June 2013, Goro, IT	Towards the development of the management plan of the sediments in the sea - inlet of Goro
June 2013, Budva, ME	Institutional framework for sustainable coordination of ICZM in Montenegro
September 2013, Venezia, IT	Prevention and education on plastic marine litter
September 2013, Slovenian coast, SI	Coastal clean-up
October 2013, Lignano, IT	Fishing activity and sediment management in the Marano and Grado lagoon; conflicts and synergies
December 2013, Bari, IT	Puglia's pilot actions for Shape Project and Bologna Charter 2012: instruments for ICZM and MSP
January 2014, Budva, ME	Promotion of initiatives for ICZM and MSP in Montenegro
January 2014, Koper, SI	Implemetation of art. 8 of the ICZM protocol
February 2014, Tivat, ME	Management of Tivat Saline: implementation of ICZM at local level
February 2014, Campobasso, IT	Integrated management of the coastal and marine space and pilot projects in Molise
February 2014, Bologna, IT	Shape results in Emilia Romagna Region

MSP and ICZM regional and local Shape events including stakeholders' participation

Link with MSFD



MSP is considered one of the fundamental tool (together with ICZM) for the implementation of the Integrated Maritime Policy of the European Union (EC COM(2007) 575). IMP considers the Marine Strategy Framework Directive as its environmental pillar. The ecosystem approach is the overarching principle of both MSP and MSFD and links between the two are surely relevant, although still matter of analysis and detailed definition. This is particularly true in the Adriatic Sea due to its limited extension, the relevant influence of land and marine-based human activities on the marine environment, and the strict interdependency between socio-economic development and the integrity of marine natural resources and processes.



Relevance of MSP for the implementation of MSFD in the Adriatic Sea according to Shape partners.

Shape Action 4.2 identified preliminary recommendations for the implementation of MSFD at the scale of the Adriatic basin in a cross-border perspective, as resulted from the analysis of available documents and the discussion held among partners within the project (in particular during the meeting held in Pescara, April 2013). Preliminary recommendations were grouped in six categories, also referring to the Plan of Action defined by MSFD art. 5, i.e.: general recommendations, stakeholder participation in MSFD, initial assessment, determination of GES and establishment of environmental targets, monitoring programmes and programmes of measures.

As an overarching recommendation, Shape project stresses the importance of developing an overall and

shared Adriatic Marine Strategy. Its elements should be coordinated across and agreed by all Adriatic countries (including no-EU ones) and should take in consideration both the Adriatic as a whole and specific characteristics of different areas of the basin. General recommendations are intended to support all phases of the process aiming to develop an Adriatic Marine Strategy, and can be summarised as follows:

- Base the development of the Adriatic Marine Strategy on two guiding principles: ecosystem-based approach and adaptive management.
- Extend “Marine waters” definition (MSFD art. 3.1) beyond areas under countries’ jurisdiction to properly take into account “open sea” specificities and problems.
- As a consequence of the above recommendation, strengthen the implementation of UNCLOS within the Adriatic Sea through cooperation among countries, thus improving the legal framework to MSFD and MSP.
- Establish a MSFD Adriatic Working Group (involving competent authorities and based on existing initiatives) in charge of giving concrete implementation to the Directive at the scale of the Adriatic Sea and to develop the Adriatic Marine Strategy. The MSFD Adriatic Working Group should be supported by Adriatic research institutions and agencies.
- Develop mechanisms and tools to facilitate know-how transfer to no-EU Adriatic countries ensuring these are fully part of the MSFD implementation process.
- Establish link with MSFD-related initiatives developed by UNEP-MAP as well as links with initiatives in other marine regions and sub-regions, as in particular those developed by Regional Sea Commissions (OSPAR for the North-east Atlantic, Helcom for the Baltic Sea and Black Sea Commission).
- Define a clear commitment to ensure continuity in the MSFD implementation process at the Adriatic scale, including commit to notify progress of MSFD implementation at the Adriatic scale to the EC.

Shape recognised the relevance of stakeholder participation in all the phases of the Adriatic Marine Strategy development, recommending to establish an Adriatic MSFD Stakeholder Forum that should work in close collaboration with the MSFD Adriatic Working Group.

As a further general recommendation, Shape stresses the importance of analysing in details links among MSP and MSFD in the Adriatic Sea and identifying how MSP can contribute to the achievement of MSFD goals in the basin, in particular in relation to the design of the programme of measures required by the Directive to achieve or maintain the GES. In this perspective, examples of MSP-MSFD links are summarised in the following points:

- MSP provides the overarching framework for integrated management of human activities at the sea required by the ecosystem approach that is at the base of MSFD implementation, as well. At the same time, MSFD goals must be integral part of the **strategic objectives** of MSP.
- MSP and MSFD share **common spatial data**. Mapping of maritime uses is a relevant part of MSP; this can support the understanding of spatial distribution of marine-based pressures and impacts, including those listed under MSFD - Annex III. To reinforce links with MSFD, it is essential that mapping supporting MSP is also extended (based on available data) to main elements of GES definition (i.e. Annex I descriptors) as for example: distribution of most important habitats, nursery areas, distribution of fish and shellfish stocks, areas of particular importance for target species, environmental (land-based and marine-based) pressures and hotspots. Environmental data must therefore be regularly translated into spatial information at the Adriatic basin scale, capitalising the results of innovative research (e.g. modelling and remote sensing).
- Analysis of **future conditions** (vision elaboration and scenario building) is another essential step of MSP. This can surely contribute to identify the evolution of future pressures and impacts that can

affect GES of the marine environment, in particular in the Adriatic Sea due to the expected increase of human uses of the marine space.

- **Spatial planning** constitutes the core activity of the MSP process. In relation to MSFD goals this can positively contribute to: (i) reduce marine-based source of pressure affecting the marine environment through spatial efficiency and control of temporal distribution of human activities, (ii) eliminate or reduce conflicts between maritime uses and protection of areas with high naturalistic and ecological relevance, (iii) clearly identify areas to be protected in order to preserve processes and functions that are essential in achieving the GES, (iv) identify environmental hotspot areas at sea where more intense measures are necessary, (v) avoid unsustainable uses in protected areas and identify synergies that can provide win-to-win solutions for socio-economic development and environmental protection, (vi) ensure connectivity among relevant habitats through blue corridors.
- In relation to the previous point, it becomes essential to promote **MSP and ICZM integration** that can take to the achievement of coherence between terrestrial and maritime planning, improving the integrated management of land and marine-sources of pressure, and reducing impacts to the marine environment and enhancing integrated protection of land-sea habitats.
- Both MSP and MSFD require **stakeholder involvement and participation**. At the Adriatic scale it is important the two participation processes converge in joint initiatives, to: further explore and capitalise links among MSP and MSFD, share common approaches and information, better motivate stakeholders, and avoid unsustainable pressure on the same stakeholders' arena that can results in disengagement.

Marine habitat mapping in the Region of Istria

The Region of Istria began the systematic mapping of its marine habitats in 2008 with the aim to designate potential marine NATURA 2000 areas. The Institute for Physical Planning Region of Istria continued with the systematic mapping of marine habitats in the framework of the SHAPE project. Habitats were mapped down to 40 meters of depth along the eastern coast, that is steeper and less indented, and the Southern and Western coasts, which are flatter and shallower. Mapping was done within the protected marine coastal zone, which according to Croatian legislation is 300 meters from the coastline towards the sea. Marine habitats of the Region of Istria were mapped by a team of specialists including biologist divers, diving instructors and C category skippers.

The mapping activities allowed to collect extensive documentation, with more than 2000 underwater photos and over 10 hours of video material; these were linked to the database of the diving area to which they belong, together with the photos of the corresponding coastal zone. Altogether, 174 km of coastline and a total marine surface of 42,20 km² of the Region of Istria were mapped. Mapping identified six rare and endangered NATURA 2000 habitat types and 24 habitat types according to the Croatian habitat classification. The analysis of data about Istrian marine habitats will become the basis for the future sustainable management and use of the Region coastal zone. In particular it will be a relevant information base for the elaboration of the Plan of Integrated Coastal Zone Management, as well as for the establishment and future management of marine NATURA 2000 areas. More information on the project is available at <http://shape.istra-istria.hr>.



Posidonia oceanica - photo by Institute for Physical Planning Region of Istria



Chromis chromis - photo by Institute for Physical Planning Region of Istria



Submerged sea cave - photo by Institute for Physical Planning Region of Istria

Source: Institute for Physical Planning Region of Istria

MSFD coordination in Italy

The Ministry of the Environment, Land and Sea (MATTM) is the competent authority on MSFD (transposed by the legislative decree 190/2010) implementation in Italy. MATTM appointed a Technical Committee to ensure horizontal and vertical coordination on MSFD. The Committee involves representatives of: various Ministries, Italian Regions, the Union of Italian Provinces, and the National Association of Italian Municipalities. With the purposes of carrying out scientific and technical activities the Committee may consult experts; representatives of research institutions, environmental associations and other associations can be invited to participate to the Technical Committee meetings. The Higher Institute for Environmental Protection and Research (ISPRA) provides its scientific-technical support to MATTM coordination activities.

In particular MATTM entrusted ISPRA to elaborate a feasibility study for the initial assessment of the environmental status of Italian marine waters, in accordance with art. 8 of D.Lgs. 190/2010. Main goals of the document were: survey of relevant data and information, analysis of data quality, identification of main gaps, identification of main data sources and related responsible bodies. Moreover, a matrix identifying the correspondence between MSFD Annex III tables and "Qualitative descriptors for determining GES" (MSFD Annex I) was elaborated. Following the above preparatory work, MATTM and ISPRA elaborated an articulated document responding to the first three actions defined by the MSFD and included in the Italian transposing decree (art. 7), i.e.: initial assessment of the current environmental status of marine waters, determination of GES, establishment of environmental targets. The report is structured in reporting sheets, according to the list and the template provided by the European Commission.

The document was shared and agreed with the competent Ministries and regional and local authorities within the Technical Committee established according to art. 5 of D.Lgs. 190/2010. Moreover, MATTM and ISPRA activated a series of initiative aiming to provide opportunities for public information and consultation. All information on the MSFD implementation process in Italy is available at the <http://www.strategiamarina.isprambiente.it/> web-site. Moreover, the public consultation included an online questionnaire on the initial assessment, determination of GES and establishment of environmental targets; after the consultation MSFD reporting sheets were notified to EC. The Italian institutions involved in MSFD implementation are continuing their work on the environmental assessment, GES determination, targets identification and definition of monitoring programs. This activity includes the refinement of the work done until now, e.g. MATTM, ISPRA and Italian Regions are focusing on information gaps identified by the initial assessment.



Brochure on MSFD in Italy

Sources: D.Lgs. 190/2010, <http://www.strategiamarina.isprambiente.it/> and Veneto Region

Annexes



List of Acronyms

AdriaPAN	Adriatic Protected Areas Network	IT	Italy
AIS	Automatic Identification System	MATTM	Italian Ministry of the Environment, Land and Sea
ARPA	Italian regional environmental agency	ME	Montenegro
CAMP	Coastal Area Management Programme	MedPAN	Network of Marine and Coastal Protected Areas managers in the Mediterranean
CBD	Convention for Biological Diversity	MIS	Marine Information System
CC	Climate Change	MPA	Marine Protected Area
CCA	Climate Change Adaptation	MSFD	Marine Strategy Framework Directive
CG	Coordination Group	MSP	Maritime Spatial Planning
CIS	Coastal Information System	NFP	National Focal Point
CNR-ISMAR	Italian National Research Council – Institute of Marine Sciences	NGO	Non-Governmental Organisation
COP	Conference of the Parties	OG	Official Gazette
COR-GEST	Correspondence Group on GES and Targets	PAP/RAC	Priority Actions Programme/Regional Activity Centre
DAMAC	Environmental Protection of the Adriatic Sea and Communication	PRC	Policy Research Corporation
DG MARE	Directorate General Maritime Affairs and Fisheries	REMPEC	Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea
DPSIR	Driving forces, Pressures, States, Impacts and Responses	SCI	Site of Community Importance
EC	European Commission	SEA	Strategic Environmental Assessment
EcAp	Ecosystem Approach	SGSS	Geologic Seismic and Soil Service of the Emilia Romagna Region
EcAp CG	Ecosystem Approach Coordination Group	SI	Slovenia
ECAT	Environmental Center for Administration and Technology	SME	Small and Medium Enterprise
EC COM	European Commission Communication	SWD	Staff Working Document
EOs	Ecological Objectives	SWOT	Strengths, Weaknesses, Opportunities, Threats
ERW	Explosive Remnants of War	TCS	Technical Chart of the Sea
EU	European Union	TPEA	Transboundary Planning in the European Atlantic
EUSAIR	European Union Strategy for the Adriatic and Ionian Region	UNCLOS	United Nations Convention on the Law of the Sea
GES	Good Environmental Status	UNEP-MAP	United Nations Environmental Programme - Mediterranean Action Programme
GIS	Geographic Information System	UNESCO	United Nations Education, Scientific and Cultural Organisation
HELCOM	Helsinki Commission	WFD	Water Framework Directive
HR	Croatia	WP	Work Package
ICZM	Integrated Coastal Zone Management		
IMP	Integrated Maritime Policy		
IOC	Intergovernmental Oceanographic Commission		
IPA	Instrument for Pre-Accession Assistance		
ISPRA	Italian Higher Institute for Environmental Protection and Research		

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C-SCOPE; <http://www.cscope.eu/en/>

EC DG Environment - Integrated Coastal Management; <http://ec.europa.eu/environment/iczm/home.htm>

EC DG Environment - Marine Strategy Framework Directive; http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm

EC DG Maritime Affairs and Fisheries - Maritime Spatial Planning; http://ec.europa.eu/maritimeaffairs/policy/maritime_spatial_planning/index_en.htm

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EC DG Regional and Urban Policies - Macro regional strategies; http://ec.europa.eu/regional_policy/cooperate/macro_region_strategy/index_en.cfm

INTERACT; <http://www.interact-eu.net/>

IPA Adriatic Cross-border Cooperation Programme; <http://www.adriaticpacbc.org/>

Maremed; <http://www.maremed.eu/>

MSFD in Italy; <http://www.strategiamarina.isprambiente.it/>

Pegaso; <http://www.pegasoproject.eu/>

Plan Bothnia; <http://planbothnia.org/>

PlanCoast; <http://www.plancoast.eu/>

Ritmare; <http://www.ritmare.it/>

Shape; <http://www.shape-ipaproject.eu/>

TPEA - Transboundary Planning in the European Atlantic; <http://www.tpeamaritime.eu/wp/>

UNEP-MAP; <http://www.unepmap.org/>

UNEP-MAP Priority Actions Programme/Regional Activity Centre (PAP/RAC); <http://www.pap-thecoastcentre.org/>

adaptation
cross-border cooperation
stakeholder participation
integrated coastal management
spatial
efficiency
diversity
maritime spatial planning
innovation
ecosystem approach
adriatic sea
conflicts minimisation

marine space
integration
marine uses
adriatic sea
conflicts minimisation
ecosystem approach
EU
SA
IR



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Shape

Shaping an Holistic Approach to Protect the Adriatic Environment between coast and sea.

The three years Shape project (2011-2014) involved 13 partners from six Adriatic Sea countries and was co-funded by the IPA Adriatic Cross-border Cooperation Programme of the European Union.

It aimed at contributing to the development of a multilevel and cross-sector governance system, based on an holistic approach and integrated management of natural resources, risk prevention and conflicts resolution among uses and users of the Adriatic coast and sea. Project activities promoted the application and the successful implementation of Integrated Coastal Zone Management and Maritime Spatial Planning in the Adriatic region.

The present handbook is intended as a methodological and practical guide aiming to support the future evolution of the MSP approach in the Adriatic Region. In this view it mainly addresses institutional officials, planners and experts on MSP issues, illustrating what they can do to further disseminate and concretely implement MSP in an Adriatic cross-border perspective.

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