

Coordination of sectoral policies

Background document

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Version 1



Supporting Implementation of Maritime Spatial Planning in the Western
Mediterranean region

Prepared by PAP/RAC

Foreword

This document has been prepared as the background document, whose main finding will be integrated in the document ***Recommendation and guidelines to support common understanding on a regional scale on MSP, including synergic implementation of the regionally relevant policy instruments.***

As such, it will integrate the outputs of two tasks: C 1.3.1.2 (*The definition and application of MSP by the Barcelona Convention taking into consideration the relationship between EU and non-EU countries*) and C 1.3.1.3 (*Coordination of sectoral policies*) into a single document.

Coordination of regional policy instruments relevant for Maritime Spatial Planning

This document reviews the regional policy instruments relevant for the scope of Maritime Spatial Planning (MSP) in the Mediterranean and analyses the possibility for their coordination through the MSP process, **considering the ecosystem approach as the overall structuring framework**. An overview of the ecosystem approach concept is given in chapter 1. Regionally available policies relevant for MSP are analysed for their links with the ecosystem approach in chapter 2. Opportunities for policy integration through MSP, using the ecosystem approach as a framework, are highlighted in chapter 3.

1 The ecosystem approach

The term *ecosystem approach* has been used in the academic literature since at least 1957, and its use has increased rapidly in more recent years, particularly since the 1980s¹. The ecosystem-based approach—as endorsed by the Convention on Biological Diversity (CBD) in 2000—is a strategy for holistic, sustainable, and equitable natural resource management, to be implemented via 12 principles. These principles describe the need to manage nature in terms of dynamic ecosystems, while fully engaging with local peoples.

International instruments, such as the UN Law of the Sea Convention, the Johannesburg Plan of Implementation, the Reykjavik Declaration, the Convention of Biological Diversity (CBD) decisions V/6 and VII/11 and other CBD decisions, the FAO guidelines, and the FAO Code of Conduct are principal instruments in laying out the application of the ecosystem approach².

Today, the term is common throughout the research and policy literature on environmental management worldwide. However, multiple meanings have been attached to this term and some other similar terms have been introduced.

1.1 *Ecosystem-based management*

During the 1980s and 1990s for example, the *ecosystem-based management* (EBM) or *ecosystem management* (EM) concepts became increasingly common in the conservation literature³. EBM is a form of management for natural resources where ecosystems are seen as complex adaptive systems of which humans are an integral part⁴. The importance of managing ecosystems as a whole is fundamental to EBM and represents a shift away from the traditional focus on components of ecosystems. There are many other aspects of EBM that differ with traditional management such as: it is geographically specified; it takes into account ecosystem knowledge and uncertainties; it recognizes multiple factors affect ecosystems and their management; it aims to balance diverse societal goals. Also, due to its complexity and the importance of involving all stakeholders, the implementation of EBM must be incremental and collaborative⁵. The EBM concept has received a good deal of attention in theory^{6, 7}. It has been particularly influential within the fisheries and marine sector and it has been adopted in principle by some entities charged with managing

¹ Waylen K. A., Hastings E. J., Banks E. A., Holstead K. L., Irvine R. J. 2014. The need to disentangle key concepts from ecosystem-approach Jargon. *Conservation Biology*, 28 (5): 1215–1224.

² Platjouw F. M. 2016. *Environmental law and the ecosystem approach: maintaining ecological integrity through consistency in law*. Routledge. New York.

³ Waylen K. A., Hastings E. J., Banks E. A., Holstead K. L., Irvine R. J. 2014. The need to disentangle key concepts from ecosystem-approach Jargon. *Conservation Biology*, 28 (5): 1215–1224.

⁴ Curtin R. & Prellezo R. 2010. Understanding marine ecosystem based management: a literature review. *Marine Policy* 34: 821–830.

⁵ Murawski S. A. 2007. Ten myths concerning ecosystem approaches to marine resource management. *Marine Policy* 31:681–90.

⁶ National Research Council 1996. *The Bering Sea Ecosystem*. Washington (DC), National Academy Press..

⁷ National Research Council 2006. *Dynamic Changes in Marine Ecosystems: Fishing, Food Webs, and Future Options*. Washington (DC), National Academies Press.

ocean resources⁸: for example, it informed the 1982 Convention on the Conservation of Antarctic Marine Living Resources. Notwithstanding this, examples of comprehensive approaches to marine EBM are rare. The dearth of cases most likely reflects incomplete scientific information and the difficulties inherent in implementing large-scale management strategies within the complex natural and socioeconomic systems characteristic of ocean governance⁹.

1.2 Ecosystem approach: Key Principles

In 2003 the Conference of Biological Diversity defined the ecosystem approach as the integrated management of land, water and living resources that provides sustainable delivery of ecosystem services in an equitable way. It goes beyond examining single issues, species, or ecosystem functions in isolation. Instead, it recognizes ecological systems as rich mixes of elements that interact with each other continuously¹⁰. This is particularly important for coasts and seas, where the nature of water keeps systems and functions highly connected.

The ecosystem approach is therefore to be intended as a management approach that requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning.

Under the ecosystem approach the following interlinked and complementary ecosystem management principles (the so-called Malawi principles) are recognized¹¹:

- Principle 1: The objectives of management of land, water and living resources are a matter of societal choices.
- Principle 2: Management should be decentralized to the lowest appropriate level.
- Principle 3: Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
- Principle 4: Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should:
 - Reduce those market distortions that adversely affect biological diversity
 - Align incentives to promote biodiversity conservation and sustainable use
 - Internalize costs and benefits in the given ecosystem to the extent feasible.
- Principle 5: Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.
- Principle 6: Ecosystem must be managed within the limits of their functioning.
- Principle 7: The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
- Principle 8: Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.
- Principle 9: Management must recognize the change is inevitable.
- Principle 10: The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.

⁸ National Marine Fisheries Service 1999. Ecosystem-based fishery management. A Report to Congress by the Ecosystem Principles Advisory Panel. <http://www.nmfs.noaa.gov/sfa/EPAPrpt.pdf>

⁹ Ruckelshaus M., Klinger T., Knowlton N., DeMaster D. P. 2008. Marine Ecosystem-based Management in Practice: Scientific and Governance Challenges. *BioScience*, 58(1): 53–63.

¹⁰ CBD COP 5 Decision V/6 2003. Ecosystem approach.

¹¹ *Ibid.*

- Principle 11: The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
- Principle 12: The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

By comparing the Malawi Principles with the key concepts of EBM we can find similarities and differences¹². The Principles do not promote a single sectoral or species approach; rather, they encourage decision making that takes into account how ecosystem processes will be affected over space and time (e.g., principles 3, 7, and 8) and this is consistent with the ideas of EBM. But other Malawi Principles relate to involving and empowering stakeholders (e.g., principles 1, 2, 10, 11, and 12): these principles go beyond the concept of EBM. The Malawi Principles in fact connected the newest ideas about how to manage ecological processes to ideas about the need to involve people and different forms of knowledge in management¹³.

After COP 7, enlightening examples of implementation of the ecosystem approach were sought in order to develop guidance based on examples. A collection of examples of ecosystem approach implementation and outcomes from relevant regional workshops has been made available¹⁴. Moreover, by the late 2000s, there were calls to review the Malawi Principles¹⁵. They were associated with concerns that the CBD needed more effective processes to achieve its goals. Further elaboration on ecosystem approach and Guidelines for its implementation were provided in 2003¹⁶. Overall, it seemed that emphasis and expectations shifted away from the ecosystem approach toward other concepts and initiatives. The Millennium Ecosystem Assessment and the related concept of Ecosystem Services were central among these.

Recently, a further important development under CBD has been the adoption of a revised Strategic Plan for Biodiversity 2011-2020 with its Aichi Targets. The mission of the new plan is to:

- Take the effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate issues and values mainstreamed, appropriate policies are effectively implemented and decision-making is based on sound science and the precautionary approach¹⁷.

1.3 Ecosystem approach implementation in the Mediterranean under UNEP/MAP (EcAp)

Since its adoption in 2000 by the United National Environmental Program (UNEP), the ecosystem approach to the management of human activities is making its way through almost all Regional Sea convention programs. In the Mediterranean, the ecosystem approach (EcAp) represents the overarching guiding principle to all policy implementation and development undertaken under the auspices of UNEP/MAP Barcelona Convention¹⁸. EcAp is to be integrated in all of its policies and activities as it makes explicit the link

¹² Waylen K. A., Hastings E. J., Banks E. A., Holstead K. L., Irvine R. J. 2014. The need to disentangle key concepts from ecosystem-approach Jargon. *Conservation Biology*, 28 (5): 1215–1224.

¹³ Ibid.

¹⁴ <http://www.cbd.int/ecosystem/cs.shtml>

¹⁵ Waylen K. A., Hastings E. J., Banks E. A., Holstead K. L., Irvine R. J. 2014. The need to disentangle key concepts from ecosystem-approach Jargon. *Conservation Biology*, 28 (5): 1215–1224.

¹⁶ Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) Nineth Meeting 2003. Recommendation IX/6. Ecosystem approach: further elaboration, guidelines for implementation and relationship with sustainable forest management.

¹⁷ CBD-COP, Conference of the Parties 10. Decisions X/2. Strategic Plan for Biodiversity 2011-2020.

¹⁸ Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (amended in 1995). Its seven related legal protocols are:

1. Prevention and elimination of pollution of the Mediterranean Sea from ships and aircraft or incineration at sea (Dumping Protocol) - Adopted 1976 - Amended 1995 - Not yet in force.
2. Protection of the Mediterranean Sea against pollution from land-based sources and activities (LBS Protocol) - Adopted 1980 - Amended 1996 - Entered into force 2008.

between the status of natural resource systems and services they provide, it seeks to maintain the integrity and functioning of ecosystems as a whole, and recognizes that the impacts of human activities are a matter of social choice. It is essentially organized around four themes, reflecting the main deliverables expected from the contracting parties:

1. Adoption of regional targets and the establishment of a definition for Healthy Environment;
2. Development of a regional integrated monitoring program based on indicators and targets;
3. Coupling of integrated assessment with socioeconomic analysis for the Mediterranean ecosystem;
4. Establishment of an assessment cycle through the development of a UNEP-MAP policy on the assessment of marine and coastal environments¹⁹.

More specifically, in the context of UNEP/MAP, EcAp refers to a specific process as the Contracting Parties have committed to implement the ecosystem approach with the ultimate objective of achieving the Good Environmental Status (GES) of the Mediterranean Sea and Coast. This process aims to achieve GES through informed management decisions, based on integrated quantitative assessment and monitoring of the marine and coastal environment of the Mediterranean.

Through Decision IG.17/6 the Contracting Parties to the Barcelona Convention have committed to progressively apply EcAp to the management of human activities with the goal of effecting real change in the Mediterranean marine and coastal environment. Decision IG.17/6 outlines a roadmap for the implementation of EcAp, consisting of several subsequent steps, such as the development of ecological objectives, operational objectives and respective indicators, the development of GES descriptors and targets, monitoring programmes, and finally the necessary management measures and programmes to achieve GES.

Decision IG.20/4 on “Implementing the Ecosystem Approach Roadmap”, following up on Decision IG.17/6, validated the work done so far regarding the 11 ecological objectives, operational objectives and indicators for the Mediterranean. It also mandated the Secretariat to prepare an EcAp Monitoring Programme, to determine GES and targets and to prepare an in-depth socio-economic analysis of human activities that impact on, or benefit from, the quality and ecological health of coastal and marine ecosystems. Finally, it asked to integrate EcAp in the overall work of UNEP/MAP Barcelona Convention and mandated the Secretariat to establish an EcAp governance framework.

As most relevant milestone of the 18th Ordinary Meeting of the Contracting Parties (COP 18, 2013), Decision IG.21/3 on the “Ecosystem Approach including adapting definitions of Good Environmental Status (GES) and targets” (the EcAp Decision) expresses the agreement on regionally common targets, lists of indicators to achieve GES in the Mediterranean, and an integrated list of Mediterranean GES, targets and indicators (Fig. 1).

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3. Protection of the Mediterranean Sea against pollution resulting from the exploration and exploitation of the continental shelf and the seabed and its subsoil (Offshore Protocol) - Adopted 1994 - Entered into force 2011.
 4. Specially protected areas and biological diversity in the Mediterranean (SPA & Biodiversity Protocol) - Adopted 1995 - Entered into force 1999
 5. Prevention of pollution of the Mediterranean Sea by transboundary movements of hazardous wastes and their disposal (Hazardous Wastes Protocol) - Adopted 1996 Entered into force 2008.
 6. Cooperation in preventing pollution from ships and, in case of emergency, combating pollution of the Mediterranean Sea (Prevention and Emergency Protocol) - Adopted 2002 - Entered into force 2004.
 7. Integrated Coastal Zone Management in the Mediterranean (ICZM Protocol) - Adopted 2008 - Entered into force 2011.

in .

¹⁹ Cinnirella, S., R. Sardà, J. Suárez de Vivero, R. Brennan, A. Barausse, J. Icely, T. Luisetti, D. March, C. Murciano, A. Newton, T. O'Higgins, L. Palmeri, M. Palmieri, P. Raux, S. Rees, J. Albaigés, N. Pirrone, and K. Turner. 2014. Steps toward a shared governance response for achieving Good Environmental Status in the Mediterranean Sea. *Ecology and Society* 19(4): 47.

EO	Indicators	GES definitions	Targets
1. Biodiversity	15	17	30
2. Non indigenous species	4	4	6
5. Eutrophication	5	5	10
7. Hydrography	5	4	4
8. Coast	3	3	3
9. Pollution	6	6	9
10. Marine litter	3	2	3

Figure 1 GES and targets adopted by COP18, UNEP(DEPI)/MED IG.21/9 – Decision IG.21/3 (source: SPA/RAC site).

A specific timeline was adopted in this EcAp Decision on how to develop and implement an Integrated Mediterranean Monitoring and Assessment Programme by the 19th Meeting of the Contracting Parties, following the 6-year EcAp cycles structure (with second EcAp cycle in the Mediterranean of 2016-2021). It was also agreed, that after the initial phase of implementation of the Integrated Monitoring and Assessment Programme (2016-2019), the draft Integrated Mediterranean Monitoring and Assessment Programme will be reviewed and in case necessary amended, in light of lessons learnt during the first years of its implementation (Fig. 2).

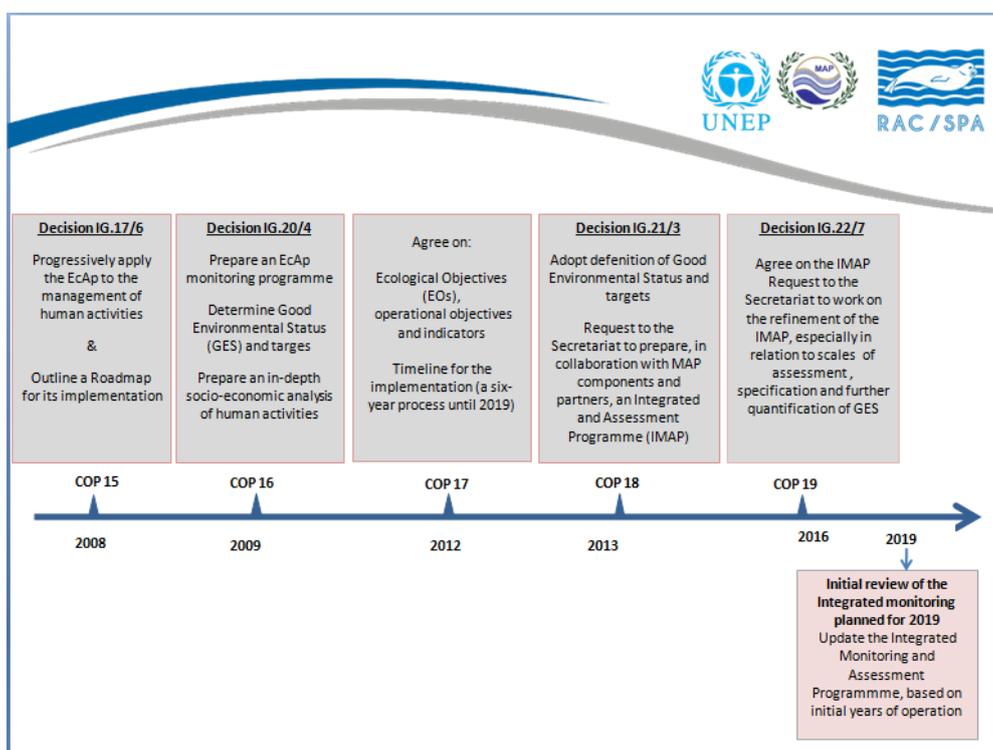


Figure 2 Calendar of the EcAp implementation process (source: SPA/RAC site).

Mainstreaming EcAp into the work of UNEP/MAP and achieving the GES of the Mediterranean Sea and Coast through the EcAp process have been supported by the EU-funded project entitled “Implementation of the Ecosystem Approach in the Mediterranean by the Contracting Parties in the Context of the Barcelona Convention for the Protection of the Marine Environment and the Coastal region of the Mediterranean and its Protocols” (EcAp-MED project 2012-2015).

Considering its high conceptual framework (the 12 Malawi principles), and the operative approach (the Ecological Objectives and the Indicators), EcAp represents undoubtedly a powerful and comprehensive framework to ensure sustainable development for the Mediterranean, ensuring the conservation of its marine and coastal ecosystems and of the services they provide.

2 Policy instruments relevant for MSP: their links with EcAp

The Maritime Spatial Planning process has been developed within the Integrated Maritime Policy of the European Union as a "cross-cutting policy tool enabling public authorities and stakeholders to apply a coordinated, integrated and trans-boundary approach"²⁰. Being cross-sectorial by definition, MSP has also been given the challenge to strongly link with the ecosystem-based approach: in fact, the MSP Directive states that "the application of an ecosystem-based approach will contribute to promoting the sustainable development and growth of the maritime and coastal economies and the sustainable use of marine and coastal resources"²¹. A considerable number of sectorial policies and related tools, developed both by EU and the Barcelona Convention, are available in the Mediterranean, addressing various aspects of the EcAp approach: pollution, biodiversity, socio-economic aspects, marine litter, key economic sectors, etc., whose implementation contribute to the protection of the marine environment and the coastal zone. These policies are relevant for MSP under several perspectives. The main ones are identified and reviewed in the next sub-chapters, highlighting their significance for MSP, their relation with EcAp and their impact on marine and coastal ecosystem and biodiversity. The MSP Directive itself is also considered under this perspective.

2.1 *The Ecosystem Approach in the EU MSP Directive*

The EU Maritime Spatial Planning Framework Directive (2014/89/EU) aims to set the framework for maritime spatial planning with the objective of promoting the sustainable growth of maritime economies, sustainable development of marine areas and sustainable use of marine resources, applying an ecosystem-based approach, promoting the coexistence of relevant uses and activities and taking into account land-sea interactions. In this sense, the ecosystem-based approach must seek to contribute to the sustainability of development of marine areas, of activities at sea and of uses of marine and coastal resources.

In fact, Article 5 of the MSP Directive defines the objectives of maritime spatial planning as follows:

1. When establishing and implementing maritime spatial planning, Member States shall consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem-based approach, and to promote the coexistence of relevant activities and uses.
2. Through their maritime spatial plans, Member States shall aim to contribute to the sustainable development of energy sectors at sea, of maritime transport, and of the fisheries and aquaculture sectors, and to the preservation, protection and improvement of the environment, including resilience to climate change impacts. In addition, Member States may pursue other objectives such as the promotion of sustainable tourism and the sustainable extraction of raw materials.
3. This Directive is without prejudice to the competence of Member States to determine how the different objectives are reflected and weighted in their maritime spatial plan or plans."

In addition, the MSP Directive sets out 10 key principles for MSP seeking to encourage the development of a common approach among Member States. These principles are closely linked to the ecological objectives of the ecosystem-based approach (EcAp) defined by UNEP/MAP based also on related CBD decisions²² (Fig. 3).

²⁰ Directive 2014/89/EU (Preamble 3).

²¹ Ibid.

²² Ramieri E., E. Andreoli, A. fanelli, G. Artico, R. Bertaggia 2014. Methodological handbook on Maritime Spatial Planning in the Adriatic Sea. Final report of SHAPE project WP4 "Shipping towards maritime spatial planning".

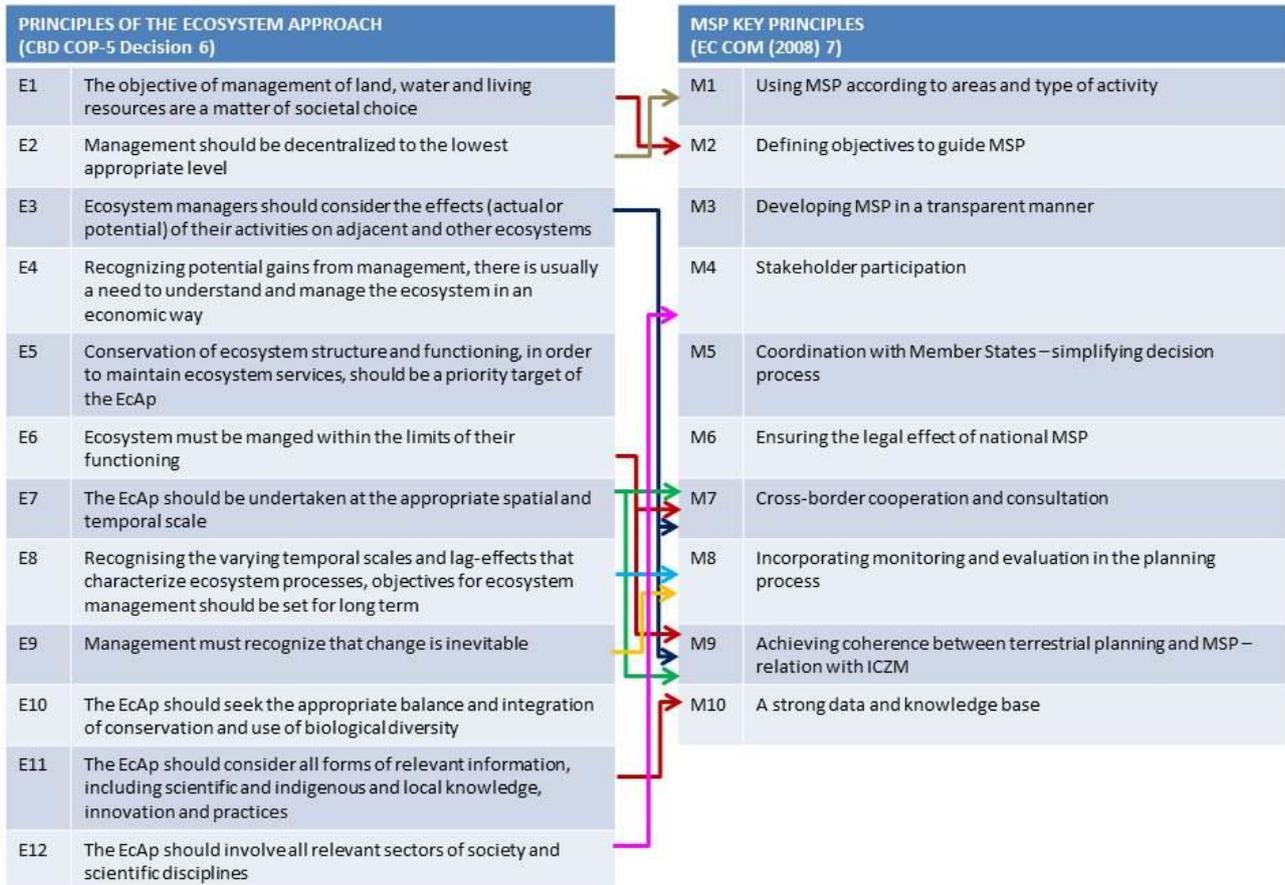


Figure 3 Links between EcAp and MSP principles (redrawn from Ramieri et al. 2014).

Ways to integrate ecosystem-based approach principles in the MSP process have been proposed, for example, by the experience in the Baltic Sea where the following issues have been identified to be considered when developing MSP²³:

- Best available Knowledge and Practice: The allocation and development of human uses shall be based on the latest state of knowledge of the ecosystems as such and the practice of safeguarding the components of the marine ecosystem in the best possible way.
- Precaution: A far-sighted, anticipatory and preventive planning shall promote sustainable use in marine areas and shall exclude risks and hazards of human activities on the marine ecosystem.
- Alternative development: Reasonable alternatives shall be developed to find solutions to avoid or reduce negative environmental and other impacts as well as impacts on the ecosystem goods and services.
- Identification of ecosystem services: In order to ensure a socio-economic evaluation of effects and potentials, the ecosystem services provided need to be identified.
- Mitigation: The measures are envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan.
- Relational Understanding: It is necessary to consider various effects on the ecosystem caused by human activities and interactions between human activities and the ecosystem, as well as among various human activities.

²³ HELCOM-VASAB 2016. Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area.

- Participation and Communication: All relevant authorities and stakeholders as well as a wider public shall be involved in the planning process at an early stage.
- Subsidiarity and Coherence: Maritime spatial planning with an ecosystem-based approach as an overarching principle shall be carried out at the most appropriate level and shall seek coherence between the different levels.
- Adaptation: The sustainable use of the ecosystem should apply an iterative process including monitoring, reviewing and evaluation of both the process and the outcome.

In the Mediterranean, the ADRIPLAN methodology²⁴ provides techniques and methods based on the ecosystem-based approach for practically implementing MSP in the Adriatic-Ionian macro-region.

The key elements of the ecosystem-based approach can be also integrated more specifically into strategic environmental assessment (SEA) as part of the planning process. Some of the key elements such as public participation and communication, subsidiarity and coherence, identification of ecosystem services, adaptation and the precautionary principle are applicable to the general planning process. The identification of ecosystem services can provide a new approach to the management of the sea and should contribute to the planning of sea areas as well²⁵.

2.2 ICZM Protocol under the Barcelona Convention

ICZM is highly relevant for MSP in relation to all those issues related with land-sea interaction (LSI). In fact, when carrying out MSP, it is important to consider the dynamics that occur between land and sea, and to ensure that spatial planning is conducted in an integrated manner across maritime and terrestrial areas. This is in the interest of both, environmental protection of coastal areas and the effective development of maritime and coastal economies. To take LSI into account when preparing maritime spatial plans is also a minimum requirement of the EU MSP Directive (2014/89/EU). It is recognised that MSP and ICZM should be linked where possible, as they both seek to address the problems of fragmented governance in coastal and marine settings, and have overlapping principles, such as the importance of stakeholder participation. They may therefore work together in addressing issues such as nature conservation, coastal flooding and defence and local economic development²⁶.

The uptake of ICZM by EU Member States is encouraged by the EU through a Communication²⁷ and a Recommendation²⁸, where it is defined as a dynamic, multi-disciplinary and iterative process to promote the sustainable management of coastal zones. The need for informed participation and co-operation of all stakeholders is stressed. However, practice varies considerably according to local conditions.

Importantly, for the Mediterranean, a common binding framework for ICZM has been agreed upon within the framework of the Mediterranean Action Plan. In fact, 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. To date, eleven countries and the EU have ratified the Protocol; consequently, on the 24th of March 2011, the Protocol entered into force, becoming binding for all Contracting Parties, including EU. In implementing the Protocol, the Parties shall be guided by general principles of integrated coastal zone management, which lay among else on the application of an ecosystem approach.

Concerning the link with the ecosystem approach, the ICZM Protocol underlines EcAp as one of its leading principles. The ICZM Protocol constitutes the ideal instrument to promote and put into practice EcAp in the

²⁴ <http://msp-platform.eu/practices/adriplan-methodology>

²⁵ HELCOM-VASAB 2016. Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area.

²⁶ Jones H., Kidd S. 2017. Maritime Spatial Planning Conference: Addressing Land-Sea Interactions. St. Julian's Malta, 15 – 16 June 2017. Conference Report, Version of 26 September 2017.

http://msp-platform.eu/sites/default/files/20170927_conferencereportmalta_msp_lsi_0.pdf

²⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2000:0547:FIN:EN:PDF>

²⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002H0413&from=EN>

coastal zones. Achieving Ecological Objectives (EO) and Good Environmental Status requires an integrated approach in order to address combined pressures and cumulative impacts in marine and coastal areas. ICZM provides the adequate tools to address these issues in coastal zones and promotes consensus among all parties involved in the use of coastal resources, while MSP does the same for marine areas. They both apply Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) and take into account cumulative impacts that cannot be addressed through sectoral approaches and regulations. Moreover, recently adopted decision (IG.23/7; 2017) of the Contracting Parties of the Barcelona Convention on implementation of the Integrated Coastal Zone Management Protocol, acknowledges the introduction of MSP as the main tool/process for the implementation of ICZM in the marine part of the coastal zone and specifically for planning and managing maritime human activities, according to EcAp goals and objectives.

The ecosystem-based approach as a concept for the integrated management of MPAs ensures a balance between equitable conservation and sustainable use of coastal and marine resources in order to achieve and maintain the connectivity between the terrestrial and marine side of the coastal area and between MPAs and the surrounding coastal and marine area. Successful integration of ICZM-MSP and MPAs depends on sustained management processes and programs that will produce perceived benefits and tangible results from the field that contribute to improved quality of life and ecosystem integrity. To this end ICZM-MSP is a relevant framework to initiate and maintain an open dialogue, involving all the stakeholders, regarding the identification of threats and opportunities affecting the management of MPAs. Ecologically coherent networks of MPAs within ICZM-MSP approach provide a spatial management tool to prioritize biodiversity conservation and ensure maintenance and enhancement of environmental goods and services, which are essential objectives of ICZM and MSP.

EcAp can be reflected in ICZM and MSP at three stages²⁹:

- When defining the area to be managed, by ensuring the integrity of ecosystems and the necessary buffer zones and corridors;
- When contributing to GES, by ensuring compatibility of located land and sea uses and limits of allowed pressures, as well as observing the respective GES descriptors and indicators;
- When applying Ecosystem-Based Management (EBM), by respecting ecosystems diversity and connections, evaluating ecosystems services, addressing cumulative impacts, assessing tradeoffs, applying adaptive management, networking and using appropriate tools and measures.

To this end, EcAp indicators already approved by the CPs should be used at the appropriate stages. Since such indicators are more developed for assessing GES, further development of additional (currently missing) indicators would be very useful to increase efficiency.

2.3 EcAp implementation in EU seas following the EU MSFD Directive

The most recent EU policy driver for the protection of the marine environment is the Marine Strategy Framework Directive (MSFD), which represents an ecosystem-based approach towards marine management and governance, aiming towards achieving Good Environmental Status (GES). Together with the Water Framework Directive, the MSFD represents a framework through which other EU sectoral directives can be linked, providing integrated management from the catchment through the coast to open marine ecosystems. The 'framework' nature of the MSFD is reflected in the eleven descriptors for determining GES, which cover the most important maritime sectors and their impacts on marine ecosystems³⁰.

The MSFD has developed a vision-driven process that uses the ecosystem-based approach to achieve GES within a particular marine region or subregion. Each individual EU-MS is responsible for its waters and for

²⁹ Mourmouris A., Le Visage C., Grimes S., Ramieri E. « The way to a Regional Framework for ICZM in the Mediterranean, 2017-2021. Background Document”, PAP/RAC, Dec. 2016.

³⁰ Qiun W. & Jones P. J. S. 2013. The emerging policy landscape for marine spatial planning in Europe. *Marine Policy* 39: 182–190.

reaching predefined targets that must be documented according to a well-defined time line. The EC therefore has specific legal tools to control the implementation of MFSD³¹.

The Directive states that marine strategies shall apply an ecosystem-based approach ensuring that the collective pressure of human activities is kept within levels compatible with the achievement of a 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. Both programmes of measures and individual measures shall be based on such an ecosystem-based approach.

Considering MSFD requirements under MSP seems unavoidable: as reported already above, the MSP Directive in fact clearly states:

1. [...]Maritime spatial planning should apply an ecosystem-based approach as referred to in Article 1(3) of Directive 2008/56/EC with the aim of ensuring that the collective pressure of all 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 contributing to the sustainable use of marine goods and services by present and future generations (Preamble 14)
2. When establishing and implementing maritime spatial planning, Member States shall consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem-based approach, and to promote the coexistence of relevant activities and uses (Art. 5 - 1).

On the other hand, also if the MSFD does not explicitly require MSP, it states that:

1. Programmes of measures established pursuant to this Article shall include spatial protection measures, contributing to coherent and representative networks of marine protected areas, adequately covering the diversity of the constituent ecosystems, such as special areas of conservation pursuant to the Habitats Directive, special protection areas pursuant to the Birds Directive, and marine protected areas as agreed by the Community or Member States concerned in the framework of international or regional agreements to which they are parties (Art. 13 - 4).
2. Member States are required to develop national programmes taking consideration of 'spatial and temporal distribution controls', which are 'management measures that influence where and when an activity is allowed to occur' (Annex VI).

A lively debate has taken place during the last years on links and contradictions between the requirements of these two directives. In fact, while MSFD aims mainly at marine environmental protection, MSP promotes sustainable growth and maritime economies. A comprehensive review of this discussion is available³². Some authors highlight that both the directives aim to achieving GES³³⁻³⁴. Others are convinced that the MSP Directive is likely to increase tensions and conflicts, where Blue Growth (aquaculture, coastal tourism, marine biotechnology, ocean energy and sea bed mining) appear prioritised over the framework nature of the MSFD and achieving GES³⁵. The "soft sustainability" of the MSP Directive - where the needs of different maritime

³¹ Cinnirella, S., R. Sardà, J. Suárez de Vivero, R. Brennan, A. Barausse, J. Icely, T. Luisetti, D. March, C. Murciano, A. Newton, T. O'Higgins, L. Palmeri, M. Palmieri, P. Raux, S. Rees, J. Albaigés, N. Pirrone, and K. Turner 2014. Steps toward a shared governance response for achieving Good Environmental Status in the Mediterranean Sea. *Ecology and Society* 19 (4): 47.

³² Boyes S. J., Elliott M., Murillas-Maza A., Papadopoulou N., Uyarra, 2016. Is existing legislation fit-for-purpose to achieve Good Environmental Status in European seas? *Marine Pollution Bulletin*, 111 (1–2): 18-32.

³³ Schaefer N., Barale V. 2011. Maritime spatial planning: opportunities & challenges in the framework of the EU integrated maritime policy. *J. Coast. Conserv.*, 15 (2): 237-245.

³⁴ Maccarrone V., Filiciotto F., Vincenzi G., Mazzola S., Buscaino G. 2015. An Italian proposal on the monitoring of underwater noise: relationship between the EU Marine Strategy Framework Directive (MSFD) and marine spatial planning directive (MSP). *Ocean Coast. Manag.*, 118 (B): 215-224.

³⁵ Qiu W., Jones P. J. S. 2013. The emerging policy landscape for marine spatial planning in Europe. *Marine Policy* 39: 182-190.

sectors are balanced - has been opposed to the "hard" sustainability of the MSFD in which ecosystem conservation is the foundation of the ecosystem-based approach³⁶.

Considering the links between MSFD and the ecosystem-based approach, it is well known that the MSFD process and the EcAp under UNEP-MAP share many commonalities. For example, achieving GES and Healthy Environment which are independent of national jurisdictional waters. Both aim to establish a Programme of Measures by 2015 to achieve their respective goals by 2020. The subregional initial assessment prepared by MAP under the EcAp framework has been directly relevant to Mediterranean EU-MS in their Initial Assessment required under MFSD. Even if MFSD is not applicable to the whole of the Mediterranean, its philosophy and principles could nonetheless be applied to the whole marine Mediterranean domain through the development of a shared vision via MAP. Comparison of MSDF and MAP-EcAp major features is given in Tab. 1³⁷. Comparison of timelines for their implementation is illustrated in Fig. 4³⁸.

Both MFSD and MAP are committed to seeking mutual collaboration for the protection of the Mediterranean marine environment. However, there are important differences in the capacity for implementing specific measures or initiatives, with the implementation of such goals driven by different visions and concerns between different jurisdictions.

EU-MSFD	MAP-ECAP
VISION	
Good Environmental Status (GES)	A healthy Mediterranean with marine and coastal ecosystems that are productive and biologically diverse for the benefit of present and future generations
STRATEGIC GOALS	
(i) to protect more effectively the marine environment across Europe;	(i) to protect, allow recovery and, where practicable, restore the structure and function of marine and coastal ecosystems thus also protecting biodiversity, to achieve and maintain good ecological status and allow for their sustainable use;
(ii) to achieve Good Environmental Status of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend;	(ii) to reduce pollution in the marine and coastal environment so as to minimize impacts on and risks to human and/or ecosystem health and/or uses of the sea and the coasts;
(iii) to constitute the vital environmental component of the Union's future maritime policy, designed to achieve the full economic potential of oceans and seas in harmony with the marine environment.	(iii) to prevent, reduce, and manage the vulnerability of the sea and the coasts to risk induced by human activities and natural events (UNEP-MAP 2008)
DESCRIPTOR / OBJECTIVES	ECOLOGICAL OBJECTIVES
1. Biological diversity is maintained. The quality and occurrence of habitats and the distribution conditions	1. Biological diversity is maintained or enhanced. The quality and occurrence of coastal and marine habitats and the distribution and abundance of coastal and marine species are in line with prevailing physiographic, hydrographic, geographic, and climatic conditions.
2. Nonindigenous species introduced by human activities are at levels that do not adversely alter the ecosystems	2. Nonindigenous species introduced by human activities are at levels that do not adversely alter the ecosystem.

³⁶ Jones P.J.S. , Qiu W. , Lieberknecht L.M. 2013. Typology of Conflicts in MESMA Case Studies. MESMA Work Package 6 (Governance). Deliverable 6.1, University College London. (<http://www.mesma.org/>)

³⁷ Cinnirella, S., R. Sardà, J. Suárez de Vivero, R. Brennan, A. Barausse, J. Icely, T. Luisetti, D. March, C. Murciano, A. Newton, T. O'Higgins, L. Palmeri, M. Palmieri, P. Raux, S. Rees, J. Albaigés, N. Pirrone, and K. Turner 2014. Steps toward a shared governance response for achieving Good Environmental Status in the Mediterranean Sea. *Ecology and Society* 19 (4): 47.

³⁸ Ibid.

EU-MSFD	MAP-ECAP
3. Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.	3. Populations 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.
4. All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.	4. Alterations to components of marine food webs caused by resource extraction or human-induced environmental changes do not have long-term adverse effects on food web dynamics and related viability.
5. Human-induced eutrophication is minimized, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms, and oxygen deficiency in bottom waters.	5. 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.
6. 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.	6. Sea-floor integrity is maintained, especially in priority benthic habitats.
7. Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.	7. Alteration of hydrographic conditions does not adversely affect coastal and marine ecosystems.
8. Concentrations of contaminants are at levels not giving rise to pollution effects.	8. The natural dynamics of coastal areas are maintained and coastal ecosystems and landscapes are preserved.
9. Contaminants in fish and other seafood for human consumption levels established by community legislation or other relevant standards.	9. Contaminants cause no significant impact on coastal and marine ecosystems and human health.
10. Properties and quantities of marine litter do not cause harm to the coastal and marine environment.	10. Marine and coastal litter does not adversely affect coastal and marine environments.
11. Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.	11. Noise from human activities causes no significant impact on marine and coastal ecosystems.

Table 1 Comparison between EU-Marine Strategy Framework Directive (MSFD) and Mediterranean Action Plan-Ecosystem Approach Strategy (MAP-ECAP) vision, strategic goals, and ecological objectives already defined. With the exception of MAP-ECAP Objective 8 they are almost identical³⁹.

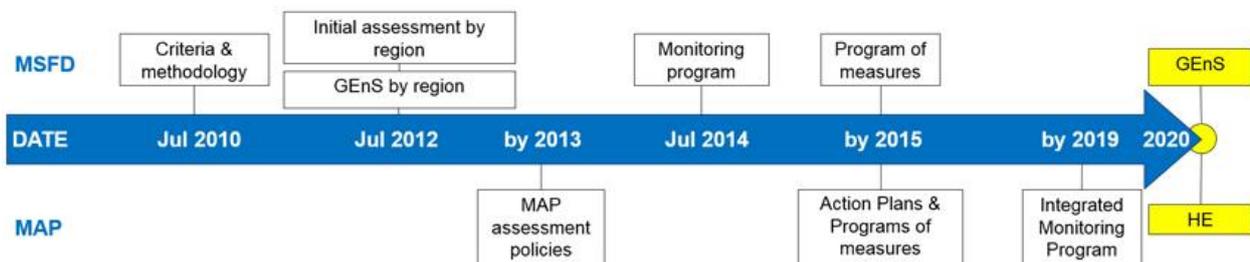


Figure 4 Synthetic comparison of Marine Strategy Framework Directive (MSFD) and Ecosystem Approach Strategy (EcAp) milestones (UNEP-MAP 2012, modified by O’Higgins and Roth 2010)⁴⁰.

³⁹ Cinnirella, S., R. Sardà, J. Suárez de Vivero, R. Brennan, A. Barausse, J. Icely, T. Luisetti, D. March, C. Murciano, A. Newton, T. O’Higgins, L. Palmeri, M. Palmieri, P. Raux, S. Rees, J. Albaigés, N. Pirrone, and K. Turner 2014. Steps toward a shared governance response for achieving Good Environmental Status in the Mediterranean Sea. *Ecology and Society* 19(4): 47. <http://dx.doi.org/10.5751/ES-07065-190447>

⁴⁰ Ibid.

Overall, the ecosystem-based approach is relevant within MSFD at two levels:

- 1) The strategic level, represented by the integration and application of the measures and objectives set out in the MSFD, which represents the Integrated Maritime Policy Environmental Pillar and is therefore the interconnection and interrelationship between different sectoral regulations.
- 2) The functional - procedural level, consisting of the application of the SEA Directive working tools, as a methodology that can concretely articulate the way the ecosystem-based approach needs to be integrated and used to define the MSP plans.

2.4 *Water Framework Directive*

The 2000 Water Framework Directive (WFD)⁴¹ adopts a holistic approach to environmental protection and regulation. This directive calls for a single system of water management based on a river basin (RB), a natural geographical and hydrological unit instead of according to administrative or political boundaries⁴². The directive requires high level of protection for all types of waters by a set of deadlines. More specifically, the WFD aims at achieving Good Ecological Status for all waters by 2015 or, failing that, by 2021 (Art. 4, n. 107). In the WFD the assessment of Ecological Status is primarily based upon several biological quality elements (BQE). These BQE are fish, benthic macro invertebrates, benthic algae and macrophytes, and phytoplankton. In addition, physical-chemical and hydromorphological quality elements are also considered supporting. This means that the assessment also takes into account the quality of the structure and functioning of aquatic ecosystems associated with surface waters, and the physic-chemical nature of the water and sediment., the flow characteristics of the water and physical structure of the water body⁴³.

The WFD is relevant for MSP because it applies to coastal waters that is waters, that has not been designated as transitional waters, extending one nautical mile from a baseline defined by the land points where territorial waters are measured. In addition, the WFD is relevant for MSP in the context of ICZM and LSI. In fact the WFD deals with the control of sources of polluting pressures affecting all type of waters, including the coastal ones.

Considering the ecosystem-based approach, it is worth noting that the interpretation by WFD and MSFD respectively is very different. Under the WFD Good Ecological Status is assessed by first splitting up the ecosystem into several BQEs, then by comparing the structure of these individually before combining them and determining the overall condition. The approach is based on the practice that the status of the worst element, used in the assessment, determines the final status⁴⁴. Instead, the MSFD concentrates on a set of 11 descriptors which together summarise the way in which the whole ecosystem functions. The MSFD aims to provide a more holistic, functional approach as it takes the ecosystem and separates it into a set of process-related (functional) objectives and then recombines these to give a holistic approach, ensuring the integrity of the ecosystem.

While the WFD mainly focuses on ecological status, measured by the structure of each of the BQEs and supporting elements, the MSFD takes into account structure, function and processes in marine ecosystems. Hence, the MSFD is potentially a more integrated approach to the management of the European seas, resources and ecosystems, promoting conservation and sustainable use of marine systems⁴⁵.

⁴¹ 2000/60/CE.

⁴² Platjouw F. M. 2016. Environmental law and the ecosystem approach: maintaining ecological integrity through consistency in law. Routledge. New York.

⁴³ Ibid.

⁴⁴ Borja A. et al 2010. Marine Management – Towards an Integrated Implementation of the European Marine Strategy Framework and the Water Framework Directives. Marine Pollution Bulletin 60 (12): 2175.

⁴⁵ Holt A. R., Godbold J. A., White P. C. L., Slater A., Pereira E. G. and Solan M. 2011. Mismatches between legislative frameworks and benefits restrict the implementation of the Ecosystem Approach in coastal environments. Marine Ecology Progress Series, 434 (213-228).

Considering the links to the ecosystem-based approach (the Malawi Principles)⁴⁶, the WFD acknowledges the need to maintain ecosystems within certain ranges to maintain ecological integrity (Principle 6). Pertaining to the spatial components, the WFD sets the primary management units at the level of hydrological water bodies and the administrative unit at the level of river basin districts (RBDs), including transboundary ones (Principle 7). Overall, the WFD requires the mobilisation of knowledge from different scientific disciplines (e.g. ecology, chemistry, economy) (Principle 12). While the objective of good ecological status requires adequate attention to ecological needs, socio-economic concerns are considered in several ways (Principle 4). Within the WFD, integrated water management and policy coordination are explicit aims (Principle 2, 7). The WFD integrates several aspects of adaptive management (Principle 9): it is organised around a six-year planning cycle, which include a thorough evaluation of the success of past implementation; up to three planning cycles (by 2027 at the latest) are allowed to reach the environmental objectives.

2.5 *Birds Directive and Habitat Directive*

The most significant policy drivers to MSP include also the Birds (Directive 2009/147/EC) and Habitats Directive (Directive 92/43/EEC). These Directives require EU Member States to designate and protect Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), together known as the Natura 2000 network. Specifically, the aim of the Habitat Directive (HD) is to maintain and restore all habitat types and species of community interest to a Favourable Conservation Status (FCS). FCS describes a situation where a habitat type or species is prospering in both quality and extent and population, and has good prospects to do so in the future. The Birds Directive (BD) focuses on conserving all naturally occurring birds in the wild. The BD calls for measures to protect birds but also to preserve, maintain (prevent deterioration) or re-establish a sufficient diversity and area of habitats for certain bird species. A pre-defined list of habitats and species are set out in the directives.

The link of these directives to MSP is through the Natura 2000 network of Marine Protected Areas. MPAs are defined by the Convention on Biological Diversity as "a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives". MPAs are then designated to protect marine biodiversity under HD and can be complemented by "other effective area-based conservation measures" (OECMs). OECMs do not necessarily have environmental or biodiversity conservation as their main objective but can nevertheless contribute to the protection of marine ecosystems. The main target of MPAs, and a by-product of some OECMs, is to preserve biodiversity within their boundaries. This is also the objective of the Natura 2000 network, based on the presence of habitats and species of community importance and their distribution patterns.

A clear and strong link between the implementation of HB and BD directives in the Mediterranean and the MSP process is determined by the present status of Natura 2000 network and other conservation measures in this regional sea. The 1,231 MPAs and OECMs now cover 7.14 % of the Mediterranean through a large variety of conservation designations, with national designations accounting for only 1.6% and no-go, no-take or no-fishing zones for 0.04%. Over 72.77% of the protected surface covered is located in the Western Mediterranean. Designations cover 9.79% of European waters mostly due to the Natura 2000 marine network which rarely affords strict restrictive measures. To reach the 10% of protection of the marine space set up by the Aichi Target, an additional 71,900 km² (2.86 % of the Mediterranean) would need to be placed under strong protection designations that also target currently under-represented features. Since 2012, 391 Natura 2000 sites were designated but just 6 MPAs of national status were established⁴⁷.

HD and BD express many principles in accordance with the ecosystem-based approach and their principles can be related to the Malawi Principles⁴⁸. The measures they foresee focus on biodiversity and have the

⁴⁶ Links formulated on the basis of the approach described by Rouillard J., Lago M., Abhold K., Röschel L., Kafyeke T., Mattheiß V. Klimmek H. 2018. Protecting aquatic biodiversity in Europe: How much do EU environmental policies support ecosystem-based management? *Ambio*, 47 (1): 15-24.

⁴⁷ MEDPAN-RAC/SPA 2016. The 2016 status of marine protected areas in the Mediterranean. Main findings.

⁴⁸ Links formulated on the basis of the approach described by Rouillard J., Lago M., Abhold K., Röschel L., Kafyeke T., Mattheiß V. Klimmek H. 2018. Protecting aquatic biodiversity in Europe: How much do EU environmental policies support ecosystem-based management? *Ambio*, 47 (1): 15-24..

potential to have a positive impact on the whole ecosystem (Principle 5). The Directives also acknowledge the multi-level approach to biodiversity conservation by enabling proportionate and appropriate implementation in each State and at site level (Principle 2). While protecting species across their entire natural range, both Directives support the establishment of a network of protected areas to protect the most vulnerable species and habitat types, commonly called together as Natura 2000. Internationally, the Directives acknowledge that threats to habitats and species are often of a transboundary nature, and explicitly call for cooperation between Member States (Principle 6, 7). At local level, the Directives encourage the use of management, contractual agreement between the competent authorities and individual landowners (Principle 12). The development of a protection regime for habitats and species, and designation of Natura 2000 sites, is done on scientific grounds and must consider elements of biology, ecosystem functions and structure (Principle 5). Both Directives include nevertheless consideration of social and economic issues (Principle 4), whereby States must provide information on threats and pressures (Art. 12 BD, Art. 17 HD). Measures must take into account economic, social and cultural requirements and regional and local characteristics of the area concerned (Art. 2 HD and BD) (Principle 1)⁴⁹. Lastly, HD and BD also integrates several aspects of adaptive management (Principle 9): HD requires Member States to report progress on the state of conservation every six years. This encourages some cycles of planning and revisions, although not clearly spelled out in both directives. The HD also stresses the need to go beyond simple management measures to ensure conservation towards preventive and anticipatory approaches to avoid deterioration, which can build adaptive capacity and resilience⁵⁰.

2.6 *SEA Directive*

Strategic environmental assessment (SEA) is an important tool for implementing the ecosystem-based approach in maritime spatial planning as it identifies, describes and assesses the likely significant effects on the ecosystem. According to EU law (Directive 2001/42/EC) a SEA has to be carried out before a maritime spatial plan can be approved by the responsible authority in accordance with the criteria set out in this Directive and as required by the MSP Directive. This includes the preparation of an environmental report, the carrying out of public consultations, the taking into account of the environmental report and the results of the consultations in decision-making and the provision of information on the decision⁵¹.

In addition, for EU Member States, impact assessments of habitats and species (Art. 6 of the Habitats Directive 92/43/EEC) and of bird sanctuaries (Birds Directive 2009/147/EC) are obligatory.

The SEA Directive also requires that a Member State shall forward a copy of a draft plan or programme and the relevant environmental reports to other Member States, when the plan or programme is likely to have significant transboundary effects on the environment, and shall enter into consultation at the request of other Member States concerning the transboundary effects of implementing the plan or programme. This provision creates incentives for cross-border consultation and cooperation in addressing the transboundary environmental impacts of national marine plans.

2.7 *Common Fishery Policy*

At European level the ecosystem-based approach has also appeared within the European Common Fishery Policy (CFP). The 2013 Regulation on the CFP states in Article 2(3):

- The CFP shall implement the ecosystem-based approach to fisheries management so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimized, and shall endeavour to ensure that aquaculture and fisheries activities avoid the degradation of the marine environment.

The outcomes of the CFP implementation affect MSP in many ways, particularly with regards to protecting Special Areas of Conservation (SACs), Special protection Areas (SPAs) and Marine Protected Areas (MPAs), and achieving GES. Despite various provisions for fisheries restrictions to support environmental

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ HELCOM-VASAB 2016. Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area.

conservation and the management of Natura 2000 sites under the CFP, such provisions are actually very rarely used. Such restrictions under the CFP would be very important as designation of Natura 2000 sites does not have any immediate, direct effect on fisheries management⁵².

The ecosystem approach in fisheries management has been understood by the EU Commission as being about ensuring goods and services from living aquatic resources for present and future generations within meaningful ecological boundaries. Such fisheries management will strive to ensure that benefits from living marine resources are high which the direct and indirect impacts of fishing operations on marine ecosystems are low and not detrimental to the future functioning, diversity and integrity of these ecosystems. European Commission⁵³.

An important element of the CFP is the focus on a cross- sectoral approach and coherence with the MSFD and the Habitats Directive:

- An ecosystem-based approach to managing the seas cannot and should not be implemented in a specific sector alone, but must be cross-sectoral. The Integrated maritime Policy constitutes the overall framework for integrated action in the maritime field, and its environmental pillar, the MSFD, constitutes the general basis for implementing an ecosystem approach to the marine environment.

According to the CFP, fish stocks should be brought up to healthy levels and be maintained in healthy conditions. They should be exploited at maximum sustainable yields level, which can be defined as the highest catch that can be safely take year after year and which maintains the fish population size at maximum productivity.

In addition, the ecosystem-based approach to marine management implies that multiple and often conflicting interests need to be reconciled in the process. While there may be short-term contradictions between social objectives and the requirement to conduct fisheries within meaningful ecological boundaries, such contradictions largely disappear in the long term because healthy ecosystems are a prerequisite for the continued existence of a fishing industry⁵⁴.

2.8 Blue-Growth strategy

Blue Growth is the long-term strategy of the EU to support sustainable growth in the marine and maritime sectors as a whole⁵⁵. Seas and oceans are drivers for the European economy and have great potential for innovation and growth. The Blue Economy represents the maritime contribution to achieving the goals of the Europe 2020 strategy for smart, sustainable and inclusive growth. This new economy of the sea aims to optimize the benefits received from the sustainable development of marine environments⁵⁶. The EU Blue Growth agenda targets the following marine economic sectors: ocean energy, aquaculture, maritime, coastal and cruise tourism, marine mineral resources, and marine biotechnology.

The economic activities under the Blue Growth agenda might impact marine ecosystems, specifically in what concerns Good Environmental Status (GES), meaning that the marine environment is clean, healthy and productive, as defined in the context of EU policies. Thus, the EU marine-related Directives described above establish a set of environmental targets, and the associated indicators, to be considered when evaluating the status of the EU maritime space. From an ecosystem-based approach point of view, the close interlinkage between Blue Growth activities and the marine ecosystems should be carefully considered, clearly understood and appropriately managed. In fact, there appears to be growing tensions between policies that

⁵² Qiu W., Jones P. J. S. 2013. The emerging policy landscape for marine spatial planning in Europe. *Marine Policy* 39: 182-190.

⁵³ Platjouw F. M. 2016. *Environmental law and the ecosystem approach: maintaining ecological integrity through consistency in law*. Routledge .New York.

⁵⁴ COM(2008)187/F1

⁵⁵ Communication from the Commission: Blue Growth opportunities for marine and maritime sustainable growth (COM(2012) 494 final).

⁵⁶ United Nations Environmental Program (UNEP), *Blue Economy: Sharing Success Stories to Inspire Change*, UNEP Regional Seas Report and Studies N° 195, 2015. Available online at <www.unep.org/greeneconomy> (last accessed 16 Sep. 2016).

focus on an ecosystem-based approach (MSFD, Birds/Habitats Directives, etc.) and policies that focus on Blue Growth⁵⁷.

In addition to possible conflicts with regard to the GES of marine ecosystems (difficulties in coupling with the ecosystem-based approach), Blue Growth implementation faces other major challenges: tensions between different maritime sectors, need to accomplish future demands of sea space, difficulties in engaging stakeholders, lack of good local, regional, cross-border governance, necessary for developing blue economy⁵⁸. To couple with this, Blue Growth implementation can rely on several, strong links with MSP. These can help to address the Blue Growth challenges by creating a framework for evidence-based and inclusive maritime spatial plans, contributing to reconciles economic needs with other dimensions and demands, including the protection of the environment, the supply of ecosystem services, the interactions between activities and processes occurring at sea and onshore, and cross-border cooperation. Moreover, MSP processes can contribute to raise awareness for the innovation potential of the sea and its role in general for the economy as well as the environment⁵⁹.

In relation with the ecosystem-based approach, the basic concept is that durable maritime economy must rely on a sustainable use of ecosystem services supplied by seas. Fig. 5 shows the links between the demand for ecosystem services that are driven by the Blue Growth agenda's economic activities (blue energy, aquaculture, maritime, coastal and cruise tourism, marine mineral resources, and blue biotechnology) and the supply side for these services. Marine ecosystems could be negatively impacted by these economic activities if such activities are not properly regulated and managed, halting marine ecosystems' capacities to provide the demanded ecosystem services⁶⁰.

Marine ecosystem services supply biomass from plants and animals for marine aquaculture, and biomass from all biota for direct use or processing for biotechnology. Both ES and the abiotic outputs from seas and ocean supply energy from algae biomass or from renewable abiotic sources. They also provide interactions with environmental or with physical settings for maritime, coastal and cruise tourism. Abiotic outputs supply abiotic substances, materials and energy as marine mineral resources. However, the capacity for marine ecosystems to supply the required services in a sustainable way requires actions that are regulated by legislation. In this way human well-being can be linked to GES. Blue growth thus requires navigating trade-offs between economic, social and environmental aspects underpinned by marine ES⁶¹.

⁵⁷ Qiu W., Jones P. J. S. 2013. The emerging policy landscape for marine spatial planning in Europe. *Marine Policy* 39: 182-190.

⁵⁸ Joint Roadmap to accelerate Maritime/Marine Spatial Planning processes worldwide – 2nd International Conference on Marine/Maritime Spatial Planning, 15-17 March 2017, Paris UNESCO. Conference conclusions.

⁵⁹ Ibid.

⁶⁰ Lillebø A.I., Pita C., Garcia Rodrigues J., Ramos S., Villasante S. 2017. How can marine ecosystem services support the Blue Growth agenda? *Marine Policy* 81: 132-142.

⁶¹ Ibid.

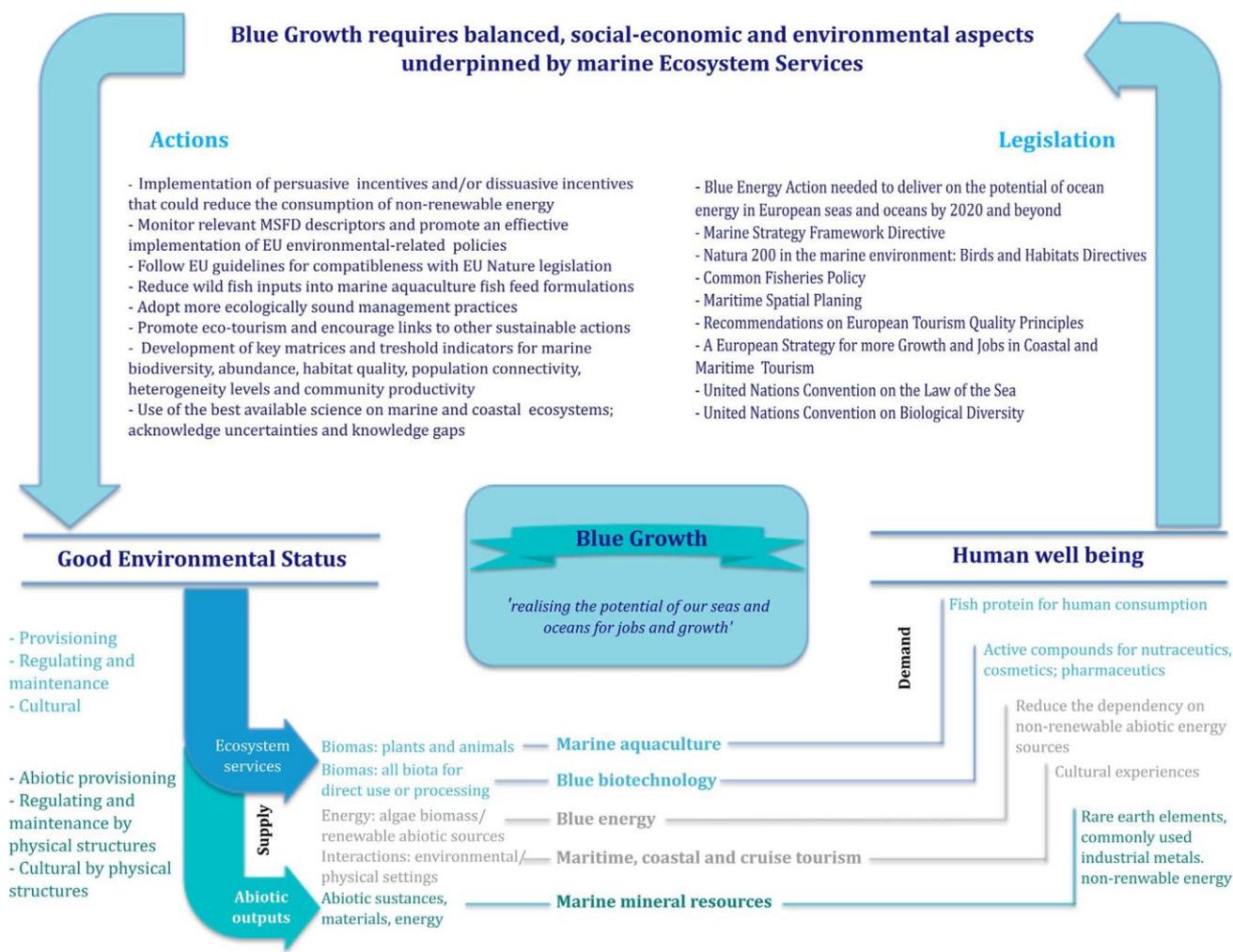


Figure 5 Schematic representation of how marine ecosystem services (ES) can support the Blue Growth agenda, taking into account the demand for marine ES and the actions regulated by legislation that are needed for the supply of the required services in a sustainable way. Source: Lillebø et al. 2017.

2.9 Renewable Energy Directive

EU Renewable Energy Directive (Directive 2009/28/EC) is a key component of the EU Climate and Energy Pack adopted in 2008 to contribute to EU's fulfilment of Kyoto Protocol objectives which includes a legally binding obligation to increase the share of renewables to 20% of total energy consumption in the EU by 2020. The Directive was adopted to address this obligation. Under this Directive, Member States are required to meet their national overall target for the share of energy from renewable sources in 2020. Each Member State is also required to adopt a national renewable energy action plan, providing projections for the share of renewable energy consumed in electricity, transport and heating/ cooling sectors in 2020. According to the submitted national renewable energy action plans, EU Member States have planned to install 44.2 GW of offshore wind energy and 2.3 GW of tidal, wave and ocean energy in 2020 (increased from 2.6 and 0.2 GW in 2010), which accounts for 12.2% of total renewable electricity capacity, or 5.2% of total renewable energy (including transport and heating/cooling) in 2020⁶².

As the offshore renewable industry grows, the spatial requirements are having significant effects on other uses of the sea, such as fishing and navigation. There are also potential/on-going tensions between offshore renewable developments and Natura 2000 sites. On the other side, the entry into force of the MSFD and the Renewable Energy Directive have provided a driving force for the designation of MPAs and the development of marine renewable energy, particularly wind farms, across Europe, which may claim extensive marine areas

⁶² Qiu W., Jones P. J. S. 2013. The emerging policy landscape for marine spatial planning in Europe. Marine Policy 39: 182-190.

and lead to a 'race for space' in the marine environment⁶³. Implications of all these factors for MSP are relevant.

2.10 Aquaculture strategy

Aquaculture is considered a strategic activity for the EU. The Commission intends to boost the aquaculture sector through the Common Fisheries Policy reform, and in 2013 published the Strategic Guidelines⁶⁴ presenting common priorities and general objectives at EU level. In addition, marine aquaculture is recognized as one of the four focus areas identified under the Blue Growth Strategy⁶⁵.

Marine aquaculture is relevant for MSP: limited access to space is recognized by the Blue Growth Strategy as one of the major factors limiting the development of EU marine aquaculture:

- Lack of available maritime space for aquaculture activities, competition in the global market and administrative constraints in particular concerning licensing procedures are amongst the challenges to growth. Sustainable aquaculture must also consider potential impacts on wild fish stocks and water quality. Since the start of the present economic crisis, investment has been limited by the lack of capital.

Moreover, the recently published (2016) Commission working document on aquaculture⁶⁶ indicates that, "in situations where there may be competition for space, maritime spatial plans should be used to reduce conflicts between sectors and create synergies between different activities, encourage investment by instilling predictability, transparency and clearer rules, increase coordination between administrations in each country via the use of a single instrument to balance the development of a range of maritime activities, increase cross-border cooperation and protect the environment through the early identification of impacts arising from the multiple use of space. The development of spatial planning for aquaculture is very valuable approach that can integrate the requirements of the WFD and MSFD".

An ecosystem-based approach to aquaculture (EAA) has been developed by the FAO⁶⁷ as a means to enhance aquaculture production in an environmentally and socially acceptable way that takes account of multiple uses of space, and is compatible with the legal basis defined in the MSFD and the CFP. The EAA should form the basis for development of spatial planning under the ecosystem approach within the EU.

Research is on-going in the EU to provide operative tools to implement an ecosystem-based approach to aquaculture, one example is the on-going H2020 AQUASPACE project⁶⁸.

2.11 EU Tourism policy

In June 2010, the European Commission adopted the Communication, 'Europe, the world's No. 1 tourist destination – a new political framework for tourism in Europe'⁶⁹. This communication set out a new strategy and action plan for EU tourism. Four priorities for action were identified, introducing the concept of sustainability of tourism related activities:

- To stimulate competitiveness in the European tourism sector

⁶³ Ibid.

⁶⁴ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0229&from=EN>

⁶⁵ Communication from the Commission: Blue Growth opportunities for marine and maritime sustainable growth (COM(2012) 494 final).

⁶⁶ Commission staff working document. On the application of the Water Framework Directive (WFD) and the Marine Strategy Framework Directive (MSFD) in relation to aquaculture. SWD(2016) 178 final.

⁶⁷ Aguilar-Manjarrez, J., Soto, D. & Brummett, R. 2017. Aquaculture zoning, site selection and area management under the ecosystem approach to aquaculture. A handbook. Report ACS18071. Rome, FAO, and World Bank Group, Washington, DC. 62 pp. Includes a USB card containing the full document (395 pp.).

⁶⁸ AQUASPACE Ecosystem Approach to making Space for Aquaculture. EU Horizon 2020 project grant no. 633476 Deliverable 5.1 Synthesis of the lessons learned from the development and testing of innovative tools to support ecosystem-based spatial planning to aquaculture.

<http://www.aquaspace-h2020.eu/wp-content/uploads/2018/01/Synthesis-of-tool-implementation-in-EAA.pdf>

⁶⁹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC0352&from=EN>

- To promote the development of sustainable, responsible, and high-quality tourism
- To consolidate Europe's image as a collection of sustainable, high-quality destinations
- To maximise the potential of EU financial policies for developing tourism.

In the Blue Growth strategy, coastal, maritime and cruise tourism are accounted as one of the four focus areas. The quality of marine environment is identified here as needed in order to maintain and enhance the attractiveness of coasts and seas:

- A healthy environment is fundamental to any form of 'blue' tourism and favours the growth potential of new forms of tourism. High quality bathing waters and pristine coastal and marine habitats have a high recreation value. This increases the attractiveness of coastal areas which in turn increases the growth potential of activities such as nautical tourism and sports, and green tourism such as whale watching.

Elaborating more on the idea of sustainability of the tourism sector, the Commission presented in 2014 the European Strategy for more Growth and Jobs in Coastal and Maritime Tourism⁷⁰ where Integrated Coastal Management and Maritime Spatial Planning are indicated as factors "helping to ensure sustainable and Green Infrastructure development through smart planning and cooperation between government, public and private partners". In addition, the following objectives are set by the Commission:

- Promote ecotourism
- Promote implementation of the Protocol to the Barcelona Convention on Integrated Coastal Management and the relevant Council Recommendation, and promote Maritime Spatial Planning and Green Infrastructure, to ensure the sustainable development of EU coastal area
- Promote strategies on waste prevention, management and marine litter to support sustainable coastal and maritime tourism.

Member States, regions, industry and other stakeholders are invited (also) to:

- Implement the Integrated Coastal Management Recommendation and Protocol.

Despite these indications, coastal and maritime tourism development still poses challenges to MSP and sustainable manage of coasts and seas. A significant role of MSP is recognized in organizing and planning coastal and marine tourism activities and especially in ensuring: a) good environmental conditions for the tourism industry to prosper, b) quality of seascapes and coastal landscapes and other resources of importance to tourism, c) adaptation to climate change effects, d) spatial regulations so that coastal and marine space is not overwhelmed by tourism facilities and activities and e) wise allocation of human uses in the coastal zone so as to avoid conflicts and create synergies among sectors⁷¹. MSP is also recognized to play a significant role in the organization of tourism development, especially in terms of ensuring/achieving the following environmental conditions:

- Good environmental status of the coastal zone and marine space, so that tourism activities (as well as other economic sectors) that are totally dependent on a healthy ecosystem can prosper and grow
- Quality seascapes and coastal landscapes, which are resources of vital importance for tourism development
- Resilience against climate change effects (sea level rise, coastal erosion, etc.) which are mostly threatening to vital spaces for tourism (i.e. the coastal zone)⁷².

At the same time, in terms of spatial organization, MSP can be beneficial to coastal and marine tourism by:

- Providing spatial regulations so that coastal and marine space is not overwhelmed by tourism facilities and activities (tourism resorts, etc.), but has room for other economic sectors to grow and prosper

⁷⁰ COM(2014) 86 final

⁷¹ Papageorgiou M. 2016. Coastal and marine tourism: A challenging factor in Marine Spatial Planning, *Ocean & Coastal Management*, 129: 44-48.

⁷² Ibid.

- Wisely allocating all types of human uses – and by extension coastal and marine tourism – in order to avoid conflicts, as well as achieve synergies among economic sectors
- Optimally organizing human activities in spaces undergoing increased pressure and “run-offs” as are the urbanised areas (cities, etc.) and the narrow zone close to both sides of the shoreline⁷³.

2.12 Integrated Maritime Policy

The EU Integrated Maritime Policy (IMP) seeks to provide a more coherent approach to maritime issues, with increased coordination between different policy areas. It focuses on issues that do not fall under a single sector-based policy e.g. "blue growth" (economic growth based on different maritime sectors), and issues that require the coordination of different sectors and actors e.g. marine knowledge. Specifically, it covers these cross-cutting policies:

- Blue growth
- Marine data and knowledge
- Maritime spatial planning
- Integrated maritime surveillance
- Sea basin strategies.

The IMP interacts with most other EU directives and regulations that affect the use and management of the marine environment, including those for fisheries, shipping, ports, renewable energy and nature conservation. The MSFD is regarded as being the ‘environmental pillar’ of the IMP, however the MSFD’s relationship with other objectives or ‘pillars’ is not clear. Compared to the MSFD, the IMP clearly places a greater focus on promoting cross-sectoral integration and maritime economic growth⁷⁴.

The IMP embraces all the objectives established in other marine policies and legislation, including designation of MPAs (Natura 2000 sites), the development of offshore renewable energy and sustainable fisheries. It is stated in the ‘Blue Book’⁷⁵ that competence for decision-making in MSP and Integrated Coastal Zone Management (ICZM) lies with the Member States, and that both instruments “contribute to meeting the commitments deriving from the Thematic Strategy for the Protection of the Marine Environment (MSFD) and provide operators with improved predictability for their planning of future investments”. However, the occurrence of conflict within IMP is to be recognized. For example, a position paper has been produced by a group of NGOs in reaction to the launch of the Blue Growth Strategy⁷⁶.

⁷³ Ibid.

⁷⁴ Qiu W., Jones P. J. S. 2013. The emerging policy landscape for marine spatial planning in Europe. *Marine Policy* 39: 182-190.

⁷⁵ "Blue Book" - Communication on an Integrated Maritime Policy for the European Union. COM(2007) 574 final.

⁷⁶ European Seas Environmental Cooperation ESEC 2012. Limits to Blue Growth. Join NGO Position Paper.