Study on the Economic Impact of Maritime Spatial Planning

Final Report

Abridged Version

Written by Cogea in association with CETMAR, Poseidon, Seascape Belgium, and Universidade de Vigo

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1 Introduction

With the blue economy recognized as a driver for Europe's welfare and prosperity, the European Commission has undertaken a series of steps[1] to translate that knowledge into action. It has launched initiatives in many policy areas related to Europe's oceans, seas and coasts, facilitating cross-border and cross-sector cooperation among maritime businesses, public authorities and other stakeholders to ensure the sustainable development of the maritime economy (so-called Blue Economy).

That said, maritime space is in high demand, and increasingly so. It is also accepted that many economic and business decisions are affected by geography and location. Spatial factors such as sea depth or distance from an electrical land grid or between nodes can affect the viability of offshore energy projects. In this regard, Maritime Spatial Planning (MSP) can be a determining factor in the development of maritime sectors. Conversely, MSP decisions must take into account the spatial analysis of economic operators in the maritime sector and in the blue economy in general.

Maritime Spatial Planning

- "A process by which the relevant Member State's authorities analyse and organise human activities in marine areas to achieve ecological, economic and social objectives" (Directive 2014/89/EU).
- "A practical way to create and establish a more rational organisation of the use of marine space and the interactions between its uses, to balance demands for development with the need to protect marine ecosystems, and to achieve social and economic objectives in an open and planned way" (Ehler and Douvere, 2009).

The competing needs of renewable energy installations, oil and gas, maritime shipping and fishing, ecosystem and biodiversity conservation, extraction of raw materials, tourism, aquaculture installations and underwater cultural heritage, as well as the multiple pressures put on coastal resources by an increasing population, call for an integrated planning and management approach.

From the very outset, the European Commission initiated a number of successful facilitating and enabling actions such as MSP. Successful implementation of MSP can lead to more efficient administrative procedures, reduce bureaucratic barriers to investment, cut through red tape and manage potential conflicts between different maritime activities.

The MSP Directive, adopted in 2014[2], provides a common framework in which EU Member States are requested to develop maritime spatial plans, but how they should do so is left to their discretion. The Directive calls for nominating a competent authority, transposing the Directive into Member States' national legislation, cooperating across borders, and then establishing their plans by March 2021.

Some Member States have already established their national plans with many making quick progress, while others have needed more guidance and information. All could

[1] Report on the Blue Growth Strategy: Towards more sustainable growth and jobs in the blue economy. EC: SWD(2017) 128 final

[2] Directive 2014/89/EU of the European Parliament and the Council of 23 July 2014 establishing a framework for maritime spatial planning: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0089

benefit from additional information on how MSP can help them deliver sustainable growth[3] for their maritime economies.

The background aim of this study is to expand the limited information on economic benefits and impacts of MSP which was identified by the Impact Assessment study[4] commissioned by the European Commission in 2010, when the Directive was proposed. More recently, a study on MSP and Blue Growth was concluded in 2018[5].

- explore effects stemming from the current state of MSP implementation, with a particular focus on the economic effects
- provide Member States with additional information on how to maximise MSP benefits.

As indicated in the Tender Specifications[6], the general objective of this study is to evaluate how MSP benefits specific blue economy sectors, with the aim to feed the results into relevant EU policies and Competent Authorities in charge of implementing MSP.

The specific aims of this study are twofold:

1. to explore evidence of effects stemming from the current state of implementation of MSP, with a particular focus on economic effects.

2. to provide Member States with additional information on how to maximise benefits from Maritime Spatial Planning.

This put the focus on both economic benefits and related social benefits. In this case, the economic benefits included: increased turnover, revenue, profit and security of supply; reduced cost and time required to start new projects, red tape, potential conflicts for competing uses of the maritime space, costs of production, time of licensing permits; and provision of long-term stability, predictability and transparency. The related social benefits included jobs and the impact of the economic benefits on local communities.

A separate study will address issues related to the environmental dimension in MSP. This study has as main objectives to look at how the "Ecosystem Based Approach" (EBA) has been incorporated into MSP processes in the EU, and to explore links between such processes and the implementation of the Marine Strategy Framework Directive[7] (MSFD). Consequently, economic valuation and the economic benefits provided by MSP's contribution to the preservation of marine ecosystems services are not under the scope of the present study, and a separate study will address issues related to the environmental dimension of MSP.

The study was carried out in five phases: i) conducting peer and grey-literature reviews of the economic impact of MSP; ii) dissecting the reviewed papers and reports thoroughly to benchmark methods to be used for the study; iii) drafting a list of methodological gaps together with methods to bridge them; iv) conducting five case

[3] https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/swd-2017-128_en.pdf
[4] Economic effects of maritime spatial planning study, published 1 April 2010: https://ec.europa.eu/maritimeaffairs/documentation/studies/study_msp_en
[5] European Commission, Maritime Spatial Planning (MSP) for blue growth, 2018: https://op.europa.eu/en/publication-detail/-/publication/0223d4a6-41ec-11e8-b5fe-01aa75ed71a1
[6] https://etendering.ted.europa.eu/cft/cft-display.html?cftId=3426
[7] The Marine Strategy Framework Directive aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend. It is the first EU legislative instrument related to the protection of marine biodiversity, as it contains the explicit regulatory objective that "biodiversity is maintained by 2020", as the cornerstone for achieving GES.

studies to measure the economic impact of MSP in Belgium, Germany (Baltic Sea), Scotland, Norway (North Sea and Skagerrak) and Rhode Island (USA); and v) submitting a draft version of the study to a peer-review group made up of economists, MSP experts and other stakeholders. The process culminated in a workshop held in Brussels on 29 October 2019.

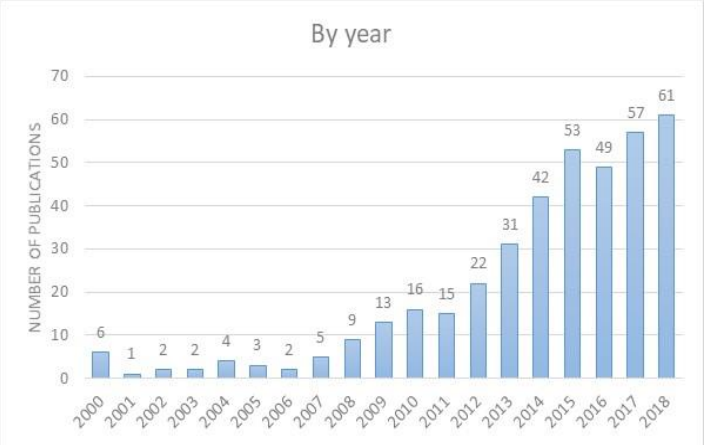
This report presents an abridged version of the study. For a more comprehensive overview of the various tasks, methods and results, it is recommended to consult the full version.

2 The challenges to measuring economic benefits from MSP

Relevant literature from across the world was carefully reviewed during the study, to establish where economic benefits related to MSP had been identified. The team found that there had been no systematic or methodologically rigorous efforts to quantify the costs and benefits of MSP.

There are several explanations to account for the lack of studies on the economic impact of MSP, the most obvious being that, with a few notable exceptions[8], MSP is still a relatively recent practice (Figure 1). Thus, the literature on its economic impact is not extensive.

Figure 1 – Number of publications on MSP by year



A confirmation of this can be found in the ever-increasing number of publications, especially in the EU. Since the 2014 entry into force of Directive 2014/89/EU, which obliged Member States to elaborate a plan, more and more researchers have been looking into the practice. A large body of research already existed on other aspects of MSP, such as methodological and process studies. This indicates that MSP's position as an emerging area of research is not the sole reason for the limited research efforts and paucity of information currently available on the economic costs and benefits of MSP. The following identifies some of the other reasons.

Difficulty isolating economic effects. The limited quality and availability of data on certain sectors of the blue economy, such as offshore wind energy and coastal tourism, and the inability to isolate the impacts of MSP from other factors influencing the performance of the blue economy makes the economic effects of MSP inherently difficult to gauge.

Lack of quality data. Poor data availability is consistently reported as one of the toughest barriers to economic research on the blue economy. This is mostly due to the current statistical classification systems grouping economic activities according to their function, rather than where they take place. As a consequence, it is extremely difficult to have access to reliable data for many sectors of the blue economy unless strong assumptions are made.

[8] Early examples of MSP are Australia's Great Barrier Reef Marine Park (1975), Florida Keys National Marine Sanctuary (1987) and the Trilateral Wadden Sea Cooperation Area (1978).

What is an externality? In economics, an externality is a consequence of an activity that imposes costs or benefits on an entity that did not agree to incur them. If a factory emits toxic fumes as a result of its operation, its owners are imposing an external cost to the people living in the factory's immediate environs. That is called a "negative externality". On the other hand, commuters using public transport benefit those who drive to work, through less congested roads and cleaner air. That is a positive externality.

MSP can provide ecosystem services, which are considered positive environmental externalities. Although they are out of the scope of this study, it is important to be aware of them, as positive and negative externalities can be quantified in monetary terms. This means all benefits should be tallied when calculating the overall impact of MSP on the economy.

Consequence of larger social context. MSP data difficulties are accentuated by the fact that many benefits or costs relate to intangible issues, such as conflict resolution, trust-building or increased stakeholder participation, with economic quantifications that are fraught with uncertainties[9]. Several papers reviewed for this study do indeed propose possible methods to quantify the economic impact of MSP, but they either do so at a very theoretical level, or they are applied to a small number of sectors rather than to the complete array of blue economy sectors.

Impact of externalities. The type of benefits yielded by MSP also plays a role. Among other things, MSP often relates to the objectives of environmental conservation. In fact, a wide number of papers and reports focus on quantifying ecosystem benefits, and a thorough overview of the full costs and benefits of MSP should not overlook any positive or negative externalities. However, even though the methods to quantify ecosystem services are out of the scope of this study, it is still important to remember that they may often outweigh the purely economic costs and benefits of a policy.

Lack of counterfactual evaluation. There is rarely an opportunity for counterfactual evaluation. Generally speaking, the concrete implementation of MSP reflects the unique nature of the blue economy and the circumstances in the planning country or region, and cannot be easily replicated or compared to the same situation without MSP.

That being said, Figure 1 clearly shows that the number of publications dealing to some extent with the economic impact of MSP is on an upward trend. There is reason to be optimistic that this trend will continue in the future, as more and more EU Member States adopt – and eventually evaluate – their maritime spatial plans. In this phase, we probably are on a learning curve, which over time will bring us to more refined methods and tool to evaluate the economic impact of MSP.

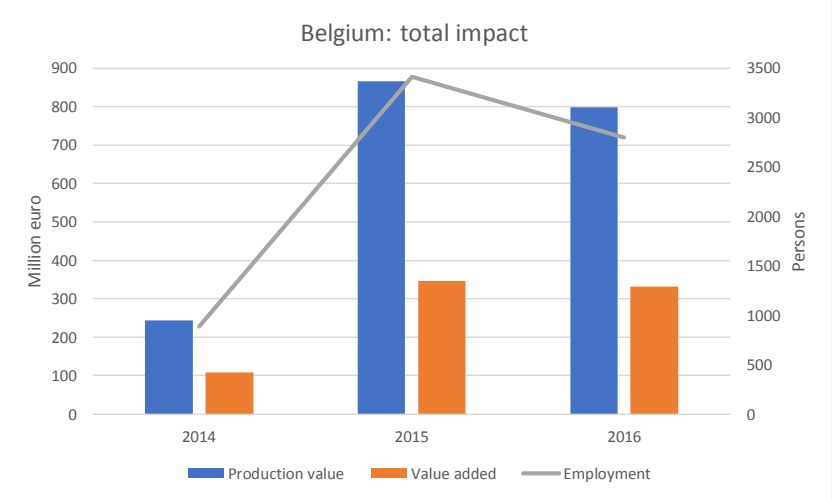
This study thus represents one of the first attempts to systematically quantify the benefits of MSP and, thus, it was decided to do so through five case studies: Belgium, Germany (Baltic Sea), Scotland, Norway (North Sea and Skagerrak) and Rhode Island (USA). The rationale for their selection was to strike a good balance between EU and non-EU examples, between geographical regions, and between different MSP approaches.

[9] See, for instance on shadow prices, Peng *et al*. On the measurement of socioeconomic benefits of integrated coastal management (ICM): Application to Xiamen, China, Ocean & Coastal Management 49 (2006), p. 99.

3 The case studies at a glance

3.1 Belgium

Figure 2 – Total impact (direct, indirect, induced) of MSP in Belgium

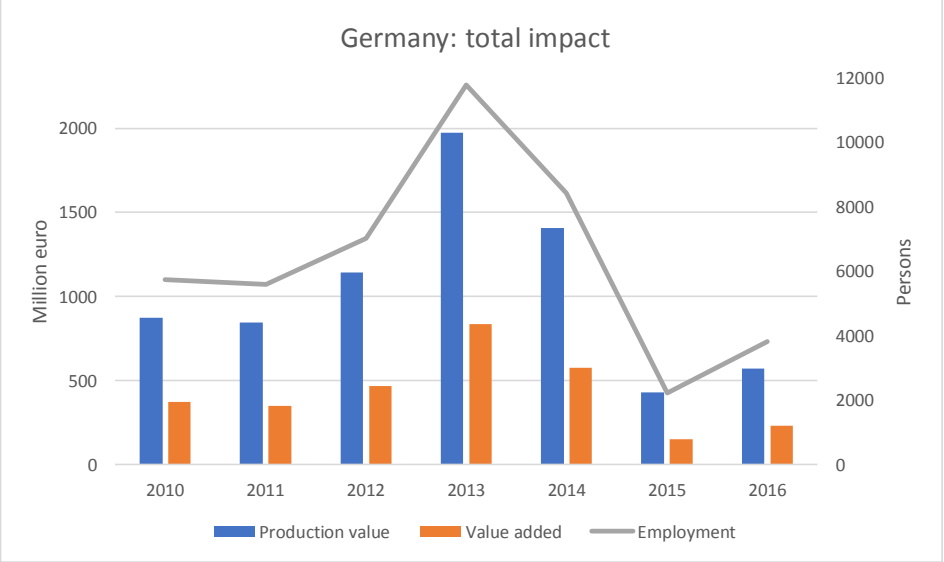


Highlights

- ✓ Belgium inaugurated its first 3-year maritime spatial plan in 2014. The plan had a net positive economic impact, with the impact most pronounced in year 2 of the implementation.
- ✓ With value added of €785 million and nearly 8,000 more employees, overall, the impact of the plan seems to be bigger than experienced by the stakeholders. The Belgian MSP is emerging as a satisfactory policy framework that stimulates economic (blue) growth. Stakeholders are generally positive about the plan, but do not always perceive it as a driver for economic growth.
- ✓ The positive impact was especially visible in the renewable energy and shipping sectors. Further, the increase in renewable energy production had spill-over effects for other sectors such as mining and construction.
- ✓ Despite stakeholders expecting a strong negative impact, MSP did not have a dramatic impact on fisheries. Blue tourism seemed to suffer a negative impact from MSP, especially in year 3, although stakeholders believe the impact was not significant and not directly linked with the plan itself.
- ✓ The science sector, while not an economic sector, has had increasing success in receiving European funds for marine scientific research, such as the installation of offshore windfarms in the MSP area.
- ✓ Stronger transboundary collaboration between different MSPs is needed according to most stakeholders. Administrative costs are relatively low for the Public Service, while the administrative gains are perceived as rather high by the stakeholders.
- ✓ The next push in positive impact is to be expected in 2021, i.e. year 2 of the new plan that will be adopted in 2020, as some important new areas have been designated, including large areas for renewable energy and zones for commercial and industrial activities.

3.2 Germany (Baltic Sea)

Figure 3 - Total impact (direct, indirect and induced) of MSP in Germany (Baltic Sea)



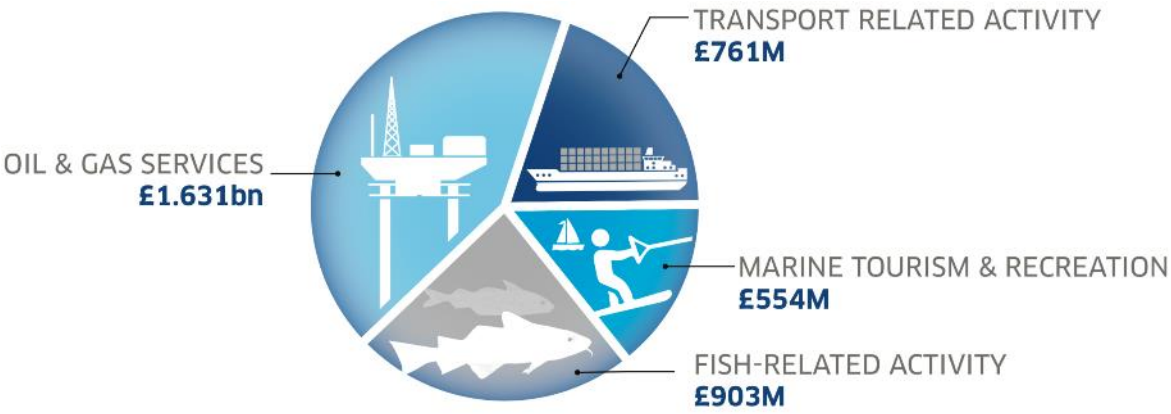
Highlights

- ✓ The German Baltic MSP has had positive direct, indirect and induced effects on the economy.
- ✓ The shipping and renewable energy sectors clearly show positive direct effects of the plan, while coastal tourism has more indirect benefits. Not surprisingly, according to the plan, shipping and renewable energy activities have priority in case of conflict among sectors.
- ✓ The connections and inter-connections of the maritime and inland sectors amplify the MSP's positive socioeconomic effects, as in the value of production, gross value added (GVA) and employment.
- ✓ Only the traditional sectors, such as fisheries and aquaculture, show slightly negative effects.
- ✓ Further, reduction of conflicts and management of cross-border issues are considered main strengths of the plan.
- ✓ As for business, both business expectations and the investment environment have improved in the renewable energy sector. Transaction costs are not influenced by the existence of the plan.

3.3 Scotland

The case study also explored trends in GVA and employment, based on the economic data available from 2008 to 2016 for each sector. Unfortunately, the data period available did not allow for exploring or attributing change directly to the National Marine Plan (NMP), because it was introduced in 2015.

Figure 4 - GVA of Scotland's key four marine sectors



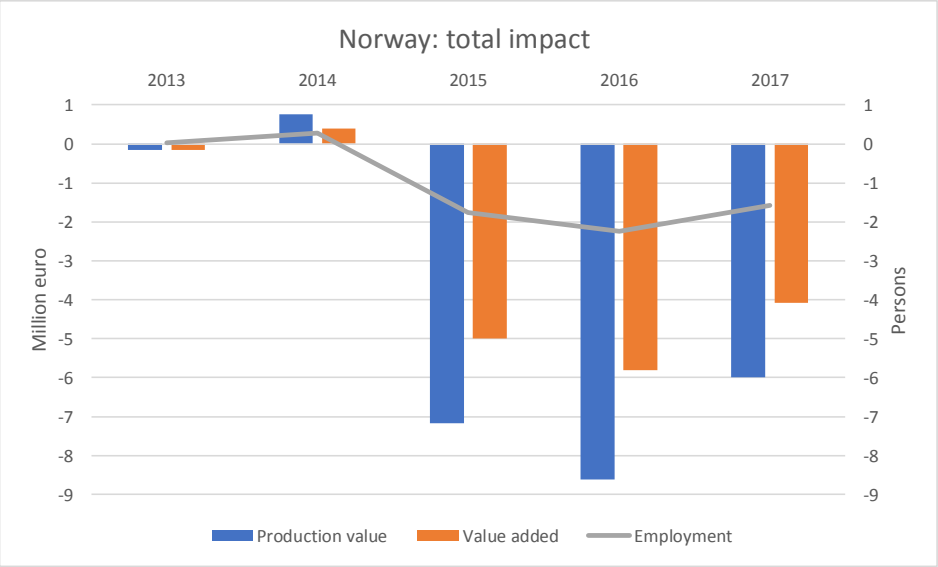
Source: Marine Scotland, 2018

Highlights

- ✓ The NMP has facilitated significant sector growth in the offshore wind renewable energy sector, which has undergone significant growth, especially off the east coast of Scotland. This has, however, caused upset to fisheries stakeholders, with the location of some wind farms devaluing their fisheries activity, with notable examples for the scallop sector.
- ✓ The renewable energy offshore wind sector cited generally reduced administrative and operating costs. The clear guidance and strategic planning contributed to site selection, which minimised exploration costs. Other sectors have not yet experienced reduced costs in this area.
- ✓ For the renewables sector, there were 623 MW of installed capacity in offshore wind farms in Scotland as of 2018, with a further 3.9 GW already consented. When operational, this 3.9GW will represent a growth of 726% in installed offshore wind capacity in Scotland. It is likely to be a number of years before the wind farm is operational, as the pre-construction and construction process can take 3 to -5 years. However, with installation, this will represent significant growth in Scotland's offshore wind sector.
- ✓ Policy and legislation were considered more important than the NMP for generating investment in marine sectors, including the UK target of 30GW installed capacity from offshore wind by 2030.
- ✓ The NMP interactive (NMPi) database was considered by all stakeholders to provide a comprehensive and accessible information resource.

3.4 Norway (North Sea and Skagerrak region)

Figure 5 - Total impact (direct, indirect induced) of MSP in Norway (North Sea and Skagerrak region)

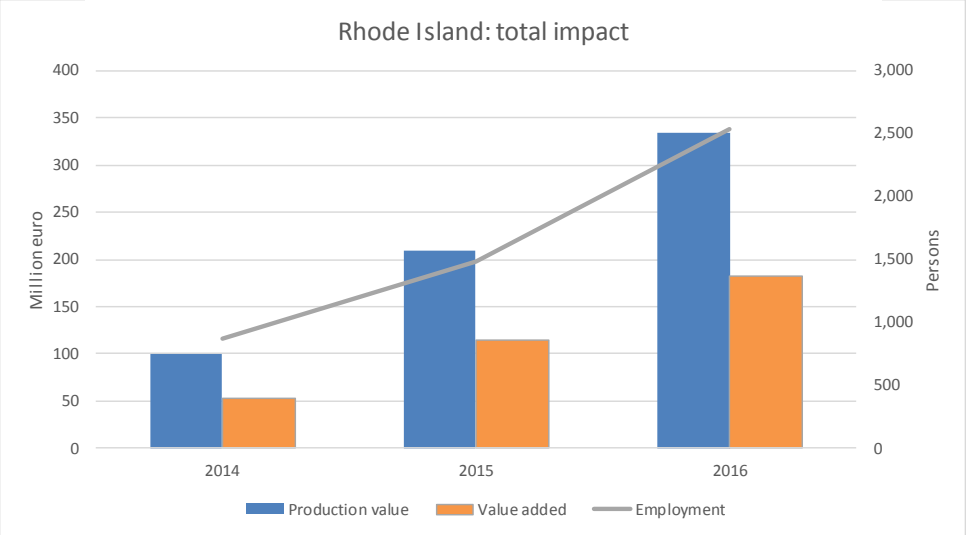


Highlights

- ✓ There is a tenuous link between MSP in the North Sea and Skagerrak region and the performance of the Norwegian blue economy. The statistical data collected for the period analysed revealed both upward and downward trends, and according to stakeholders interviewed, the main drivers are not to be found in the plan.
- ✓ The case of oil and gas is particularly interesting, in that the industry is by far the largest maritime activity in Norway. Its production value has gone down considerably in the last few years, mainly due to resource depletion and other factors that cannot be addressed by a spatial plan.
- ✓ Some stakeholders have noted that the plans are not legally binding – they may establish a framework for consultation and location of activities and furnish useful guidelines, but the lack of zoning might suggest that they can only have a negligible effect on the performance of the economy.
- ✓ The plan addresses several industries that are at a nascent stage in Norway, such as offshore wind energy, offshore renewable energy, marine bioprospecting and marine mineral extraction. As of today, these industries are non-existent or too small.
- ✓ One should look again at the impact of spatial planning in the North Sea and Skagerrak region in a few years, as the emergent sectors' activities mature stage and start generating revenue, which might have a direct link with the management plan.
- ✓ In terms of transaction costs and administrative burden, the plan does not seem to have had a noticeable impact. Stakeholders confirmed that there is a clear, perceived benefit due to improved stability and certainty, but at the same time, some noted that the planning process itself has raised their costs, mainly due to studies and research to be carried out for compliance.

3.5 Rhode Island (USA)

Figure 6 - Total impact (direct, indirect and induced) of MSP in Rhode Island



Highlights

- ✓ The catalyst for the Rhode Island's Ocean Special Area Management Plans (SAMP) was offshore wind development. However, it was launched, **prepared and adopted as a comprehensive ecosystem-based maritime spatial plan**, not as a renewable energy facility siting plan.
- ✓ The first commercial wind farm, Block Island, is relatively modest in size with five turbines that only became operational in 2017. This is too recent to appear in the available Ocean Economy data, which only covers up to 2016. A second wind farm, with 50 turbines, will begin construction in 2020.
- ✓ The Ocean SAMP clearly made the outcomes more certain by reducing project development costs for the developers and significantly speeding up the consenting process.
- ✓ It is too soon to fully evaluate the impacts resulting from the development of the renewable energy sector in Rhode Island, but they are expected to be significant over the next ten years as more wind farms are licensed and built.
- ✓ There has been an upturn in marine construction and transport as these major construction projects have gotten underway. There also have been other local benefit recipients, such as food and accommodation providers during the construction phase. In the long term, operation and maintenance will provide permanent jobs and the need for vessel services.
- ✓ Commercial fishers are expected to see some restrictions on their operations and have agreed to a compensation package with developers as a result.
- ✓ There is some **evidence of a positive impact on recreation and tourism** – the most valuable ocean economy sector. There already has been considerable tourist interest in the first U.S. offshore wind farm.

4 Does MSP generate economic benefits? Lessons from the case studies

The five case studies indicate that MSP **does generate economic benefits**. Belgium and Germany are clear examples of that. In Norway, the overall impact is negative, but that is largely due to the downward trend of the oil and gas industry, which does not

seem to be influenced by MSP at all. In Scotland and Rhode Island, it is too early to draw conclusions grounded on statistical analysis, but the general perception among stakeholders is that MSP is benefitting the blue economy, or at least part of it, directly, indirectly or induced.

- *Direct impact.* With the aforementioned – and very specific exception of Norway – the case studies reveal that **MSP may foster economic growth** by increasing production value and value added, and by generating employment in the blue economy.
- *Indirect impact.* Since the blue economy is deeply intertwined with the rest of the economy, growth in maritime activities produces knock-on effects that reverberate in other sectors as well. For example, when the offshore wind sector grows, part of its growth will, in turn, spur additional growth in those sectors that manufacture goods and services for the offshore wind sector.
- *Induced impact.* Direct and indirect growth implies that businesses hire more people, who in turn earn wages that are then spent on other things such as entertainment or health care.

At the same time, it cannot be stated unequivocally that MSP always generates economic benefits by definition. At its heart, MSP is a policy choice of allocating ocean space to different, competing economic sectors, based on an array of criteria set by a planning authority. There is no guarantee that the practice can generate economic benefits per se, nor does it have to. As this study has shown, many countries that resolve to implement MSP are primarily driven by environmental concerns, and thus they might be willing to pursue it in theory, even if the strict economic impact were negative.

Of course, EU Member States have a legal obligation to establish plans by the end of March 2021, but there are a number of reasons for thinking that MSP is likely to boost growth in the blue economy. For millennia, humans used the oceans essentially for procuring food, and moving goods and people from one place to another. More recently, however, the emergence of new technologies has transformed **the oceans into a source of economic prosperity and sustainable growth**. Today, the blue economy encompasses activities such as offshore wind energy, marine renewable energy and seaweed cultivation.

Figure 7 - Roman mosaic, Archaeological Museum, Sousse, Tunisia

First come, first served. All these activities compete for the same ocean space. In some cases, they are mutually exclusive, in others, they can co-exist peacefully and also create synergies with each other. Either way, a framework to regulate them is necessary. Fishing and shipping used to contend for ocean space, mainly based on the principle of "first come, first served". While ocean space has remained roughly the same, there now are many more activities that could potentially exploit it, and so "first come, first served" cannot possibly be a good criterion for apportioning space. However vast, ocean space is still finite, and in great demand.

Apportioned and optimised space. If the potential of the blue economy, whether from traditional or emerging sectors, is to be unleashed, economic activities should not be left to compete against each other in their quest for marine space. It is in the interest of society as a whole to maximise the potential benefits of the blue economy in its entirety, by apportioning and optimising space in such a way as to let all uses be carried out productively and sustainably.

Case-by-case preconditions*.* Whether benefits outweigh costs in practice is a matter that needs to be settled case by case. Evidence from the case studies identifies certain key preconditions needed for MSP to be successful.

- *Stable framework.* Cooperation and preparation would ideally need to start long before a plan's entry into force. A stable framework, one that generates certainty, stability and trust, is not built overnight, but rather is meticulously crafted over time. In Belgium, Germany and Rhode Island, precursors to the actual maritime spatial plans started even a decade before the entry into force of the legal document. The quantitative and qualitative evidence gathered during the study indicates that this approach pays off in the long run.
- *Consultation.* Oceans are used by different sectors of the economy, and all voices should be heard. States and planning authorities, of course, remain in charge of establishing their own priorities, but it is paramount that no actor that will eventually be affected by MSP feels neglected during the preparation process. Once again, the case studies are revealing as to the importance of consultation.

How consultation made a difference in Rhode Island

Quite often, fishers complain that the MSP process results in a loss of fishing opportunities for them. Whether this is right or wrong, the way negotiations are framed can make a difference. For instance, in Rhode Island, **fishers feel positive** about the role played by maritime spatial planning, even though overall the impact of developments on their sector is expected to be negative. The planning process provided independent information and facilitated discussions to enable compensation packages to be negotiated. Rhode Island was pro-active in conducting a mitigation programme ahead of the plan, which provided a template for defining the economic impact of developments. This allowed for what commercial fishers term the "least worst" situation with regards to the impact of developments on the sector.

Economic context. While the evidence gathered during the study points towards a positive contribution of MSP to the economy, it should be noted that its impact on economic indicators is rather limited, when compared with other macroeconomic and/or sector drivers, such as international agreements on maritime routes, new sources of energy, climate change or the price of raw materials. MSP can help to generate economic benefits, but one cannot expect that it can reverse global sector trends. The Norwegian

case study shows that there is nothing MSP could possibly do to reverse the downward trend of the oil and gas industry, which is suffering from depletion of resources and high extraction costs.

Political and economic catalyst. MSP acts as a catalyst for new political and economic developments. For example, it might anticipate or strengthen a trend, or it might contribute to limiting damage during a downturn. In December 2019, the European Commission announced the **European Green Deal**[10], a roadmap for making the EU's economy sustainable by boosting the efficient use of resources by moving to a clean, circular economy, and by restoring biodiversity and cutting pollution. A clear framework to regulate the use of ocean space becomes even more important in light of the forthcoming policy changes that are to be expected as a consequence of the Green Deal.

5 What type of benefits does MSP bring?

The previous section hints that, if implemented correctly, there is scope for MSP to boost growth in the blue economy. It also makes the case for MSP's generating benefits for the whole economy, if indirect and induced impact are factored in.

However, questions remain as to how MSP impact actually plays out. In other words, if growth is generated, how does this happen in practice?

Many of the reviewed papers and reports find that: "most evidence of the economic benefits of MSP is qualitative rather than quantitative"[11]. The following identifies the most consistently reported qualitative benefits.

- ***Promoting conflict resolution***. By bringing different actors together, the MSP process tends to minimise or pre-empt conflicts between uses, between users, and between users and regulators.

- ***Contributing to trust-building***. Building trust is a spill-over of participatory processes. When effective, they tend to build trust and consolidate relationships among stakeholders[12].

- ***Increasing stakeholder participation***. Participatory processes increase stakeholder participation in public decision-making. This point is strictly related to conflict resolution and trust-building. MSP is no exception.

- ***Clarifying policy and decision-making***. Policy-making may seem obscure to citizens and stakeholders. This may be related to, and increases concerns about, the distance between policy-makers and civil society, especially in the last few years with the upsurge of populist movements in western politics. In this sense, an inclusive decision-making process can only be beneficial to society.

- ***Improving information collection and retrieval***. MSP is quite demanding in terms of data. Usually, the planning process has the unintended benefit of making available a wealth of data on the ocean and its uses – data which would have been otherwise unavailable to non-government actors.

Qualitative benefits generate quantitative benefits. Benefits identified as qualitative often can further generate quantitative benefits by, for example, improving the investment and economic climate of a region or by reducing costs. How to tease out the impact that each of the above-mentioned benefits has on the blue economy and its

[10] The European Green Deal, COM(2019) 640 final, 11.12.2019.
[11] GHK Consulting, 2004. Potential benefits of marine spatial planning to economic activity in the UK, p. 68.
[12] Beierle and Konisky, Values, Conflict and Trust in Participatory Environmental Planning, Journal of Policy Analysis and Management, Vol. 19, No. 4, 2000, pp. 587-602.

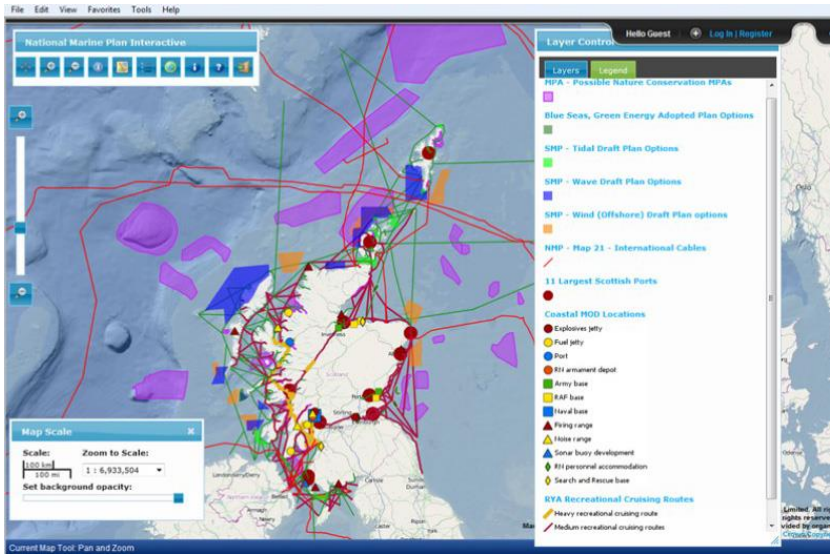
sectors is a question that remains unanswered in the reviewed literature. However, their effects would still be captured in the economic performance of the activities affected by a plan, which is consistent with what emerged from the case studies in Belgium, Germany, Scotland, Norway and Rhode Island.

Indirect benefits. The case studies confirmed that MSP brings a number of indirect benefits to stakeholders. Generally speaking, stakeholders also see MSP favourably, even though they are not always able to quantify these indirect benefits:

Figure 8 – Stability and certainty help business thrive

- ***Increased stability and certainty***. Stakeholders think that MSP increases legal stability and certainty, which are normally considered drivers for economic growth. The Belgian Offshore Cluster and the Belgian Offshore Platform stated that MSP has created (legal) certainty regarding the conditions and procedures that have to be adhered to, thereby accelerating high-risk investments, notably in the offshore wind sector. In Germany, Scotland and Rhode Island business expectations and the investment environment have improved in the renewable energy sector as a consequence of the MSP process, according to the stakeholders interviewed during the study[13]. Even in Norway, where the link between MSP and economic growth seems to be rather weak, stakeholders clearly saw a benefit in having a stable and predictable framework for their business.

Figure 9 – Marine Scotland's NMPi, a much-appreciated spin-off of the MSP process in Scotland

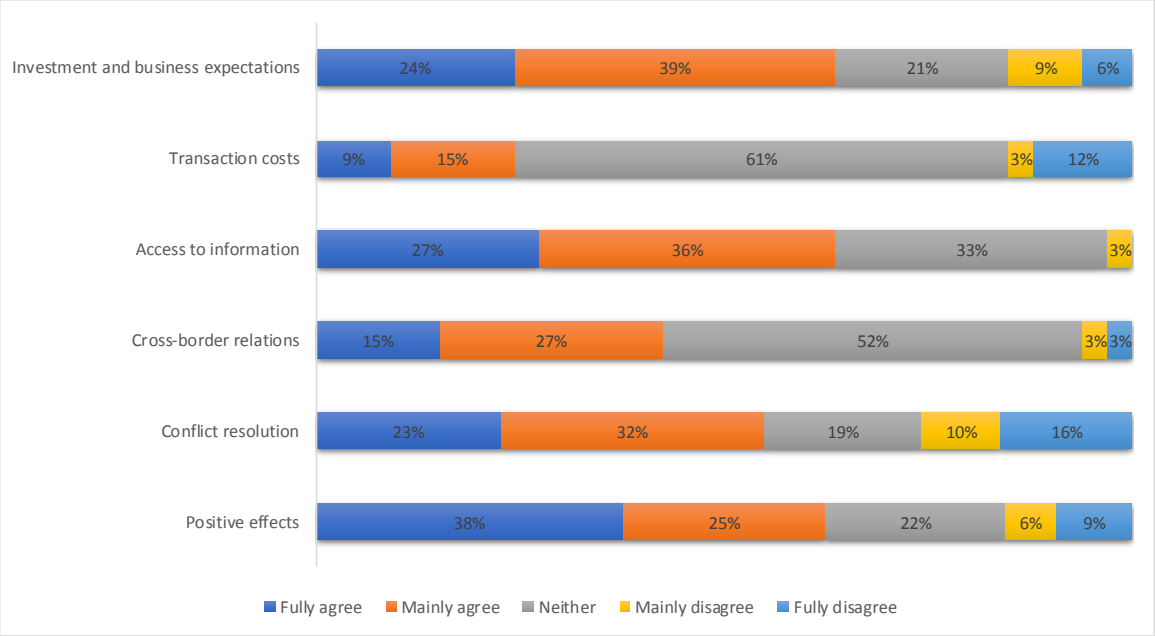


- ***Better access to information and data***. Because the MSP process is quite intensive in terms of data collection and processing, usually the planning process has the unintended benefit of making available a wealth of data on the ocean and its uses, which would otherwise have been unavailable to non-government actors. In this sense, among our case studies, Scotland stands out as a best practice, because its National Marine Plan is supported by the NMPi, its online interactive tool, together with Scotland's Marine Atlas, which provides an assessment of the condition of the Scottish marine area and a summary of significant pressures. All stakeholders

[13] For the list of stakeholders interviewed in each country, please see the unabridged version of the study.

considered the NMPi database a comprehensive and accessible information resource, meeting sectoral and societal demands for knowledge and transparency. Its existence means not only that access to marine data has improved significantly with its introduction, but the same data sources are used by regulators, developers and operators to inform decisions, and encourage shared understanding and transparent decision-making.

Figure 10 - MSP benefits according to the stakeholders interviewed



* To be noted this table is based on all the answers received, regardless of sector and country. Since stakeholder perception of MSP varies considerably depending on country and sector, it is recommended that the individual case studies in the unabridged version of the study be looked at.

- ***Conflict resolution*.** Stakeholders in all case studies considered conflict resolution as a benefit, which in a way is at the heart of MSP. By bringing different actors together in a participatory process, MSP tends to minimise or pre-empt conflicts between uses, between users, as well as between users and regulators. In the Belgian case study, several interviewees mentioned that MSP stimulated interaction and mutual understanding, and the increased legal certainty with an MSP enables coexistence without conflict. A similar point of view was detected in all the other case studies. In Norway, the fishing industry and the oil and gas industry used to agree on how to use marine space bilaterally. Since the entry into force of the Management Plan for the North Sea and Skagerrak region, they have been doing it through the framework of the MSP process. That said, a certain degree of conflict persists, as was seen in nearly all the case studies – be it in Germany or Rhode Island – fishers expressed concern about new developments in the offshore wind sector.

- ***Reduced transaction costs and administrative burden*.** Much to the surprise of the authors, the study did not confirm the existence of certain benefits traditionally associated with MSP, namely reduction of transaction costs and of administrative burden. Stakeholders' opinion on reduction of transaction costs and administrative burden is controversial: few are able to quantify them, but nearly all believe that in the end there are no real savings. On the one hand, MSP reduces some administrative costs by, for example, cutting administrative burden, but on the other, it increases the costs of compliance by requiring additional studies. The two effects might cancel each other out. There is one important exception: fast-tracking. In principle, it is possible that certain sectors are "fast-tracked" by planning authorities and governments, and thus experience a reduction in both transaction

costs and administrative burden. For instance, the Rhode Island **MSP identified a specific location for a wind farm development**, which provided much greater consent certainty. A plan specifying an area that is a preferred location for a development will be of more direct benefit to developers (in terms of reducing risk) than a plan which only provides guidance, perhaps specifying the areas where a development would not be accepted, rather than where it would.

It is interesting to contrast the experience of the Block Island Wind Farm development under the Rhode Island maritime spatial plan with the Cape Wind Project, a proposed offshore wind farm off Cape Cod, Massachusetts. Cape Wind attempted to build a 130-turbine installation for 15 years. The project was eventually approved, but following licencing and legislative setbacks, stakeholder objections, and a requirement to re-commission bird studies at a cost of $4 million, the developer terminated the site lease rights in late 2017, after spending more than $65 million working through the regulatory and legal challenges.

The Block Island Wind Farm, on the other hand, not only avoided objection, it received support from a number of stakeholders, and benefitted from the wealth of information developed under the MSP. The plan enabled two wind projects with expected annual gross revenues of US$5–10 million and US$50–100 million respectively. Rhode Island approved this project in less than a year, cutting its permitting process down from nearly five years. According to multiple interviewees, **it is quite likely that these projects would not have happened without the plan**.

Figure 11 – "Fast-tracking" is an effective way to reduce administrative burden and boost investments

The example of Rhode Island and Massachusetts illustrates that it is indeed possible to reduce transaction costs and administrative burden, if a planning authority resolves to do so. The lesson to learn here is that it cannot be taken for granted that the mere fact of implementing MSP will automatically deliver all the benefits traditionally associated with it.

6 Which blue economy sectors does MSP benefit the most?

A recurring research avenue in the economic literature on MSP explores whether some specific sectors tend to reap more benefits from the process than others. The findings of the study in this case are clear: the reviewed literature and the case studies show that certain sectors do seem to consistently benefit from MSP.

Before revealing who the winners are, it is first necessary to introduce a concept that is pivotal in economic research. Throughout the study, it is repeated that MSP allocates a scarce resource – in this case, ocean space – among several competing uses. Economists call it a "Pareto improvement" which refers to a new allocation that makes at least one individual better off, without making any other individual worse off. In the

real world, Pareto improvements are extremely rare, as any re-allocation implies a trade-off. MSP is no exception to this rule: if a portion of ocean space is allocated to an activity, such as a wind farm, it follows that, in principle, that same portion cannot be allocated to other uses, such as oil extraction. The policy can be considered desirable from the social point of view, only if overall benefits (regardless of who reaps them) outweigh costs (regardless of who bears them). This issue can also be framed in the concept of "opportunity cost", meaning the benefits lost due to choosing one alternative over the other.

Figure 12 – MSP can facilitate coexistence between conflicting ocean uses

Some of the analysed studies correctly highlight the inevitable existence of trade-offs and opportunity costs, while others overlook them, focusing only on immediately visible costs and benefits. A case also can be made that a given sector that "was disadvantaged" by MSP might have suffered even greater economic losses without the plan. The handbook example here is a wind farm that was going to be built on an especially productive fishing ground (Blau and Green, 2015), but thanks to careful planning was built elsewhere.

At the same time, not every new allocation of space necessarily leads to a trade-off between two or more sectors. While some sectors inevitably compete for the same space (e.g. fishers cannot fish in an aquaculture farm), others can coexist. Under the right circumstances, multi-use of a marine site through co-location of complementary activities can result in more efficient use of ocean space (Kite-Powell, 2017).

In general, plans have not usually brought major economic benefits to incumbent industries such as commercial and recreational fisheries, or oil and gas extraction. Emerging sectors, especially offshore wind, tend to reap higher benefits, in some cases to the detriment of other traditional activities – or at least that is often the perception of stakeholders from the incumbent industries, such as fishers, who claim economic losses due to wind farm developments. Rather than avoid this impact, MSP can still create benefits by providing an independent process for assessing, minimising or mitigating the expected impact.

In Rhode Island, researchers found that the "complete displacement of commercial fishing would result in estimated direct output impacts to the regional economy of US$5 million, leading to US$11 million in direct, indirect and induced impacts, and a corresponding loss of about 150 jobs" (Hoagland, *et al.,* 2015). The Rhode Island case study found that the MSP process was regarded as an "honest broker" in discussions between the fishers and the wind farm developers.

The impact is greater the more disruptive the change. For instance, in 2004, a new zoning plan by the authority for the Great Barrier Reef Marine Park (GBRMP) increased no-take areas from 4.5% to 33% of the total park area (GBRMPA, 2017). In particular, small-scale fishery fleets seem to be sensitive to developments, as their

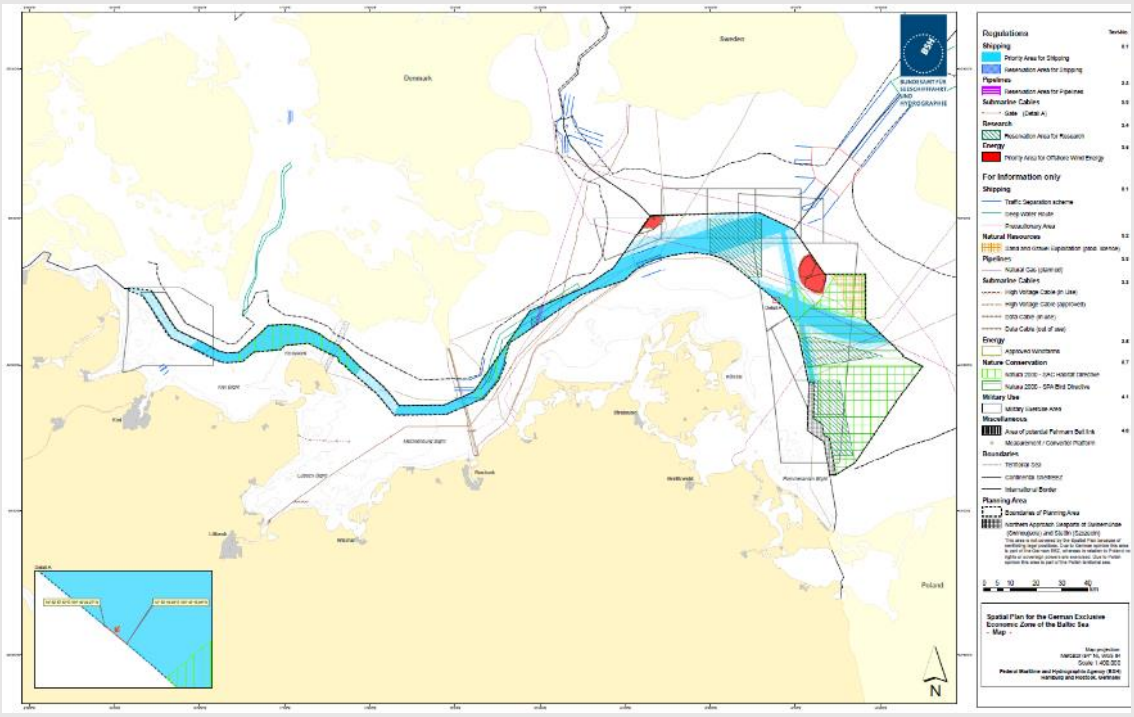
operational range is more limited than offshore fleets. However, it should be noted that in the EU (e.g. the Netherlands and Germany), losses are expected to be negligible, as fishing revenue is more constrained by overfishing than by lack of space (Blau and Green, 2015).

MSP does not inevitably damage fishing activities or incumbent sectors in favour of emerging uses of the ocean. MSP is a policy that reflects the objectives pursued by policy-makers when allocating marine space. In the last few years there has been an increasing groundswell of public and policy opinion towards the objectives of environmental conservation. This, together with internationally agreed emission reduction targets, might persuade a planning authority to favour those sectors perceived as clean over more established uses of the ocean, such as fishing or extraction of oil and gas.

Favouring one sector over another often is a deliberate policy choice made by the planning authority, for which it is perfectly legitimate to prioritise one or more sectors over the others. The MSP Directive goes in the same direction, giving Member States full leeway when it comes to the actual content of their plans.

The German case study offers a perfect example of that. **Germany's MSP clearly sets shipping and offshore wind** as priority uses of Germany's Baltic Sea area, and our analysis confirmed that these sectors ended up benefitting the most from the plan itself. In a sense, from the policy angle, it can be argued that Germany's Baltic MSP is a success story, because it achieves the objectives it set.

Figure 13 - Overview of Germany's Baltic Sea Plan



Certain sectors may reap more benefits from MSP than others. This has nothing to do with the MSP process itself, it depends on the stated policy preference. The fact that emerging sectors are usually more advantaged than incumbent industries reflects new policy preferences for clean energy and sustainable use of resources. This is due to the increasing groundswell of public and policy opinion supporting environmental conservation, as well as the internationally agreed emission reduction targets. However,

there might also be another reason why the offshore wind sector consistently reaps higher benefits from MSP than its traditional competitors for ocean space.

If one accepts the principle that ocean space may be opened up to new uses, it is true that these new uses might subtract space previously used by incumbent industries, but it is equally true that without planning, consultation and negotiation, the loss of space might be even more harmful.

In the past, activities such as fishing and shipping had the entire ocean for themselves. Potential conflicts were easily dealt with by establishing shipping lanes and fishing areas. Yet, over time, ocean space has become increasingly crowded and regulated. While some activities can – and are actually encouraged to – co-exist in the same space, the general rule is that opening up ocean space to a new use leaves existing uses with less space. At this moment, offshore wind is the "most mature emerging activity" in the blue economy, and it is perfectly logical that planning authorities allocate new space for it. The case studies of Belgium, Germany, Scotland and Rhode Island cover a time span that coincides with the onset of the offshore wind industry in those regions and with the construction or authorisation of the first wind farms. In some cases, it might be argued that the increased competition for space – drive by wind farms – made evident the need for planning the use of ocean space. It follows that the offshore wind sector went from ground zero to rapid growth, while stakeholders from incumbent industries quite often saw this rapid change as a threat to their business.

At the same time, traditional industries such as fisheries and offshore oil and gas are also affected by structural changes that have a negative impact on their output, such as endangered commercial stocks and resource depletion. The relative loss of ocean space in favour of the offshore wind sector does not necessarily lead to a linear reduction in their output. In fact, because wind farms would have been built anyway, it might well be argued the MSP process helped limit damage and delivered what Rhode Island fishers called the "least worst" outcome. In other words, having a plan that regulates the use of ocean space in a rational way actually limits damages.

7 How do stakeholders view MSP?

Generally speaking, and as shown in the case studies, stakeholders view MSP as a good opportunity to foster coordination among industries, and **generally perceive it as positive** (see Figure 10). Yet, the case studies also revealed that opinions about MSP may vary to a great extent across stakeholders from different sectors and from different countries. While differences in how MSP is perceived might simply be due each plan being the product of unique, local circumstances, some common patterns may be identified.

Apart from a few exceptions – discussed in the next paragraph – there seems to be a clear fracture between traditional and emerging sectors. For example, fishers often feel that their opportunities are diminished by MSP, because they think MSP favours emerging sectors of the blue economy, such as wind energy. In these cases, as one might expect, those who believe they have been damaged by MSP tend to view it negatively, whereas other groups may hold neutral or more positive opinions.

Interestingly, certain views are common to all stakeholders, regardless of the impact they believe MSP has had on their business. Nearly all believe that MSP increases legal stability and certainty. In other words, simply instigating a public process of allocating ocean space according to clear criteria increases stability and certainty.

That said, certain stakeholders might not necessarily think that increased stability and certainty are beneficial to their business, as their judgement mainly depends on whether the new and more predictable business environment favours their sector.

The same can be said when it comes to the impact of MSP on investment and business expectations. Of the stakeholders interviewed, 63% believe that MSP exerts some influence on the investment climate, thus altering business expectations. Whether this is seen as a good or bad feature of MSP is an entirely different story. Again, those who typically benefit from MSP – possibly because it creates a new legal framework for a nascent industry – obviously are optimistic for their businesses.

At the same time, stakeholders who are very vocal about MSP often have no hesitation in admitting that the process does have an impact on investment climate and business expectations. The difference is that the latter attach a negative connotation to the word impact. It follows that MSP does produce a tangible economic impact, which can be perceived as positive or negative by stakeholders depending on how it affects their business. On the other hand, the net effect of MSP on the whole economy requires factoring in all costs and benefits, as repeated throughout this study.

It remains difficult to give a full and unambiguous account of how stakeholders view MSP, because their views are inevitably affected by the impact that the plan has had on their business. Every plan has its own characteristics, which makes it unique and often difficult to compare with other plans. From the point of view of a planner, the real question is how to win buy-in – even from those stakeholders who, absent an inclusive and participatory process, might feel neglected by MSP. This is analysed in the following section.

8 Examples of successful stakeholder buy-in and reasons for success

Buy-in refers to accepting a policy or change because one agrees with it. Ideally, the chief objective of any planning authority should be to win every stakeholder's buy-in, even though achieving this might be unrealistic.

The case studies found that it is relatively easy to win the favour of stakeholders from emergent industries, as quite often the onset of a planning process coincides with the need for securing ocean space to new economic activities. If one looks at stakeholder replies broken down by sector in the case studies, it is evident that wind energy developers are enthusiastic about MSP, and for a good reason – the dawn of the industry is accompanied by a stable legal framework, which allocates ocean space and quite often, in the case of wind energy, reduces transaction costs. It is equally as easy to win stakeholders' buy-in when certain ocean uses are prioritised over others and, yes, plans often clearly place the development of certain sectors at the top of their priority list. Admittedly, barring unforeseen circumstances, stakeholders from those sectors are supportive of the planning process.

Hence, the real challenge is to win stakeholders' buy-in when conflicts between uses exists, and when some stakeholders, rightly or wrongly, believe that their business has been or is likely to be damaged by MSP. There are multiple ways to do this, and the case studies offer some good examples.

Explore multi-use of marine space. Multi-Use in European Seas (MUSES), a Horizon 2020-project focusing on commercial fisheries and offshore wind farm development on the east coast of Scotland, found enhanced multi-use of marine space had potential to improve its value for society and the local economy, such as longevity of the fishing industry. It also saw the potential of combining offshore wind farms with other activities, such as offshore storage, enhanced oil recovery, desalination, wave energy and low-maintenance aquaculture. Specific to offshore wind and commercial fisheries, multi-use recommendations on marine planning called for:

- consideration of multi-use opportunity mapping, rather than constraints mapping
- introduction of stronger coexistence policies with explicit reference to multi-use
- development of good practice guidance on how to construct a wind farm to make it fishing-friendly.

Create synergies through consultation and negotiation. Where conflicts exist and when some stakeholders might be damaged by an emerging sector, it is wise to design the planning process in such a way as to create synergies among competing uses. In practice, this should be done through consultation and negotiation, as ideally all the parties sitting at the same table should be ready to make some concessions to each other.

Figure 14 – Consultation does make a difference

Involve stakeholders in consultation from the outset. In Rhode Island, private sector stakeholders (fisheries, marine trades) appreciated being involved from the outset and that the consultation was maintained throughout the process. This meant that stakeholders got to know each other and their different perspectives. There was an understanding that offshore wind development was going to happen and that Rhode Island would benefit socio-economically from being the first. This created more of a shared purpose to the MSP process, rather than each sector vying for space. Rhode Island's wind farms, now located offshore, accommodated restrictions for navigational and military constraints, and were designed to avoid some key fishing grounds. For example, when commercial fishers shared that bottom-fishing in the area is mainly in an east-west orientation, corridors were designed E-W, which has allowed fishing to continue – between turbines.

There was an understanding that offshore wind development was going to happen and that Rhode Island would benefit socio-economically from being the first. There was therefore a shared objective to make sure that the development was in the right place. This created more of a shared purpose to the MSP process, rather than each sector competing for space.

The Rhode Island case study is particularly inspiring in this sense, because it is one of the few exceptions in which fishers are not unhappy with the development of the offshore wind industry. Even though losses are expected, they fully realised that, sooner or later, wind farms would have been built. So, reconciling conflicting views in the framework of a well-designed planning process has led to a "least worst" outcome.

Negotiate compensation packages. The idea of compensating those who bear losses from MSP is controversial. In most legal systems, nobody is assigned property rights on ocean space. In fact, even when there is exclusive use of an area, it is normally leased rather than sold. Without an existing allocation of property rights, it is difficult to argue that a new industry bears liability for any damage to the existing industries competing for the same ocean space.

> In 1960, the late economist and Nobel laureate Ronald Coase, wrote *The Problem of Social Cost*, a paper which revolutionised the way economists and lawyers understood legal liability rules. In determining to whom liability ought to be assigned for a particular externality, Coase wrote it made little sense to assign liability to the "perpetrator" of the harm, since we cannot know who the "perpetrator" is without reference to an existing allocation of property rights. Coase also showed that, if transactions are costless, the initial allocation of legal rights will have no effect on who uses a particular resource; resources will end up in the hands of those who value them most. This insight, known as the "Coase theorem" emphasized that decisions about assignments of liability should include reference to contextually specific transaction costs. Coase's is a theorem, not a theory, because its real-life applications are not numerous. However, it offers useful insights to manage conflicts within MSP: there are no property rights on the ocean, so it may make sense to let competing stakeholders agree on compensation packages.

Reality, however, is more nuanced, and compensation may be an effective means of contributing to solving conflicts. Planning authorities might help negotiate compensation packages to be paid to those suffering economic losses as a consequence of a new allocation of space brought about by MSP. Two approaches can be envisaged: i) government funding and ii) compensation paid by stakeholders that benefit from the new allocation of space – provided that they can compensate the other stakeholders with what they gain and still make profits. The first option was implemented in the framework of Australia's Great Barrier Reef Marine Park, whereas the second was pursued in Rhode Island.

9 What more do we need to learn?

Despite the effort made, this study can only be seen as a first step towards the definition of a framework for the quantification of the economic impact of MSP, which can be further improved in the future.

There remain a number of challenges and gaps that ought to be tackled to obtain a more refined measurement of a plan.

Figure 15

The EU Blue Economy Report

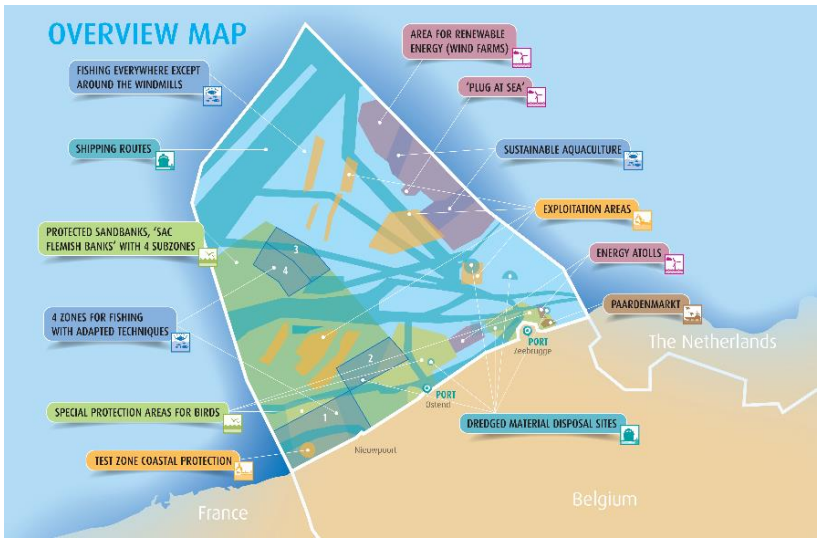
Increase availability of statistical data. Poor data availability is consistently reported as one of the toughest barriers to economic research on the blue economy. This is mostly due to the current statistical classification systems grouping economic activities according to their function, rather than to where they take place. As a consequence, it is extremely difficult to access reliable data for many sectors of the blue economy – unless strong assumptions are made.

Strengthen data accuracy. More and better data would strengthen the reliability and accuracy of the results obtained. The method used for this study relied on Eurostat's Structural Business Statistics (SBS), following the approach of the Blue Economy Report published by the European Commission. However, in many cases MSP is carried out at regional or sea-basin level, and the geographical resolution of SBS does makes it impossible to break down the data to the desired level.

Monitor impacts. Planning authorities often do not measure the economic effects of their plans – either the plan's impact or its administrative costs – probably because environmental conservation is their main concern. Absence of this data from the plan's implementer means measuring the economic impact of MSP may remain an exercise fraught with uncertainties.

Include environmental and ecosystem concerns in assessments. Environmental benefits and ecosystem services are explicitly out of the scope of this study, as another EU Commission study is dealing with them. However, quite often, environmental concerns are the main drivers behind the MSP process, and they can and should be quantified in monetary terms.

Figure 16 - Maritime spatial plan for the Belgian part of the North Sea. . Source: "Something is moving at sea", 2014



Without data from planning authorities on the costs of MSP, and without taking into account environmental externalities, it is not possible to carry out a complete cost-benefit analysis or to establish the viability of MSP in terms of social welfare. During the study, thanks to data provided by the Belgian administration, it was possible to attempt a complete cost-benefit analysis at least for the Belgian MSP. By factoring in all benefits and costs, including those borne by the public administration to set up the planning process, the overall effect on the Belgian economy showed a clearly positive balance ranging from a minimum of €209.8 million to a maximum of €415 million euros over the period 2014–2016.

Over the next year, it is expected that an increasing number of EU Member States will publish their maritime spatial plans, as the 2021 deadline set by the MSP Directive gets

closer. It might be the perfect occasion to fine tune the framework developed under this study and test it with better and more abundant data. Should some Member States approve regional plans at different moments in time, it could be an opportunity to use different regions within the same Member State as control groups for each other and verify whether the effects of MSP materialise in the same amount of time across different locations.

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