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## ІНСТИТУЦІЙНІ МЕХАНІЗМИ ІМПЛЕМЕНТАЦІЇ МОРСЬКОЇ РАМКОВОЇ ДИРЕКТИВИ: СИСТЕМА, ДИНАМІКА, ЗАХОДИ

**Актуальність.** За останнє десятиліття спостерігалися ознаки поліпшення стану Чорного моря. Проте його унікальні акваторії та узбережжя все ще знаходяться під серйозною загрозою. Чорне море незахищене від значних антропогенних тисків, і має низький адаптаційний потенціал. Якщо по мірі зростання економіки регіону ці тиски посиляться, проблема стане серйознішою.

Імплементация Директиви 2008/56/ЄС про встановлення рамок діяльності Співтовариства у сфері екологічної політики щодо морського середовища (Рамкова Директива про морську стратегію), оскільки використання морського середовища з урахуванням екосистемного підходу та принципу інтегрованого управління сприяє поліпшенню стану довкілля, збереженню біорізноманіття, розвитку галузей морегосподарського комплексу, перш за все рибальства, аквакультури, рекреації й туризму.

**Мета та завдання.** Метою даного дослідження є обговорення проблеми інституційного розвитку для фінансування впровадження Рамкової директиви Морської стратегії ЄС.

**Результати.** Директива 2008/56/ЄС спрямована на досягнення доброго екологічного стану морських вод і захисту морських ресурсів, від яких залежить економічна та соціальна діяльність. Основні етапи реалізації цього документа включають: 1) набуття чинності законами, підзаконними актами та адміністративними положеннями, необхідними для виконання Директиви 2008/56/ЄС; визначення уповноваженого органу (органів) влади, відповідального за її впровадження; 2) початкову оцінку сучасного стану морських вод; визначення їх доброго екологічного стану; встановлення екологічних цілей та індикаторів для морських вод; розробку програми моніторингу для здійснення поточної оцінки та регулярного оновлення цілей; 3) підготовку комплексу заходів для досягнення доброго екологічного стану.

**Висновки.** Зосереджено увагу на методологічних питаннях, пов'язаних із загальним розумінням технічних та наукових наслідків Рамкової директиви Морської стратегії. Зокрема, однією з цілей цієї стратегії є розробка не юридично обов'язкових та практичних документів, таких як співфінансування заходів РДМС. Здійснення РДМС потребує більш скоординованих досліджень, тому дослідження, що дозволяють оцінити переваги, можуть проводитися в різних країнах, використовуючи порівняльні, найсучасніші методи оцінки. Це може також включати комбінацію різних методів оцінки, наприклад від заявлених та виявлених методів переваг, щоб отримати більш надійні оцінки корисності.

**Ключові слова:** морська стратегія, механізми фінансування, імплементация, директива, інституціональні передумови.

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## INSTITUTIONAL MECHANISMS FOR IMPLEMENTATION OF MARINE STRATEGY FRAMEWORK DIRECTIVE: SYSTEM, DYNAMICS AND MEASURES

**Topicality.** Over the past decade, there have been signs of improvement of the Black Sea. However, its unique water areas and coastline are still under serious threat. The Black Sea is unprotected from significant anthropogenic pressures, and has a low adaptive potential. If as the region's economy grows, these pressures will intensify, the problem will become more serious.

The implementation of the Directive 2008/56/EC establishing a framework for Community action in the field of environmental policy on the marine environment (Marine Strategy Framework Directive) are important for Ukraine. The use of the marine environment, taking into account the ecosystem approach and the principle of integrated management improves the environment, biodiversity, development of industries marine complex, especially commercial fish and shellfish, recreation and tourism.

**Aim and tasks.** The aim of the article is to discuss the challenge to institutional development for funding of implementation of EC Marine strategy framework directive.

**Research results.** Directive 2008/56/EC aims to achieve good environmental status of marine waters and to protect the marine resources that affect the economic and social activities. The main stages of the implementation of Directive 2008/56/EC include: 1) adoption of national legislation and designation the authority or authorities competent for the implementation of this Directive; 2) initial assessment of the current environmental status of marine waters; determine good environmental status for marine waters and establishment environmental targets and associated indicators; establishment of monitoring program for the development of ongoing assessment and regular updating purposes; 3) development programme of measures to achieve good environmental status.

Focus is on methodological questions related to a common understanding of the technical and scientific implications of the Marine Strategy Framework Directive. In particular, one of the objectives of the strategy is the development of non-legally binding and practical documents, such as co-financing of MSFD measures.

**Conclusions.** The cooperation towards the setting up of the Common Maritime Agenda is a bottom-up process between the participating countries, with the involvement of the relevant stakeholders. Participation in the activities which will be undertaken under this cooperation remains voluntary, depending on the needs to be addressed and as appropriate.

**Keywords:** marine strategy, funding mechanisms, implementation, directive, institutional background.

**Problem statement and its connection with important scientific and practical tasks.** In the European Union (EU) there is a framework that requires EU Member States to develop strategies to achieve 'good environmental status' in their marine waters by 2020. This objective aims at having clean, healthy and productive seas. This framework is set through a legal instrument known as the "Marine Strategy Framework Directive" (Directive 2008/56/EC). Over the first six years of implementation EU Member States had to

assess the status of their marine waters; determine 'good environmental status' on the basis of 11 descriptors (such as biodiversity, commercial fisheries, marine litter or seabed integrity); set targets, develop and implement monitoring programmes; and finally develop and implement measures to achieve this objective. The ecosystem approach to the management of human activities having an impact on the marine environment is intrinsic to the framework, thereby integrating the concepts of environmental protection and sustainable use. Importantly, this framework requires Member States to work together in a regional context, thereby ensuring coherence in the actions that are being taken by Member States given the transboundary nature of impacts on the marine environment. EU Member States therefore often work together with the Regional Sea Conventions covering the marine waters of EU Member States and Ukraine.

From a European policy perspective, increasing threats to the marine environment resulting from human use have been recognized, and there are several regulations that aim at managing the human impact on the marine environment.<sup>1</sup> Most recently, the European Union (EU) adopted the Marine Strategy Framework Directive (MSFD) in 2008, which is to guide future maritime policy and aims at achieving or maintaining a good environmental status (GES) of Europe's seas by 2020. The MSFD requires an assessment of how humans use the marine environment and the development of action plans and explicit measures to achieve a GES by 2020.

According to the MSFD, Member States are required to identify measures that contribute to the achievement or maintenance of the Good Ecological Status (GES) set out in their Marine Strategies and that will address the predominant pressures and impacts identified in the initial assessment of their marine waters (initial assessment). There should be a direct link between the proposed measures and the established national targets.

Where relevant it is possible that measures may address several descriptors, relating to different targets / pressures, economic sectors and activities. There is no definitive nor an exhaustive way in which measures may be presented. In the following section the classification according to MSFD is used.

**Analysis of recent publications on the problem.** Some scoping studies have been carried out that examine the economic requirements of the MSFD and review the existing literature on marine ecosystem goods and services and their valuation. Qiu (2013) identifies explicit and implicit economic requirements of the MSFD and assesses the possible role that economic analysis can play in its implementation [1]. Atkins et al. (2011) present different methodological tools that can be used to analyze the role of socio-economic drivers and responses in environmental-economic systems and provide an overview of valuation studies on marine ecosystem services in European countries [2]. Marine and coastal ecosystems are important for humans in multiple ways. They provide a number of goods and services which are used directly and indirectly by humans [3-4]. These goods and services include the provisioning of food, energetic and mineral resources but also the regulation of important ecological functions such as the climate system. Moreover, the ocean offers transport model can be further refined and new management objectives set.

The Ecosystem Approach strategic concept has emerged as the dominant paradigm for managing coastal and marine ecosystems with the main goal of maintaining and/or restoring marine biological integrity to ensure the adequate provision of ecosystem goods and services. Regarding conservation objectives, seas are planned and designed to meet long-term nature protection, a clear long-term objective under an Maritime strategy. Although the majority of seas zone combine protection and the sustainable development of activities, their ultimate vision is to conserve biodiversity, habitat structure and the functioning of the ecosystem. When designing the tactical and operational objectives for running seas zone to achieve visions, goals and targets in these areas, frameworks should be considered.

**Allocation of previously unsolved parts of the general problem.** There is no international convention exclusively dedicated to spatial planning at sea. Some relevant regulations, however, can be found in the United Nations Convention on the Law of the Sea (UNCLOS). Apart from Turkey, all states of the Black Sea area have signed and ratified this convention.

UNCLOS sets out different zones of the sea and defines the rights and obligations of its contracting parties in each of them. Article 2 (1) of UNCLOS states that the sovereignty of a coastal state covers its land territory and internal waters. The coastal state is thus free to make laws, to regulate any use, to use any resource and, therefore, to submit its internal waters to MSP. According to Art. 2(1) of UNCLOS, the sovereignty of the coastal state comprises its territorial sea, extending up to 12 nautical miles from the baseline. That sovereignty derives from the sovereignty over the land territory. Consequently, the coastal routes and recreational opportunities. However, marine and coastal ecosystems – and thus the benefits they

create for humans – are subject to increasing pressures and competing usages [5-6]. These pressures result e.g. from intensified fishing efforts, nutrient enrichment, increasing maritime transport, pollution, noise, sediment sealing and increasing ocean acidification caused by anthropogenic CO<sub>2</sub> emissions. Despite their great importance, goods and services provided by marine and coastal ecosystems have received far less attention than those provided by terrestrial ecosystems – maybe due to the difference in access and direct experience [7-8].

**Formulation of research objectives (problem statement).** The aim of this paper is to discuss the challenge to institutional development for funding of implementation of EC Marine strategy framework directive.

**An outline of the main results and their justification.** Marine ecosystems have been recognized as one of the most important natural resources as they offer a wide range of ecosystem services [1, 9-11]. This makes their conservation and management highly valuable for human well-being.

Having prepared and considered the above-mentioned policy elements (the definition of the present state of the marine social-ecological system, its 'status quo' or ecosystem overview, and formulation of a desired vision in terms of Good Environmental Status – GES with its provision of ecosystem services), the issue of using adaptive management as a tool both to change and to learn about a system comes to play a key role. Adaptive management is a structured, iterative process of robust decision-making in the face of uncertainty, which aims to reduce uncertainty over time via system monitoring. Adaptive management offers a practical means of integrating knowledge over social and economic as well as ecological scales. Adaptive management encourages managers to adopt policy cycles for a limited period, closely observing the outcomes of interventions through carefully focused monitoring. At the end of an initial learning period, testate can undertake spatial planning activities in that part of the sea. Ships of all states, however, enjoy the right of innocent passage through the territorial sea.

Beyond its territorial sea, a coastal state may claim an exclusive economic zone (EEZ) that extends up to 200 nautical miles from the baseline (Art. 55, 57). Since the Black Sea is quite small and all the riparian states have declared EEZs, it is completely divided between them (Black Sea Commission). Thus, there are no areas that lie beyond national jurisdiction (high seas/the Area) [13-15].

UNCLOS provides coastal states with certain functional rights in their EEZ for the purpose of exploring and exploiting, conserving and managing natural resources and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds and with regard to the establishment and use of artificial islands, installations and structures (Art. 56). The exercise of these rights is subject to various conditions, such as the respect of the right of any state to lay submarine pipelines and cables, and the freedom of navigation of other states' vessels (Art. 58). Concerning the seabed and subsoil, the rights of the coastal state in the EEZ shall be exercised in accordance with Part VI of UNCLOS on the continental shelf (Art. 56(3)).

Article 56(1) of UNCLOS does not expressly assign to the coastal state a sovereign right or jurisdiction to undertake planning activities. This, however, does not necessarily mean that MSP there is unlawful. Under Art. 60 (1) of UNCLOS, for example, the coastal state has the exclusive right to construct, to authorize and to regulate the construction, operation and use of artificial islands, installations and structures.

The European Parliament and the Council adopted on 30 May 2002 the Recommendation 2002/413/EC on Integrated Coastal Zone Management (ICZM) that outlines the steps that the Member States should take to promote ICZM along their shorelines and defines the principles of sound coastal planning and management. Those principles include the need to base planning on in-depth knowledge, to take a long-term and cross-sectoral perspective, to involve stakeholders, and to take into account both the terrestrial and the marine component of the coastal zone. The recommendation, however, lacks binding force.

Item 5.9 of the Roadmap for Maritime Spatial Planning of the Commission (COM (2008) 791 final) concerns the relation between MSP and ICZM and says '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 terrestrial spatial planning should be coordinated with MSP. Furthermore, according to a Commission Staff Working Paper of 2013, 'MSP and ICZM connect in their geographical coverage (transition area from land to sea) and in their overall objective (to manage human uses in their respective areas of application) [16].

Consequently, the Commission has decided to develop these two tools together, an approach that is reflected in the new MSPD: Art. 6 No. 2 lit. (c) encourages Member States to promote coherence between MSP and the resulting plan or plans and other processes, such as integrated coastal management [17].

From the Birds Directive to the MSFD, a clear trend of mainstreaming environmental concerns into wider planning and development programmes can be recognized in European legislation [1]. Right in line with that trend, the MSPD has recently been adopted, constituting a milestone in European legislation with regard to spatial planning. The EU for the first time includes not only individual spatial planning elements in environmental regulations [18]. In particular because of the increasing and uncoordinated use of coastal and maritime areas that leads to an inefficient and unsustainable use of marine and coastal resources, the Directive rather aims to cover all policy areas with an impact on coasts, seas and oceans [19].

The Directive, however, does not set new sectoral policy targets. Through maritime spatial plans, the objectives defined by national or regional sectoral policies are to be integrated and linked, and steps taken to prevent or alleviate conflicts between different sectors and to achieve the Union's objectives in marine and coastal related sectoral policies [19]. The operational objectives of the Directive are thus procedural in nature. It supports ongoing implementation of sea-related policies in Member States through more efficient coordination and increased transparency [20].

Consequently, the Directive only establishes a 'framework' for maritime spatial planning (Art. 1(1)). The EU has opted for such a 'framework-type' Directive to provide flexibility and to allow the Member States to develop their own national policies. The Directive is deliberately not aimed at assigning a new planning task to the EU or at reshaping the different national spatial planning systems [18].

According to the Directive, '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)). The definition of the objectives of the ecosystem-based approach corresponds to the definition in Art. 1(3) of the MSFD and so requires 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 [17].

The ecosystem-based approach is considered a basic principle of MSP within the EU and links the MSPD clearly to the MSFD. In reality, however, the two Directives seem to function more on an antagonistic than synergistic basis. By often prioritizing 'blue growth' over environmental protection towards the achievement of GES, Member States undermine the closer coupling that has been called.

Moreover, the appropriate balance between ecological, economic and social objectives of MSP and the respect of the carrying capacity of the sea, required by the ecosystem-based approach, seems to be difficult to strike. It could be argued that, at least if the sea is affected by planning decisions to such an extent that its ecosystems cannot recover in the foreseeable future, insufficient weight has been given to the protection of the environment. Such an interpretation ensures that the ecosystem-based approach does not conflict with the requirement to consider also economic and social interests, but just prevents manifest errors of consideration [18].

The Black Sea is surrounded by six countries. The countries of the west coast, Bulgaria and Romania, form part of the European Union. Turkey, located on the south coast, is an EU candidate country. The states on the north and east coasts (Ukraine, the Russian Federation and Georgia) arose following the break-up of the Soviet Union, which still influences their legal system, although both Ukraine and Georgia signed Association Agreements with the EU in 2014 which implies increasing harmonization of their legislation with the *acquis communautaire*.

Despite its anoxic zone below 300 m, the Black Sea is relatively rich in biological resources (Alexandrov et al.). The sea and its coastal wetlands provide spawning grounds for various fish species and breeding and resting places for many endangered birds. Also, three species of marine mammals live in the Black Sea. Eutrophication, pollution and irresponsible fishing, however, brought the environment of the Black Sea to the edge of collapse [22].

The most recent policy driver for the protection of the marine environment is the MSFD. The objective of the MSFD is to achieve a Good Environmental Status (GES) of the EU's marine waters by 2020 by applying an ecosystem approach towards marine management and governance.

The Marine Strategy Framework Directive (MSFD, 2008/56/EC) sets the target of reaching Good

Environmental Status (GES) in all EU waters by 2020. The situation of the European Seas will improve significantly if this strategic goal can be achieved, or at least if the trend towards its achievement triggers effective conservation measures. In order to characterise good environmental status (GES), the Member States define a set of characteristics for the good environmental status of their marine waters. Such a definition implies the determination of the desired states. The relevant characteristics should be based around the initial assessment and the 11 descriptors as qualitative descriptions of the GES, which in their entirety are indicative of environmental status. These include marine biodiversity, food webs and the sea-floor, as well as key anthropogenic pressures on the marine region, such as eutrophication, pollutants, fisheries, invasive species, litter, and the introduction of energy (including noise) [23].

The EU COM Decision of 1 September 2010 (2010/477/EU) on "criteria and methodological standards on good environmental status of marine waters" lists a total of 29 criteria and 56 indicators designed to facilitate a more precise analysis of the 11 state and pressure descriptors.

These descriptors encompass the final objectives that can be targeted with the (set of) measures. The Table below gives an overview of MSFD descriptors/pressures and example type of measures (table1).

Table 1

**MSFD descriptors/pressures and example type of measures.**

Descriptor / pressure	Existing (types of) measures	Potential new (types of) measures
1. Biological diversity is maintained	Designation and protection of marine habitats (MPA's, Natura 2000 for example).	Gear restrictions/modifications to prevent bycatch of birds Regulation of underwater tourism (in MPAs)
2. Non-indigenous species	Ban on the discharge of untreated sewage water from ships.	Installation of migration barriers for invasive species.
3. Populations of all commercially exploited fish and shellfish	Discard ban on the most commercially important species, ban on high grading	Installation of breakwaters for fish reproduction and growth
4. All elements of the marine food webs	Pollution control of rivers, supported by monitoring system for water quality	Region wide response programme to the threat of oil spills
5. Human-induced eutrophication is minimized	Limits to application of fertilizers in agriculture, limits on P per ha (existing for N)	Ditch dams and ditch filters to reduce phosphorous leakage from arable land (technical measure)
6. Sea-floor integrity	Application of an environmental friendly sand extraction methodology or other mitigating measures for aggregate extraction	Electric pulse fishing (Marine) Aggregate Levy Sustainability Fund (MALSF)
7. Permanent alteration of hydrographic conditions	Environmental management: establish and maintain an environmental control and monitoring programme throughout the execution of large coastal development projects	Managed realignment in coastal areas
8. Concentrations of contaminants	Additional harbour taxes for "polluting" ships	'No-special-fee' system in sea ports
9. Contaminants in fish and other seafood for human consumption	Establishing additional waste water treatment plants (compulsory), Implementing National Programme for Priority Construction of Urban Wastewater Treatment Plants	Grants for disposal of oil waste from ships
10. Properties and quantities of marine litter	Fishing for litter programme; Incentives to fishermen for reporting on and the removal of debris.	Deposit-refund programmes on plastic and glass bottles
11. Introduction of energy, including underwater noise	Installation of noise reduction techniques in ships	Seasonal restrictions on specific noise producing activities (e.g. piling) during construction wind farms

Source: Boero, F. (2015) Ship-driven biological invasions in the Mediterranean Sea, in Alien marine organisms introduced by ships in the Mediterranean and Black Seas! CIESM Workshop Monographs, 20, 87-91.

As Boero (2015) remarked, pursuing GES based on these measures represents a real revolution in the management of marine ecosystems. In the past, the precise measurement of key environmental variables (temperature, salinity, nutrients, pollutants of any kind) was considered to be sufficient to evaluate the state of the environment [24]. This led to the establishment of sophisticated observation systems that check these variables through the use of satellites, buoys, gliders, and a vast array of sensors. The collected data are then stored in huge databases that contain the 'history' of environmental systems. The factors that should inform us about the quality of the environment, however, do not represent the real state of any habitat. From the perspective of GES, these variables acquire a meaning only when they affect the living [25].

The Member States are required to determine the relevant GES for these individual criteria/indicators, coordinated within the relevant marine regions; in other words, they should define corresponding thresholds or trends at which GES is achieved (Fig. 1). As the EU COM itself states in its Decision, in most cases the indicators are not defined in sufficient detail as to allow the corresponding scientific data collection techniques and assessment procedures to be automatically derived. As such, the Member States will still need to operationalize these indicators specifically for their marine regions. This also includes a fundamental analysis of the practicability and usability of the individual indicators ("viability analysis"). For the state descriptors D1, D4 and D6 in particular, it is also necessary to allocate representative ecosystem components to the respective indicators. The indicators already formulated within the context of obligations under existing EU nature and environmental protection directives and in the regional seas conventions should be used as a basis for operationalization.

Environmental targets are the targets to be achieved with the programme of measures developed under the MSFD. These should be defined for the individual components of good environmental status (GES) that have already been established (Article 9), with due regard for the actual states ascertained in the initial assessment and the anthropogenic pressures identified in accordance with Annex III of MSFD. Environmental targets formulated for individual descriptors (in accordance with Annex I) can often be also relevant for other descriptors (Figure 1). The number of environmental targets is therefore likely to be significantly lower than the number of criteria and indicators to describe GES in accordance with Article 9. Definition of GES is based on the 29 criteria and 56 indicators specified by the EU COM (2010/477/EU) for the 11 descriptors for state-based and pressure-based (pale blue) GES components. For state descriptors in particular, several ecosystem component assessments for each indicator will generally need to be adapted from existing procedures or developed from scratch. On the other hand, not every indicator can be applied to every ecosystem component, leading to a reduction in the overall number of indicators. For this reason, the number of specified GES components and corresponding operationalised GES indicators is expected to be greater (56+X) initially than the number of indicators defined by the EU COM. The ultimate number of GES indicators cannot be finalised until a "viability analysis" has been carried out. The GES components in the right-hand box form the basis for the establishment of environmental targets [25].

The first cycle, which sets up all the steps for the first time ever, is about to come to a close. These six years have set in motion a globally unique approach to tackling the protection of the marine environment through regional cooperation. EU Member States have so far been through all the different steps and are now preparing themselves to update their strategies in 2018 by re-assessing the state of the marine environment, their 'good environmental status' and their targets. As the next cycle starts this re-assessment should shed some initial light on what has been achieved in real terms.

Each Member State is required to assess the current state of its marine environment, to define the desirable 'good environmental status' of its region and to establish detailed environmental targets as well as monitoring programmes.

The MSFD can be interpreted as applying the hard sustainability approach, of which ecosystem conservation is the basis. The taking into account of all relevant impacts constitutes a novel, holistic approach to environmental protection at the EU level, through which many of the sectoral efforts of the past can be complemented or even replaced. Together with the Water Framework Directive (WFD, 2000/60/EC), the MSFD provides for an integrated environmental management system that stretches from the basin catchment area through the coast to the open sea [1].

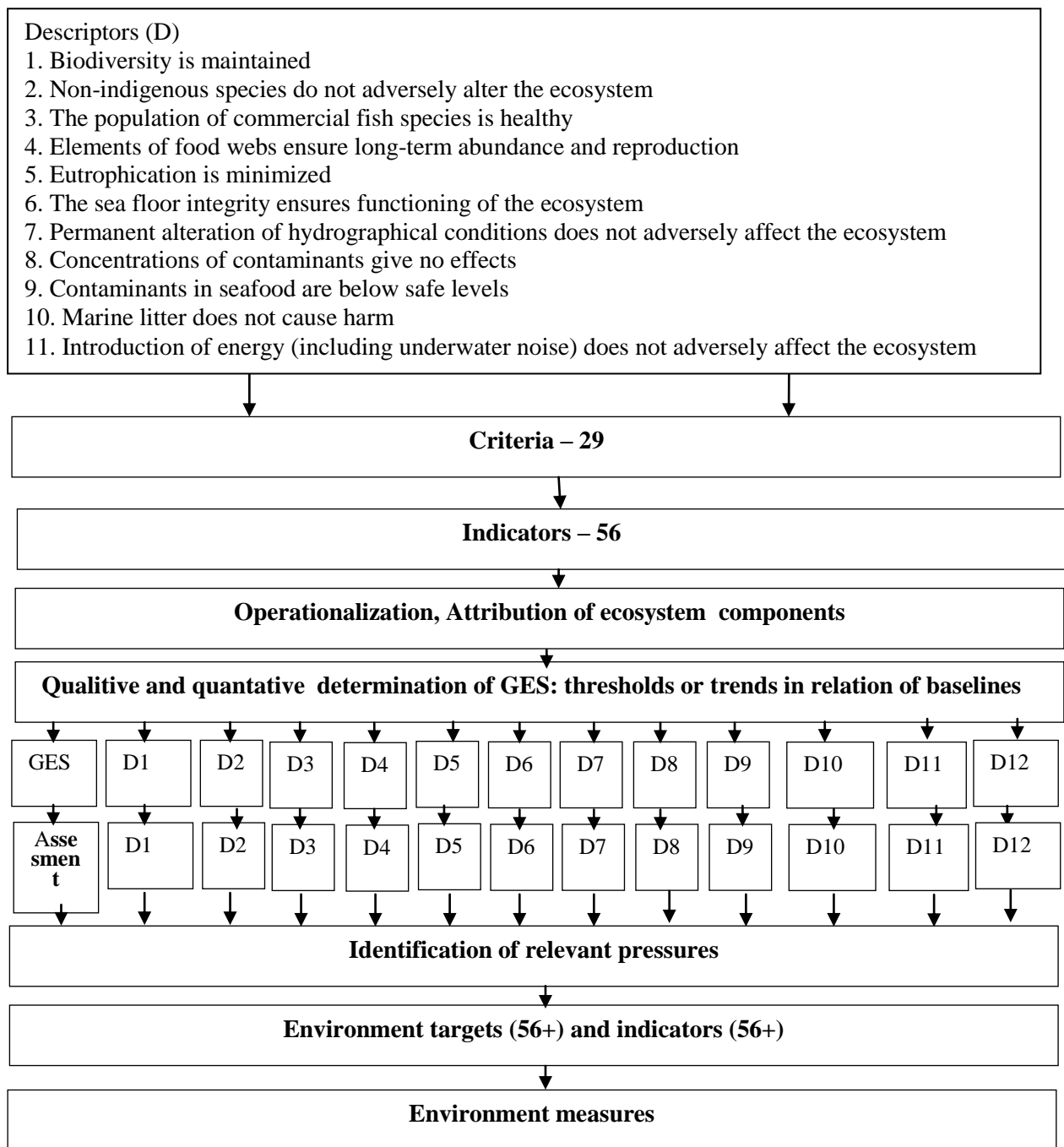


Fig. 1 Diagram showing the components required to define a good environmental status (GES) of marine waters and establishment of environmental targets in accordance to Article 9,10 of the MSFD.

The MSFD does not explicitly require the Member States to implement MSP, but they are required to take management measures into consideration that influence where and when an activity is allowed to occur (Spatial and temporal distribution controls Art. 13(1) in conjunction with Annex VI(3)).

Furthermore, the MSFD promotes spatial protection measures, contributing to coherent and representative networks of MPAs, adequately covering the diversity of the constituent ecosystems (Art. 13(4)). The establishment of such a coherent and representative network of MPAs requires a level of protection that goes beyond the level of protection guaranteed by Natura 2000 sites (Braun, this volume). The Birds Directive (2009/147/EC) and the Habitats Directive (92/43/EEC), which form the basis for the protection of those sites, do not reflect the modern ecosystem approach.

Part of the financing of these MSFD measures and activities can be derived from EU funding



mechanisms (fig.2).

In view of the outcome of the high level inventory of potential funding mechanisms in section 3 as well as the background of Article 22 of the MSFD, the focus in this co-financing guidance is on the following EU-funding mechanisms for MSFD implementation: EU Structural and Investment Funds (ESI Funds) (European Maritime and Fisheries Fund (EMFF) and EU Regional Funds: European Regional Development Fund (ERDF), Cohesion Fund (CF); EU Programme for the Environment and Climate Action (LIFE); EU Framework Programme for Research and Innovation (Horizon 2020).

**Conclusions and perspectives of further research.** The cooperation towards the setting up of the Common Maritime Agenda is a bottom-up process between the participating countries, with the involvement of the relevant stakeholders. Participation in the activities which will be undertaken under this cooperation remains voluntary, depending on the needs to be addressed and as appropriate.

The cooperation towards the setting up of the Common Maritime Agenda complements the work of the existing regional structures such as BSEC, BSC and capitalizes on their achievements. This cooperation is targeted at inclusive growth, marine and coastal environment protection, knowledge exchange, technology transfer, upgrading of skills, job creation and enhancing access to sustainable financing. Further synergies and mutually reinforcing agendas are to be actively explored in the future.

Implementation of the MSFD requires more coordinated research, so that studies to evaluate benefits can be carried out across countries using comparable, state-of-the-art valuation methods. This could also include the combination of different valuation methods, e.g. of stated and revealed preference methods, to gain more reliable benefit estimates. Moreover, integrated modeling will be of utmost importance to link biogeophysical and socio-economic systems and to trace the effects of changes in the marine environment to their impact on benefits.

The aim of the Marine Strategy Framework Directive (MSFD) is to protect more effectively the marine environment across Europe. Member States - cooperating with other Member States and non-EU countries within a marine region - are required to develop strategies for their marine waters. These marine strategies must contain a detailed assessment of the state of the environment, a definition of "good environmental status" at regional level and the establishment of clear environmental targets and monitoring programs. Article 22 of the MSFD stipulates that the implementation of the Directive shall be supported by existing Community financial instruments in accordance with applicable rules and conditions.

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