Supporting maritime spatial Planning in the Eastern Mediterranean (SUPREME)

Evaluation of the maritime spatial planning process

Deliverable C.1.4.

Co-funded by the European Maritime and Fisheries Fund of the European Union.
Agreement EASME/EMFF/2015/1.2.1.3/01/S12.742087 - SUPREME

ACKNOWLEDGEMENT

The work described in this report was supported by the European Maritime and Fisheries Fund of the European Union- through the Grant Agreement EASME/EMFF/2015/1.2.1.3/01/S12.742087 - SUPREME*, corresponding to the Call for proposal* EASME/EMFF/2015/1.2.1.3 for Projects on Maritime Spatial Planning (MSP).

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Project Full title	Supporting maritime spatial Planning in the Eastern Mediterranean (SUPREME)
Project Acronym	SUPREME
Grant Agreement No.	Agreement EASME/EMFF/2015/1.2.1.3/01/S12.742087 - SUPREME
Coordinator	Dr. Pierpaolo Campostrini
Project start date and duration	01/01/2017 – 31/12/2018
Project website	http://www.msp-supreme.eu/

Deliverable Nr.	C.1.4.	**Deliverable Date**	03/12/2018
Status: Final (F) / Draft (D) / Revised draft (RV)	**F**		
Task number	C.1.4.		
Task number Title	Evaluation of the maritime spatial planning process		
Responsible Institute (acronym)	NTUA, UTh (with the participation of CORILA and YPEN)		
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Table of contents

Introduction: defining the working framework

Monitoring and Evaluation (M&E) constitute a fundamental phase for every MSP process, and should be conceived as a critical, integral and essential element of MSP itself, concentrating on the most important issues potentially affecting a maritime area. Through a M&E process the effectiveness of measures and adapt to changes in environmental conditions and uses and activities of the sea should be checked.

Specifically for the SUPREME Project and as is clear from the Grant Application Form, C1.4 component includes the following actions:

- A review of literature and best practices on MSP monitoring processes, to formulate a regional customized process;
- A proposal of evaluation criteria and indicators is developed to evaluate the MSP process at different phases (during the construction and the elaboration phases of the planning process, the implementation phase and at the end-after the established date at which it should be completed) and at different scales (transnational, macro-regional, national, regional, local)
- Recommendations for a suitable M&E process.

In detail, this activity involves the further development of existing approaches to the evaluation of MSP in the planning process as well as in the implementation and revision phases, by means of a review and development of evaluation criteria and indicators.
So specific evaluation criteria and indicators are developed to evaluate the MSP process at different scales and at different phases and final recommendations for a suitable M&E process are indicated.

1. Literature review

*"MSP operates in an environment exposed to constant change. It is based on data and information likely to vary over time. The planning process must be flexible enough to react to such changes and allow plans to be revised in due course. To meet these two requirements**, a transparent regular monitoring and evaluation mechanism should be part of MSP**"* (European Commission 2008).

The literature review shows that there is a good set of practices available which can be used as a starting point to develop further the Evaluating Performance on MSP.

Over the last decade, a growing body of academic and technical literature has become available dealing with aspects of evaluation in MSP. Most of this literature focuses on general evaluation requirements and specific challenges posed by MSP evaluation. Some also offers proposals for evaluation tools, such as suggestions for evaluation criteria and indicators or structured evaluation questions and checklists. In addition, most of the examples have been developed to support communities and authorities to self-assess their progress towards sustainability goals and their performance of MSP processes. Lastly, most of the different evaluation proposed models have not yet been applied to MSP and therefore remain theoretical.

In the context of this SUPREME component, previous MSP projects are examined, which vary in their complexity and aims, such as evaluating the planning process itself or specific impacts of MSP measures on the planning area, but offer useful background information on evaluation.

So the previous MSP and research projects that are briefly reviewed are:

- The "ADRIPLAN - Developing a Maritime Spatial Plan for the Adriatic Ionian Region" project, which among others, follows a specific focus on the development of possible evaluation criteria and indicators which can be used for the evaluation of the MSP plan's implementation;
- The "MESMA – Monitoring and Evaluation of Spatially Managed Areas" project, which created a generic framework for monitoring and evaluation of Spatially Managed Areas (SMAs);
- The "TPEA - Transboundary Planning in the European Atlantic" project, which created a framework for evaluation of transboundary MSP;
- The "SIMCelt - Supporting Implementation of Maritime Spatial Planning in the Celtic Seas" project, which proposed a Tailored Evaluation Framework for the Celtic Seas;
- The "MASPNOSE – Preparatory Action on Maritime Spatial Planning in the North Sea" project, which developed an inventory and analysis of monitoring and evaluation tools;
- Lastly, the "PlanBothnia - Planning the Bothnian sea" project;

In order to summarise the existing experience with MSP evaluation.

Apart from the previous MSP projects, in the context of the literature review, a specific reference is made to:

- the IOC/UNESCO Guide on evaluation in MSP, which focuses on evaluating plan results and

- the Framework Service Contract, No. FISH/2006/09 – LOT2: “Legal aspects of maritime spatial planning” done on behalf of the European Commission and the Directorate-General for Maritime Affairs and Fisheries.

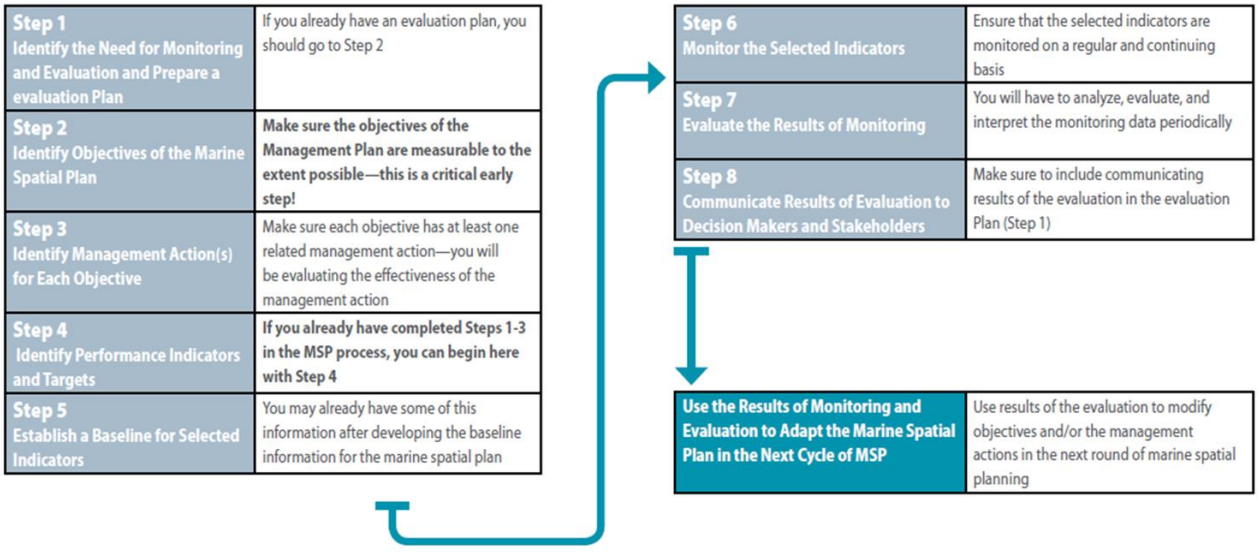
1.1 The IOC/UNESCO Guide on evaluation in MSP

Because of the importance of performance monitoring and evaluation to adaptive management, IOC/UNESCO published in 2014 a Guide to Evaluating Marine Spatial Plans. The guide is intended for practitioners responsible for planning and managing marine areas and outlines key principles for MSP evaluation and 8 steps for monitoring and evaluating the performance of marine spatial plans. The UNESCO guide emphasises that MSP evaluation and monitoring should not be left until the end of the process; evaluation and monitoring need to be considered at the very beginning of the process rather than waiting until the plan is complete. A key principle from the UNESCO guide is that management objectives and expected outcomes are measurable.

Specifically, the **eight (8) basic Steps of Monitoring and Evaluating the Performance of Marine Spatial Plans** are:
STEP 1: Identify the need for Monitoring and Evaluation and prepare an Evaluation Plan
STEP 2: Identifying measurable Objectives of the Marine Spatial Management Plan
STEP 3: Identifying Marine Spatial Management Actions for each Objective
STEP 4: Identifying Indicators and Targets of performance for Marine Spatial Management Actions
STEP 5: Establishing a Baseline for Selected Indicators
STEP 6: Monitoring the selected indicators of Management Performance
STEP 7: Evaluating the Results of Monitoring
STEP 8: Communicating the Results of Evaluation to Decision Makers and Stakeholders

The links between the 8 Steps are typically depicted in the diagram below:

Figure 1: Proposed steps for a monitoring & evaluation process according to the IOC/UNESCO Guide



Source: http://msp.ioc-unesco.org/msp-good-practices/evaluating-performance/

In further details, all the aforementioned basic steps of Monitoring and Evaluating the Performance of Marine Spatial Plans, are specialized in individual tasks, as follows:
The STEP 1: Identify the need for Monitoring and Evaluation and prepare an Evaluation Plan includes:

- Task 1: Identify the need for performance monitoring and evaluation
- Task 2: Identify who should be on the Performance Monitoring and Evaluation Team

- Task 3: Develop a Performance Monitoring & Evaluation Plan
- Task 4: Engage Stakeholders

The STEP 2: Identifying measurable Objectives of the Marine Spatial Management Plan includes:

- Task 1: Identify Measurable (S.M.A.R.T.) Objectives in the Marine Spatial Management Plan

The STEP 3: Identifying Marine Spatial Management Actions for each Objective includes:

- Task 1: Identify a management action(s) for each objective in the Marine Spatial Management Plan

The STEP 4: Identifying Indicators and Targets of performance for Marine Spatial Management Actions includes:

- Task 1: Identifying Governance Indicators for Management Actions
- Task 2: Identifying Socio-economic Indicators for Management Actions
- Task 3: Identifying Ecological and Biological Indicators for Management Actions
- Task 4: Identifying Interim Targets

The STEP 5: Establishing a Baseline for Selected Indicators includes:

- Task 1: Building baseline information for selected indicators

The STEP 6: Monitoring the selected indicators of Management Performance includes:

- Task 1: Develop a Data Collection Plan
- Task 2: Collect Data Relevant to Each Indicator

The STEP 7: Evaluating the Results of Monitoring includes:

- Task 1. Prepare a Data Evaluation Plan
- Task 2. Analyze and Interpret the Data
- Task 3. Write the Evaluation Report

The STEP 8: Communicating the Results of Evaluation to Decision Makers and Stakeholders includes:

- Task 1. Develop a Communications Plan
- Task 2. Summarize the evaluation report
- Task 3. Present the evaluation to stakeholders and decision makers

After implementing all the above eight (8) Steps and the corresponding Tasks, the final step is to use the results of the evaluation procedure in order to revise and adapt the marine spatial management plan as part of the continuing management cycle. This step will involve considering the findings to modify management goals and objectives and management actions if they are not moving toward desired outcomes, including the following:

- Task 1. Propose changes in management objectives and management actions
- Task 2. Propose reallocation of resources to management actions that appear to be working; Reduce/eliminate resource allocations to management actions that are not working
- Task 3. Communicate recommended changes of existing spatial management plan to decision makers, planning professionals and stakeholders
- Task 4. Identify new information or applied research that could reduce uncertainty in the next round of MSP

The results of performance monitoring and evaluation can and should be used to modify the components of a marine spatial plan, including objectives and management actions.

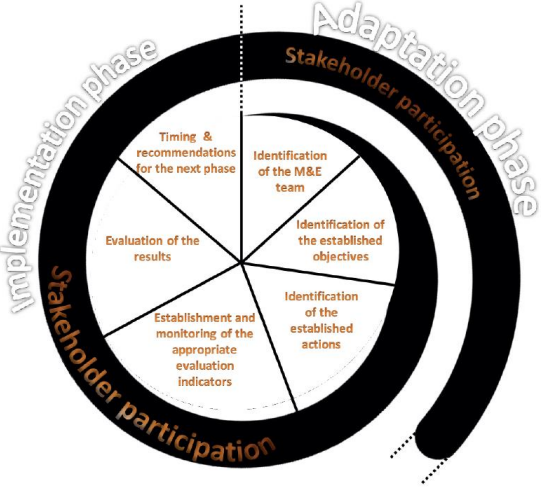
1.2 The ADRIPLAN project - Developing a Maritime Spatial Plan for the Adriatic Ionian Region

Within ADRIPLAN, monitoring and evaluation are organized in three (3) phases, according to the project structure:

- **Phase 1 – "ex ante Assessment"**, related to the process of planning elaboration: the core of this phase is to assess the planning process within the decision making process while it is ongoing. It is strictly related to the phases of the construction and the elaboration of the planning process (pre-planning, identification of goal and priorities for planning, elaboration of the planning options and finalization of the planning proposals). This phase is internal to the planning process; in ADRIPLAN, it corresponds to the assessment of effects and benefits of the planning process that is structured according to the methodology. ADRIPLAN simulates the planning procedure, so that the assessment of the planning procedure is performed within the other activities by the end of the planning process.
- **Phase 2 – "in itinere Assessment"**, related to the implementation of the plan proposal: this phase is related to the assessment of the implementation of the planning proposal elaborated in the previous planning phase, and it is related to the monitoring and evaluation of the advancements of the implementation, as well as to the effectiveness and efficiency of the plan with respect of objectives of the plan and with respect to the achievements because of the plan.
- **Phase 3 – "ex post Assessment"**, related to the final assessment of the plan before its revision: this phase is related to the evaluation of the plan implementation at the established date at which it should be completed, to orient the process of revision of the planning proposal and to give place to the subsequent planning cycle. This phase of the evaluation is related to the monitoring of the state of the environment, as well as to the performance of the plan as well as to the effectiveness and efficiency of the plan with respect to the objectives and of the achievements in real of the plan itself. This phase of evaluation gives place to the revision of planning goal and objectives and to the re-elaboration of the plan according to the institution of a second round of planning process.

In further details, regarding the "in itinere Assessment" adopted in the ADRIPLAN Project, monitoring and evaluation are organized in five (5) phases, as illustrated in the figure below:

Figure 2: Proposed steps for a monitoring & evaluation process according to the ADRIPLAN Project



Source:
https://www.researchgate.net/publication/293593272_Developing_a_Maritime_Spatial_Plan_for_the_Adriatic_Ionian_Region

The different phases of the evaluation are:

- Identification of the Monitoring and Evaluation team
- Identification of the established actions
- Establishment and monitoring of appropriate evaluation indicators
- Evaluation of the results
- Timing and recommendations for the next evaluation phase

In addition, it should be noted that stakeholder involvement should be put in place throughout the whole monitoring and evaluation process in order to ensure accountability, credibility and transparency of the performance evaluation results. Stakeholders could act as essential support providing conflict solution alternatives when setting an evaluation procedure, selecting and guiding the evaluating team, selecting the system of the evaluation indicators, review the evaluation results and more importantly disseminating the evaluation process and results.

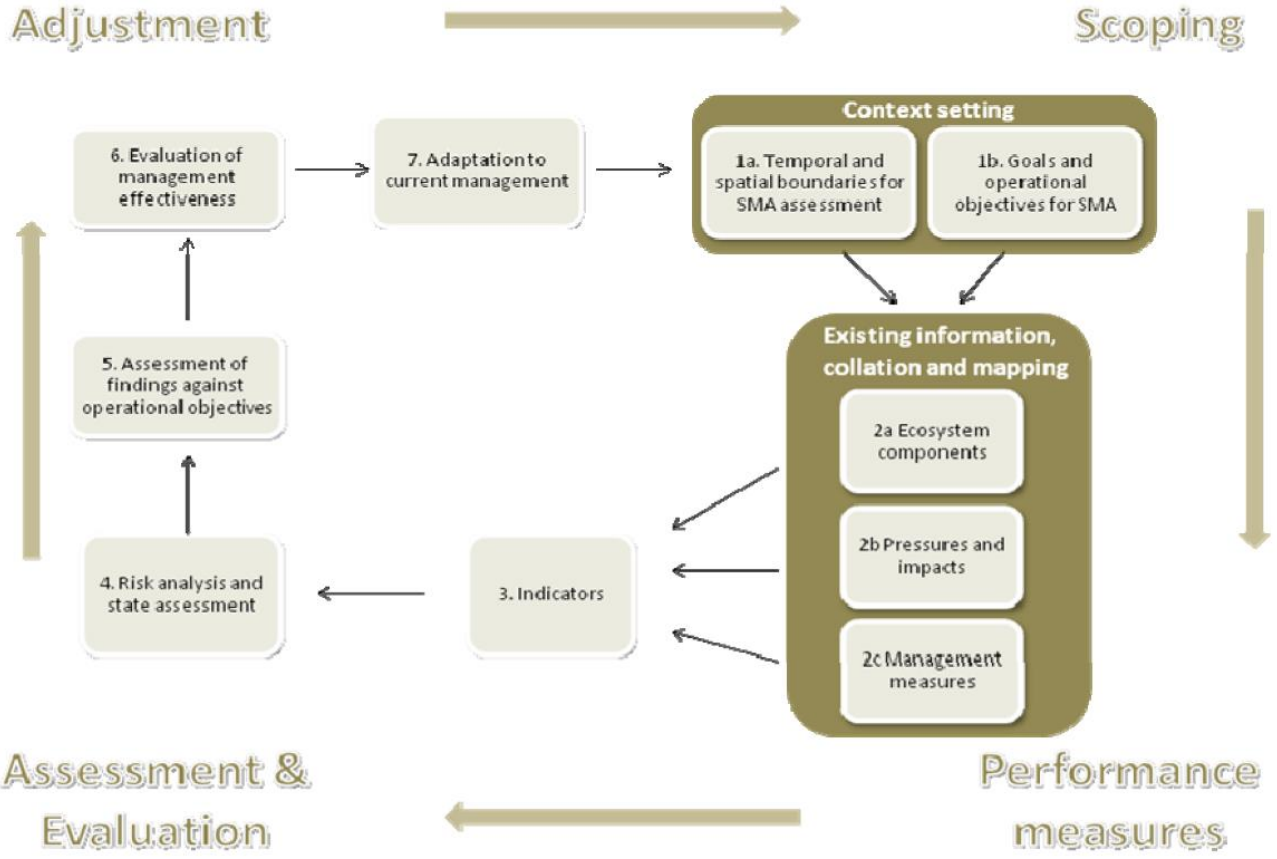
At the end, ADRIPLAN proposal for the M&E processes, provides useful recommendations to adapt the planning process to emerging issues considering also the existing and possible policies, visions and governance structures put in place in a European, Mediterranean and sub-regional level.

1.3 The MESMA project – Monitoring and Evaluation of Spatially Managed Areas

The MESMA Project has designed a generic evaluation framework for Spatially Managed Areas (SMAs) which was tested across nine case study areas in Europe. The idea of the framework is to be generic enough to apply to established MSP plans or projects still in the development phase. The MESMA model is based on an ecosystem perspective and the premise that MSP seeks to maintain or improve the ecological status of the marine environment, so includes specific reference to the marine ecosystem, using the DPSIR approach as a way of describing human impacts on the environment and state and pressure indicators.

More precisely the MESMA framework to evaluate and monitor SMAs comprises seven (7) key steps and represents an iterative process, as illustrated in the figure below:

Figure 3: Proposed MESMA framework to monitor and evaluate SMAs comprising seven key steps



Source: http://www.mesma.org/default.asp?ZNT=S0T1O-1P121

The first general category describes the **Context setting** of the study areas including both subcategories, namely, the **Temporal and spatial boundaries for the SMA assessment** and **Goals and operational objectives for SMA**. In the former category, the delimitation of temporal and spatial boundaries should be conducted. The boundaries should concise with any potential spatial management plan, otherwise, other administrative, ecological and socioeconomic criteria should be taken into account. In the latter category, the development of specific goals and operational objectives should be conducted considering simultaneously ecological and socioeconomic criteria. These goals and objectives should be concise since

they constitute the transition phase to the adoption of specific planning measures. Definitely, these goals and objectives should comply with other European Directives goals (e.g. MSFD) or any existing spatial management plan.

The second major category of the current monitoring and evaluation framework consists of the **Existing information, collation and mapping** process where it is subdivided into three subcategories. The first one constitutes the **Ecosystem components** which includes the identification and mapping of distinct ecosystems components such as the occurrence and spatial extent of marine species; the existence of critical biodiversity components, e.g. endemic and/or endangered species etc.; as well as natural process taking place into ecosystems environment. Next, the degree of identification, mapping and quantification (when possible) of **Pressures and impacts** is considered of vital importance, since this process relates the human pressure (usually as a certain socioeconomic activity) with the corresponding diversified impact , opposed to habitats sensitivity. To this end, more sophisticated research efforts and geospatial technologies should be applied (e.g. cumulative impacts assessment), so that we can evaluate the spatiotemporal context of the impacts to the ecosystems components. Finally, the evaluation of interaction (synergy or conflict) between multiple human uses that share the same space should be taken into consideration. The third subcategory consist of the **Management measures** that should be applied in order to achieve specific objectives defined in previous planning phases. These measures may be derived from EU policies or national institutional framework adjusted to the requirements of each sector.

The third major category constitutes the development **Indicators**. Indicators may be a valuable tool for the purposes of evaluation process. Indicators can be used in order to translate more complex data and less noticeable trends to essential information for MSP planning. In the same context, the use of indicators may lead to direct evaluation metrics such as the achievement of specific objectives, the efficiency of management measures through monitoring the evolution of these indicators under the definition of specific thresholds. Indicative indicators may be the abundance of species; the critical rate/threshold of alien species intrusion to vulnerable marine ecosystems that may drastically alter the current species dynamics/existence; status of bathing waters etc. These thresholds may directly and/or indirectly assess the performance of management measures as well leading to critical feedback and adjustment of the previous planning steps. Generally, indicators must have science-based evidence, measurable, sensitive and adjustable to any change coming from any human activity or use. In addition, they should be cost-effective and have direct linkage to proposed planning objectives and estimated outcomes of each process/object under study.

Next category of this framework is the **Risk analysis and state assessment** process. Risk analysis is a differentiated process compared to state assessment. Risk analysis focuses on the evaluation of risk of not achieving the management objectives through the evidence stemming from the prediction and assessment of the proposed management measures. This process can be considered as a sensitivity analysis adjusting accordingly the scenario options. On the other side, state assessment indicates the degree of management goals and operational objectives achievement through constant monitoring. This process examines if the indicators diverge from a desired state (defined thresholds) of any object under study. This phase of the framework could provide valuable feedback concerning the performance and adjustment of adopted management measures.

The next phase includes the **Assessment of findings against operational objectives** which summarizes the finding of the previous category. Specifically, core process of this phase constitutes the evaluation of operational objectives in conjunction with the respective indicators in order to discover any potential gaps in the selection of this couple of variables (objectives-indicators).

Pre-final stage of the current framework is the **Evaluation of management effectiveness** which demands the active participation and contribution of stakeholders. In this stage, the achievement of operational objectives through sound management has been reviewed taking into consideration the significance and impact of key pressures coming from the primary human uses. To this point, the stakeholders' opinion and contribution has been recognized in the evaluation of efficacy of the current management measures so that the proposed goals and objectives to be met.

Final category constitutes the **Adaptations to current management** process. As previously emphasized, the prior two framework phases paly a catalytic role in the Adaptations to current management procedure. The results of those phases will dictate the necessity for changes/adjustments to the currents spatial management scheme. If so, careful attention should be given to the revision of operational objectives and management measures but also to the possibility of modifying the geographical boundaries of the case study areas based on additional ecological or other criteria. It is proposed that the alternative management scenarios should give appropriate evidence about the cost-benefit framework at least in qualitative terms.

1.4 The TPEA project - Transboundary Planning in the European Atlantic

TPEA Project developed an evaluation framework adjusted to the case study areas and the specific characteristics of transboundary issue. It should be highlighted that proposed framework gives specific emphasis on the **Evaluation of the plan-making process** since the current project did not proceed to the creation and implementation of distinct marine spatial plans. However, respecting the cohesion of an evaluation framework along the entire chain of MSP process, the TPEA Project incorporated evaluation measures for the other parts as well, since it will be quite valuable for the future plans.

The evaluation framework of the TPEA Project is more generic but similar to SIMCelt Project since the latter was adjusted to the first one expanding even more the evaluation questions and themes.

So, the MSP evaluation begins with the **Preparation** phase. This phase describes the adopted criteria and the corresponding indicators (in parenthesis):

1) **Legal and administrative framework** (Existence of active jurisdictional MSP systems; existence and activation of legal instruments and administrative processes to deal with transboundary issues)
2) **Institutional capacity and cooperation** (Responsible authorities for the implementation of MSP; clear determination of roles, effective communication and equitable distribution of responsibilities among the involved organizations within transboundary countries; appropriate amount of resources –funding, sophisticated human force- for each partner)
3) **Transboundary MSP area** (Appropriate delimitation of study area meeting the requirements of MSP transboundary issues and a consensus between the involved stakeholders)
4) **Formulation of strategic objectives** (Development of appropriate strategic objectives meeting the sustainable development criteria, namely, the incorporation of environmental, economic and social dimension to MSP; transboundary cooperation constitutes a critical factor to the development of strategic objectives; inputs/feedback from stakeholders during the process of strategic objectives formulation)

The second part of MSP cycle includes the **Diagnosis** phase. This phase has been further populated with specific criteria and indicators, such as:

5) **Area characteristics** (Identification of ecological and social characteristics of the study area – among the involved countries)
6) **Uses & activities and cross-border relevance of coastal and maritime issues** (Identification of the primary pressures and perspectives along the transboundary region)
7) **Governance framework** (Identification of gaps, inconsistencies and development of policy, regulatory and management framework for transboundary maritime planning; Consideration of the interaction among interrelated planning systems, such as the ICZM, MSP and terrestrial spatial planning; Contribution of stakeholders to policy, regulatory and management framework)
8) **Area of common interest** (Delimitation of area of common interest)

Following, the **Planning** process begins. This part primarily summarizes the evaluation of objectives and alternatives:

9) **Specific objectives** (Establishment of objectives with emphasis on the transboundary issues; Securing of integration of the sustainable development dimensions, namely, the social, economic and environmental dimensions; Securing of integration of transboundary collaboration and governance; Stakeholders contribution to the development of objectives)
10) **Planning alternatives (options and scenarios)** (Alternative scenarios and planning features affecting the entire transboundary region; Securing of compatibility of the planning scenarios with

the policy, regulatory and management framework; adoption of methods for visualization and data analysis techniques supporting the corresponding planning scenarios, measures etc.)

11) **Planning documents** (Delimitation of study area boundaries subject to MSP; Development of strategic and more specific proposals for the case studies supported by the stakeholders' contribution; Compatibility of strategic and specific proposals to the established objectives as well as to other policy measures; Schedule for the implementation of planning measures)

After the completion of evaluation of the above crucial phases, more specific themes were included in the evaluation process. The first component describes the criteria and indicators of **Data and Information** requirements, such as:

12) **Data availability and quality** (Identification of data needs –existence of relevant and updated data- for effective transboundary MSP Planning; Identification of metadata requirements; Establishment of an efficient share systems supporting the cooperation in data collection and analysis; Data consistency for certain sectors –aquaculture, shipping, offshore wind etc.- among the involved partners/countries; stakeholders' contribution providing the data of appropriate quantity and quality)

The next important factor consists of the **Stakeholder Engagement**:

13) **Stakeholder engagement** (Stakeholders participation representing the whole spectrum of interests; Stakeholders contribution and consideration of their perspectives to the entire chain of MSP process; Degree of stakeholders' satisfaction regarding their contribution to the MSP process; Methods promoting a collaborative environment and equitable participation of stakeholders)

Next, the **Communication** process takes place:

14) **Communication** (Dissemination of results to general public excluding the technical and sophisticated information; Organization of dissemination events; Interaction of organizations and academic staff regarding the MSP processes; Dissemination of outputs and recommendations to decision makers)

Next, the **Implementation** process evaluation is structured based on the following criteria and indicators:

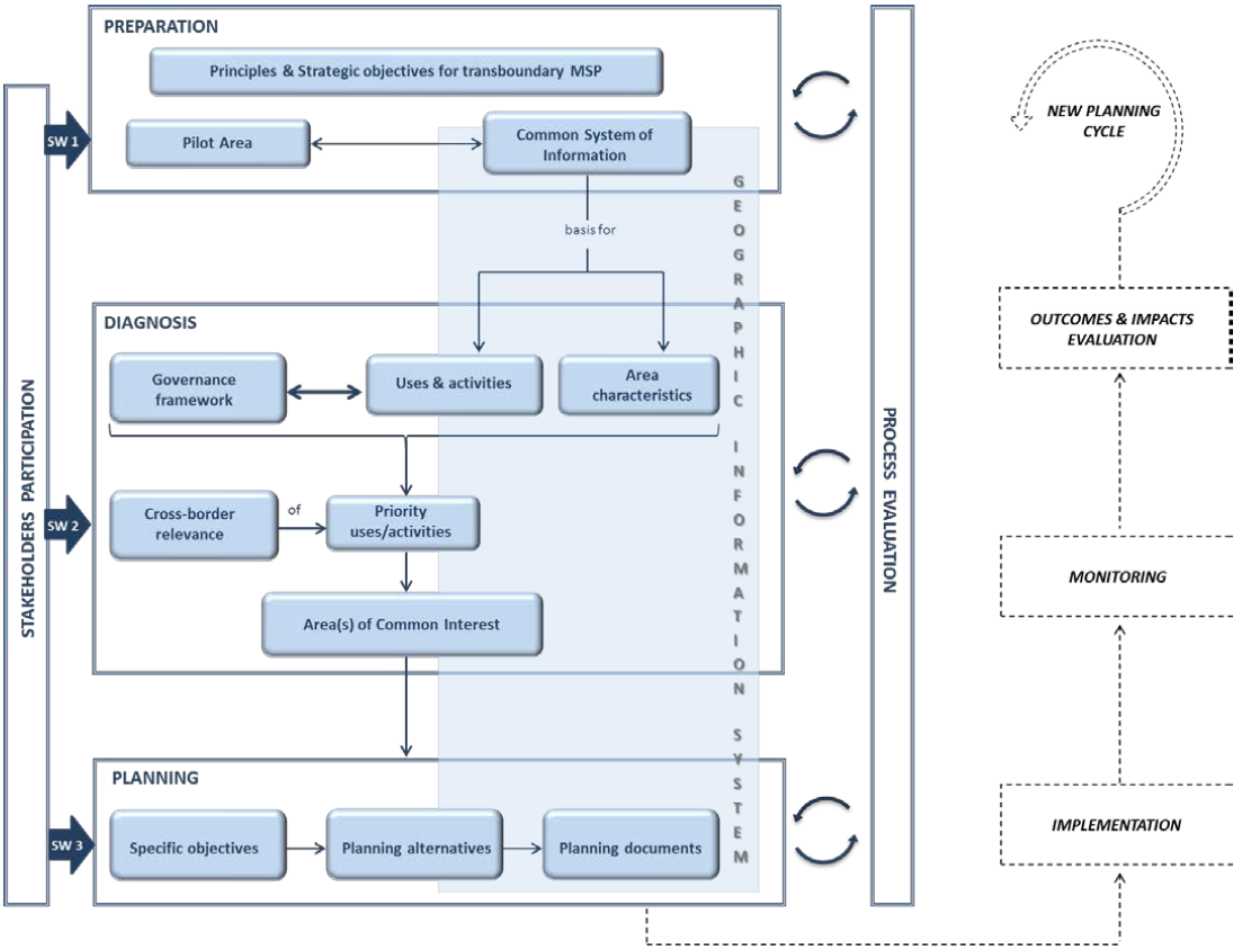
15) **Roles, responsibilities and decision-making** (Clear assignment of roles and responsibilities of all involved players to MSP process, highlighting the transboundary decision-making structures)
16) **Resources** (Sufficient resources available efficiently supporting transboundary coordination)
17) **Implementation** (Degree of implementation of planning proposals and objectives)

Finally, the evaluation process is finalized through the **Outcomes and impact evaluation** based on specific criteria and indicators:

18) **Achievement of objectives** (Degree of achievement and difficulties faced regarding the realization of strategic objectives; Degree of implementation of planning proposals; existence of monitoring schemes to support the assessment of planning outcomes and implications)
19) **Wider benefits** (Identification of wider benefits spread through the entire MSP process, such as efficient transboundary governance, skills development, effective communication and synergies between involved partners, organizations etc.)

The overall TPEA structure is illustrated in the figure below:

Figure 4: The TPEA process diagram



Source: https://iwlearn.net/manuals/marine-spatial-planning-msp-toolkit/chapter-8

1.5 The SIMCelt project - Supporting Implementation of Maritime Spatial Planning in the Celtic Seas

The foundation for a successful MSP evaluation lies to the existence and reliability of adequate amount of data. To this end, MSP evaluation process has been adjusted to issues where available data could argue in favor or against the adoption and performance of any management measure. The evaluation processes of the two SIMCelt case studies were somehow differentiated due to different maturity levels of marine plans.

In the first case (Northern Ireland), the MSP evaluation tries to cover the entire chain of the MSP process. Consequently, the evaluation framework tends to completely aligns to the distinct and specific parts of MSP for the case study. The first part includes the general category of **Process Evaluation** which incorporates more specific tasks. It should be noted here, that the entire evaluation procedure might collect and analyze both quantitative and qualitative data and information based on the nature of the examined sector as well as the planning phase.

The first task of this procedure involves the **Preparation** framework which accommodates specific questions[1] about:

1) **Legal and Administrative Framework** (Driving –of legislative nature– forces for the initiation of MSP process)
2) **Institutional capacity and cooperation** (Responsible MSP authority; Institutional resources availability for each involved partner; Communication and cooperation effectiveness between all the involved players)
3) **MSP Area** (Appropriate selection of case study meeting the MSP requirements such as the consideration of ecosystem approach; appropriate geographical scale)
4) **Formulation of strategic objectives** (Securing the critical fact that the primary principles of sustainable development –economic, social and environmental dimensions– have been integrated into those strategic objectives; Wider cooperation and governance should play a vital role in strategic MSP Process)

The second evaluation component involves the **Diagnosis** framework which accommodates specific questions about:

5) **Governance Framework** (Identification of policy and management gaps / inconsistencies, including transboundary regions; Interaction of MSP, ICZM and terrestrial spatial planning; Stakeholders contribution to institutional framework)
6) **Area Characteristics** (Adequacy of study area critical characteristics identification in terms of socioeconomic and environmental terms)
7) **Uses and activities and relevance of coastal and maritime issues** (Identification of potential pressures, conflicts and opportunities; need for zoning of certain uses)
8) **Specific Objectives** (Securing the critical fact that the primary principles of sustainable development –economic, social and environmental dimensions– have been integrated into those strategic objectives; Stakeholders involvement to the objectives formation)
9) **Planning alternatives (options and scenarios)** (Coherence between planning alternatives and policy/institutional/management framework; Adequacy of data analysis and other geospatial techniques e.g. visualization)

[1] Sections with bold letters represent the adopted criteria, while the parenthesis content represent various relative indicators.

10) **Efficiency** (Appropriate structure of plans; Rationalization of time and amount of resources for the development of plans)

Next, the **Plan Evaluation** process took place identifying more specific details and characteristics of the MSP procedure. The following criteria cover the totality of aspects of the given plans. More specifically:

11) **Coherence** (Vision of plan; Way of objectives and targets creation; Development of indicators to measure qualitative and quantitative achievements in comparison to baseline scenarios; Alignment of analysis with the plans)

12) **Relevance** (Need for connection between the needs of the study area and the specific components of the plan)

13) **Scope/Integration** (Consideration of the interaction and potential conflict of multiple sectors; Coordination among different governmental levels)

14) **Conflict analysis** (Identification of conflicts and the corresponding impacts; Appropriate tools and actions to deal with these key factors)

15) **Conformance** (Conformance with adopted objectives and institutional framework; Conformance of planning with other policy targets)

16) **Guidance for Implementation** (Existence of concise schedule for the implementation process; Identification of the appropriate amount of resources; Follow up mechanisms to restore any inconsistency of the implementation)

17) **Approach, data and methodology** (Consideration of the critical fact of data issues e.g. data gaps; data inconsistency etc.; Appropriate description and argument of the adopted methodology)

18) **Quality of Communication** (Appropriate structure of the plan; Dissemination of the results with more descriptive ways e.g. visualization / mapping of human uses, conflicts etc.)

The next phase describes the evaluation of **Plan Implementation** process based on the following criteria:

19) **Roles and responsibilities** (Appropriate assignment of roles and responsibilities among all the involved players; Securing the full understanding of the above roles)

20) **Resources** (Appropriate quality and quantity of resources for the MSP purposes)

21) **Implementation /Utilisation** (Work plan; Alignment with other policy and management objectives)

The **Outcomes and Impact Evaluation** phase completes the evaluation of the general MSP process. The following criteria describe the content of the evaluation of this final phase:

22) **Achievement of objectives** (Achievement of strategic objectives; Difficulties found during the implementation of objectives; Active monitoring of planning outcomes progress)

23) **Monitoring and performance measures** (Defining the success term of the MSP process)

24) **Monitoring and performance measures (cont'd)** (Qualitative and quantitative measures of MSP success through the establishment of appropriate indicators and targets; Adaptive process – refinement of decision making- based on the evaluation and monitoring feedback)

Beyond the evaluation of the entire chain of MSP Process, the Project included additional "*cross-cutting themes*" to be evaluated focusing on specific components of MSP. The first component assesses the **Stakeholder Engagement** into maritime planning. This factor refers to: appropriate selection of the involved stakeholders to participate into MSP; the representativeness of all interests among them; their contribution to vital points of MSP; the fruitful cooperation and their satisfaction about the exploitation of their inputs. The second component describes the **Data Availability and quality** dimension which can be considered crucial for sound decision making in MSP. This factor is related to: Identification of the most vital, relevant and updated data to be retrieved; appropriate selection of methodology and technology to

handle the data and create the essential information for the MSP purposes; collaborative efforts in collecting and editing the data; contribution of stakeholders in providing the relevant data. The next important step constitutes the dissemination of the results and outputs of the Project through an efficient **Communication** process. This part includes specific key factors such as: the development of less sophisticated and technical material to be provided in the non-experts (public); the organization of events explaining the integral processes of MSP; interactions between organizations and academic institutions; degree of full understanding (processes, outcomes, recommendations) on the part of policy makers. Next theme included any **Transboundary** issue and more specifically, the **Regulatory Framework** (considerations about MSP transboundary issues to be included/revised into regulatory and management framework) and the **Governance Framework** (degree of effective communication and cooperation between transboundary organizations and players, degree of consideration of the interaction among MSP, ICZM and terrestrial spatial planning on these areas, degree of responsibilities sharing among transboundary players).

Finally, one of the most important categories constitutes the adopted **Ecosystem Approach (EBA)**, which is the foundation of a MSP process. The first primary criterion gathers critical information about the **Biological/cultural values** such as: Rational balance among environmental, social and economic values; degree of EBA integration throughout all the planning objectives and vision; degree of identification of the social, economic and environmental values in order to be participated in the spatial analysis and planning. The second criterion refers to **Managers consider effects (actual or potential) of their activities on adjacent and other ecosystems** where the existence of other ecosystems in vicinity to MSP limits should be recognized as well as the identification of impacts of proposed planning measures to the adjacent ecosystems and other societies. The third criterion involves the **Need to understand and manage the environment in an economic context** where the identification and monetization (where possible and applicable) of ecosystems goods and services should be conducted. The next criterion refers to **Conservation of ecosystem structure and functioning in order to maintain ecosystem services is a target**. This criterion adopts other specific indicators such as the identification and quantification of risk/threats and uncertainties inherited in ecosystems themselves and/or risks/threats coming from human uses. In addition, corrective measures should be predicted (if not considered in the plan) for potential restoration and rehabilitation of any damaged ecosystem component. Another aspect is related to **Ecosystem managed within the limits of functioning** that includes indicators relative to the adopted measures in order to deal with negative environmental impacts as well as to a life-cycle process examining the degree of adopted approaches for prevention, active adaptation and future monitoring of environmental components, variables and indices. The evaluation continues with the **Ecosystem approach undertaken at the appropriate scale** which takes into account the appropriate geographical scale based on certain administrative criteria as well as the ecosystems boundaries. Finally, the last criterion describes the **appropriate balance between and integration of conservation and use of biological diversity** highlighting the necessity of multiple zones for the efficient conservation and protection of ecological wealth.

After all, there is a second phase evaluation which exclusively focuses on the decision makers. This type of questionnaire describes the effect of three primary changes occurred the last year for every sector to a bunch of socioeconomic and environmental variables. Definitely, it should be highlighted the effect of MSP policy that triggered any given change, so that the evaluation of MSP policy to provide a direct result. Indicative variables that participated in the questionnaire were: Air quality; Climate change; Coastal processes; Cumulative impacts; Heritage assets; Invasive alien species; Land and sea interaction; Marine litter; Marine noise; Natural heritage; Water quality; Commercial fisheries; Dredging; Energy; Ports, harbor and shipping; Telecoms cabling; Tourism and recreation. The primary changes occurred due to specific MSP policies shall be evaluated based on the extent of changes to each and every socioeconomic and environmental factor.

The draft evaluation questionnaire for the Wales case study included specific questions concerning the evaluation of MSP policy and measures into aggregates sector. However, the exploration of an evaluation framework on one specific sector is beyond the scope of this study.

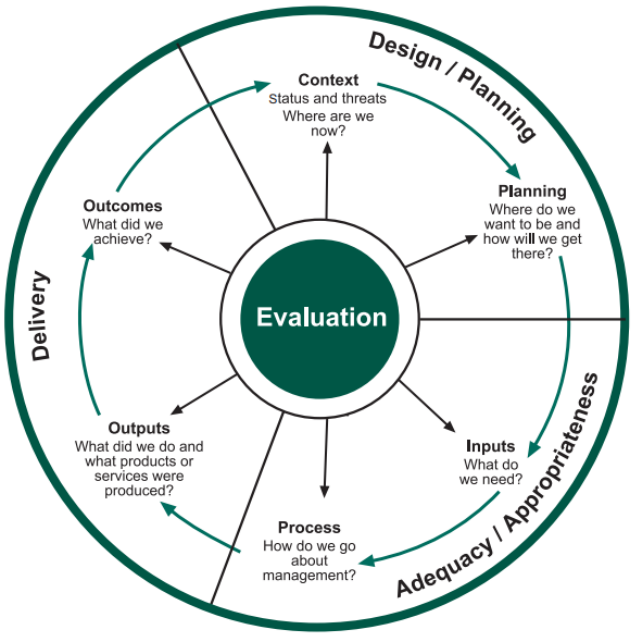
1.6 The MASPNOSE project – Preparatory Action on Maritime Spatial Planning in the North Sea

The MASPNOSE project aims to design a process for cross-border MSP and to develop a concept for monitoring and evaluation. In order to evaluate and monitor MSP processes, attention was given to three main characteristics of monitoring and evaluation, which are the following: 1) monitoring and evaluation should be performed in the various stages of the management cycle in order to steer and adapt management, 2) monitoring and evaluation should use clear indicators, and 3) monitoring and evaluation should be based on concrete (SMART) objectives.

In addition, for the evaluation of the MASPNOSE case studies a modified version of the Hockings et al (2000) approach was used, which allows a general classification of the management processes in the MSP case studies of MASPNOSE project. In this modified version, the 10 EU MSP key principles[2] were included, operationalized and compined with the questions that need to be addressed according to the MASPNOSE evaluation methodology (see table: 1).

In further details, MASPNOSE project proposed to use the management cycle of Hockings et al (2000) as an analytical framework for MSP that covers the above mentioned essential characteristics that the project found in the literature review. Hockings et al (2000) developed a cyclical process with six stages or elements, as shown in Figure 5.

Figure 5: The Framework for assessing management effectiveness of protected areas (Hockings et al, 2000)



Source:https://www.wur.nl/upload_mm/9/7/8/a62bffc5-b8c3-4c6a-9b08-f54ad8321cdc_MASPNOSE%20D1.3.1%20Inventory%20and%20analysis%20of%20monitoring%20and%20evaluation%20tools.pdf

[2] The 10 EU MSP principles are: **1.** Using MSP according to area and type of activity, **2.** Defining objectives to guide MSP, **3.** Developing MSP in a transparent manner, **4.** Stakeholder participation, **5.** Coordination within Member States — Simplifying decision processes, **6.** Ensuring the legal effect of national MSP, **7.** Cross-border cooperation and consultation, **8.** Incorporating monitoring and evaluation in the planning process, **9.** Achieving coherence between terrestrial and maritime spatial planning — relation with ICZM, **10.** A strong data and knowledge base.

Evaluation that assesses each of the elements (and the links between them) should provide a relatively comprehensive picture of management effectiveness. Furthermore, Hockings et al (2000) developed a set of questions that should be addressed in each of these 6 elements for good protected area management.

According to the above, MASPNOSE's framework for evaluation is based on the premise that different activities need to be carried out at different stages of the MSP process. To this end, MASPNOSE divided the MSP cycle into 5 + 1 policy phases:
0. Basiline (where are we now?)
1. Design and planning (where does MSP want to be and how do we get there?)
2. Inputs (what is needed to achieve the desired results?)
3. Process (how do we go about management?)
4. Output (what was done and what products or services were produced?)
5. Outcomes (what has been achieved?)

Evaluation of phases 2 and 3 measures adequacy and appropriateness and phases 4 and 5 measure the quality of delivery. For each policy phase, MASPNOSE evaluation methodology defined a series of monitoring and evaluation questions.

Table 1: A framework for the monitoring and evaluation of the MASPNOSE cross border MSP case studies

M&E	Related questions	Key Principle
Baseline information (Where are we now?)	1. What was the frequency and content of the interactions between the different countries at the start? - Between which countries and which actors? - On which subjects? - What kind of interaction? (physical meetings, phone calls, e-mails) - And how often (regular meetings/one time experience)? 2. What are the values and what is the significance of the area? 3. Is a coordinating administrative body present for MSP within the Member States and does this body have a legal and formal mandate and authority?	7 5
Planning (Where do we want to be, and how are we going to get there?)	4. Does a maritime spatial plan exist and are objectives defined? 5. By who? 6. Do these objectives comply with the SMART characteristics? 7. Are these objectives agreed on by all parties involved? If not, by who? 8. Does a system for transboundary planning exist and on what scale ? 9. Does an adequate legislation exist that enables the implementation of MSP interventions and on which scale? 10. Is there consistency between terrestrial planning (including coastal zones) and maritime planning systems?	1, 2 4 2 4 7 6 9
Inputs (what do we need?)	11. Which actors/institutions (from which countries) are involved? 12. Are these the right actors? 13. What type of data was involved? 14. How much time can participants spend on this process?	4,7 4 10 4

Process (How do we go about it?)	15. In what way are contact moments between the (international) stakeholders arranged? (meeting, phone calls, e-mails, international coordination body etc.) 16. Who is responsible for contact moments? 17. Is the MSP process transparent and on which scale? 18. What is the degree and level of stakeholder participation? 19. Is a monitoring and evaluation plan available? Made by who? 20. In which stages of the policy cycle does M & E take place? 21. Is a coordinating administrative body established for MSP within the Member States and does this body have a legal and formal mandate and authority? 22. Are activities subject to licensing and permit procedures? 23. How can these be placed in the permitting and licensing scale? 24. What is the data and information management scale? 25. Are established policies and procedures being followed?	4 4 3 4 8 8 5 5 5 5 5 10 1
Outputs (What did we do and what products or services were produced?)	26. What products and services have been delivered? (actual versus planned) 27. In which language? 28. Were different stakeholders involved than with the start of the process? Why? 29. Are stakeholders satisfied with the degree of participation?	7 7 4 4
Outcome (What is achieved?)	30. Has a common agenda or other relevant work plan been made? 31. Have agreements been made between the different countries? 32. Has an international coordinating body been established? 33. Has a Maritime Spatial Plan been produced?	4 4 5 1

Source:https://www.wur.nl/upload_mm/9/7/8/a62bffc5-b8c3-4c6a-9b08-f54ad8321cdc_MASPNOSE%20D1.3.1%20Inventory%20and%20analysis%20of%20monitoring%20and%20evaluation%20tools.pdf

As indicated to the TPEA Evaluation Report (2015, p. 17), the MASPNOSE approach operationalises the 10 EU MSP key principles, offering a list of useful evaluation questions for the different stages of the MSP cycle and then relating each question to one of the EU principles. Conformance with the 10 EU MSP key principles could be used as a simple quality indicator for transboundary MSP processes, although the specific evaluation questions would need to be adapted to each transboundary context. At present, the approach presented is mostly descriptive; suitable indicators would also need to be added to translate each evaluation question into a measurable entity.

1.7 The PlanBothnia project - Planning the Bothnian sea

Plan Bothnia mentions the inherent difficulties of monitoring and assessing a strategic plan which covers a long period of time. Although no suggestions are made with respect to a broader evaluation framework or process-oriented evaluation, selected indicators are proposed for monitoring the following topics as a follow-up to the project.

Table 2: Indicators proposed for monitoring the Plan Bothnia planning area

Issue	**Indicator proposals (examples only)**
Fishing activities	1. changes in spatial distribution of fisheries (VMS) 2. fisheries catch 3. status of fish stocks
Wind power	1. status of wind projects 2. emerging new projects
Nature conservation	1. conservation status within existing protected area designations 2. potential new designations based on emerging information
Ecosystem status	1. progress towards reaching GES (sensu EU MSFD, HELCOM BSAP) 2. status of spawning grounds/habitats
Shipping	1. changes in spatial distribution of shipping (AIS) 2. location of accidents 3. location of spills 4. alien species introductions
New uses	1. spatial distribution of new uses
Maritime related economy in the region	1. number of regional jobs/GDP creation in maritime sectors 2. increase in tourism activities

Source:
http://www.helcom.fi/Documents/Action%20areas/Maritime%20spatial%20planning/Planning%20The%20Bothnian%20Sea%20(digital%20edition%202013).pdf

1.8 EC - Legal aspects of maritime spatial planning

According to the Framework Service Contract, No. FISH/2006/09 – LOT2: "Legal aspects of maritime spatial planning" done on behalf of the European Commission and the Directorate-General for Maritime Affairs and Fisheries, a list of indicators has been drawn up to measure the relative progress of Member States regarding MSP (MRAG 2008).

The proposed indicators, with a brief explanation as to why they were selected, are:

- **Policy and legal framework:** this issue is considered essential for the promotion of MSP and also in enabling cross-sectoral integration;
- **Information management**: data and information are fundamental to the management of any natural resource;
- **Permitting and Licensing**: these already play a key role in the maritime area and the key issue is not whether permitting is provided for but the extent to which it is coordinated across sectors and permitting procedures are simple and transparent;
- **Consultation**: this is necessary to ensure that different sectoral objectives and priorities for maritime space are taken into account as well as to reduce the risk of conflict between different sectors/interest groups;
- **Sector conflict management**: this indicator is proposed due to the real risk of conflict in the absence of MSP;
- **Cross-border cooperation**: this indicator is proposed due to the high degree to which MSP in the waters of one European country is likely to be affected by activities in a neighbouring state. Other boundaries include land-sea boundaries and borders between different administrations;
- **Implementation of MSP**: finally this indicator is proposed to assess the degree to which MSP actually takes place: how it is translated from policy and law into practice.

Transparency was also considered as an important element of MSP and has been integrated into the scoring guideposts of several of the indicators, notably Information Management, Consultation and Sector Conflict Management.

A table containing the draft indicators is illustrated below:

Table 3: Indicators proposed according to the Framework Service Contract, No. FISH/2006/09 – LOT2: "Legal aspects of maritime spatial planning"

	MSP indicators						
	A. Policy and legal framework	**B. Data and information management**	**C. Permitting and Licensing**	**D. Consultation**	**E. Sector conflict management**	**F. Cross-border cooperation**	**G. Implementation of MSP**
0	No policy on MSP Sectoral legislation does not contribute to MSP in any material way	No /few spatial data exist on biological/ecological aspects (e.g. marine substrates, habitats, species) and no data on social/economic aspects (e.g. maritime activities.) No mechanisms in place for collection or dissemination of relevant information.	Open access – no restrictions or requirements for licensing	No consultation required nor taking place on plans or projects No transparency or information available on plans or projects	No mechanisms for dealing with/reducing conflicts in areas with high potential of conflicts	No mechanism for consulting with neighbours or coordinating across other boundaries (land/sea; administrative boundaries) beyond requirements of EC environmental law	No maritime plan (or sectoral plans) outlining maritime planning priorities and no mechanism for preparing a plan
1	Limited sectoral legislation e.g. *ad hoc* zoning of maritime areas for specific sectoral activities No policy on MSP	Basic biological data exist (e.g. depth and substrate type) for most of the coastal zone, but are not easily available to planners/stakeholders but no social/economic data	Unclear/non transparent or contradictory licence requirements Incomplete licensing regime. No inter–agency coordination	Voluntary consultation encouraged for some projects Information available on request for some projects	Ad-hoc mechanisms for dealing with/ reducing conflicts in areas with high potential of conflicts	*Ad hoc* mechanisms for consultation across boundaries Case by case basis	Informal non-binding sectoral plans Different contradicting sectoral plans
2	Sectoral legislation with no formal mechanisms to coordinate spatially relevant decisions Draft MSP policy	Biological data exist on marine substrates, habitats, main species of commercial interest and very limited social/economic data on some maritime activities (e.g. location and direct economic value for some activities) for the coastal zone. Lack of coordination on data collection, analysis and synthesis of information.	Comprehensive licensing regime. Unclear/non transparent procedures - licences from different agencies with different objectives. OR - unclear division of competences between different agencies either horizontally or vertically No inter-agency coordination	Requirement for passive consultation for some projects (e.g. newspaper adverts, notices) typically late in the process Information available on request for most projects	Indicative (non-binding) guidelines for dealing with/reducing conflicts plus ad-hoc mechanisms	Non-binding national criteria for cross-boundary consultation (beyond requirements of EC environmental law) Limited guidelines available	Formal sectoral plans with limited cross-sector and vertical coordination Sectoral plans reviewed and revised on an *ad-hoc* basis
3	Sectoral legislation and specified coordination mechanisms for spatially relevant Clearly defined MSP policy adopted but no MSP legislation yet Adoption of MSP legislation in progress	Good biological data exist on marine substrates, habitats, most species of commercial interest and biodiversity, for the coastal zone and some of the EEZ. Some socio-economic data available on some maritime activities (i.e. location and direct economic value), for the coastal zone and some of the EEZ. Some data are available in GIS format. Efforts are underway to collect further data. Data can be accessed where required but may not	Several different licences from different agencies Clear division of competences between institutions, not always effectively implemented Limited inter-agency coordination with respect to most aspects relevant to the allocation of permits Information to applicant on permitting process is available	Requirement for active consultation on a limited number of plans (may be sectoral) and projects Consultation of limited number of representative stakeholders Information on selected plans and projects made available to the public through a limited number of mechanisms (e.g. meetings)	Clear procedures and binding principles adopted for conflict resolution	Mutual rules guiding trans-boundary co-operation, ensuring permanent exchange of Information (e.g. bi-lateral agreements) Voluntary guidelines on cooperation and coordination across sub-national boundaries (i.e. land/sea boundaries, administrative boundaries)	Formal sectoral plans and define binding objectives for the overall MSP process Some cross-sector and vertical coordination Sectoral plans reviewed and revised on a regular basis.

		be well coordinated (e.g. data held by many different institutions, different formats used, different access procedures). Basic analysis and synthesis of data into useful information.					
4	Comprehensive MSP legislation adopted but not yet implemented.	Comprehensive biological data exist on marine substrates, habitats, ecosystem functions, all species of commercial interest, and biodiversity for the coastal zone and most of the EEZ. Some social/economic data exist (i.e. location and direct & indirect economic values) for most sectoral activities in the coastal zone and most of the EEZ. Most data are available in GIS format. Efforts are underway to collate existing data into an integrated, comprehensive GIS-based central data facility. Data are processed into useful information and relatively easy to	Several different licences required for a specific activity but clear and coordinated procedures Clear division of competences effectively implemented Inter-agency coordination with respect to all aspects relevant to the allocation of permits Easily available and transparent information on permits.	Requirement for active consultation on most plans (may be sectoral and projects) Findings have to be documented Information on most plans and projects made available to the public through a number of forms (e.g. newspapers, meetings, websites)	Clearly defined and binding procedures, as well as principles and objectives for decision making Binding general priorities.	Mandatory trans-boundary consultation procedures based on binding national criteria and mutual rules guiding co-operation Guidelines on cooperation and coordination across sub-national boundaries accepted as normal practice (i.e. land/sea boundaries, administrative boundaries	A comprehensive plan/system with spatially defined priorities in place with some limited implementation. Good cross-sector and vertical coordination
		access where required. Efforts are underway to provide complete coverage of the EEZ.					
5	Comprehensive MSP legislation adopted and implemented - Adoption of any necessary subordinate legislation. - Law has stood the passage of time. - No serious litigation.	Comprehensive data exist on marine substrates, habitats, ecosystem functions, all species of commercial interest, biodiversity and maritime sectoral activities for the coastal zone and the whole EEZ. Comprehensive social/economic data on maritime activities (i.e. location, economic, social and cultural values) for the coastal zone and the whole EEZ. All data are processed into useful information and available in GIS format and most have been collated into an integrated, comprehensive GIS-based central data facility. Data are easily available, and effectively disseminated where required.	Streamlined transparent process with information readily available No contradictions Simplified and clear procedures Clear mechanism to coordinate/ manage overall decision making process for the allocation of space *or* One stop shop – a single application process that can cover multiple licence applications and take into account the overarching MSP objectives	Requirement for active consultation on all plans and projects Information on most plans and projects activity promoted to the public through a number of forms (e.g. newspapers, websites, meetings) Findings are reflected in the decision. Consideration documented Procedures for revisions and consultation on evaluation	Clearly defined procedures, as well as principles and objectives for decision making Priorities agreed within a geographic context to guide decision making Compensation measures for persisting conflicts.	Mandatory trans-boundary consultation procedures implemented with joint decision making and conflict resolution Legislation and related mechanisms for cooperation and coordination across sub-national boundaries (i.e. land/sea boundaries, administrative boundaries	A comprehensive plan/system defining legally binding priorities within a geographic context has been developed and is being effectively implemented at regional and national levels Effective cross-sectoral and vertical coordination Monitoring mechanisms in place Regular reviews undertaken and plans evaluated in this light

Source:https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/docs/body/legal_aspects_msp_summary_en.pdf

Within the table of performance indicators columns A – G are broad descriptions of criteria/performance indicators to be looked at when evaluating MSP frameworks. Numbers 1-5 in each indicator category are Scoring Guideposts. Scoring Guideposts are specific statements or questions against which the situation applying to MSP is measured.

They are descriptions of different "performance" levels meant to articulate a graded scale for assessment purposes. The levels described are not necessarily natural steps or thresholds that will apply to a given situation in a particular Member State; hence some interpretation and adaptation is likely to be needed.

The five different levels above zero are proposed in order to allow for a sufficient scale for differentiation. They range from an indicative "perfect practice" (5) at the upper end, representing the level that would be expected in a theoretically "complete" MSP system, to the lower end where virtually nothing is happening that contributes to any notion of coordinated planning of maritime areas (0).
These indicators could be scored on the basis of information gathered in case studies (i.e. expert opinion) and member state questionnaires, and could finally be verified by member states.

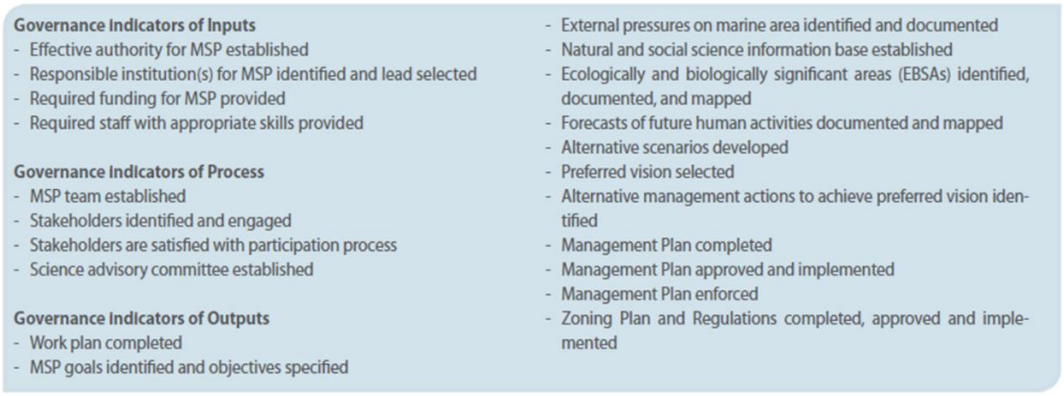
2. SUPREME evaluation criteria and indicators

It is commonly accepted that every MSP process, as well as resulting maritime spatial plans, should be guided by objectives which are linked to appropriate indicators – in order to allow for an objective and independent measurement and evaluation of the performance of each management action over time. Indicators – by simplifying complex phenomena to a few quantifiable measures – can serve as early warning signals. In literature (Unesco/IOC, 2006; Douvere and Ehler, 2010), roughly three (3) types of indicators are distinguished:

- institutional or governance indicators
- socio-economic indicators which reflect the state of the human use of marine ecosystems
- ecological or environmental indicators which reflect trends in the state of the environment

Guidelines for measuring MSP performance and identification of indicators are provided as well as by IOC/UNESCO document "A Guide to Evaluating Marine Spatial Plans".
With reference to the three major types of indicators as generally defined previously, some examples are indicated in the Guide, as illustrated in Figures 5, 6 and 7:

Figure 5: Examples of institutional or governance indicators



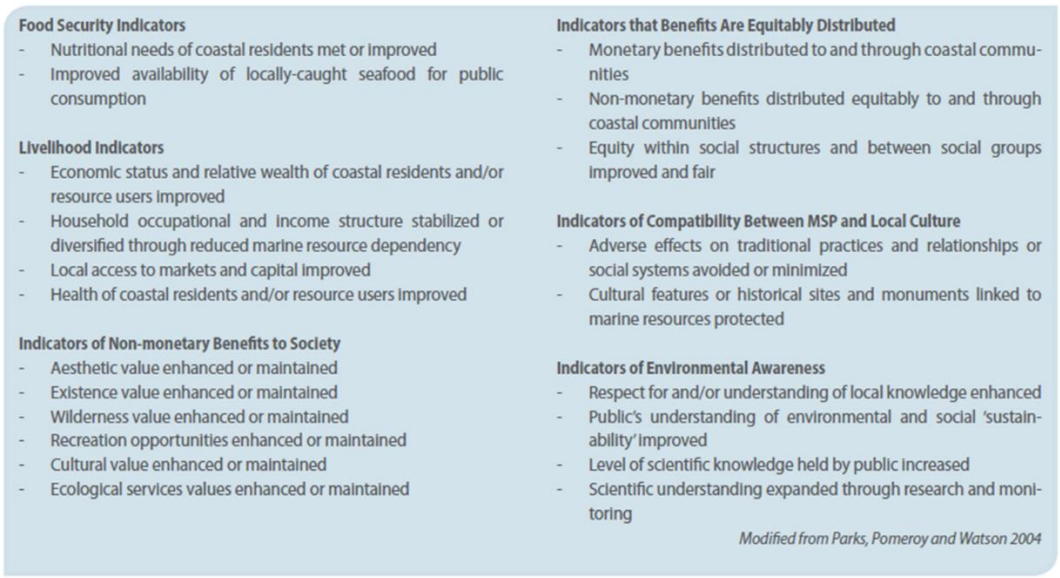
Source: http://msp.ioc-unesco.org/msp-good-practices/evaluating-performance/

The **Institutional or Governance Indicators** measure the performance of phases of the MSP process, e.g., the status of marine spatial management planning and implementation, stakeholder participation, compliance and enforcement, as well as the progress and quality of management actions and of the marine spatial management plan itself; governance indicators are particularly important at the beginning of the MSP process before real outcomes can be measured.

Governance indicators also measure the progress and quality of the governance process itself, that is, the extent to which a MSP plan is addressing the issue(s) that triggered the development of the MSP program in the first place.

Governance indicators focus on variables related to inputs, processes, and outputs of MSP programs.

Figure 6: Examples of socio-economic indicators



Food Security Indicators
- Nutritional needs of coastal residents met or improved
- Improved availability of locally-caught seafood for public consumption

Livelihood Indicators
- Economic status and relative wealth of coastal residents and/or resource users improved
- Household occupational and income structure stabilized or diversified through reduced marine resource dependency
- Local access to markets and capital improved
- Health of coastal residents and/or resource users improved

Indicators of Non-monetary Benefits to Society
- Aesthetic value enhanced or maintained
- Existence value enhanced or maintained
- Wilderness value enhanced or maintained
- Recreation opportunities enhanced or maintained
- Cultural value enhanced or maintained
- Ecological services values enhanced or maintained

Indicators that Benefits Are Equitably Distributed
- Monetary benefits distributed to and through coastal communities
- Non-monetary benefits distributed equitably to and through coastal communities
- Equity within social structures and between social groups improved and fair

Indicators of Compatibility Between MSP and Local Culture
- Adverse effects on traditional practices and relationships or social systems avoided or minimized
- Cultural features or historical sites and monuments linked to marine resources protected

Indicators of Environmental Awareness
- Respect for and/or understanding of local knowledge enhanced
- Public's understanding of environmental and social 'sustainability' improved
- Level of scientific knowledge held by public increased
- Scientific understanding expanded through research and monitoring

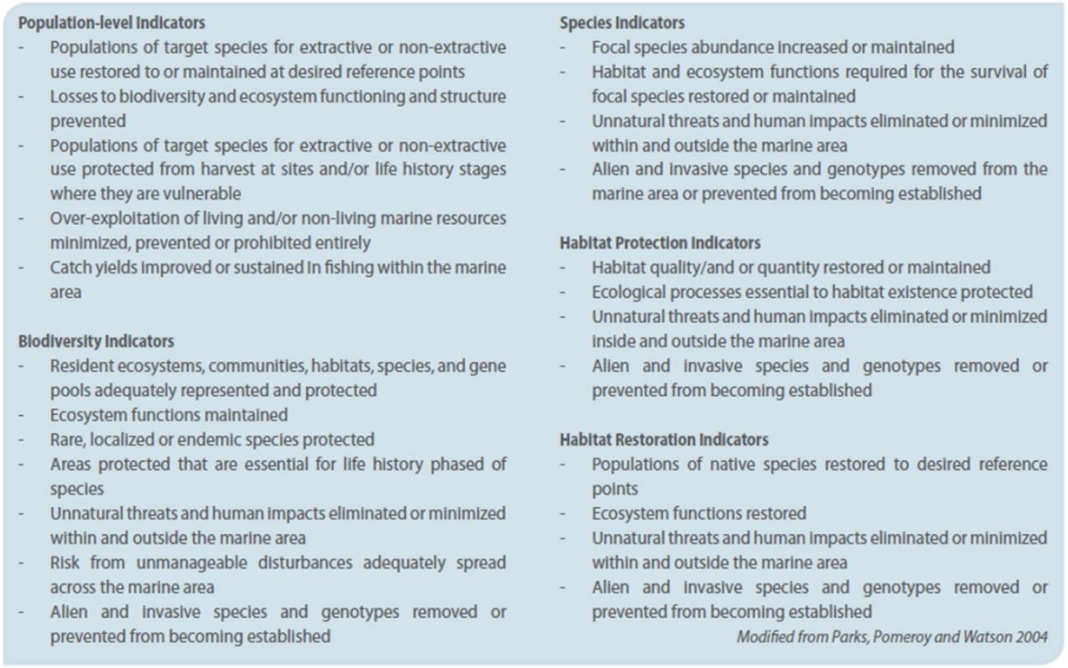
Modified from Parks, Pomeroy and Watson 2004

Source: http://msp.ioc-unesco.org/msp-good-practices/evaluating-performance/

The **Socio-Economic Indicators** reflect the state of the human component of coastal and marine ecosystems, e.g., level of economic activity, and are an essential element in the development of MSP plans. They help measure the extent to which MSP is successful in managing the pressures of human activities in a way that results not only in an improved natural environment, but also in improved quality of life in coastal and marine areas, as well as in sustainable socio-economic benefits.

A few observations on the measurement of socio-economic indicators include: i) Availability of Information, ii) Data from Stakeholders and iii) Display and distribution.

Figure 7: Examples of ecological or environmental indicators



Population-level Indicators
- Populations of target species for extractive or non-extractive use restored to or maintained at desired reference points
- Losses to biodiversity and ecosystem functioning and structure prevented
- Populations of target species for extractive or non-extractive use protected from harvest at sites and/or life history stages where they are vulnerable
- Over-exploitation of living and/or non-living marine resources minimized, prevented or prohibited entirely
- Catch yields improved or sustained in fishing within the marine area

Biodiversity Indicators
- Resident ecosystems, communities, habitats, species, and gene pools adequately represented and protected
- Ecosystem functions maintained
- Rare, localized or endemic species protected
- Areas protected that are essential for life history phased of species
- Unnatural threats and human impacts eliminated or minimized within and outside the marine area
- Risk from unmanageable disturbances adequately spread across the marine area
- Alien and invasive species and genotypes removed or prevented from becoming established

Species Indicators
- Focal species abundance increased or maintained
- Habitat and ecosystem functions required for the survival of focal species restored or maintained
- Unnatural threats and human impacts eliminated or minimized within and outside the marine area
- Alien and invasive species and genotypes removed from the marine area or prevented from becoming established

Habitat Protection Indicators
- Habitat quality/and or quantity restored or maintained
- Ecological processes essential to habitat existence protected
- Unnatural threats and human impacts eliminated or minimized inside and outside the marine area
- Alien and invasive species and genotypes removed or prevented from becoming established

Habitat Restoration Indicators
- Populations of native species restored to desired reference points
- Ecosystem functions restored
- Unnatural threats and human impacts eliminated or minimized within and outside the marine area
- Alien and invasive species and genotypes removed or prevented from becoming established

Modified from Parks, Pomeroy and Watson 2004

Source: http://msp.ioc-unesco.org/msp-good-practices/evaluating-performance/

The **Ecological or Environmental indicators** reflect trends in characteristics of the marine environment. They are descriptive in nature if they describe the state of the environment in relation to a particular issue, e.g., eutrophication, loss of biodiversity or overfishing).

A combination of oceanographic, biological, biophysical, geological, geographical and ecological indicators can help guide MSP managers and policymakers when dealing with environmental issues at the ecosystem scale (Belfiore et al. 2006).

In addition, according to the "in itinere Assessment" adopted in the ADRIPLAN Project, and specifically the phase of "Establishment and monitoring of appropriate evaluation indicators" (as described above in Section: 1.2), a specific focus on the development of possible evaluation criteria and indicators was made which can be used for the evaluation of the plan's implementation. Also, the principles established by the ecosystem-based approach foreseen by MSP have been considered, namely adaptive, ecosystem based, integrated, participatory, strategic and future oriented, place-based and transboundary.

Concerning the type of such criteria and indicators, a harmonized conceptual framework related to monitoring and evaluation is proposed related to all work phases, running during the project.
The criteria are:

- effectiveness (in terms of process and objectives);
- efficiency (adequacy of the human, financial, technical, institutional resources);
- inclusiveness (involvement of relevant stakeholders);
- transparency (accountability and dissemination of each phase all the stakeholders involved)

while the proposed indicators will refer to three (3) types:

- State indicators: connected to the state of system, they assess general state conditions and trends;
- Process indicators: they assess how well each phase of the process is run, evaluating its capacity to achieved the operational objectives set for each phase;
- Performance indicators: they measure how well a project/action/measure is accomplishing their intended result, by comparing the results obtained to the situation beforehand (Ehler, 2014).

These types of indicators cover also social, economic, environmental and governance aspects, incorporating, thus, an integrated and sustainable approach during the evaluation process, ranging from quantitative to qualitative indicators.

The proposed indicators were organised according to six (6) main sets and are illustrated in the table below.
The six main sets are:

- **Integration** referring to the thematic (social, economic, environmental) and geographic (spatial coverage, land and sea interface) integration of the MSP implementation.
- Setting of **objectives** by re-confirming that implementation objectives are well specified and updated.
- **Governance** referring to transboundary issues, governance structures for enhancing coordinated actions among the countries of the macroregion, engaging relevant stakeholders, ensure dissemination and awareness raising
- Setting of **actions** relating to the achievement of the proposed implementation actions and the mechanisms put in place to ensure their implementation as well as their estimated short-term and long-term impacts.
- Adaptation referring to the foreseen monitoring and evaluation processes set during the implementation procedure including the review of the proposed time frame, alternative scenarios, actions and evaluation team.

- Data relating to the overall data management and availability, including quality, timeliness and accessibility.

Table 3: Evaluation Criteria and Indicators proposed according to the ADRIPLAN Project

Set	Criteria	Indicators
1. Integration (thematic, geographic, policy)	Balance and correlation among the social, economic and environmental aspects	Proportion of social, economic and environmental issues addressed
	Typology of dynamics of maritime uses	Synergies and conflicts identified among maritime uses
	Overlapping of uses over space and time	Level of identified intensity (in socioeconomic and environmental terms)
	Cumulative impacts over space and time	Number of areas with cumulative impacts (socio-economic and environmental pressures)
	Policy frameworks for coastal and maritime planning	Proportion of coastal and maritime issues for which policy frameworks are in place
	Integration between coastal and maritime issues	Consistency between MSP and ICZM and terrestrial planning
	Policy effectiveness of MSP	Policy frameworks created (after its implementation)
	Transboundary integration	Level of consideration of differences among involved countries (legal, administrative, planning framework)
	Adherence to related policy frameworks	Level of incorporation of related policies
	Ecosystem-based approach	Ecosystem scale matching the scale of the plan
2. Objectives	Identification of objectives	Objectives clearly defined for the MSP implementation
	Number of SMART objectives	identified Number of specific objectives
	Acceptance of objectives during the implementation process	Proportion of objectives gaining satisfactory or higher score in participant evaluation
	Spatial definition of objectives	Identification of hot spots
3. Governance	Transboundary character of the established actions	Number of actions with transboundary character
	Stakeholder involvement in plan implementation	Representativeness-ratio of participating versus potential stakeholders as identified by stakeholder analysis
		Level of satisfaction
	Awareness plans put in place	Number of awareness plans
	Wider communication of planning outputs	Number of publications (reports, press releases etc) for wider public information
		Clear and useful facilitation
	Cross-border cooperation: legal and administrative provision	Legal instruments requiring/promoting cross-border cooperation in MSP activities
4. Actions	Interlinkage of proposed actions	Number of linkages identified

	Existing or foreseen supporting structures /mechanisms for the actions' effective implementation	Number of structures /mechanisms
	Financing mechanisms for its implementation	Number of mechanisms
	Estimated impact of the plan's implementation	Development of an impact assessment
	Effectiveness of actions in addressing perceived needs and opportunities	Regional and local plans especially regarding coastal and environmental protection, introducing indication on MSP in their normative annexes

Source:
https://www.researchgate.net/publication/293593272_Developing_a_Maritime_Spatial_Plan_for_the_Adriatic_Ionian_Region

The evaluation framework developed in this SUPREME component builds upon the work done previously (ADRIPLAN Project, TPEA Project, SIMCelt project, MASPNOSE project, PlanBothnia project etc), while trying to incorporate and compile previous proposals of MSP M&E criteria and indicators into one synthesis. The proposed synthesis is illustrated in the figure and in the table below:

Figure 8: SUPREME M&E Process

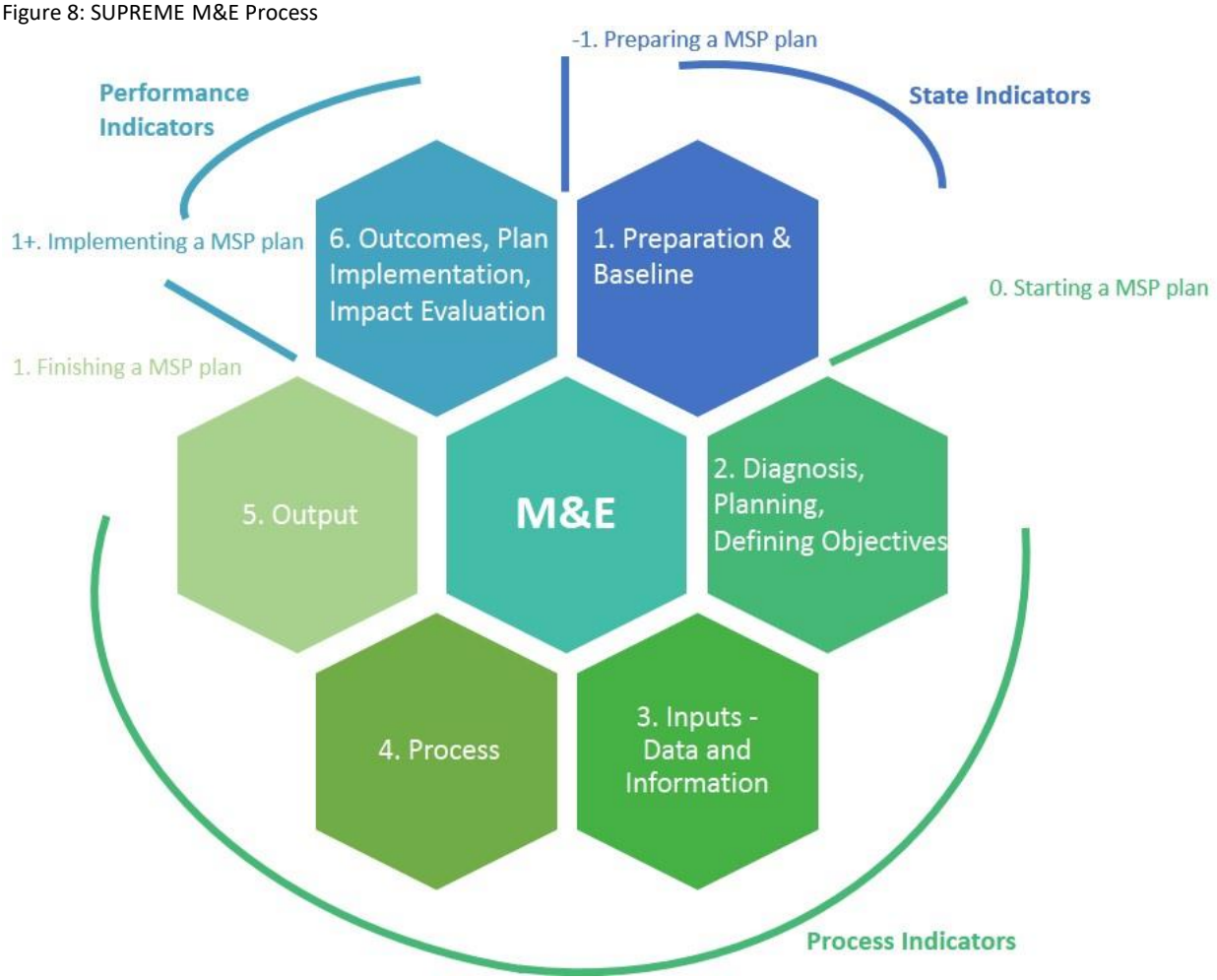


Table 4: SUPREME evaluation criteria and indicators

A/A	Phases	Criteria	Indicators	
1	Preparation&Baseline (Where are we now?)	Legal and administrative framework	State Indicators	Driving –of legislative nature– forces for the initiation of MSP process
		Institutional capacity and cooperation		Responsible MSP authority
				Institutional resources availability for each involved partner
				Appropriate amount of resources –funding, sophisticated human force- for each partner
		MSP area & Transboundary MSP area		Appropriate selection of case study meeting the MSP requirements such as the consideration of ecosystem approach; appropriate geographical scale
				Appropriate delimitation of study area meeting the requirements of MSP transboundary issues and a consensus between the involved stakeholders
				For Transboundary integration: Level of consideration of differences among involved countries (legal, administrative, planning framework)
		Formulation of strategic objectives		Development of appropriate strategic objectives meeting the sustainable development criteria, namely, the incorporation of environmental, economic and social dimension to MSP
				Compatibility of strategic and specific proposals to the established objectives as well as to other policy measures
				Wider cooperation constitutes a critical factor to the development of strategic objectives
				Inputs/feedback from stakeholders during the process of strategic objectives formulation
2	Diagnosis, Planning, Defining Objectives (where does MSP want to be and how do we get there?)	Area characteristics	Process Indicators	Identification of socioeconomic and environmental characteristics of the study area – among the involved countries
		Ecosystem-based approach		Ecosystem scale matching the scale of the plan
		Uses & activities and cross-border relevance of coastal and		Identification of potential pressures, conflicts and opportunities; need for zoning of certain uses and activities:

		maritime issues		**Fishing activities:** 1. changes in spatial distribution of fisheries (VMS) 2. fisheries catch 3. status of fish stocks
				Wind power: 1. status of wind projects 2. emerging new projects
				Nature conservation: 1. conservation status within existing protected area designations 2. potential new designations based on emerging information
				Ecosystem status: 1. progress towards reaching GES (sensu EU MSFD, HELCOM BSAP) 2. status of spawning grounds/habitats
				Shipping: 1. changes in spatial distribution of shipping (AIS) 2. location of accidents 3. location of spills 4. alien species introductions
				Maritime and Coastal Tourism: 1. number of regional jobs/GDP creation 2. increase in tourism activities
				New uses: 1. spatial distribution of new uses
		Overlapping of uses over space and time		Level of identified intensity (in socioeconomic and environmental terms)
		Governance and Policy framework for maritime and coastal issues		Identification of gaps, inconsistencies and development of policy, regulatory and management framework for MSP
				Consideration of the interaction among interrelated planning systems, such as the ICZM, MSP and terrestrial spatial planning
				Level of incorporation of related policies
				Proportion of coastal and maritime issues for which policy frameworks are in place
				Contribution of stakeholders to policy, regulatory and management framework

		Specific objectives		Establishment of SMART objectives (clearly and spatially defined; identified number of SMART objectives and spatial hot spots)
				Securing the critical fact that the primary principles of sustainable development – economic, social and environmental dimensions– have been integrated into those strategic objectives
				Stakeholders involvement to the objectives formation
		Planning alternatives (options and scenarios)		Alternative scenarios and planning features affecting the entire area
				Securing of compatibility of the planning scenarios with the policy, regulatory and management framework
				Adoption of methods for visualization and data analysis techniques supporting the corresponding planning scenarios, measures etc.
				Schedule for the implementation of planning measures
		Cumulative impacts over space and time		Number of areas with cumulative impacts (socio-economic and environmental pressures)
3	Inputs - Data and Information (what is needed to achieve the desired results?)	Data availability and quality		Identification of data needs –existence of relevant and updated data- for effective transboundary MSP Planning
				Identification of metadata requirements
				Establishment of an efficient share systems supporting the cooperation in data collection and analysis
				Data consistency for certain sectors –aquaculture, shipping, offshore wind etc.- among the involved partners/countries
				Stakeholders' contribution providing the data of appropriate quantity and quality
4	Process (how do we go about management?)	Stakeholder Engagement		Stakeholders participation representing the whole spectrum of interests
				Representativeness-ratio of participating versus potential stakeholders as identified by stakeholder analysis
				Stakeholders contribution and consideration of their perspectives to the entire chain of MSP process
				Degree of stakeholders' satisfaction regarding their contribution to the MSP process

				Methods promoting a collaborative environment and equitable participation of stakeholders
		Communication process		Dissemination of results to general public excluding the technical and sophisticated information
				Organization of dissemination events
				Number of awareness plans
				Number of publications (reports, press releases etc) for wider public information
				Interaction of organizations and academic staff regarding the MSP processes
				Dissemination of outputs and recommendations to decision makers
5	Output (What products or services were produced?)	MSP plan		Number of institutionalized MSP Plan(s)
				Appropriate structure of plan(s)
				Interlinkage of proposed actions (number of linkages)
				Existing or foreseen supporting structures/mechanisms for the actions' effective implementation (number of structures /mechanisms)
				Financing mechanisms for its implementation (number of mechanisms)
				Development of an impact assessment, estimating impact of the plan's implementation
				Rationalization of time and amount of resources for the development of plan(s)
		Evaluation plan		Coherence (Vision of plan; Way of objectives and targets creation; Development of indicators to measure qualitative and quantitative achievements in comparison to baseline scenarios; Alignment of analysis with the plans)
				Relevance (Need for connection between the needs of the study area and the specific components of the plan)
				Scope/Integration (Consideration of the interaction and potential conflict of multiple sectors; Coordination among different governmental levels)
				Conflict analysis (Identification of conflicts and the corresponding impacts; Appropriate tools and actions to deal with these key factors)
				Conformance (Conformance with adopted objectives and institutional framework; Conformance of planning with other policy targets)

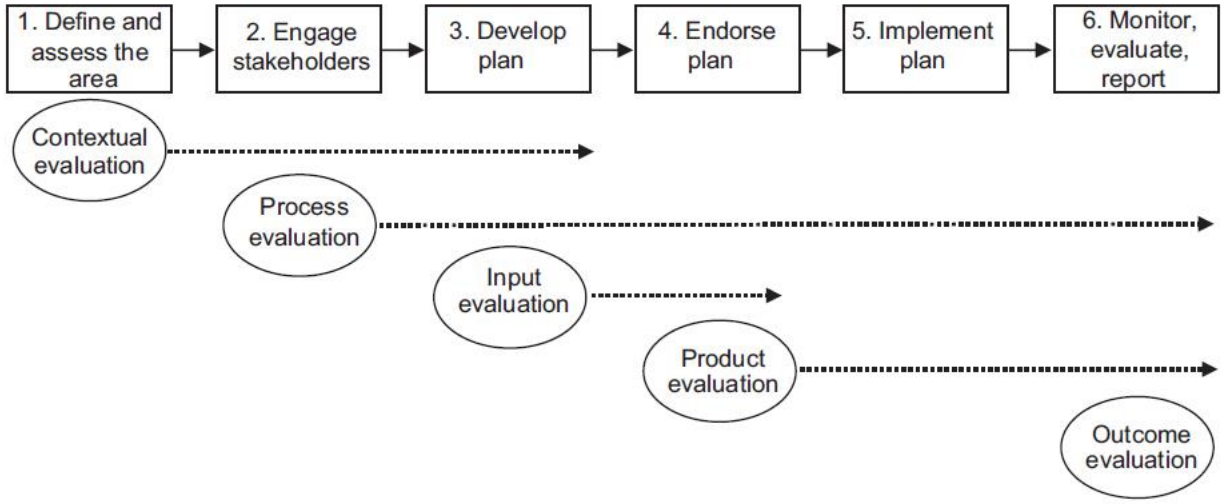
				Guidance for Implementation (Existence of concise schedule for the implementation process; Identification of the appropriate amount of resources; Follow up mechanisms to restore any inconsistency of the implementation)
				Approach, data and methodology (Consideration of the critical fact of data issues e.g. data gaps; data inconsistency etc.; Appropriate description and argument of the adopted methodology)
				Quality of Communication (Appropriate structure of the plan; Dissemination of the results with more descriptive ways e.g. visualization / mapping of human uses, conflicts etc.)
6	Outcomes, Plan Implementation, Impact Evaluation (What is achieved?)	Roles, responsibilities and decision-making	**Performance Indicators**	Appropriate assignment of roles and responsibilities among all the involved players
				Securing the full understanding of the above roles
		Resources		Appropriate quality and quantity of resources for the MSP purposes
		Implementation /Utilisation		Work plan
				Alignment with other policy and management objectives
		Achievement of objectives		Achievement of strategic objectives
				Difficulties found during the implementation of objectives
				Active monitoring of planning outcomes progress
		Monitoring and performance measures		Defining the success term of the MSP process
				Qualitative and quantitative measures of MSP success through the establishment of appropriate indicators and targets
				Adaptive process –refinement of decision making- based on the evaluation and monitoring feedback
		Wider benefits		Identification of wider benefits spread through the entire MSP process, such as efficient governance, skills development, effective communication and synergies between involved partners, organizations etc.)

It should be noted that the SUPREME MSP M&E proposal has not yet been applied to SUPREME case studies and therefore remains theoretical. Following, as the list of the proposed indicators is considerd indicative, the evaluation criteria and the sets of indicators sould be adjusted and reorganized, according to the plan's needs and priorities.

MSP M&E at different phases

Different performance indicators and methods of assessment are required for different phases of the MSP process and to measure specific outcomes (Carneiro 2013), as illustrated in the figure below:

Figure 8: Categories of evaluation for the different phases of MSP.



Source: Carneiro 2013 - p. 216, TPEA Evaluation Report 2015 - p. 7

An important aspect is that evaluation design must be matched to the type of plan and the actual outcomes that are to be achieved. This means there is no standardised model for evaluation in MSP, and that fine-tuning is necessary to reflect each respective context.

Literature differentiates between outcome evaluation, process evaluation and performance evaluation, all of which play a role in MSP evaluation. As TPEA Evaluation Report (2015, p.9) indicates:

- **Outcome evaluation** measures the results of the plan and the planning process. Outcomes are defined as the "anticipated result of the implementation of a marine spatial management measure" (Ehler & Douvere 2008); ideally they should be clearly stated in the sense of tangible results or discrete impacts that would be expected if the objectives were fully realised (Day 2008). Outcomes, or anticipated results, can refer, for example, to the delivery of socio-economic benefits, the reduction of human pressures, or the ecological status of the area.
- **Performance evaluation** measures MSP against less clearly defined targets, possibly relating to other deliberative processes, such as how well MSP communicates views of the future and how this might guide other policy initiatives. Criteria for success could include the degree to which a plan's recommendations are considered in other sectoral policies (Carneiro 2013). 10
- **Process evaluation** is concerned with the overall effectiveness of the planning process, and considers whether or not the MSP process has been fully carried out. It may also cover the intrinsic value of the MSP process, such as the value of stakeholder participation and learning.
- Lastly, **goal-free evaluation** is also a possibility, considering all the observable effects of an intervention, intended and otherwise.

MSP M&E at different scales (transnational and macro-regional)

An important aspect is to recognise that the transboundary element is part of wider MSP evaluation and not a separate process. Possible benchmarks for evaluating transboundary MSP at transnational and macro-regional scale include:

- Measuring the transboundary planning process against its stated goals: Does it achieve the goals it has set itself? (conformity with strategic objectives)
- Measuring the transboundary planning process against unstated goals: Does it achieve wider societal goals or benefits?
- Measuring the transboundary planning process against the inclusion of other statutory objectives: Does it refer to objectives and targets contained in statutory instruments or policies? (e.g. EU Directives)
- Measuring the transboundary planning process against existing political commitments: Does it contribute to achieving specific political commitments that have been made?
- (Where such factors have been defined in other projects): Measuring the transboundary planning process against available success factors in Integrated Coastal Zone Management. (adapted from Day 2008, Carneiro 2013 and TPEA Evaluation Report 2015)

3. Key Recommendations

It is clear from the description above that there are many different approaches possible to deal with monitoring and evaluation of MSP. What connects the recent insights in these approaches are three essential characteristics; 1) monitoring and evaluation should be performed in the various stages of the management cycle in order to steer and adapt management, 2) monitoring and evaluation should use indicators, and 3) monitoring and evaluation should be based on clear (SMART) objectives.

Key Recommendations from this SUPREME component include:

- Marine spatial planning (MSP) is a continuing, adaptive process that should include performance monitoring and evaluation as essential elements of the overall management process.

- Planners and managers should know how to incorporate monitoring and evaluation considerations into the MSP process from its very beginning, and not wait until a plan is completed before thinking about how to measure “success”.

- Effective performance monitoring and evaluation is only possible when management objectives and expected outcomes are written in a way that is clear and measurable, either quantitatively or qualitatively, as part of the logical framework analysis process during the MSP project design stage, and potentially subsequently when more specific objectives are set for actual planning, following the analysis and clarification of specific issues.

- Performance monitoring and evaluation moves beyond the traditional input–output focused evaluation, and, when used effectively, helps policymakers and decision makers focus on and analyze outcomes or results. Inputs and outputs tell little about the effectiveness or efficiency of a marine spatial plan. While traditional evaluation remains an important part of the chain of performance evaluation, it is the outcomes that are of most interest and importance to governments and stakeholders.

- MSP plans should be evaluated, not only by their outcomes, but for how they improve the understanding of decision makers and stakeholders about present and future problems they face and the opportunities that planning presents to deal with problems in the present to avoid them in the future.

- No single generic evaluation framework fits all purposes. Different evaluation needs require different evaluation approaches—no one approach fits all needs.

- The identification of indicators and targets are critical for effective performance monitoring and evaluation; the results framework with indicators, targets and baselines should be linked to a monitoring and evaluation plan.

- The meaning of indicators should be understood by as wide a range of stakeholders as possible.

- The number of indicators should also be realistic and proportionate in terms of what can be measured with the given resources, but enough to ensure a comprehensive description of the system.

- Performance monitoring and evaluation should be revisited over the subsequent stages of MSP processes, as an iterative process.

- Any MSP evaluation will have to include a process for communicating results and promoting their utilisation.

- Performance monitoring and evaluation will be successful if progress is being made toward achieving management objectives through the MSP process. A few additional criteria are relevant:
    - Stakeholders are actively involved and committed to the MSP process. Stakeholder involvement in problem identification, specification of MSP goals and objectives, selection of management actions, and monitoring and evaluation build support for the process;
    - Progress is being made toward the achievement of management goals and objectives. Since MSP is a multi-objective planning process, achieving the outcome of one objective may involve trade-offs with the outcomes of other objectives. In the absence of at least some indication of progress over a reasonable period of time, then there is little justification for continuing the MSP process;
    - Results from performance monitoring and evaluation are used to adjust and improve management actions; and
    - Implementation of the marine spatial plan is consistent with applicable authorities. If not, disruptions in the planning and implementation process are inevitable. A breakdown of trust among stakeholders is likely, and possibly a withdrawal of stakeholder support, loss of funding, and possibly litigation.

- If stakeholders do not endorse the MSP process and its outputs, the process has not been successful. If performance monitoring and evaluation results are not used to modify revisions to plans, then the process has not been successful.

4. Conclusions

To conclude, the purpose of MSP evaluation is to ensure quality in MSP by means of a regular, standardised review of processes and outputs. The review of existing evaluation practice and literature shows that:

- MSP evaluation needs to cover a range of different objectives and outcomes at different strategic and spatial levels. It may evaluate the overall outcomes of an MSP process or the success of individual stages of the MSP process, focusing on more specific objectives.

- There is a distinction between the process evaluation (e.g. stakeholder involvement) and the outcome evaluation (e.g. if a certain goal is being achieved or not through the planning strategic guidelines and selected measures).

- There is a need to continue developing evaluation approaches for the Eastern Mediterranean region in collaboration with marine authorities.

- Various evaluation models and frameworks vary in complexity and focus, may have been proposed from a range of perspectives (ecological or planning based) and can be applied and adapted to different MSP contexts (process or outcome orientated).

- A standardised protocol for MSP of processes and outputs has not been developed, as most evaluation programmes will need to be tailored to the specific MSP purpose.

- Practical evaluation of MSP is still in early stages.

- An outcome evaluation has rarely been carried out.

- Key principles of MSP evaluation should include: a comprehensive evaluation exercise encompassing all the different stages of the MSP process.

- MSP processes should have clear objectives which evaluation can review and assess progress towards.

- The evaluation must be tailored to the specific context, including: elements of transboundary MSP where appropriate, land-sea interactions and criteria for evaluating against an ecosystem approach.

- Simple and easy tools for decision makers to routinely evaluate performance of the plan are needed.

- Measuring the impacts of a plan can be a challenge because of the problem of attribution and causality.

- MSP evaluation should also recognize the availability of resources at an acceptable quality, data and knowledge gaps for evaluation and crucially should include key local and sector stakeholder involvement to be successful.