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Establishing Marine Protected Areas in Europe: A qualitative study into the European Marine Protected Areas policy and policy process
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Establishing Marine Protected Areas in Europe

A qualitative study into the European Marine Protected Areas policy and policy process
Master thesis, June 7th, 2022

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Public Administration, Leiden University (2022)

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1 Introduction

Climate change is unfolding across the globe. While it is barely noticeable from day to day, it has a significant impact on the environment by damaging our planet's wild places and biodiversity. As a result, the natural world is fading, causing problems for all inhabitants of the Earth (Clay, 2021; Fothergill et al., 2020). The 'finely tuned life support machine' is being disabled as the Earth's ecosystems are destroyed (Fothergill et al., 2020). If this destructive process continues it could create an Earth that is no longer liveable.

The Earth's climate has changed throughout history, but the change that it is currently undergoing is unlike anything else (Rockström, 2010; 2020). The Holocene used to be a stable period, creating what Johan Rockström (2020) refers to as a 'goldilocks zone' in which it is not too hot and not too cold, allowing civilization and ecosystems to thrive. However, there is increasing evidence that as humans are putting more pressure on the Earth, we are moving away from this safe operating space (Rockström, 2010; 2020). The Earth is experiencing unprecedented warming, causing rapid changes to occur in the Earth's surfaces (NASA, n.d.-c).

One area of the Earth that is severely impacted is the ocean. The ocean takes up between 80% to 90% of the extra emitted heat and is an important contributor for storing carbon. The ocean stores up to 93% of the Earth's CO₂ (EEA, n.d.-a). If the ocean can no longer take up as much carbon and cannot absorb the extra heat like it used to, ocean temperatures will rise (NASA, n.d.-c; n.d.-d). This has disastrous consequences for the ocean's ecosystems, which are vital to life on land (Nixon & Stevens, 2014; Clay, 2021; Fothergill et al., 2020). Because of climate change, the ocean is facing several threats, including ocean warming, acidification, overfishing and pollution (Cheung & Jones, 2019; Aronson, 2019; Kaufman, 2019). The ocean is in danger of going from a 'Garden of Eden' to 'Paradise Lost' (Nixon & Stevens, 2014).

However, there is still hope for the oceans. Scientists, policy experts and politicians have produced various solutions, including Marine Protected Areas (MPAs) (Catalano, 2016). These MPAs, aptly referred to by oceanographer Sylvia Earle as 'hope spots' (Nixon & Stevens, 2014), can be part of the effort to protect the oceans. MPAs are distinct areas for which conservation objectives have been set to preserve ocean ecosystems and biodiversity. The aim is to strike a balance between ecological constraints and economic activity so that the seas can continue to thrive (Dudley, 2008). Over the last few years, more MPAs have been established worldwide to increase ocean protection (EEA, 2015a). However, the number of MPAs is still well under the benchmark of 10% set by the IUCN (IUCN, 2018).

One of the areas that has seen a significant increase in MPAs over the past few decades is Europe and the European Union (EU). Europe is one of the only areas close to reaching the 10% benchmark. This might be partially due to the EU's environmental and ocean management policies that aim to facilitate the implementation of MPAs. Despite increasing the number of MPAs, the policies have not been able to ensure their effectiveness (EEA, 2015a). Research by the European Environmental Agency (EEA) (2015a) shows that European MPAs are often not effective enough or even entirely ineffective in addition to not covering all key areas in the EU (some areas, like Macaronesia, lack MPAs).

Additional efforts to establish more effective MPAs and improve existing MPAs in the EU is needed. To contribute to the necessary scientific debate about MPA policies, this thesis aims to examine the achievements and pitfalls of the EU policy for creating MPAs using a policy network approach and insights from various stakeholders. In doing so, this thesis tries to answer the question: "*How can the pitfalls and achievements of the European MPA policy (so far) be explained and how can the policy process be improved upon to further facilitate the establishment of MPAs?*".

To answer this question this thesis will use theoretical insights from policy cycle- and policy network theory. These insights will be used to make sense of empirical data collected through document analysis and stakeholder mapping (using a power-interest matrix), which will be complemented by two in-depth interviews with relevant stakeholders. Together, this information will be used to examine the policy process involved in establishing European MPAs, their implementation and eventual effectiveness. Based on this, this thesis will try to produce information on current achievement and pitfalls, which can then be used to improve European MPA policy and MPA effectiveness.

It is important to conduct research into the establishment and effectiveness of MPAs because they can help address the threats that the ocean, and because of that, all of us are facing (Nixon & Stevens, 2014; Clay, 2021; Fothergill et al., 2020; NASA, n.d.-a; n.d.-b; n.d.-d). MPAs are shown to have the potential to be an effective and successful policy tool that can help keep the ocean safe (EEA, 2015A). For this reason, it is important to understand the best way to establish MPAs, which can be done through analysing the policy process for the MPAs that are already in place. Learning from these experiences allows us to improve the policy and create even more effective MPAs.

In addition to having great societal relevance, this research is also scientifically relevant. The concept of MPAs is only a few decades old and most of them have only been established (relatively) recently (Humphreys & Clark, 2020). As a result, the research on MPAs is limited and often evaluative. This evaluative research does not necessarily examine the relationship between the outcome (effectiveness of the MPA) and the policy cycle and policy specifically. Additionally, the existing research tends to focus on areas other than Europe, such as the United States or Oceania. Furthermore, various areas, including the EU, do not have one comprehensive MPA policy, which can make their establishment more complicated. Moreover, the MPA policy process affects and involves various types of actors, whose points of view have not always been represented in the literature. This thesis aims to overcome these gaps by gathering information from various stakeholders on the policy and policy process involved in establishing European MPAs.

2 Empirical background

2.1 Climate change context

There is increasing evidence that we are rapidly moving away from the safe operating space for humanity on Earth. Scientists, like Johan Rockström (2010), argue that the climate has reached a global tipping point (Folke et al., 2021; Ripple et al., 2021; Otto et al., 2020). Data shows that there have been ten years of record-breaking climate extremes, resulting in various natural hazards, such as fires, floods, and heatwaves (Rockström, 2020; Folke et al., 2021; Ripple et al., 2021). Rockström says that humanity is risking “crossing tipping points that shift the planet from being our resilient best friend, dampening our impacts, to start working against us, amplifying the heat” (Rockström, 2020). The impact that humans are having on the Earth is increasing the risk of destabilizing our planet (Clay, 2021; Fothergill et al., 2020; Rockström, 2010; 2020).

However, it is not too late to save the planet. To do this, the world should experience a profound transformation over the next ten years to move away from crisis points (Rockström, 2010; 2020; Otto et al., 2020). Scientists point out that nine out of fifteen of the big biophysical systems that regulate the climate are changing (Folke et al., 2021; Rockström, 2010; 2020; Ripple et al., 2021). They are showing worrying signs of decline and have potentially overlapping crisis points. These crisis points are related to so-called ‘planetary boundaries’. Planetary boundaries are boundaries, below which the planet is in a state in which it can prosper. However, if these boundaries are transgressed (as they increasingly are), risks start multiplying and the planet inches closer to its tipping point (Folke et al., 2021; Rockström, 2010). Crossing these boundaries brings us closer to a crisis situation, which gives rise to three important threats: sea level rise, carbon storage loss and system collapse (Rockström, 2010).

All these adverse effects are caused by increased global warming due to human impact (Folke et al., 2021; Ripple et al., 2021). Humans are putting unprecedented pressure on the systems of the Earth, causing what Rockström (2010) refers to as a ‘quadruple squeeze’. As a result, we (may) have entered a new geological era, the Anthropocene, in which humans are the predominant drivers of change (Folke et al., 2021).

Over the past three million years, temperatures have never broken through the +2°C limit (Folke et al., 2021). However, we are currently on a path that would take us to a +3°C/+4°C world in just three generations, leading us back to ‘hothouse Earth’ (Rockström, 2020; Folke et al., 2021). Getting to a +3°C/+4°C world would have a drastic impact on the planet and society (Folke et al., 2021; Rockström, 2020).

We have come to a point where we must bend the curve and combat climate change. As Rockström (2020) states “this is not a climate emergency, it is a planetary emergency” and it demands our attention now. What happens in the upcoming ten years will most likely determine the state of the planet we hand over to future generations. Therefore, it is time to get serious about stabilizing our planet (Rockström, 2020). Luckily, it is not yet too late, and science provides us with ample evidence to suggest that we can do transformative change in which we move from a linear, command and control way of thinking to a more flexible and adaptive approach. This would allow us to invest in persistence and focus on innovation and resilience by creating space for new ideas and paradigms (Rockström, 2010; Folke et al., 2021; 2010; Ripple et al., 2021).

One instance in which this mindset has been successfully applied is at the Australian Great Barrier Reef (GBR). Here, fishermen, tourist operators, the Australian GBR authority and scientists have come to the realization that the current governance system of the reef was not working and that a new mindset was required. The window of opportunity that was created by the mass bleaching event as a result of climate change allowed for the creation of a new governance strategy that focuses on building resilience, acknowledging redundancy, and investing in the system as one integrated whole (Rockström, 2010; McCay & Jones, 2011).

To achieve transformative change, it is of the utmost importance that countries start moving simultaneously in the same direction (towards climate preservation), which often proves to be complicated (Rockström, 2020). To take care of the planet, stay within the planetary boundaries and protect the global commons, planetary stewardship is required (Rockström, 2020). Through this we can protect our ocean and land, the natural ecosystems that absorb half of our emissions. As part planetary stewardship we need to take care of the ocean, make use of the technologies that we have access to, and achieve this transformative change, which establishing MPAs can contribute to (Folke et al., 2021; 2010; Ripple et al., 2021).

2.2 Marine Protected Areas

2.2.1 Marine Protected Areas in general

Despite the importance of the ocean, human activities on land and at sea are jeopardizing the state of marine ecosystems. Scientists have witnessed an accelerated rate of biodiversity loss through (ecological) extinctions and extirpations of various marine species, thereby expediting the risk of crossing the biodiversity loss planetary boundary (Folke et al., 2021; Ripple et al., 2021; Rockström, 2020; EEA, 2015a). MPAs can be an important policy measure and management tool to combat marine biodiversity loss and address the increasingly complex threats that marine ecosystem are facing. MPAs and MPA networks can help increase the resilience of ecosystems and help them cope with unwanted change (EEA, 2015a; Ma, 2018; Yates et al., 2019).

There are various definitions of MPAs, but this thesis will use the definition provided by the International Union for Conservation of Nature (IUCN). The IUCN argues that “Marine Protected Areas (MPAs) involve the protective management of natural areas according to pre-defined management objectives” (IUCN, 2020). It goes on to state that MPAs can be established for several reasons, including biodiversity conservation, marine species protection and for economic reasons. The MPAs are created by “delineating zones with permitted and non-permitted uses within that zone” (IUCN, 2020).

MPAs are a valuable management tool because they can create a ‘biodiversity vault’ (area in which the biodiversity is protected/sustained) which could be used to restore ecosystem structures and functions (if necessary) (EEA, 2015a). MPAs play a crucial role in maintaining an adaptive management response. They can be a beneficial tool on their own, but can also underpin and increase the effectiveness of other management measures (EEA, 2015a; Fothergill et al., 2020; Clay, 2021). Ultimately MPAs help maintain and restore ecosystem resilience and allow us to “live well within the limits of our planet” (Fothergill et al., 2020; Clay, 2021; Nixon & Stevens, 2014).

Globally and across Europe, the designation and implementation of MPAs is evolving and increasing. Individual MPAs are more often incorporated into MPA networks (like the California State MPAs, Australia’s commonwealth marine reserves and the Philippines MPA network) (Laffoley et al., 2008; Cannizzo et al., 2020). The approach that used to focus on individual sites with particularly vulnerable or essential features is moving to a more holistic approach that evaluates the design and features of entire MPA networks using an ecosystem approach (Laffoley et al., 2008; WCPA/IUCN, 2007; EEA, 2015a).

The EEA (2015a) states that an ecologically coherent network of MPAs should:

- “Represent all distinct natural communities within conservation landscapes and protected area networks” (p. 9).
- “Maintain ecological and evolutionary processes that create and sustain biodiversity” (p. 9).
- “Maintain viable populations of species” (p. 9).
- “Conserve blocks of natural habitats that are large enough to be resilient to large-scale stochastic and deterministic disturbances, as well as to long-term changes” (p. 9).

Following the designation and implementation of MPAs, it is important to evaluate their effectiveness and to assess whether the networks meet the objectives they were created to achieve (EEA, 2015a). To do so, the modern MPA design principles have been established (EEA, 2015a), which consist of the following:

- Representativity
- Adequacy
- Viability
- Connectivity
- Replication
- Protection level
- Best available science

It is important to note that not all MPAs are the same. For example, some MPAs allow unrestricted access and are open to mass tourism, while others are more strictly protected and do not allow for visitors at all. Similarly, some MPAs might allow for the extraction of resources (e.g., fish, oil, and gas), while others strictly prohibit this. As a result, MPAs can be categorized based on various criteria, including their impact, allowed activities, stage of establishment, and their management objectives (Chuenpagdee, 2013; Álvarez-Fernández, 2017; EEA, 2015a; IUCN, 2020; Laffoley, 2008).

One categorization of MPAs can be made using the categories described by the IUCN. The IUCN distinguishes six different MPA categories based on their management objectives (see Table 1) (Day et al., 2012). These categories are recognized by international bodies and many national governments as a global standard for area protection, making it easier to incorporate them into government legislation (EEA, 2015a).

In addition to the IUCN categories, MPAs can be categorized using the Regulation-Based Classification System (RBCS). The RBCS classifies MPAs, and their zones based on the activities that are allowed in each zone. These activities include commercial fisheries, recreational fisheries, aqua-culture, bottom exploration, and non-extractive uses. Using these activities, the RBCS distinguishes five categories (see Table 2) ranging from 'fully protected' to 'unprotected' (Marine Conservation Institute, n.d.).

Finally, the EEA categorizes MPAs based on two criteria. The first categorizes MPAs based on the impact of allowed activities. Based on these criteria, the EEA distinguishes four categories (see Table 3) ranging from 'fully protected' to 'minimally protected'. The second criteria categorizes MPAs based on their stage of establishment. Using this information, the EEA distinguishes four categories (see Table 4) ranging from 'proposed/committed' to 'actively managed' (Marine Conservation Institute, n.d.).

The concept of MPAs encompasses several types of designations of marine and coastal protection. These designations have been established to address different demands, with varying objectives and in different institutional settings. Because of this the implementation and establishment process of MPAs will vary from one situation to another. So, it is important to distinguish between different types of MPAs because depending on the category they belong in, they will be governed by different policies, have varying goals and aim to fulfil particular criteria (Chuenpagdee, 2013; Álvarez-Fernández, 2017).

Table 1. *International Union for Conservation of Nature (IUCN) categories*

| Category | Name | Description |
|-------------|---------------------------------|--|
| Category 1a | Strict nature reserve | Strict nature reserves are strictly protected areas that try to conserve biodiversity as well as geological/geomorphical features. In this case, human visitation, use, and impacts are limited to ensure protection and maintain conservation values. Areas in category 1 are strictly protected areas, generally with only limited human visitation. These areas are often relatively small and there are no human inhabitants. |
| Category 1b | Wilderness area | Wilderness areas are generally large unmodified or slightly modified areas that try to conserve their natural character and influence. There is often limited or no human habitation to protect the natural condition. While these areas are more open to human visitation, they are not usually subject to mass tourism. Instead, the visitor use is limited to those with the skill and equipment to make it through unaided. |
| Category 2 | National park | National parks are large natural or near natural areas that aim to protect large-scale ecological processes, species and ecosystems. They try to keep the ecosystem characteristics of the area in tact. Visitors are usually allowed and there is often special infrastructure created for this purpose (e.g., trails). While visitors are allowed and their numbers are often greater than those in category 1, these parks can have so-called 'core zones' in which the number of visitors is strictly controlled and that might therefore more closely resemble the areas in category 1. |
| Category 3 | Natural monument or feature | Natural monuments or features are areas that, as the name suggests, aim to protect a specific natural monument or feature (e.g., a landform, sea mount or submarine cavern). These areas are often quite small and have high visitor value. The emphasis is not on protecting the whole area, but instead on conserving a specific part of feature. Except for this, category 3 areas are similar to those in category 2, only at a smaller scale. |
| Category 4 | Habitat/species management area | Habitat and species management areas are areas that aim to protect particular species or habitats. Most these areas need regular, active interventions as part of their management in order to address the requirements of particular species or habitats. Category 4 is distinct from category 2 because it focuses on a specific habitat or species instead of aiming for ecological integrity of the entire ecosystem. Part of the reason for this is that these areas are rarely large enough to protect an entire ecosystem. Areas in this category are often quite small, while those in category 2 are often much larger. |
| Category 5 | Protected landscape/seascape | Protected landscapes and seascapes are areas with a distinct character because of significant ecological, biological and cultural value, and where safeguarding of this interaction is an important part of protecting, sustaining and conserving the area. This category aims to protect the overall landscapes and seascapes and their valuable biodiversity. These areas are often larger than those in category 4. |

Note: Adapted from 'MPA Atlas - Marine Protection Glossary' by Marine Conservation Institute. (n.d.). Marine Protection Atlas. Retrieved 24 May 2022, from <https://mpatlas.org/glossary/#RBCS>

Table 2. *Regulation-based Classification System (RBCS) categories*

| Category | Description |
|----------------------|---|
| Fully protected | Areas classified as fully protected are no-take/no-go areas often with regulated, but sometimes with unregulated access. |
| Highly protected | Areas classified as highly protected are no-take areas with unregulated access and highly or moderately regulated extraction. |
| Moderately protected | Areas classified as moderately protected have moderately or weakly regulated extraction. |
| Poorly protected | Areas classified as poorly protected have weakly or very weakly regulated extraction. |
| Unprotected | Areas classified as unprotected have very weak or unregulated extraction. |

Note: Adapted from 'MPA Atlas - Marine Protection Glossary' by Marine Conservation Institute. (n.d.). Marine Protection Atlas. Retrieved 24 May 2022, from <https://mpatlas.org/glossary/#RBCS>

Table 3. *EEA MPA guidelines: categories based on impact of allowed activities*

| Category | Description |
|---------------------|---|
| Fully protected | If an MPA is classified as fully protected that means there are no extractive or destructive activities allowed and that all impacts are minimized. |
| Highly protected | If an MPA is classified as highly protected that means there are only light extractive activities allowed and that other impacts are minimized to the extent possible. |
| Lightly protected | If an MPA is classified as lightly protected that means that some protection exists, but that moderate to significant extractions and impacts are allowed. |
| Minimally protected | If an MPA is classified as minimally protected that means that extensive extraction and other impacts are allowed but that there is still some conservation provided to benefit the area. |

Note: Adapted from 'MPA Atlas - Marine Protection Glossary' by Marine Conservation Institute. (n.d.). Marine Protection Atlas. Retrieved 24 May 2022, from <https://mpatlas.org/glossary/#RBCS>

Table 4. *EEA MPA guidelines: categories based on stages of establishment*

| Category | Description |
|--------------------|--|
| Proposed/committed | If an MPA is classified as proposed/committed that means that there is not yet an established MPA, but that there is (often clear) publicly announced intent to create an MPA (e.g. through a submission to the Convention on Biological Diversity or an official press release). |
| Designated | If an MPA is classified as designated that means that this MPA is specifically codified or dedicated through legal means or authoritative rule. As a result, the MPA 'exists on paper' and in law. |
| Implemented | If an MPA is classified as implemented that means it is transitioning from existing 'on paper' to being operational in on the water. The commitment to manage is in place and structures are set up to ensure compliance and enforcement. There is a clear strategy for objectives and management aimed at reaching the conservation targets and the MPA has a clearly defined boundary. |
| Actively managed | If an MPA is classified as actively managed that means it is an established MPA with demonstrable and ongoing enforceable rules. It is actively evaluated, monitored, with adaptive management and conservation outcomes. |

Note: Adapted from 'MPA Atlas - Marine Protection Glossary' by Marine Conservation Institute. (n.d.). Marine Protection Atlas. Retrieved 24 May 2022, from <https://mpatlas.org/glossary/#RBCS>

2.2.2 Marine Protected Areas in the European Union

During the 1990s it became apparent that the existing conservation measures in the EU, but also globally, were not effective enough as they were unable to halt the loss of biodiversity as quickly as intended (EEA, 2015a). The global target of MPA coverage of 10% by 2012 was not met, with coverage standing at only 1% in 2010 (EEA, 2015a; Toropova et al., 2010). While MPA coverage has been on the rise in recent years (see Table 5 and Figure 1), global coverage has not been enough to prevent serious damage to the Earth's marine and coastal biodiversity and ecosystems services (CBD, 2010; EEA, 2015a).

Table 5. Regional seas surrounding Europe, and selected characteristics of EU MPA Networks

| Regional seas surrounding Europe | Regional sea surface area (km ²) | EU Member States' share of sea surface area of regional sea (km ²) and (%) | Area covered by MPAs in EU waters within 200 NM (km ²) | % covered by MPAs of EU waters within 200 NM | Total no of sites |
|--|--|--|--|--|-------------------|
| Baltic Sea | 394000 | 370000 (93.9) | 50105 | 13.5 | 3050 |
| North-East Atlantic Ocean (incl. Icelandic, Norwegian and Barents seas) | 7835000 | 4076000 (52.0) | 171174 | 4.2 | 3203 |
| Celtic Seas | 920000 | 916000 (99.6) | 40457 | 4.4 | 1194 |
| Greater North Sea | 670000 | 503000 (75.1) | 90257 | 17.9 | 1534 |
| Bay of Biscay and the Iberian Coast | 804000 | 804000 (100) | 25930 | 3.2 | 334 |
| Macaronesia | 1853000 | 1853000 (100) | 14530 | 0.8 | 163 |
| Mediterranean Sea | 2517000 | 1210000 (48.1) | 114461 | 9.5 | 1410 |
| Western Mediterranean Sea | 846000 | 660000 (78.0) | 103196 | 15.6 | 724 |
| Ionian Sea and Central Mediterranean Sea | 773000 | 240000 (31.0) | 3875 | 1.6 | 274 |
| Adriatic Sea | 140000 | 120000 (87.7) | 2441 | 2.0 | 199 |
| Aegean-Levantine Sea | 758000 | 190000 (25.1) | 4949 | 2.6 | 221 |
| Black Sea | 474000 | 64000 (13.5) | 2883 | 4.5 | 62 |
| Total | 11311000 | 5720000 (51.0) | 338623 | 5.9 | 7725 |

Note: Adapted from 'Marine Protected areas in Europe's seas: An overview and perspectives for the future (No. 3)' by European Environment Agency. (2015a). Publications Office of the European Union. <https://www.eea.europa.eu/publications/marine-protected-areas-in-europes>



Figure 1. Europe's regional seas

Note: Taken from European Environment Agency. (2019b). *Regional seas surrounding Europe*. Retrieved 7 June 2022, from <https://www.eea.europa.eu/data-and-maps/figures/regional-seas-surrounding-europe-1>

Before it became apparent in the 1990s that the existing conservation measures were lacking, the EU had adopted the Birds Directive and the Habitats Directive. An important element of both Directives is the use of 'special conservation areas (SCAs)' to achieve their goals. These SCAs are supposed to create a 'coherent European ecological network' that covers both land and sea (EEA, 2015a; EEA, 2018).

Despite the implementation of the Directives, the EU would soon realize that the loss of biodiversity had not stopped and created a significant threat to the EU's long-term development plans. Specific animal and plant species as well as their habitats are protected by the Directives, but the Natura 2000 Framework shows that that significant aspects of the marine

ecosystems are not included in these protection schemes (EEA, 2015a).

The Regional Sea Conventions (RSCs) also contributed to the efforts for establishing coherent networks of MPAs. Although they are not legally binding, they can still prove effective. Within Europe and beyond there are various RSCs, including: the Barcelona Convention (Mediterranean Sea), HELCOM (Baltic Sea), and OSPAR (North-East Atlantic Ocean). Collectively, the Directives, Framework and RSCs have produced a complex framework of possible components needed to achieve the common goal of protecting and restoring marine biodiversity in Europe's seas, now and in the future (EEA, 2015a).

Creating effective MPAs can help the EU stop biodiversity loss in its seas. From 1992 onwards, the EU has put significant effort into the creation of MPA networks, with considerable success. Since then, EU countries have increased their efforts both nationally and internationally, leading to a rise in the number of MPAs and an agreement to start creating MPAs on the High Seas (EEA, 2015a).

As a result, the Natura 2000 framework now encompasses more than 228000 km² or >4% of Europe's seas. The Natura 2000 sites can be found in various European seas, including the Baltic Sea, the Black Sea, the North-East Atlantic Ocean, the Mediterranean Sea. The RSCs are often the main drivers behind national designations and tend to go beyond the obligations established in the Natura 2000 framework. National MPA networks add another 1.9% to the total area of the EU MPA network, making the total area almost 340000 km², which equates to 5.9% of Europe's seas up to 2012. Until now, 3 out of 10 European regional seas have reached the target of more than 10% being considered a protected area. It should be noted however, this only refers to the total spatial extent of the MPA networks and that there is still significant variation in MPA coverage between member states (EEA, 2015a).

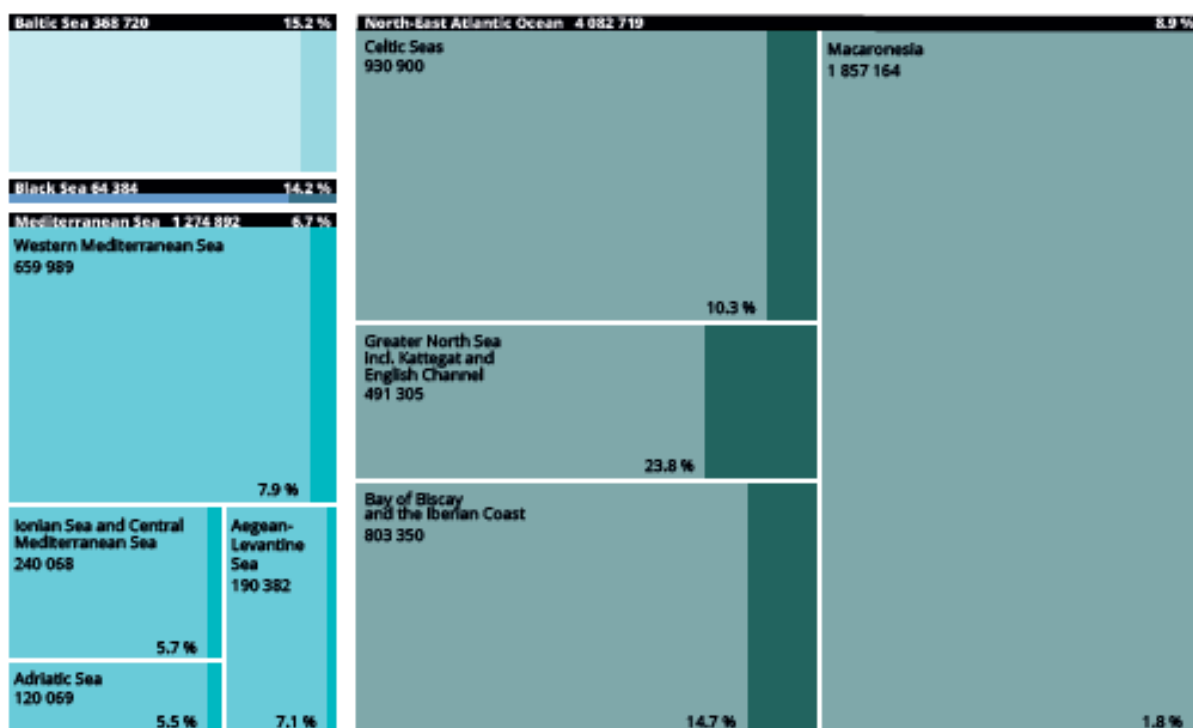


Figure 2. EU part of the regional sea surface area (km²) and area covered by MPAs in 2016 (%)

Note: Taken from 'Marine Protected Areas: Designed to conserve Europe's marine life, marine protected areas are a globally recognised tool for managing and enhancing our marine ecosystems' by European Environment Agency. (2018). <https://www.eea.europa.eu/publications/marine-protected-areas>



Figure 4. Distribution of protected area coverage per zone

Note: Taken from ‘Marine Protected Areas: Designed to conserve Europe’s marine life, marine protected areas are a globally recognised tool for managing and enhancing our marine ecosystems’ by European Environment Agency. (2018). <https://www.eea.europa.eu/publications/marine-protected-areas>

Additionally, it is important to acknowledge that despite greater area coverage, European MPAs often lack in effectiveness. Scientists point out that this might be due to their design (e.g., some are not fully protected or allow to many ‘invasive activities’), but could also be caused by other factors, such as varying success in implementation. Additionally, it should be noted that EU MPAs are not yet ecologically representative and that their distribution is skewed towards coastal waters, in turn affecting their effectiveness (see Figure 2) (EEA, 2018). Because of their lack in

effectiveness, EU MPAs are often unable to reach their intended goals (see Figure 3) (EEA, 2015a; Chuenpagdee, 2013). This raises the question: “What are the pitfalls of the policy and how can they be improved? How can the coherence, representativeness, and overall effectiveness of the EUs (network of) MPAs be enhanced to better accomplish policy visions and meet targets?”.

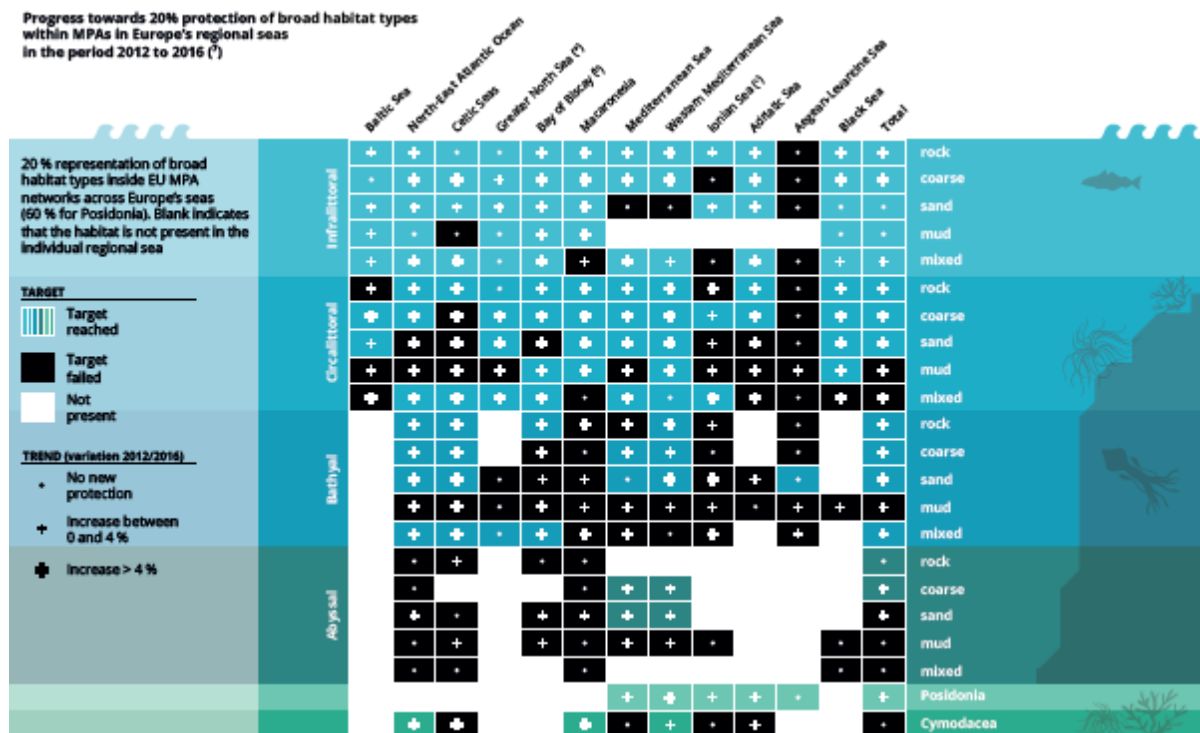


Figure 3. Progress towards protection of habitat species within EU MPAs between 2012-2016

Note: Taken from ‘Marine Protected Areas: Designed to conserve Europe’s marine life, marine protected areas are a globally recognised tool for managing and enhancing our marine ecosystems’ by European Environment Agency. (2018). <https://www.eea.europa.eu/publications/marine-protected-areas>

2.2.3 Marine Protected Area policy in the EU

The MPA establishment process in the EU requires the use of various policies. The policies include the Convention on Biological Diversity (CBD); the Birds- and Habitats Directives; the Marine Strategy Framework Directive (MSFD); the Common Fisheries Policy (CFP); and the Regional Sea Conventions (RSCs). These policies are interconnected and form the EU’s policy for establishing MPAs (EEA, 2015a). They are each explained briefly below.

Convention on Biological Diversity (CBD)

The Convention on Biological Diversity (CBD) is a legal instrument designed by the United Nations (UN) to facilitate conservation and sustainable use of biodiversity. The CBD was opened for signature in 1992, where it was signed by 168 countries and international parties, including the EU (CBD, 2020). The CBD also has specific marine measures, which includes having states manage the MPAs and MPA networks, a goal to establish more MPA network and a global target to reach 10% MPA coverage by 2012. However, as previously stated in ‘MPAs in general’ (section 2.2.1), this global target was not reached by 2012 as the coverage at that moment was only 1.08%. At the meeting in 2020, the contracting parties recommitted themselves to the 10% target in addition to ensuring effective management, representation, and connection of MPA network systems (now known as ‘Aichi target 11’) (EEA, 2015a).

Birds and Habitats Directives

The Birds Directive was established in 1979, followed by the establishment of the Habitats Directive in 1992. Where the Birds Directive set out to protect all wild birds and their habitats across the EU, the Habitats Directive increased this goal to include about 1000 rare, threatened, or endemic plant and wild animal species in addition to protecting 230 rare habitats (Spaans, 2020).

Both directives aim to achieve ‘favorable conservation status’ of the habitats and species that they protect (European Commission (EC), 2014). A fundamental objective of the directives is to create a coherent ecological framework through special conservation areas both on land and sea to protect biodiversity. Collectively, the ‘special areas of conservation’ designated under the Habitats Directive and the ‘special protection areas’ designated under the Birds Directive, make up the Natura 2000 framework (EEA, 2015a).

Despite the efforts made by the Directives, the loss of biodiversity continued and the EU had to respond with additional measures. As part of these measures, the EU implemented the European Biodiversity Strategy (EBS) in 2011. Like the CBD, the EBS aims at good management by 2012 in addition to the complete implementation of the Directives and the completion of the Natura 2000 framework in the marine environment (EC, 2006). In 2020 the latest update of the EBS was launched, which included more ambitious targets set at protecting 30% or more of the marine area through MPAs, with 10% (one-third) offering strict protection before 2030. The implementation of these additional MPAs is the responsibility of the member states (EC, 2020a).

Throughout the EU plans and strategies as well as in the Directives, the Natura 2000 network plays an important role. The network helps in the establishment of MPAs. However, the limit of the network is that it only protects certain vulnerable marine species and habitats. As a result, research shows that the approach to protecting marine fish, invertebrates and habitats is not coherent and that better protection is needed (EEA, 2015a).

Marine Strategy Framework Directive (MSFD)

For the European marine waters to achieve ‘good environmental status’ by 2020, the Marine Strategy Framework (MSFD) was adopted in 2008 (EC, 2008). The MSFD described ‘good environmental status’ and provides methodological standards and criteria that can help member states achieve this and implement MPAs (see Table 6) (EC, 2008; Spaans, 2020). The MSFD has a cyclical nature that utilizes an ecosystem approach and integrates the concepts of environmental protection and sustainable use (EC, 2020b; EC, 2008; Spaans, 2020).

Together with the Directives, the MSFD plays a vital role in the establishment of MPA networks that are ecologically coherent and protect the EU marine environment. Like other policies, the MSFD requires that member states coordinate their Marine Strategies using the RSCs (EC, 2008).

Finally, it is important to note that the MSFD expects member states to keep sustainable development and social- and economic impacts in mind when developing and implementing their measures. As a result, continuous evaluations and impact assessments must be carried out (EC, 2008).

Common Fisheries Policy (CFP)

The European fishing fleet and the conservation of fish stocks is managed through a legal framework that is known as the Common Fisheries Policy (CFP). The aim of the CFP is to ensure that fisheries and aquacultures keep long-term ecological, economic, and social sustainability in mind. This can be achieved through successful fisheries management, which includes rules on water access, controls on fishing efforts, and technical measures (e.g., gear use and management of fishery activities) (Spaans, 2020).

The Fisheries Policy fall under the competence of the EU, meaning that EU exclusively decides on any fisheries related measures. As a result, legal measures such as fishery restriction in MPAs should be regulated through the CFP (EC, 2013).

Regional Sea Conventions (RSCs)

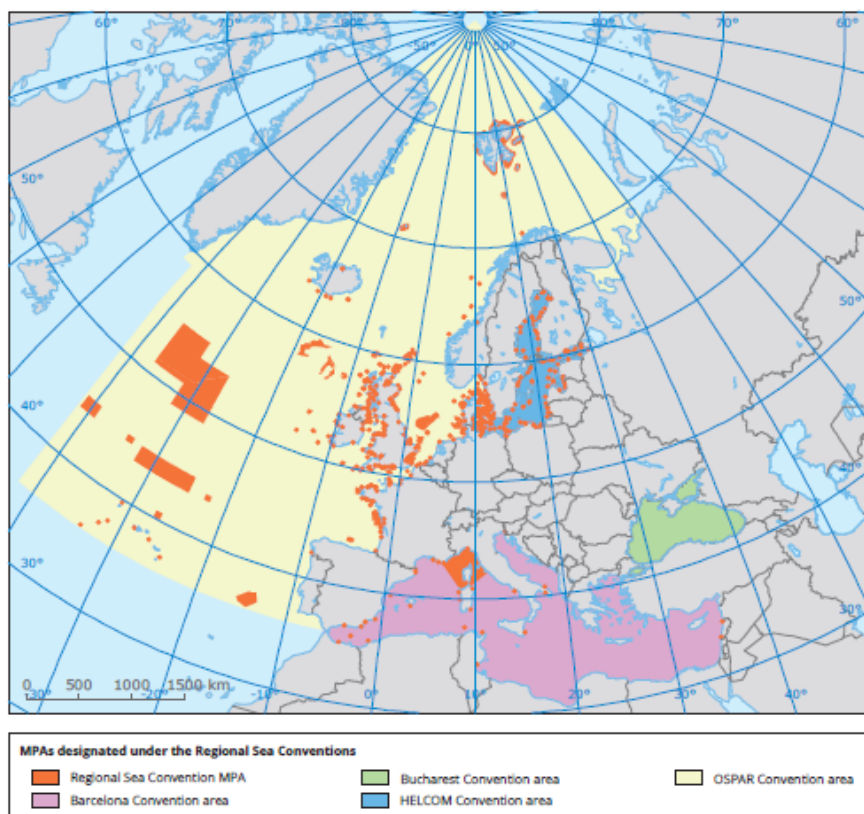


Figure 5. *MPAs designated under the Regional Sea Conventions*

Note: Taken from '*MPAs designated under the Regional Sea Conventions*' by European Environment Agency. (2015b). Retrieved 27 May 2022, from <https://www.eea.europa.eu/data-and-maps/figures/mpas-designated-under-the-regional>

Different from other policies, Regional Sea Conventions (RSCs) are cooperation structures that allow states to make agreements that can help them protect the marine environment. In the case of the EU, contracting parties often include the EU, member states, as well as so-called 'third countries' that surround the marine regions (EC, 2019). The previously described MSFD prompts member states to coordinate marine strategies with third countries and among themselves using RSCs (EC, 2008).

The RSCs can improve cooperation and coherence between states and as a result can help support the

implementation of the MSFD. The RSCs are tasked with the protection of the marine environments that fall under their jurisdiction in a sustainable manner. To do this, the RSCs work on various measures that address issues such as marine litter and under water noise (EC, 2019). Finally, the RSCs contribute significantly to the protection of the marine environment through establishment and assessment of MPAs (Spaans, 2020).

Within Europe, there are several RSCs, three of which are especially relevant for this research.

The OSPAR Convention

The biggest part of the European marine waters, the North-East Atlantic Sea, is represented by and protected in the OSPAR RSC. The contracting parties to this convention include: Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the EU in general (OSPAR, n.d.). The North-East Atlantic Environment Strategy includes a strategy plan that outlines how to achieve OSPAR's goals. The strategy can be divided into five sub-strategies. One of which aims to tackle biodiversity loss and ecosystem threats. This strategy aims to strengthen the MPA network by contributing to the maintenance of ecosystem integrity and increasing resilience against human impacts including climate change (OSPAR, 2020).

The Barcelona Convention

The Mediterranean Sea is covered by the Barcelona Conventions, which sets out to represent and protect the Mediterranean marine waters (EC, 2019). Its contracting parties include: Albania, Algeria, Bosnia-Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Italy, Israel, Lebanon, Libya, Malta, Monaco, Morocco, Montenegro, Slovenia, Spain, Syria, Tunisia, Turkey, and the EU in general (RAC/SPA, n.d.). The Convention includes seven protocols that form its legal framework. Among these protocols is the so-called 'SPA/BD protocol', which aims to protect the Mediterranean Sea's biodiversity through the creation of Specially Protected Areas (SPAs), establishing a list of the SPAs importance, as well as the protection and conservation of species (UNEP, 1995).

The HELCOM Convention

The Baltic Sea is covered by the HELCOM Convention. Its contracting parties include: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden, and the EU (HELCOM, n.d.). The plans that are part of HELCOM are described in the Baltic Sea Action Plan. Part of this plan describes the contracting parties' goal to designate additional MPAs and to work together to implement fisheries measures for inside the MPAs as well as to fulfill conservation targets (HELCOM, 2021).

3 Theoretical framework

3.1 Policy cycle theory

Policy cycle theory contends that before policy is created, it goes through the various stages of the policy cycle. The consensus within the literature seems to be that the policy cycle consists of six stages (Howlett et al., 2009):

1. Agenda setting
2. Policy formulation
3. Policy decision-making/adoption
4. Policy implementation
5. Policy evaluation
6. Policy support and maintenance

This thesis will focus on the first four stages of the policy cycle as these are likely to be the most relevant from the point of view of the role of stakeholders and their networks.

Agenda-setting

The first stage of the policy cycle is the agenda-setting phase. This phase is often described as the most critical stage of the policy process as it deals with the ways in which problems emerge and contend for government's attention. If and how problems are recognized, is an important determinant of how the problems will be addressed by policymakers (Howlett et al., 2009).

However, recognizing a subject as a problem does not necessarily mean that the problem be addressed. Often threats and challenges motivate issue definition in agenda-setting, but there are also times when the attraction of an opportunity is what determines the policy agenda (Howlett et al., 2009).

In the case of MPA policy, climate change is a significant problem that draws the attention of policymakers, politicians, and society alike. MPAs could be part of a solution as they are an ecosystem-based policy instrument that can be used to protect and restore marine biodiversity. Because of the urgency of the climate change and biodiversity problem and the international attention that it has received, the establishment of MPAs has claimed a spot on the policy agenda (Morf et al., 2022).

Policy formulation

The second stage of the policy cycle, policy formulation, aims to generate options on how to tackle a public problem that was recognized in the agenda-setting phase. This phase consists of identifying and assessing the various solutions available to solve policy problems. In other words, it concerns "exploring the various options or alternative courses of action available for addressing a problem" (Howlett et al., 2009, p. 110). To do this, Howlett and colleagues (2009) point out that policymakers can use various theories and instruments, such as the NATO-model.

During the policy formulation phase, it is important to take the ideas and perspectives of different stakeholders into account. As Howlett and colleagues (2009) explain, the idea behind this is that "understanding the ideas and experiences that these actors bring to policy formulation, and the contexts within which they operate, can help explain why some options gain considerable attention while others are ignored" (p. 114). Therefore, investing the time and energy to understand the stakeholder's ideas and perspectives can help make the policy process more efficient and contribute to its overall success.

When it comes to MPAs it could prove helpful to involve stakeholders during the policy formulation phase, since a significant number tend to be interested in and affected by the establishment of MPAs. Whether and how stakeholders are involved in the process depends on the MPA. Some will actively engage stakeholders, while others prefer to limit their involvement.

Policy decision-making and adoption

The third stage of the policy cycle is the policy decision-making and adoption phase. During this phase, one, multiple or none of the options that have been discussed during the previous two stages get approved and followed as an official course of action. Based on this, a policy decision is usually documented in some sort of (in)formal statement of intent made by the authorized public actors. In this statement, the actor states that it will or will not take a specific type of action (e.g., implement a law or regulation) (Howlett et al., 2009).

Once the policy process reaches the decision-making and adaptation stage, the number of relevant actors decreases significantly. The reason for this is that once a particular option is decided upon, only the actors with the authority to make binding public decisions are likely to remain (Howlett et al., 2009).

In the case of MPAs, the relevant actors usually refers to a government actor (either national, regional, or local government), but can also involve other stakeholders depending on the case. Who belong to the group of ‘relevant actors’ usually depends on how the MPA will be implemented and its management plan.

Policy implementation

The fourth stage, policy implementation, concerns putting in place the decisions that were made during the previous stage. The various options that were proposed in order to address the problem have been evaluated and the best option or options have been chosen. Relevant actors have set goals and decided on a course of action that would allow them to attain these goals. All that is left is to implement the policy (Howlett et al., 2009).

Policy implementation tends to require civil servants and administrative officials who will establish and manage the necessary actions. However, non-governmental actors can also be involved in the implementation process as long as they are part of the policy subsystem (Howlett et al., 2009).

When it comes to MPA policy, implementation is usually the task of the member states. They can then either choose to take on this task themselves, or outsource it and have another actor (e.g., a local government) do it. Which actor is responsible for the implementation of the MPA policy and eventual management of the MPA is important because it ultimately determines the effectiveness of the MPA. While many decisions taken beforehand influence the ability and way of implementation, MPA management is another key component, where responsible actors can have quite some discretion.

3.2 Policy network theory

Many scholars believe that today’s world is one of networks, in which policymaking and governance are only achievable within networks, as they provide a framework for efficient coordination between various public and private actors that are dependent on each other for resources (Börzel, 1998).

The agreement that exists today about the existence and nature of networks has come about only relatively recently. Yet, over these few years, various forms of policy network theory have been created. From the ‘Anglo-governance school’ to the ‘governance club’, various ways of approaching policy networks, all highlighting different aspects, have been developed. However, despite their differences in goals (e.g., description, explanation, management), all varieties of policy network theory share the same generic policy network concept (Enroth, 2010). This concept of policy networks can be characterized using three key terms:

- Interdependence
- Coordination
- Pluralism

Interdependence

Interdependence is often referred to as ‘mutual resource dependence’. Mutual resource dependency means that the actors involved in the network are dependent on each other for resources to realize their objectives. Enroth (2010) explains that this way of looking at interdependence is influenced by ideas of social complexity and functional differentiation that are part of most policy networks theories. He states that “strategic action based on interdependence has become the standard account of what keeps networks together” (Enroth, 2010, p. 27). This idea is underlined by Rhodes (1997), who argues that the links between network actors serve as communication and for the exchange of policy resources such as information, expertise and trust. In line with this, Klijn (1997) has gone as far as to contend that interdependencies are the reason why actors interact and that they sustain the relations between actors in policy networks.

This concept of interdependence is closely related to that of interaction. In fact, some argue that there is a two-way street between the two, contending that “if interdependence may be construed as a condition of interaction in networks, then network interaction seems to be a condition of interdependence as well” (Enroth, 2010, p. 28).

Why interdependence arises and whether it is about communicative action rather than strategic action depends on the theory (Enroth, 2010). However, what does become clear is that interdependence gives rise to another key component of policy network theory: coordination.

Coordination

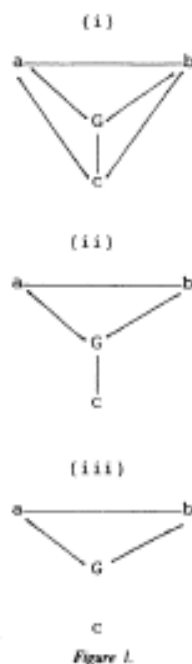


Figure 6. Examples of networks

Note: Taken from ‘Model or Metaphor? A Critical Review of the Policy Network Approach’ by Dowding, K. (1995). *Political Studies*, 43(1), 136–158. <https://doi.org/10.1111/j.1467-9248.1995.tb01705.x>

“Coordination occurs whenever two or more policy actors pursue a common outcome and work together to produce it”, states Enroth (Bevir, 2009, cited in Enroth, 2010, p. 28). Coordination is not a given in policy networks, but rather, both a driving force of governance and one of its goals, making this a matter of network interaction. To put it simply, if more actors in the network can coordinate interactions on their own, then there is less concerns about coordination as a requirement for interaction, and therefore less need for ‘network management’ or ‘meta-governance’ and the resulting involvement or lack thereof of the state (Enroth, 2010).

Assuming that network interaction is about strategic action under conditions of interdependence, creates uncertainty about the effects and extent of coordination. As a result, whether and to what extent actors in a network coordinate their action would become a purely empirical question. However, even if this is the case, some degree of cooperation would be implied given the nature of interdependence, without which it is hard to make sense of the policy network concept (Enroth, 2010).

The amount of coordination together with the interdependencies between actors shapes the networks. Networks come in different shapes and sizes, as is shown by Figure 6. The relationships between actors (the lines between the dots/letters) are what determines the make up of the network. Networks can be distinguished from one another by examining the relations between actors (Dowding, 1995). Based on the amount of coordination and interdependence between the actors, the density of the network will be determined. Networks in which there is significant coordination and interdependence between the actors are likely to be denser as there are more relations between the actors (e.g., actors interact with virtually all other actors). Networks in which there is relatively little coordination and interdependence, on the other hand, are likely to be less

dense as there are less relations between actors (e.g., actors only interact with a few others) (Dowding, 1995).

The density of a network matters because according to Weible and Sabatier (2005) actors with similar beliefs, interest and preferences tend to form relations. The argument is made that actors prefer and predominantly coordinate and seek advice or information from other actors with similar policy core beliefs in their advocacy coalition (Weible & Sabatier, 2005).

How exactly coordination takes place is another topic of debate among scholars. Some scholars argue that actors in the network will coordinate themselves, while others point out that self-steering will not be enough as policy networks deal with autonomous actors each with their own preferences and chosen strategies. They argue that to cope with collective action problems, more deliberate management strategies are necessary. The question of what those strategies might be, and whether they are viable, relates to the final key term: pluralism and the nature and role of the state in policy network theory (Enroth, 2010).

Pluralism

Within policy networks state actors are often seen as a special kind of actor due to their power and privilege. They often get to set the ‘rules of the game’ for network interaction by determining the legal- and organizational framework. As a result, policy networks tend to take place in ‘the shadow of hierarchy’ created by state actors (Enroth, 2010).

However, some scholars argue that network management is not as much the domain of state actors. They contend that the position of these actors at the top of the hierarchy makes it difficult for them to adhere to the ‘horizontal rules’ that apply in network governance. As a result, state actors need to obtain influence using the resources that they can provide instead of their hierarchical authority (Enroth, 2010). Based on this, Rhodes (1997, p. 57) contends that the state “becomes a collection of interorganizational networks made up of governmental and societal actors with no sovereign actor able to steer or regulate” in the case of contemporary governance.

Such a world filled with polycentric networks of governance can create a so-called ‘institutional void’. As a result, four problems for managing the network state arise: the mix of governing structures, the diffusion of accountability, enhancing coordination, and devising new tools. These problems need to be overcome, but that can prove to be quite the challenge when there is no clear leading (sovereign) actor (Rhodes, 1997).

Some scholars argue that it is only a short leap from here to see that the state has always been a network of networks. Such statements are indicative of a shift that took place over the last decade from a focus on the state’s ability to govern policy networks to a focus on its identify as a governing subject. As a result, many scholars today question whether ‘the state’ has a unitary ‘will’ and is a unitary subject (Enroth, 2010).

Despite all of this, the consensus seems to be that it is too early to speak of a ‘decline of the state’. Enroth (2010) concludes that while the role of ‘the state’ might have gone through a transformation (now part of a networks), it is still very much in place in the world.

Overall, there is a clear link between network policy theory and the functioning and design of MPAs. MPAs are often managed by various actors and multiple stakeholders engage in their establishment. Different, connected actors interact during the stages of the policy process and have collective responsibility for the outcomes.

The policy network literature has identified various rationales for stakeholders to form a network of interaction. In the case of MPAs it makes sense for stakeholders to form networks to work together since the establishment and management of MPAs is a complex process and requires a significant

amount of resources. The actors involved are not the same and possess different amounts of power, interest and other policy resources, with no actor having enough of each to be able to achieve success on their own. Because networks play such an important part in the MPA policy cycle, it is important to better understand how networks work, are governed and how this could affect the policy process and in turn the implementation and effectiveness of European MPAs.

4 Methodology

4.1 Research design

To collect empirical evidence, this thesis uses various research methods, including interviews, stakeholder analysis and mapping (using a power-interest matrix), and document analysis. This section will explain the different methods used.

4.1.1 Case selection

Area selection

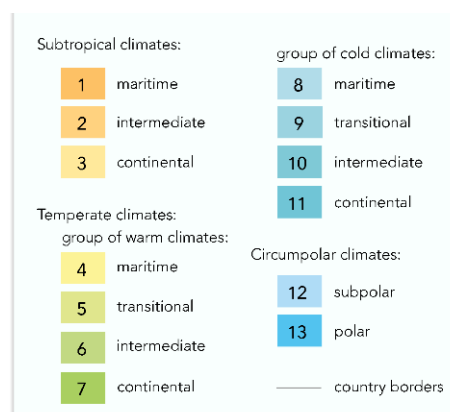
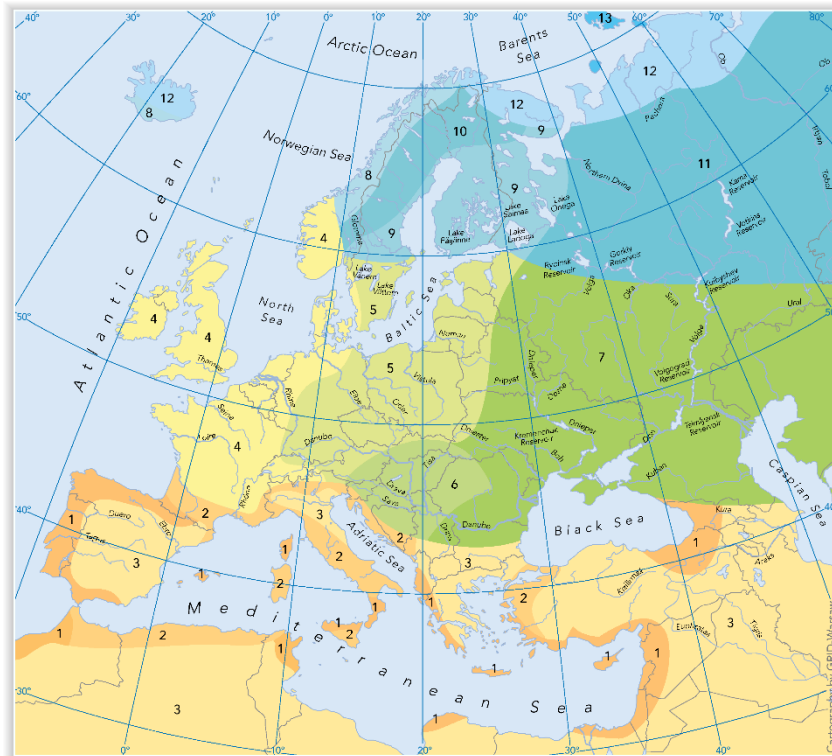


Figure 7. Main climates of Europe

Note: Taken from 'Main climates of Europe' by European Environment Agency. (2012). Retrieved 7 June 2022, from <https://www.eea.europa.eu/data-and-maps/figures/climate>

Due to the limited time scope of this research, it was impossible to research all European sea regions and include all MPAs. For this reason, three European sea regions were chosen, which will be used to guide the document analysis. They were selected by means of a purposive sample, meaning that the areas were chosen based on specific normative standards. The areas were chosen based on information provided by the European Environment Agency (2015a) and selected based on three criteria: location, biodiversity and MPA presence/coverage.

Location – The sea regions were selected based on their respective location. The three sea regions represent different parts of Europe (North, South, East, and West). The Baltic Sea represents North-Eastern Europe, while the North Sea represents North-Western Europe, and finally the Mediterranean Sea represents Southern Europe (see Figure 1 on page 10).

Biodiversity – Due to their different locations, the sea regions are in different climates (Figure 7). Due to the various climates, the sea regions represent a wide variety of flora and fauna, increasing the overall biodiversity studied in this thesis.

MPA presence/coverage – The selected sea regions all have moderate to high MPA coverage (around 18-25% coverage) compared to other European waters (EEA, 2015a). Additionally, various kinds of MPAs are represented in the three sea regions including MPAs with different designations, levels of protection, and ages.

MPA selection

To further limit the scope of this thesis, specific MPAs were selected as ‘case-studies’ within the chosen sea regions. These MPAs will be used for the stakeholder mapping and interview selection as they allow for more a focused analysis. Similar to the sea regions, the MPAs were selected through purposive sampling. Areas were chosen based on information provided by their respective RSC Commission (such as information provided by OSPAR) (OSPAR, n.d.-b; HELCOM, n.d.-b) as well as information provided by Protected Planet (n.d.-b), an authoritative source of data on protected areas, that allows users to access various databases such as the World Database on Protected Areas (WDPA) (Protected Planet, n.d.-a). The MPAs that were selected, were chosen based on four criteria: designation and status, type, location, and size.

Designation and status – In order for the MPAs to be selected, they had to be designated as a ‘marine protected area’ or ‘special protected area’ under a relevant EU MPA policy, such as the Regional Sea Conventions or the Birds and Habitats Directives, to ensure their relevance for this study. Additionally, all MPAs had the status of ‘designated’ and ‘implemented/managed’. This means that the MPAs are clearly designated and that they are transitioning or have transitioned from existing on paper to existing in reality. There are commitments in place to manage the MPAs, ensure compliance and enforcement. The MPAs have a clear strategy for achieving objectives and their management is aimed at reaching conservation targets, making them appropriate research material for this study.

Type – There are several types of protected areas: ‘marine’, ‘terrestrial’ and ‘terrestrial/marine’. Marine in this case refers to the water-part of the MPA, while terrestrial refers to the land-part. The MPAs selected for this study are all ‘marine’ or ‘terrestrial/marine’ areas.

Location – The selected MPAs had to be in one of the following three countries (or their territorial waters): the Netherlands, Italy and Sweden. The reason for this is that this increases the chance of being able to gather and use available information in addition to increasing the likelihood of finding relevant stakeholders because of personal connections and ability to speak/understand the language.

Size - The last criteria that was used was size, as larger MPAs are more likely to be effective and successful (EEA, 2015a). The size criteria stipulated that MPAs had to be at least 1000 km². Compared to MPAs worldwide, these MPAs are still relatively small, however, they are considered ‘large/larger’ by European standards. It should be noted that this criterion does not apply to the Italian MPA, which is significantly smaller than the Swedish and Dutch MPAs. However, the Italian MPA compensates for its lack in size with its age, being one of the oldest European and first Italian MPAs.

Based on these criteria, the following three MPAs were selected: the Noordzeekustzone (the Netherlands) (Figure 8), Area Marina Proteta (AMP) Isola di Ustica (Italy) (Figure 9), and Hoburgs Bank (Sweden) (Figure 10). Table 6 briefly summarizes the key information for these MPAs.

Figure 8. *Noordzeekustzone*



Figure 9. *AMP Isola di Ustica*

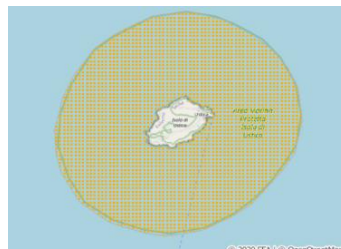


Figure 10. *Hoburgs Bank*



Note: Noordzeekustzone taken from ‘*EUNIS -Site factsheet for Noordzeekustzone*’ by European Environment Agency. (n.d.-d). Retrieved 7 June 2022, from <https://eunis.eea.europa.eu/sites/NL9802001>

AMP Isola di Ustica taken from ‘*EUNIS -Site factsheet for Fondali dell’isola di Ustica*’ by European Environment Agency. (n.d.-b). Retrieved 7 June 2022, from <https://eunis.eea.europa.eu/sites/ITA020046>

Hoburgs Bank taken from ‘*EUNIS -Site factsheet for Hoburgs bank och Midsjöbankarna*’ by European Environment Agency. (n.d.-c). Retrieved 7 June 2022, from <https://eunis.eea.europa.eu/sites/SE0330308>

Table 6. *Selected Marine Protected Areas*

| | Noordzeekustzone | AMP Isola di Ustica | Hoburgs Bank |
|---|---|---|---|
| Country | Netherlands | Italy | Sweden |
| Sea | North-East Atlantic Sea | Mediterranean Sea | Baltic Sea |
| Sea sub-region | Greater North Sea | Mediterranean Sea/Tyrrhenian Sea | Eastern Gotland Basin/Western Gotland Basin |
| Designation | Marine protected Area (OSPAR) | Natural marine reserve/Natural protected marine area | Marine Protected Area (HELCOM) |
| Designation type | International | National | International |
| Calculated total area (km ²) | 1413.20 | 159.51 | 1226.27 |
| Calculated marine area (km ²) | 1402.49 | 159.51 | 1226.27 |
| Status | Designated/implemented | Designated/implemented | Designated/implemented |
| Status year | 2009 | 1986 | 2008 |
| Management type | National government - national ministry or agency | National government - federal or national ministry or agency | Regional government – country government |
| Management authority name | Rijkswaterstaat | Ministero dell' Ambiente e della Tutela del Territorio e del Mare | County Administrative Board of Gotland |

Note: Noordzeekustzone adapted from '*Fiches d'identité des AMP*' by OSPAR. (n.d.-b). Retrieved 27 May 2022, from <https://mpa.ospar.org/home-ospar/mpa-datasheets?recherche=1>
AMP Isola di Ustica adapted from '*Explore the World's Protected Areas*' by Protected Planet. (n.d.-b). Retrieved 27 May 2022, from https://www.protectedplanet.net/en/search-areas?filters%5Bis_type%5D%5B%5D=marine
Hoburgs Bank adapted from '*HELCOM MPA database*' HELCOM. (n.d.-b). Retrieved 27 May 2022, from <http://mpas.helcom.fi/apex/f?p=103:5>

4.2 Document analysis

Document analysis will be used as a research method for this study. In the document analysis printed and electronic documents will be systematically reviewed and evaluated (Bowen, 2009; Corbin & Strauss, 2008).

In addition to providing information of its own accord, the document analysis is meant as a means of triangulation (Denzin, 2009; Bowen, 2009). The idea behind this is that it allows for the analysis to draw upon multiple sources of evidence that can either converge and corroborate or contradict and disprove on another. Either way, the aim of triangulation is that it increases the reliability of the evidence presented and helps guard against single method and investigator bias (Patton, 1990; Bowen, 2009). The data from the document analysis is used to check the interview data and vice versa.

Through the document analysis multiple kinds of textual, case-specific (concerning relevant sea-regions and countries) materials will be scrutinized. These materials include reports, websites and government documents. Additionally, the document analysis will include some documents of a more general nature (e.g., documents concerning European MPAs or MPAs in general). To find the documents, search engines like Google and Google Scholar were used. To find relevant documents the following key words were utilized: “stakeholder involvement”, “policy cycle”, “marine protected areas”. In addition to looking for documents using English search terms, further searches were conducted using key words in the original languages of the cases (Dutch, Italian, and Swedish). This resulted in documents in these languages, which were translated if necessary. Further, documents were snowballed by looking at the sources (bibliographies).

Using this method, an initial list of documents was created. After a more accurate selection process, a more focused and operationalizable sample of relevant documents was created. These selected documents were classified into five categories based on their specific focus: documents pertaining to MPAs in general, to the EU, to the Mediterranean and Italy, to the North Sea and the Netherlands or to the Baltic Sea and Sweden. The documents represent a variety of document types, ranging from

government documents and websites to scientific papers. Table 7 presents an overview of the selected documents.

The selected documents were carefully examined, looking at every line, phrase, and paragraph to code the data. The initial coding of the content of the documents was based on predetermined themes and categories. These themes and categories were established based on the theoretical framework and literature review described in chapter 2 and 3. They concerned the policy cycle, policy network, stakeholder involvement and MPA policy and functioning. Examples of the predetermined categories and themes are: ‘MPA benefits’, ‘coordination’, and ‘coalitions’ (see Table 8).

Table 8. *Open deductive codes*

| Category | Sub-category |
|-------------------------|--|
| Marine policy | National policy EU policy |
| Marine protected areas | MPA costs MPA benefits |
| Climate change | |
| Network approach | Interdependence Coordination Pluralism* |
| Policy cycle/process | Agenda-setting Policy formulation Policy design/adaption* Policy implementation |
| Stakeholder involvement | |

*Note: *codes ended up not being included in the final document analysis*

Despite using predetermined themes and categories, additional themes and categories arose when analysing the documents. Examples of the additional themes and categories are: ‘window of opportunity’, ‘social equity’, ‘street-level bureaucrats’, and ‘holistic approach’. These additional codes can be seen as the preliminary results of the document analysis and are presented in Table 9. When these new categories or themes were suggested by the data, all previously examined documents were re-examined to determine the presence of these categories and themes. The data from the documents was scrutinized and compared to organize ideas and pinpoint concepts that overlapped or clustered together. Overlapping or clustered codes were either merged into substantive categories or included as subcategories if determined to be too distinct (Bowen, 2009).

After several rounds of analysis, consisting of filling in underdeveloped categories and narrowing down excess ones, sufficient data was collected to describe each category or theme, achieving conceptual saturation (Corbin & Strauss, 2008). The final results the document analysis (themes, categories and sample) are represented in Table 10 (Appendix B). In the table, themes and concepts found through more exploratory means are cursive, as opposed to the open deductive codes.

Conducting a document analysis as part of the research method has several advantages. As previously mentioned, it allows for triangulation and can therefore increase the value of other data in addition to creating valuable data itself. Furthermore, document analysis is an efficient method, both in terms of cost and time. It also lacks the obtrusiveness and reactivity that are often included in other research methods. It is a more ‘passive’ way of collecting data, which contributes to the methods stability and exactness. Lastly, an enormous number of documents containing valuable data exist and are often openly accessible, so the availability of data is relatively high (Bowen, 2009).

4.3 Stakeholder analysis

To figure out how different actors involved in the policy process interact and to visualize what the network looks like to be able to make sense of it using policy network theory, it is important to have a list of stakeholders involved in the MPA policy process for the selected cases. This list is used to create a stakeholder overview, which can then be utilized to map the stakeholder based on their power and interest (in the power-interest matrix) to show their positions compared to others. The position of stakeholders affects factors like how they interact and whether there are dependencies.

The stakeholder analysis starts off with a stakeholder overview, followed by an explanation of the ranking system used to create the power-interest matrix that will be elaborated upon in the analysis section of this study where it will also be linked to policy cycle and policy network theory.

4.3.1 Stakeholder overview

The stakeholder overview was created using various sources of information, including scientific literature, reports, government documents, spatial planning documents and websites. The academic literature was used to establish various categories of relevant stakeholders, which were then ‘filled in’ using information gathered from the other documents.

A relevant set of stakeholders is presented as a sample of all stakeholder categories for each of the cases. For each category around three examples are included in the table (see Table 11). They represent the most ‘relevant’ or frequently mentioned stakeholder within a category based on the documents that were examined. The stakeholders in this table will be used for the power-interest matrix.

4.3.2 Power-interest matrix – ranking system

As part of the stakeholder analysis, a power-interest matrix is created. In order to create the power-interest matrix and place stakeholders on the power and interest spectrum, it is important to first define ‘power’ and ‘interest’.

It is important to note that both power and interest are relational concepts and that the attempt to measure them has its limitations. Due to their relational nature, the concepts are sensitive to the perspective of the actor involved in the relation. The scores attributed to certain stakeholders are based on information found in the various documents consulted for this thesis. The information in these documents is often based on actors’ perception of their own or another actors’ power and interest and might therefore differ from reality. This limitation is a structural part of the power-interest matrix method and should not hinder its use. However, it is important to be aware of these limitations and what they might mean for the analysis.

Table 7. Document overview

| Category | Document name | Type of document | Author | Publication date (year) |
|-----------------------------------|---|-------------------------|--|-------------------------|
| Marine Protected Areas in general | Limiting abuse: marine protected areas, a limited solution | Scientific paper | Boersma & Parrish | 1999 |
| | Expert workshop on marine protected areas and fisheries management: review of issues and considerations | Report | FAO/Japan government cooperative programme | 2006 |
| | Protected areas for the 21 st century: lessons from UNDP/GEF's portfolio | Portfolio | Ervin et al. | 2010 |
| | A typology of stakeholders and guidelines for engagement in transdisciplinary, participatory processes *** | Scientific paper | Newton & Elliott | 2016 |
| European Union | Marine sustainability in an age of changing oceans and seas | Report | EASAC & European Commission | 2016 |
| | Marine messages II: navigating the course towards clean, healthy, and productive seas through implementation of an ecosystem-based approach | Report | European Environment Agency (EEA) | 2019-a |
| | Protected area management in the EU: supporting the advancement of the Trans-European Nature Network | Technical paper | Naumann et al. | 2021 |
| Mediterranean Sea (Italy) | Public perceptions of Europe's seas* | Policy brief | Potts et al. | 2011 |
| | Large marine protected areas (LMPAs) in the Mediterranean Sea: the opportunity of the Adriatic Sea | Scientific paper | Bastari et al. | 2016 |
| | MESMA work package 6 (governance) deliverable 6.1: typology of conflicts in MESMA case studies | Report | D'Anna et al. | 2013 |
| | Transboundary governance of marine protected areas: a comparison of the North Adriatic and Wadden sea case studies** | Scientific paper/thesis | Tonino | 2014 |

| Category | Document name | Type of document | Author | Publication date (year) |
|---|---|-------------------------|--|-------------------------|
| North-Sea (the Netherlands) | Marine Strategy for the Netherlands part of the North Sea 2012-2020 | Government document | Ministry of Infrastructure and the Environment (MIE) & Ministry of Economic Affairs (MEA) | 2012 |
| | Ontwerp programma Noordzee 2022-2027 | Government document | Ministry of Infrastructure and Waterworks (MIW); Ministry of Agriculture, Nature and Food quality (MANFQ); Ministry of Economic Affairs (MEA); Ministry of Interior and Kingdom Relations (MIKR) | 2021 |
| Baltic Sea (Sweden) | Science-policy interactions in MPA site selection in the Dutch part of the North Sea | Scientific paper | Van Haastrecht & Toonen | 2011 |
| | A balanced marine environment, flourishing coastal areas and archipelagos | Government website | Naturvardsverket | n.d.-a |
| | Agenda 2030 and the global goals for sustainable development | Government website | Naturvardsverket | n.d.-b |
| | Exploring enablers and obstacles to policy-oriented learning in Swedish marine park planning | Scientific paper | Morf et al. | 2022 |
| | Inrättande av marina reserve at i Sverige – problem och möjligheter | Scientific paper/thesis | Bergquist | 2003 |
| | Assessment of management practices regarding biodiversity in Baltic Sea marine protected areas | Scientific paper | Sandström et al. | 2016 |
| | Enhancing research for marine spatial planning | Report | Depellegrin & Blazauskas | 2013 |
| | A comparative case study of fish stocking between Sweden and Finland: explaining differences in decision-making at the street-level | Scientific paper | Sevä | 2012 |
| En svensk strategi för biologisk mångfald och ekosystemtjänster – Proposition 2013/14:141 | Government document | Reinfeldt & Ek | 2013 | |

Note: *also relevant for Italy, **also relevant for the Netherlands, ***also relevant for the EU.

Table 9. *Preliminary results codes*

| Category | Sub-category 1 | Sub-category 2 | Sub-category 3 |
|--|---|--|--|
| Marine protected areas* | MPA benefits* | MPA benefits for stakeholders | MPA benefits for fisheries MPA benefits for tourism |
| Climate change* | MPAs as policy/management tool Climate change challenges MPA challenges | | |
| Marine sustainability/biodiversity Network approach* | Interdependence* | Resource sharing | Knowledge sharing Knowledge gap |
| | Coordination* | Cooperation Coalitions Transboundary | |
| Policy process/cycle* | Agenda-setting* | Window of opportunity | |
| | Policy formulation* | Policy broker/entrepreneur | |
| | Policy implementation* | Street-level bureaucrats | Policy beliefs Policy understanding Implementation resources |
| Stakeholder involvement* | Stakeholder perceptions Need for (increased) stakeholder involvement Stakeholder involvement process Benefits of stakeholder involvement | | |
| Holistic/integrated approach Ecosystem-based approach Social equity/social factor Evaluation/evaluating | | | |

Note: *open deductive codes included if necessary for clarity/to provide clearer overview of categories and sub-categories

Table 11. Stakeholder overview

| Category | Sub-category | Examples | | |
|------------------------------|---|---|--|--|
| | | Noordzeekustzone – the Netherlands | Area Marina Proteta Isola di Ustica - Italy | Hoburgs Bank - Sweden |
| Government and public sector | Ministries | - Ministry of Transport, Public Works and Water Management | - Ministry of Environment and Protection of Land and Sea | - Ministry of Environment and Territorial Protection |
| | | - Ministry of Economic Affairs | - Ministry of Cultural Heritage for Italy | |
| | | - Ministry of Agriculture, Nature and Food Quality | | |
| | National governments | - Dutch government/parliament | - Italian government/parliament | - Swedish government/parliament |
| | Regional, district and municipal level institutions | - Municipalities | - Comune di Ustica (Ustica Municipality) | - County Administrative Board of Gotland |
| | | - Provinces | | |
| | Governmental organizations | - Interdepartmental Coordinating Committee for North Sea Affairs (IDON) | - Coastguard | - Vinnova |
| | | - Kustwacht | | - Swedish Environmental Protection Agency (SEPA) |
| | | - Rijkswaterstaat | | - Swedish National Heritage Board |
| | Civil society | Non-governmental organizations | - Stichting de Noordzee (SDN) | - WWF |
| - Greenpeace | | | - Mediterranean Protected Areas Network (MedPAN) | - Greenpeace |
| - World Wildlife Fund (WWF) | | | | |
| - Noordzeeloket | | | | |
| Universities | | | - Universita Politecnica delle Marche | - Swedish University of Agricultural Sciences (SLU) |
| | | | - Universita di Bologna | - Stockholm University |
| | | | - Universita di Palermo | - Chalmers University (Swedish Wind-power Technology Center) |
| Research institutions | | - Netherlands Oceanographic Data Committee (NODC) | - UBICA srl | - Aquabiota |
| | | - Nederlands Hydrologisch Instituut (NHI) | - Mediterranean Institute of Oceanography | - BALTFISH |
| | | - Informatiehuis Marien | - Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA) | - Baltic Technical Expert Group (works under BALTFISH) |

| Category | Sub-category | Examples | Category | Sub-category |
|----------------|-------------------------|---|--------------------------------|---|
| Private sector | Associations | - Nederlandse Olie en Gas Exploratie en Productie Associatie (NOGEPA) | GAC Islands of Sicily | - Vattenbrukarnas riksförbund |
| | | - Stichting Scheepvaart | | - Svensktfriluftsliv |
| | | - Nederlandse Wind Energy Associatie (NWEA) | | - Swedish Shipowners Association |
| | Fisheries organizations | - VisNed | - Sicilian fishing fleet | - Swedish Fish Processing Industry |
| | | - Nederlands Visbureau | - Alleanza Pescatoi Ricreativi | - Swedish Commercial Fishing Industry |
| | | - Stichting de Nederlandse Visserij | | - Swedish National Board of Fisheries |
| | Tourism | | - Visit Sicily | - Svenskturism |
| | | | - Visit Italy | - VisitSweden |
| General public | Citizens | | - Residents | - Recreational fishers (from Sweden and other countries surrounding the Baltic) |
| | | | - Tourists | |
| | | | - Local schools | |

Note : Adapted from ‘*Area Marina Protetta ‘Isola di Ustica’: Deliberazione della Giunta Municipale del Comune di Ustica* (No. 38)’ by Comune di Ustica. (2018). <https://gis.osservatorioturistico.sicilia.it/doc/testi/AAMMPP/Disciplinare%20integrativo%20al%20REGOLAMENTO%202018.pdf>

Adapted from ‘*The Italian System of Marine Protected Areas*’ by Douros, W. J. (2005). Monterey Bay National Marine Sanctuary. https://nmsmontereybay.blob.core.windows.net/montereybay-prod/media/international/pdf/050429italy_finalreport.pdf

Adapted from ‘*Partenariato – F.L.A.G. Isole di Sicilia*’ by F.L.A.G. Isole di Sicilia. (n.d.). Retrieved 7 June 2022, from https://www.gacisoledisicilia.it/?page_id=42

Adapted from ‘*Capitalization Board*’ by Interreg Mediterranean. (n.d.). Retrieved 7 June 2022, from <https://mpa-engage.interreg-med.eu/pt/our-story-portuguese/capitalization-board/>

Adapted from ‘*Ontwerp Programma Noordzee 2022–2027*’ by Ministerie van Infrastructuur en Waterstaat, Ministerie van Landbouw, Natuur en Voedselveiligheid, Ministerie van Economische Zaken en Klimaat, & Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. (2021).. Rijksoverheid. <https://open.overheid.nl/repository/ron1-b28d8bb1-3b31-4f83-8cf8-bbeddf862186/1/pdf/4-ontwerp-programma-noordzee-2022-2027.pdf>

Adapted from ‘*Marine strategy for the Netherlands part of the North Sea 2012–2020, part 1*’ by Ministry of Infrastructure and the Environment & Ministry of Economic Affairs. (2012). Rijksoverheid. https://www.noordzeeloket.nl/publish/pages/122250/marine_strategy_for_the_netherlands_part_of_the_north_sea_2012-2020_part_1_683.pdf

Adapted from ‘*ITN MMMPA*’ by MMMPA. (n.d.). Retrieved 2 June 2022, from <http://www.mmmpa.eu/UST-MPA.asp>

Adapted from ‘*Marine spatial planning - current status 2014: National planning in Sweden’s territorial waters and exclusive economic zone* (No. 16)’ by Swedish Agency for Marine and Water Management. (2015). <https://www.havochvatten.se/download/18.44319c4a145d364b807436c/1448618458195/marine-spatial-planning-current-status-2014-english.pdf>

Adapted from ‘*Towards marine protected areas in the Netherlands* (Thesis)’ by van Bets, L. (2010, August). Wageningen University. https://www.researchgate.net/publication/263412075_Towards_marine_protected_areas_in_the_Netherlands

Power

Within the literature there is no real consensus on the definition of power. Various definitions are being used, among which the definition of power provided by Allen (1998). Allen distinguishes between three types of power: power-to, power-over, and power-with. According to Allen (1998) power-to refers to the capacity of an actor to undertake action or its ‘ableness’ to do or achieve something. This power-to is often related to and can be increased by factors such as access to resources, collective acceptance and coercion or use of force. This is also where power-to crosses over into the realm of power-over and affects the ‘nature’ of the stakeholder (what kind of stakeholders an actor is) (Menge, 2017; Morriss, 2002). Power-over on the other hand, is based on Dahl’s (2007) definition of power and refers to situations in which actor A makes actor B do something that B would otherwise not have done. Power-over is often dominating as one actor controls the other, but does not have to be that way. It is also a subset of power-to, as power-over presupposes power-to’s capacity for action (Pansardi, 2012). The last category of power-with refers to a wider collaboration between actors that facilitates joint power-to (Haugaard, 2021; Allen, 1998).

Allen’s definition of power will be used in this thesis to rank stakeholders. In the ranking power-to will be seen as the most important and influential type of power, followed by power-over and power-with. The reason for this is that the focus will be on the stakeholder’s ability to significantly and meaningfully influence the policy process. The more a stakeholder can influence the policy process, the higher they will rank. Depending on the amount of power that stakeholders hold, they will be awarded a score between 1 and 5, in which 1 stands for ‘very little to no power’ and 5 stands for ‘large to very large amount of power’ (see Table 12).

Table 12. *Ranking rubric ‘Power’*

| Score | 1 | 2 | 3 | 4 | 5 |
|-------------|---|---|--|---|---|
| Description | Stakeholder has very little to no power (power-to and/or power-over/power-with) based on its nature and role in the MPA policy process. | Stakeholder has limited to moderate power (power-to and/or power-over/power-with) based on its nature and role in the MPA policy process. | Stakeholder has moderate power (power-to and/or power-over/power-with) based on its nature and role in the MPA policy process. | Stakeholder has moderate to large amount of power (power-to and/or power-over/power-with) based on its nature and role in the MPA policy process. | Stakeholder has large to very large amount of power (power-to and/or power-over/power-with) based on its nature and role in the MPA policy process. |

Interest

Similar to there being no consensus on the definition of power, there is no one definition for interest. Various definitions are used, among them Benditt’s (1975) definition of interest. Benditt (1975) argues that the concept of a person’s interest is very much like that of a person’s good. In this case, a person’s interest is thus related to their position in life with respect to their happiness. Therefore, it concerns their position with respect to the fulfilment of their expectations and with respect to their well-being. If an action or object improves one’s position with respect to either their expectations or their well-being, it is in their interest according to Benditt (1975). In the case of stakeholder interest, this means that something that improves the stakeholders’ ability to carry out its mission, achieve its goals or increase its well-being (e.g., wealth, success, position vis-à-vis others) should be considered in its interest (Benditt, 1975).

Based on this definition, it will be argued that the more something affects the well-being of a stakeholder (category) by either improving or decreasing it, the more it will be in its interest. If a policy affects the stakeholders’ interests, the stakeholder is also more likely to be involved in the policy process. For example, establishing MPA policy is in the interest of fisheries as it can significantly affect their well-

being. As a result, they are likely to be interested in the policy. Therefore, this thesis argues that the more something affects a stakeholder's well-being (either in a negative or positive way), the more it will be in its interest and will interest the stakeholder. Depending on the amount of interest that the stakeholder holds/experiences, they will be awarded a score between 1 and 5, in which 1 stands for 'very little to no interest' and 5 stands for 'large to very large amount of interest' (see Table 13).

Table 13. *Ranking rubric 'Interest'*

| Score | 1 | 2 | 3 | 4 | 5 |
|-------------|--|--|---|--|--|
| Description | Stakeholder has very little to no interest (interest in) based on its nature and role in the MPA policy process. | Stakeholder has limited to moderate interest (interest in) based on its nature and role in the MPA policy process. | Stakeholder has moderate interest (interest in) based on its nature and role in the MPA policy process. | Stakeholder has moderate to large amount of interest (interest in) based on its nature and role in the MPA policy process. | Stakeholder has large to very large amount of interest (interest in) based on its nature and role in the MPA policy process. |

4.4 Interviews

One of the methods used to collect data for this study is interviews. The intention was to conduct three semi-structured interviews with an important stakeholder from each case. A semi-structured interview style was chosen because it allows for flexibility regarding the interview settings. Due to the semi-structured format, it was possible to create an interview protocol that the respondents could use to answer the questions in a written format. Additionally, the semi-structured format allowed for both structure and diversity. It balanced a need for structure, in order to be able to compare content, with a need for diversity, which allowed for the creation of a rich picture of the often broad and complex reality of European MPAs.

To determine which stakeholder would be approached for the interview, the stakeholder overview was used (see Table 7 in section '4.3.1 Stakeholder Overview'). The stakeholders that were approached (respondent from County Administrative Board of Region Gotland, respondent from Ministry of Agriculture, Nature and Food Quality and respondent from Comune Isola di Ustica) were all the indicated managers of their respective MPAs or actors that are heavily involved in the management of the MPA (see Table 6), making them likely to be heavily involved in the implementation phase of the policy process, but also (at least to some degree) in the other stages of the process.

The stakeholders were approached via email with the question if they would be willing to participate in the research and take part in an interview. The email states that the interview would take between 30-45 minutes and would be conducted online (either through Zoom or Microsoft Teams) or could be conducted over the phone or in a written format if preferred by the stakeholder. Due to the limited amount of time, a busy schedule, or other personal reasons, the stakeholders preferred to take part in the interview in a written format. To conform with their wishes, the stakeholders were emailed a document that contained the interview questions for them to answer room to do so. Additionally, it included information about the interview questions that would 'help' them answer the questions by explaining and clarifying possibly confusing, difficult or unknown terms and concepts (see Appendix A).

Conducting the interview in a written format has one major benefit. Due to the more complex and technical nature of the questions in the interview, a written format might be beneficial because it allows respondents to take more time to think about their response and possibly look up relevant information, which might in turn increase the quality of their responses. The answers to the questions might not be something that the respondents always know from the tops of their heads, so allowing them to look up information, moving between questions and taking more time to answer might increase the likelihood of response, instead of a non-response or uncertain answers during the live interview.

Despite the written format not being ideal and taking away the spontaneity of the interview, it still allowed for the gathering of valuable information.

4.5 Limitations research methods

Besides taking note of the benefits of the selected research methods, it is important to reflect on their limitations. An important limitation of the document analysis is that only a limited number of documents is being reviewed and that the selection of these documents was somewhat biased because of researchers' discretion despite being based on certain selection criteria. Additionally, the analysis process contains potential researcher bias, the impact of which was limited by displaying the coding process, presenting the codes (both deductive and preliminary results) and being thorough in the coding process (re-coding several times). Secondly, the interview method also came with limitations, the most important being the limited number of respondents (only two), which affects the generalizability of the results. However, despite that the interview data can still be used to provide examples and triangulate (to some extent) the data from the document analysis. Finally, the power-interest matrix again comes with limitations, the most important being the relative nature of the concepts (see section 4.3.2), which one should be aware of, despite it not hindering the use of this method.

5 Analysis

5.1 Policy cycle

5.1.1 Agenda-setting

Based on the document analysis, there seems to be support for the resource-dependency view on agenda-setting which argues that agenda-setting is motivated by a societal need for something in addition to societal pressure from the state to meet those needs (Howlett et al., 2009). In this case, there is a societal need to address climate change, highlighted by virtually all documents (Table 7 - see for example Boersma & Parrish, 1999; EASAC & EC, 2016; Bergquist, 2003) and represented by the repeated occurrence of the codes ‘*climate change*’ and ‘*climate change challenges*’ (see Table 9 and 10). Various actors, both national (NGOs and scientists) and international (EU), are putting pressure on governments to create and implement MPA policy. To illustrate, the scientific paper by Haastreht and Toonen (Table 7), points out that the Dutch government was prompted to pick up the issue of MPAs again after a period of inactivity because the EU and Greenpeace were applying pressure. The EU decided that the Natura 2000 provision would also apply to the EEZ of member states and Greenpeace threatened to take the UK government to court for not complying with the Habitats Directive in its EEZ. Prompted by commitments of the international community and trying to avoid complications, Dutch policymakers assumed the project again (Haastreht & Toonen, 2010).

This relates to another theme that came up as a preliminary result from the document analysis, ‘*window of opportunity*’ (Table 9). The document analysis underlines the importance of timing (window of opportunity) stating that because of political, scientific, and societal attention, in addition to other aligning factors, it is or is not possible for member states to prioritize and continue working on creating and implementing MPA policy. Downs (1972) argued that like a news cycle, policy issues will momentarily capture the attention of the public and trigger demands for government action. However, these problems will also fade from view when their complexity becomes apparent or if another issue draws attention away.

Kingdon (1995) elaborates on this by stating that focusing events (e.g., crises, accidents or scandals) can create a so-called ‘window of opportunity’ that key players in the political process can seize to place an issue on the political agenda. Kingdon (1995) argues that these policy windows are important opportunities for ‘*policy entrepreneurs*’ (Table 9), whose role was highlighted by various document in the document analysis (i.e., the scientific papers by Morf and colleagues and Tonino - Table 7), to bring issues onto government agendas.

The scientific paper by Haastreht and Toonen (Table 7) shows that the Dutch MPA policy went through various cycles because of policy windows opening and closing. Based on societal support and pressure, attention for the creation and implementation of MPA policy came and went. Interviewed policymakers emphasized that ‘the time has to be right’ to make policy and that “whether a policy such as this is taken up depends on creating support among all involved parties, as well as a shared sense of urgency” (Haastreht & Toonen, 2010, p. 664).

5.1.2. Policy formulation

Various documents, including the scientific paper by Sandström and colleagues and the report by the FAO (see Table 8), show that stakeholders and outside actors are involved during policy formulation. There is room for discussion and expression of ideas and interests. During the appraisal and dialogue phase, various stakeholders, including scientists and experts, are very involved. The report by EASAC and the European Commission (see Table 7) shows that both during the formulation of EU- and national MPA policy, scientists and experts were consulted. This finding is corroborated by the Swedish respondent that was interviewed for this thesis, who states that stakeholders were very involved during the policy formulation phase and that the communication with scientists is especially good.

Throughout the formulation phase stakeholders were involved and consulted. However, ultimately the government actors are the ones that made the final decisions. Despite that, the scientific paper by Newton and Elliott (Table 7) shows that engaging stakeholders in policy formulation can make them feel heard and in turn help increase support for the policy.

In the policy formulation phase, policymakers do not only consider what to do and what their policy should look like, but also which policy tools are necessary to execute the policy, address the problems and implement the solution (Howlett et al., 2009). The EU MPA policy uses several types of policy tools, which can fit in the categories outlined in Hood's NATO-model (Howlett et al., 2009). The two main instruments used by the EU are so-called 'nodality or information-based instruments' in the form of benchmarking and performance indicators as well as commissions and inquiries, and 'authority-based policy instruments' in the form of delegation and self-regulation (EEA, 2015a). The nodality and information-based instruments seem to be working well, based on the document analysis (i.e., scientific paper by Haastrecht and Toonen – Table 7), but the authority-based policy instruments might require some tweaking. The delegation of implementation to member states has some benefits, but also creates problems, which become apparent during the later stages of the process and can affect the effectiveness of EU MPAs.

The document analysis (i.e., the reports by the EEA and government documents by Bergquist and MIE & MEA – Table 7) and this thesis' interview with the Italian respondent indicate a need for additional treasure-based policy instruments. The document analysis suggests the implementation of more funding for interest groups, think-tanks, and scientists to support additional research efforts needed to fill the knowledge gap. In the interview the Italian MPA manager highlights a need for more EU funds for MPA management to help overcome a lack of resources (time, money and people).

5.1.3 Policy adaptation & design

Similar to what policy cycle theory suggests, the relevant group of policy actors becomes smaller and restricted to those with the authority to make binding public decisions once the policy adaption stage is reached (Howlett et al., 2009). In the case of European and national MPA policy, this usually means that the attention shifts to government actors. Despite the government actors being the ones to make the final decision, the document analysis (see Sandström et al. and FAO – Table 7) and the answers from the Swedish respondent both show that they take the perceptions of stakeholders into account when doing so.

The document analysis (i.e., the scientific paper by Sandström and colleagues – Table 8) concurs with the theory by showing that non-state actors can have a 'voice' during the policy design stage, despite often not having a 'vote'. The paper by Haastrecht and Toonen (Table 7) demonstrates that in some cases non-state actors can have a 'vote' or considerable influence on the vote. Haastrecht and Toonen (2010) conclude that to deal with uncertainties, policymakers will often collaborate with scientists and in some instances, they will invite scientists to suggest a course of action for them based on their expert judgment.

Overall, when examining the EU MPA policy design, it becomes apparent that the EU has chosen to keep the formulation of their policies general, leaving room for member states to adapt to their own circumstances. EU policy often consists of guidelines and benchmarks rather than a detailed collection of rules and measures (EEA, 2015a; EEA, 2019a; EASAC & EC, 2016). The EU requirements are to be fulfilled by member states using national policy, but how exactly they go about this is up to them to decide.

On the one hand, the adaptability of the EU policy can be seen as a strength because, as the Swedish government states, it allows each member state to produce its own supplementary indicators that best reflect the national context and challenges (Naturvardsverket, n.d.-b). On the other hand, it also means that there is great disparity between the ways in which the member states decide to implement MPA

policy and creates administrative burdens for member states (Naumann et al., 2021). This can stand in the way of creating an ‘*integrated and holistic approach*’ (Table 9 and 10). According to various actors an integrated approach would greatly benefit the effectiveness of EU MPAs by allowing for the creation of standardized approaches (e.g., for measurement and evaluation), closing of the implementation gap and achieving long-term sustainability (EEA, 2019a; Naumann et al., 2021; EASAC & EC, 2016).

5.1.4 Policy implementation

The EU delegates the implementation of MPA policy to the member states. As a result, member states must create their own MPA policy to implement the EU policy and fulfill the requirements (EEA, 2019a; EASAC & EC, 2016). However, when going through their own policy cycle, member states run in to various problems (e.g., opposing stakeholder interests or lack of political and societal support).

Because implementation is taken care of at the national level MPA policies end up differing depending on the member state. The document analysis (i.e., the government document by Reinfeldt and Ek and the paper by Haastrecht and Toonen – Table 7) shows that member states have designed and implemented policies to varying degrees, which not only complicates international cooperation, but also results in various levels of effectiveness of MPAs. Some member states will opt for a more restricting MPA policy (e.g., includes no-trawl and no-fishing zones and limits transport), while others will implement a more lenient approach to balance diverging interests. As the paper by Sevä (Table 7) states, “common treaties do not necessarily imply common practices” (p. 287).

An additional important aspect of policy implementation that stood out in the document analysis is the importance of ‘*street-level bureaucrats*’ (Table 9). The documents by Sevä and Sandström and colleagues (Table 7) highlight that street-level bureaucrats, low-level public managers located at the end of the policy chain, hold great discretion when it comes to implementing MPA policy. Because of their location at the end of the chain, they are in a position “to influence the interpretation of centrally imposed policies and translate them into practical management strategies and concrete actions” (Sandström et al., 2016, p. 1188).

This is especially noteworthy because of the often vague nature of environmental policies which, due to the complexities of the problems it tries to deal with and the substantive uncertainties that arise from insufficient knowledge as well as the extensive and non-coherent subsystems that the policies exist in, allows room for selective implementation (Sevä, 2013). The decisions of frontline bureaucrats are significantly impacted by their ‘*policy beliefs*’, ‘*policy understanding*’ and ‘*implementation resources*’, which were all highlighted as important codes by the document analysis (Table 9).

It is crucial to be aware of the role of street-level bureaucrats and the effects that this has on policy implementation as it can have consequences for and increase the disparities between policy implementation within the EU and member states.

Finally, Howlett and colleagues (2009) highlight that it is important to be aware of the problems that arise during implementation (e.g., discrepancies between member states and dealing with lack of resources) and that there is a need to address these problems which often already arise during earlier stages of the complex process of policy design. This statement was supported by the Swedish respondent who also indicated the importance of getting things right in the preliminary stages of the policy cycle.

5.2 Policy network

5.2.1 Stakeholder ranking & mapping

Ranking

Using the ranking system outlined in chapter 4 (section 4.3.2 Power-interest matrix), the stakeholders have been ranked based on their interest and power. Below their scores are explained briefly, per category and with examples from the cases.

National governments

The national government is a political actor that, consisting of the prime minister or president, cabinet, and parliament (depending on the country), represents the interests of its citizens (nationally and internationally). It plays a significant role in determining the national MPA policy as well as being involved in the EU MPA policy process (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005). As the highest national authority, they have a significant amount of power due to their authority, legitimacy and formal decision-making role. As a result, their power-score is relatively high, somewhere between 4 and 5, depending on the case (i.e., the score will be higher in the Netherlands where MPAs are the responsibility of the national government, than in Italy where MPAs are often the responsibility of local government).

The establishment of MPAs is in the interest of national governments because it allows them to fulfill EU requirements (and uphold their status vis-à-vis other countries) and achieve sustainability goals. However, they must deal with multiple, often opposing interests, which means that governments have to strike a balance between sustainability and biodiversity interests and for example economic interests. Overall, it is in the interest of national governments to be involved in the MPA policy process, but due to conflicting interests their interest might be dampened (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005). Therefore, their interest score is around 3.

Ministries

As part of the national government, ministries also play an important role in determining the national MPA policy. While comparable to national government in terms of power, ministries differ as they represent the citizens (countries) interest on a specific topic. Ministries will collaborate with one another, using their different types of expertise, to craft the national policy in a way that satisfies both national and international demands. As a policymaking actor, they are involved in various parts of the policy cycle and have noticeable power-to and power-over (e.g., ability to delegate and set targets) (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005). As a result, ministries have a power-score around 4.

Overall, the establishment of MPAs is in the ministries' interest, for reasons similar to those of the national government. However, the degree to which depends on the ministry as it can sometimes form a challenge and confront their diverging interests. (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005; Haastrecht & Toonen, 2010). For example, for the Ministry of Economic Affairs, MPAs might interfere with their business and transport interests (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012). Overall, depending on the ministry, their interest-score is around 3.

Regional-, district- and municipal-level institutions

After the initial policy formulation, regional-, district- and municipal-level institutions often play a key role when it comes to national MPA policy. These institutions engage in the implementation and adaptation/design stage, during which they have significant authority, legitimacy and ability to

influence outcomes. When responsible for a certain stage (e.g., implementation in the Swedish and Italian case), they have a great amount of power-to and power-over that allows them to control other stakeholders and manage the process. These institutions often consist of street-level bureaucrats that have a significant discretion when it comes to the implementation of MPA policy (Sandström et al., 2016). Overall, these institutions have a relatively high power-score, between 3 and 4, depending on the case.

The establishment of MPAs is in the interest of regional-, district-, and municipal-level institutions because it allows them to achieve sustainability and biodiversity goals. Additionally, it can increase a region's value and create economic opportunities by attracting tourists, scientists and increasing the aesthetics by protecting flora and fauna (EASAC & EC, 2016). At the same time, these institutions also have to deal with contending interests (e.g., the needs of the local fishermen or diving community might not align with the MPA policy) (Morf et al., 2022; Haastrecht & Toonen, 2010). All in all, it seems like MPAs would be in the interest of these institutions, resulting in a score around 3, depending on the case.

Government organizations

Government organizations are involved in various stages of the MPA policy process. They are consulted during the policy formulation and design stages, because of their knowledge and expertise. The Swedish Environmental Protection Agency (SEPA) and National Heritage Boards are, for example, often consulted by the Swedish government on environmental matters (Reinfeldt & Ek, 2013). Furthermore, they can play an active managing role during the implementation stage, as is the case for Rijkswaterstaat in Dutch MPAs (OSPAR, n.d.-b). Because of their advisory- and management-role, depending on the case, government organizations can possess significant power-over and power-to. As a result, their power-score is relatively high, between 3-4, depending on the organization and the case.

The establishment of MPAs can be in the interest of governance organizations, like how it can be in the interest of national- and local governments as it allows them to achieve organizational goals. Depending on the organization, protecting the environment or conserving heritage is an important part of their right of existence (e.g., Natuur Monumenten and the Swedish National Heritage Board). Additionally, being involved in the policy process is an opportunity for government organizations to prove their legitimacy and increase their authority by advising governments (Reinfeldt & Ek, 2013). Depending on the organization, the interest-score is between 3 and 4.

Non-governmental organizations

Non-governmental organizations do not possess a lot of 'hard power'. However, they can influence public opinion and hold governments accountable as Greenpeace showed when trying to sue the UK government (Haastrecht & Toonen, 2010). Moreover, NGOs play an important role in influencing government decisions by providing knowledge and expertise. NGOs such as Greenpeace and WWF work together with research institutes but also conduct research on their own, which can be a valuable source of information for government actors, especially in a field plagued by uncertainties (Haastrecht & Toonen, 2010). Overall, NGOs tend to have no real power-to and limited power-over, resulting in a power score of between 1 and 2, depending on the NGO.

Whether the establishment and policy process of MPAs is in the interest of NGOs depends on the NGO. Especially for environmental, nature, and animal well-being NGOs, establishing MPAs and being involved in the policy process is in their interest as it allows them to reach organizational goals (e.g., protecting certain species or restoring damaged habitat). As a result, their interest score is between 4 and 5 depending on the NGO.

Universities

Universities have limited power-to but do possess significant legitimacy because of their knowledge and expertise, allowing them to influence government actors by providing information. They can help overcome the knowledge gap and inform policymaking (Sandström et al., 2016; Haastrecht & Toonen, 2010). Depending on the case, this role is more or less influential, resulting in a higher or lower power score. Additionally, in some cases, such as in Italy, universities can also be actively involved in policy implementation and MPA management (Potts et al., 2011; Douros, 2005). Overall, their power score is around 2.

The establishment of MPAs is in the interest of universities because MPAs can function as field laboratories for marine scientists. Additionally, they allow scientists to take part in the policymaking process by using their expertise to aid policymakers, which gives the researchers the chance to make a difference with their knowledge. For example, scientists like Rockström and Folke can use their research on the planetary boundaries and impacts of global warming to steer policymakers in the right direction to avoid creating irreversible damage. As a result, the interest score of universities is around 3.

Research institutions

Like universities, research institutions have noticeable impact on the policy process because of their knowledge and expertise. Research institutions are often consulted by other actors during the policy process and in some cases are even allowed to make decisions. For example, Haastrecht and Toonen (2010) highlight the collaboration between scientists and policymakers in the Netherlands, where at one point scientists were able to introduce debate about implementing environmental zones in the North Sea (Haastrecht & Toonen, 2010). This goes to show that despite having little 'hard power', research institutions can have a meaningful impact because of their power-over. As a result, their power score is between 2 and 3.

The establishment of MPAs is in the interest of research institutions because they create research grounds and field laboratories for scientists. Additionally, they allow scientists to take part in the policymaking process and use their knowledge to make a difference (as previously explained). Therefore, their interest score is relatively high, between 3 and 4.

Associations

Several types of associations are involved in or affected by the establishment of MPAs, including wind-energy companies, marine transport associations and oil and gas companies. They often play a big part in countries' economies and provide valuable resources. Government actors must take these economic, political and societal interests into account and try to balance them with environmental interests. Their economic and societal importance allow associations to leverage their position to increase their power-over. These organizations often have powerful lobbies that represent their interests and try to steer policymaking in their favour (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005). As a result, their power score is around 2, depending on the association and the case.

The establishment and policy process of MPAs is in the interest of associations because it can significantly affect their well-being (either positively or negatively). MPAs can result in restrictions that could limit possibilities for some associations, for example by shifting marine traffic routes or limiting the construction of wind farms. Because of the impact that MPAs can have on associations well-being, it is in their interest to be involved in the policy process, so their score is around 3.

Fisheries organizations

Fisheries organizations possess a moderate amount of power, which is mainly created by their influence during the different policy stages. Like other associations, they can use their position as resource provider (both in terms of food and jobs) to gain influence over government actors. They have a powerful lobby and often receive subsidies from governments. Due to their economic and social importance, governments have to take fishery organizations into account when designing MPAs, increasing the fisheries' power-over (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005). As a result, their power score is around 3.

Fisheries organizations are very interested in MPA establishment because it significantly impacts their well-being. Although seemingly limiting fisheries' opportunities, MPAs can actually have a noticeable positive impact. Fisheries all over the EU are currently encountering depleted fish stocks, which MPAs have the potential to replenish by creating no-take zones in which the population can regrow and thrive (Boersma & Parrish, 1999; Bergquist, 2003). These zones can create spillovers which are found to have positive economic impacts on fisheries (Bergquist, 2003). Because of the potential benefits and costs to fisheries, both over the short and long term, fisheries organizations are very interested in being involved in the MPA policy process (FAO, 2006). As a result, their interest score is around 4.

Tourism organizations

Depending on the case, tourism organizations have limited power. Similar to fisheries and other associations, they create social and economic benefits by providing income and jobs for local communities, showing of the country, and contributing to the country's economy. This can be used as leverage to get government actors to take them into account (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005). However, this depends on the importance of tourism for the region (e.g., might be valued more highly in Italy than in the Netherlands). Overall, the power-score of tourism organizations is between 1 and 2, depending on the case.

Tourism organizations are interested in MPA establishment because it affects their well-being. It can limit them by restricting boat-bound and diver visits of MPAs, but can also enhance the profile of an area, drawing in more tourists, by protecting and showing of the nature (EASAC & EC, 2016; Boersma & Parish, 1999). Additionally, by protecting marine ecosystems populations of marine mammals such as dolphins, seals and sea turtles which get to recover and can become an important tourist-attraction (Bastari et al., 2016). As a result, the interest score of this stakeholder is between 3 and 4, depending on the case.

Citizens

Citizens have little to no direct power over the MPA policy process. They can try to influence the process by voting for certain parties or supporting specific NGOs and other initiatives. Additionally, they can try to influence the implementation and effectiveness of MPAs through their behaviour by for example choosing ecotourism or boycotting unsustainable fisheries. Overall, citizens have little to no power-to or power-over, resulting in a power score of 1.

Depending on the citizen (e.g., their job and location), MPAs can impact their daily live. MPAs could for example create job opportunities but might also take them away. Moreover, MPAs have the potential to reduce poverty and sustain livelihoods in certain areas by boosting the tourism, fishery, and development sector. As a result, citizens' interest score is around 2, depending on the case and citizen.

Mapping

Based on the rankings, a power-interest matrix was created for each case. Each case has a table (Table 14, Table 15, and Table 16) presenting the power and interest scores for the relevant stakeholders for that specific case, in addition to a graph (Figure 11, Figure 12 and Figure 13), plotting the stakeholders position based on their scores and showing where they are compared to other stakeholders.

Table 14. *Power-interest scores Dutch stakeholders*

| Organization | Power | Interest |
|---|-------|----------|
| Ministry of Transport, Public Works, and Water Management | 4 | 3 |
| Ministry of Economic Affairs | 4 | 3 |
| Ministry of Agriculture, Nature, and Food Quality | 4.5 | 3.5 |
| Dutch government | 5 | 3 |
| Municipalities | 2.5 | 3 |
| Provinces | 2.5 | 3 |
| Interdepartmental Coordinating Committee for North Sea Affairs (IDON) | 4 | 3.5 |
| Kustwacht | 3 | 2 |
| Rijkswaterstaat | 3.5 | 4 |
| Stichting de Noordzee (SDN) | 2 | 5 |
| Greenpeace | 2 | 4.5 |
| World Wildlife Fund (WWF) | 2 | 4.5 |
| Noordzeeloket | 2 | 5 |
| Netherlands Oceanographic Data Committee | 2.5 | 3 |
| Nederlands Hydrologisch Instituut | 2.5 | 3 |
| Informatiehuis Marien | 2.5 | 3 |
| Nederlandse Olie en Gas Exploratie en Productie Associatie (NOGEPA) | 2 | 3 |
| Stichting Scheepvaart | 2 | 3 |
| Nederlandse Wind Energy Associatie (NWEA) | 2 | 4 |
| VisNed | 3 | 4.5 |
| Nederlands Visbureau | 3 | 4.5 |
| Stichting de Nederlandse Visserij | 3 | 4.5 |

Table 15. *Power-interest scores Swedish stakeholders*

| Organization | Power | Interest |
|---|-------|----------|
| Swedish government | 4.5 | 3 |
| County Administrative Board of Region Gotland | 3.5 | 4 |
| Vinnova | 3 | 3 |
| Swedish Environmental Protection Agency (SEPA) | 4 | 4 |
| Swedish National Heritage Board | 3.5 | 4 |
| WWF | 2 | 4.5 |
| Greenpeace | 2 | 4.5 |
| Swedish University of Agricultural Sciences (SLU) | 2 | 3 |
| Stockholm University | 1.5 | 3 |
| Chalmers University | 1.5 | 3 |
| Aquabiota | 2.5 | 3 |
| BALTFISH | 2.5 | 3 |
| Baltic Technical Expert Group | 2.5 | 3 |
| Vattenbrukarnas riksförbund | 1.5 | 3 |
| Svensktfriluftsliv | 1.5 | 3 |
| Swedish Shipowners Association | 1.5 | 3 |
| Swedish Fish Processing Industry | 2 | 4 |
| Swedish Commercial Fishing Industry | 3 | 4.5 |
| Swedish National Board of Fisheries | 3 | 4.5 |
| Svenskturism | 1.5 | 3.5 |
| VisitSweden | 1.5 | 3.5 |
| Recreational fishers | 1 | 2.5 |

Table 16. *Power-interest scores Italian stakeholders*

| Organization | Power | Interest |
|--|-------|----------|
| Ministry of Environment and Protection of Land and Sea | 4 | 3.5 |
| Ministry of Environmental and Territorial Protection | 4 | 3.5 |
| Ministry of Cultural Heritage for Italy | 4 | 3 |
| Italian government | 4.5 | 3 |
| Comune di Ustica | 3.5 | 4 |
| Coastguard | 3 | 2 |
| WWF | 2 | 4.5 |
| Mediterranean Protected Areas Network (MedPAN) | 2 | 5 |
| Universita Politecnica delle Marche | 2 | 3 |
| Universita di Bologna | 1.5 | 3 |
| Universita di Palermo | 1.5 | 3 |
| UBICA | 2.5 | 3 |
| Instituto Superior per la Protezione e la Ricerca Ambientale (ISPRA) | 2.5 | 3.5 |
| Mediterranean Institute of Oceanography | 2.5 | 3.5 |
| Sicilian Fishing Fleet | 3 | 4.5 |
| Alleanza Pescatory Ricreativi | 2.5 | 4.5 |
| Visit Sicily | 2 | 4 |
| Visit Italy | 2 | 4 |
| Residents | 1 | 2.5 |
| Tourists | 1 | 2 |

What stands out about the graphs is how, depending on the case, power and interest will be distributed differently among stakeholders. Where one stakeholder might hold a lot of power or interest in one case, its power and interest might be limited in another. For example, in the Dutch case regional and local governments have relatively little power, while they have more power in Sweden and Italy due to their role as MPA managers. Additionally, it is interesting to note that besides apparent differences between cases, there are also similarities. To illustrate, in all cases, government actors are the most powerful and stakeholders such as NGOs and fishery organizations score highest when it comes to interest.

5.2.2 Interdependence

The document analysis highlights the relevance of ‘*interdependencies*’ (Table 8 and 9) within the stakeholder network, but also among European countries. As explained in the theoretical framework, interdependence is often referred to as ‘mutual resource dependence’, meaning that actors within a network rely on one another to obtain the resources that they need to realize their policy objectives (Enroth, 2010). In the case of MPAs, the document analysis (i.e., the paper by Depellegrin and Blazauskas and the report by EEA – Table 7) shows that actors also depend on each other for certain scarce resources. During the MPA policy process stakeholders are continuously confronted with lacking resources (EEA, 2019a; Depellegrin & Blazauskas, 2013; Naumann et al., 2021).

The paper by Sandström and colleagues (Table 7) presents interviews with MPA managers that describe their situation to be characterized by a shortage of resources, including money, time, and knowledge. This lack of resources is confirmed by the interviews conducted with the Swedish and Italian respondent for this thesis. A need for sharing experiences and knowledge is mentioned repeatedly by actors in the analysed documents, including the report by the EEA and the paper by Haastrecht and Toonen (Table 7). It is a problem that is experienced both on EU level and on sea region and country level (for examples see Sandström et al., 2016; Bergquist, 2003; Naumann et al., 2021; EEA, 2019a).

Different Swedish sources, such as the government document by Bergquist and the papers by Depellegrin and Blazauskas and Sandström and colleagues (Table 7) underlined the importance of sharing knowledge and experiences within the sea regions but also within Europe. In their paper, Depellegrin and Blazauskas (2013) state that participants stressed a need for sharing experiences and

knowledge on the management of MPAs to gain a better understanding of planning and management approaches and learn from others' experiences.

Conservation of biodiversity and environmental protection are complex issues characterized by substantive uncertainties that arise due to insufficient knowledge and different interpretations of available knowledge (Sandström et al., 2016). Haastreht and Toonen (2010) point out that the complex nature and uncertainties associated with environmental problems complicate the decision making and policy process. This lack of knowledge is made apparent by the repeated appearance of the codes '*knowledge gap*' and '*knowledge sharing*' (Table 9)

Many aspects of the environment, climate change, human impact, as well as the effects, implementation, and management of MPAs remain less known (Naumann et al., 2021). Because of this, it is difficult for authorities to identify the best course of action (for now and in the future) and it increases the risk of hampering the efforts made by policy and management (EEA, 2019a; Bergquist, 2003). As a result of a (more) complex decision-making process, policymakers are required to branch out and work together with other actors, such as scientists (Haastreht & Toonen, 2010).

5.2.3 Coordination

Various documents (i.e. the papers by Naumann and colleagues and Sevä as well as the reports by the EEA and EASAC and European Commission – Table 7) noted that due to the interdependences within networks (between stakeholders, within sea regions and within Europe) as well as the '*transboundary*' nature of biodiversity conservation and MPA functioning and establishment, '*coordination*' and '*cooperation*' between stakeholders and member states is especially important as illustrated by the prevalence of these codes (Table 9 and 10).

Participants in Depellegrin and Blazauskas research (Table 7) highlighted a need to share knowledge and experience on the management of MPAs on a Pan-Baltic level. They want to cooperate with other actors in the Baltic to share information on how Baltic MPAs contribute to the protection of marine biodiversity, ecosystem health and connectivity (Depellegrin & Blazauskas, 2013). This sentiment was shared by actors in the Mediterranean Sea region, who were mentioned in Bastari and colleagues' paper (Table 7), and highlighted that the Mediterranean currently already has a sub-regional network, the MedPAN network, that "represents an encouraging precedent of the willingness to develop a collaborative strategy among MPAs" (Bastari et al., 2016, p. 173)

Additionally, a need for more cooperation from the EU level to the national level throughout the policy process was underlined. In their paper, Naumann and colleagues (Table 7), noted that while European member states have a long tradition of transboundary management and designating and implementing protected areas, incoherent national approaches can hinder the effectiveness of protection for European ecosystems. They go on to point out that there is a lack of monitoring of the effectiveness of MPAs in the EU (Naumann et al., 2021). Which is supported by others who highlight the need for more evaluation to assess effectiveness and allow for improvement (EASAC & EC, 2016; Depellegrin & Blazauskas, 2013; Sandström et al., 2016; EEA, 2019a). Naumann and colleagues (2021) suggest that a standardized measurement approach should be included in the policy to help overcome this problem.

The report of the EEA (Table 7) concurs with Naumann and colleagues (2021) that there is a need for more coordination to overcome the incoherent approaches and result within the EU. They argue that the incoherence might be due to a tension between how different policies or institutions interpret the MPA goals and a gap between policy visions and the achievement of objectives through necessary management measures (EEA, 2019a). This tension might arise somewhere within the institutional set-up and implementation process, at the EU, national and regional levels and might be caused by the implementation structure mentioned earlier in the policy cycle analysis.

To close the gap, the EEA (2019a) argues that responsible public institutions need to act in a truly coordinated manner regardless of the policy to which they belong (e.g., agriculture, environmental protection, fisheries). To achieve this, it is important that government actors cooperate closely with other stakeholders and share policy tools. For instance, they should involve scientists and have them use the evidence from their research to set up evidence-based targets to measure progress on the various objectives (EEA, 2019a).

A final insight that arose from the document analysis when it comes to coordination is that the analysis confirmed the theory that actors with similar beliefs, interests and preferences tend to form relationships (Weible & Sabatier, 2005). The analysis (i.e., the papers by Morf and colleagues and Tonino) repeatedly underlined the tendency of actors to seek and form '*coalitions*' (Table 9).

5.2.4 Pluralism

The government documents confirm (i.e., Reinfeldt and Ek and MIE and MEA – Table 7) that government actors are often the centre of MPA networks. Government actors are involved throughout all stages of the MPA policy process. European government actors and national government actors collaborate to create EU marine policy (EEA, 2019a; EASAC & EC, 2016). National governments are then responsible for using this EU policy to shape their national policy in a way that fulfils EU requirements, meets targets and benchmarks (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005; EEA, 2019a; EASAC & EC, 2016).

During the national policy process, government actors are again very involved. National government actors will often take the lead during the initial stages of the policy process (agenda-setting to policy design) and will sometimes delegate policy implementation to regional or local level government actors (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005). This is the case in Italy and Sweden. In Italy local governments work together with ministries to manage MPAs (Douros, 2005; Protected Planet, n.d.-b), and in Sweden regional government is the main management authority (Reinfeldt & Ek, 2013; HELCOM, n.d.-b).

The stakeholder analysis shows that government actors distinguish themselves from other stakeholders because of their authority and legitimacy. This allows them to set rules, create benchmark, control other actors, and make the final decisions. The potential problem with this is that government actors have multiple often conflicting responsibilities and that can stand in the way of creating the most effective MPAs (MIW, MANFQ, MEA & MIKR, 2021; MIE & MEA; 2012; Bergquist, 2003; Reinfeldt & Ek, 2013; Douros, 2005; Naturvardsverket, n.d.-a; Haastreht & Toonen, 2010; Naumann et al., 2021; FAO, 2006).

Figure 11. Stakeholder mapping – the Netherlands

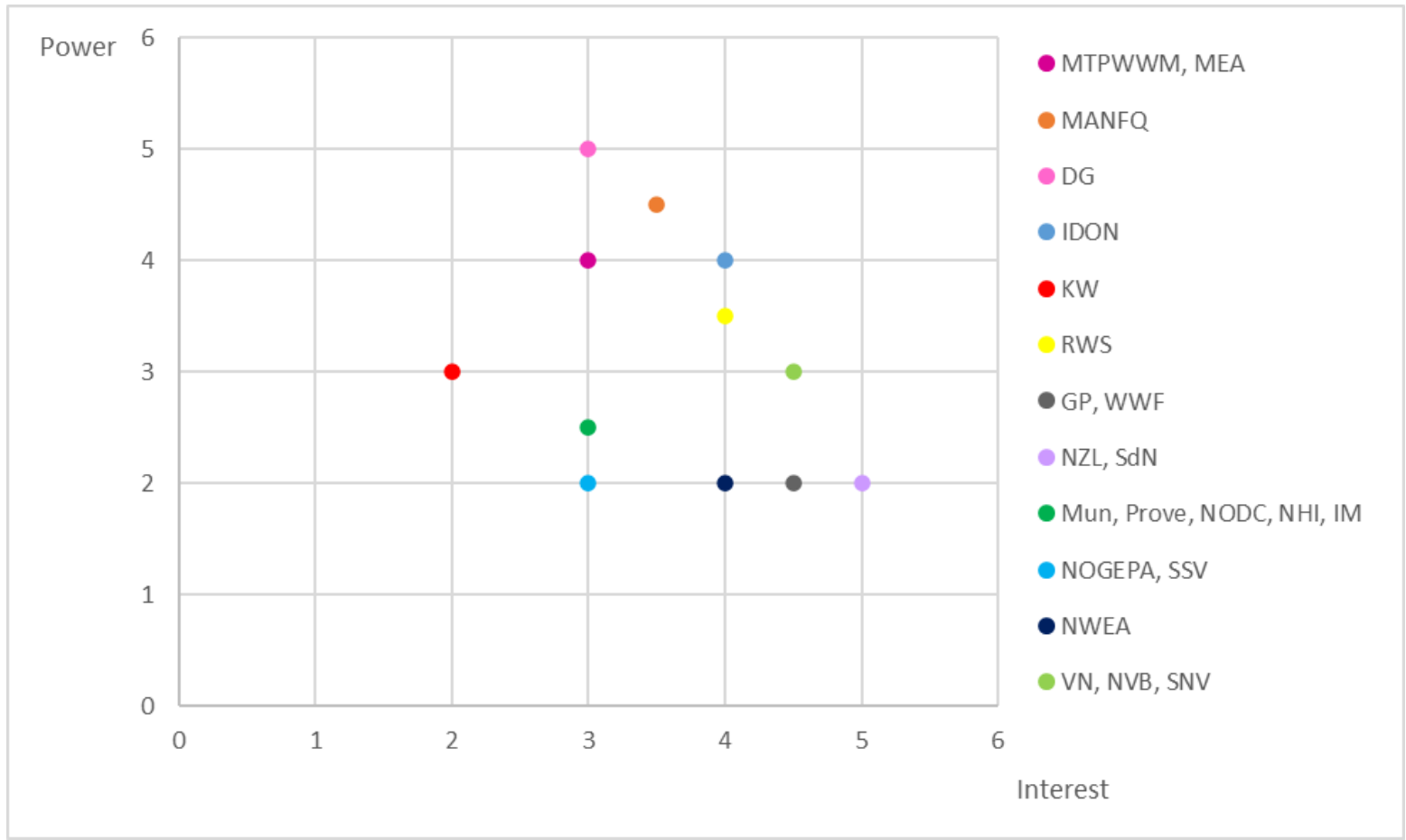


Figure 12. Stakeholder mapping – Sweden

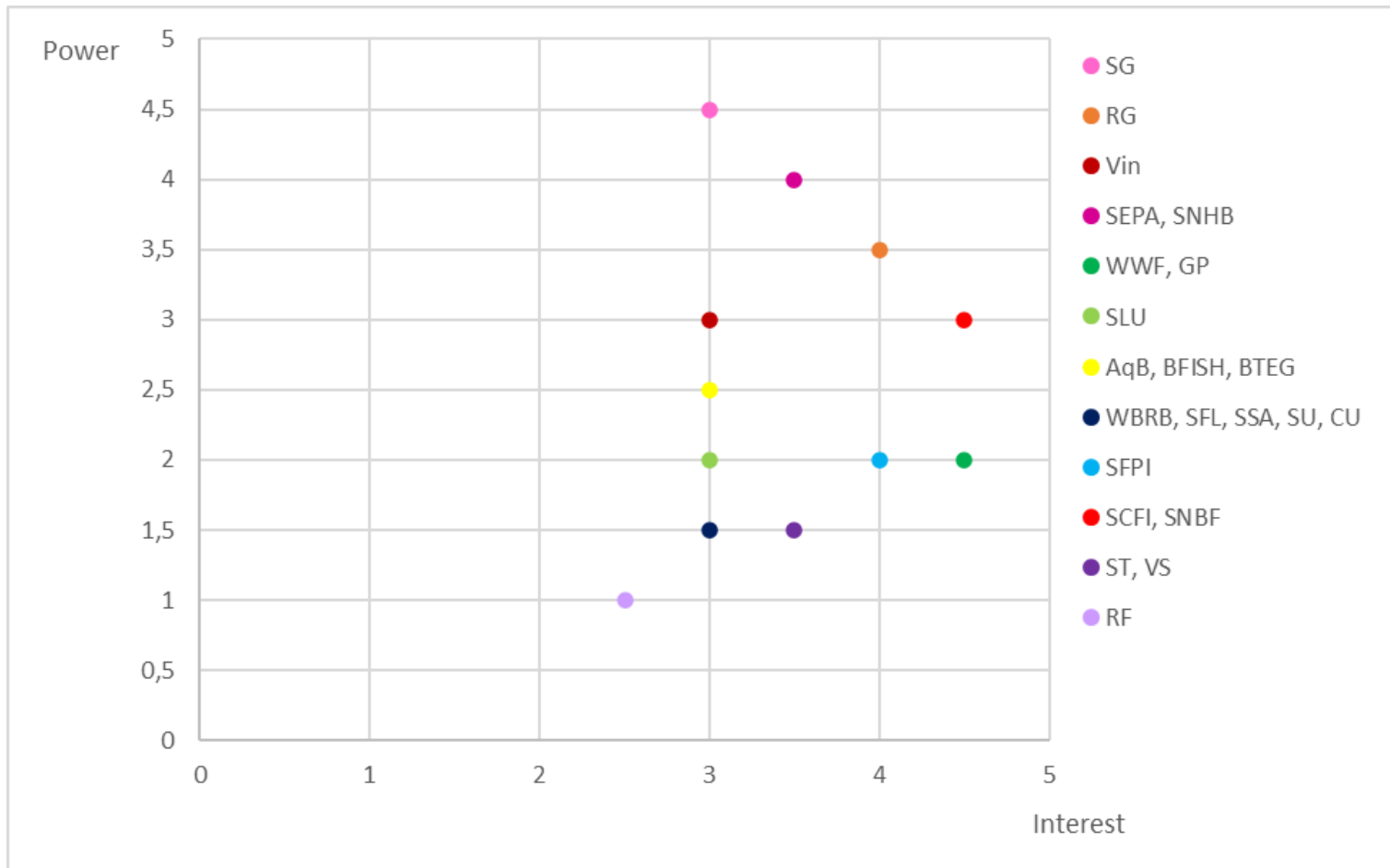
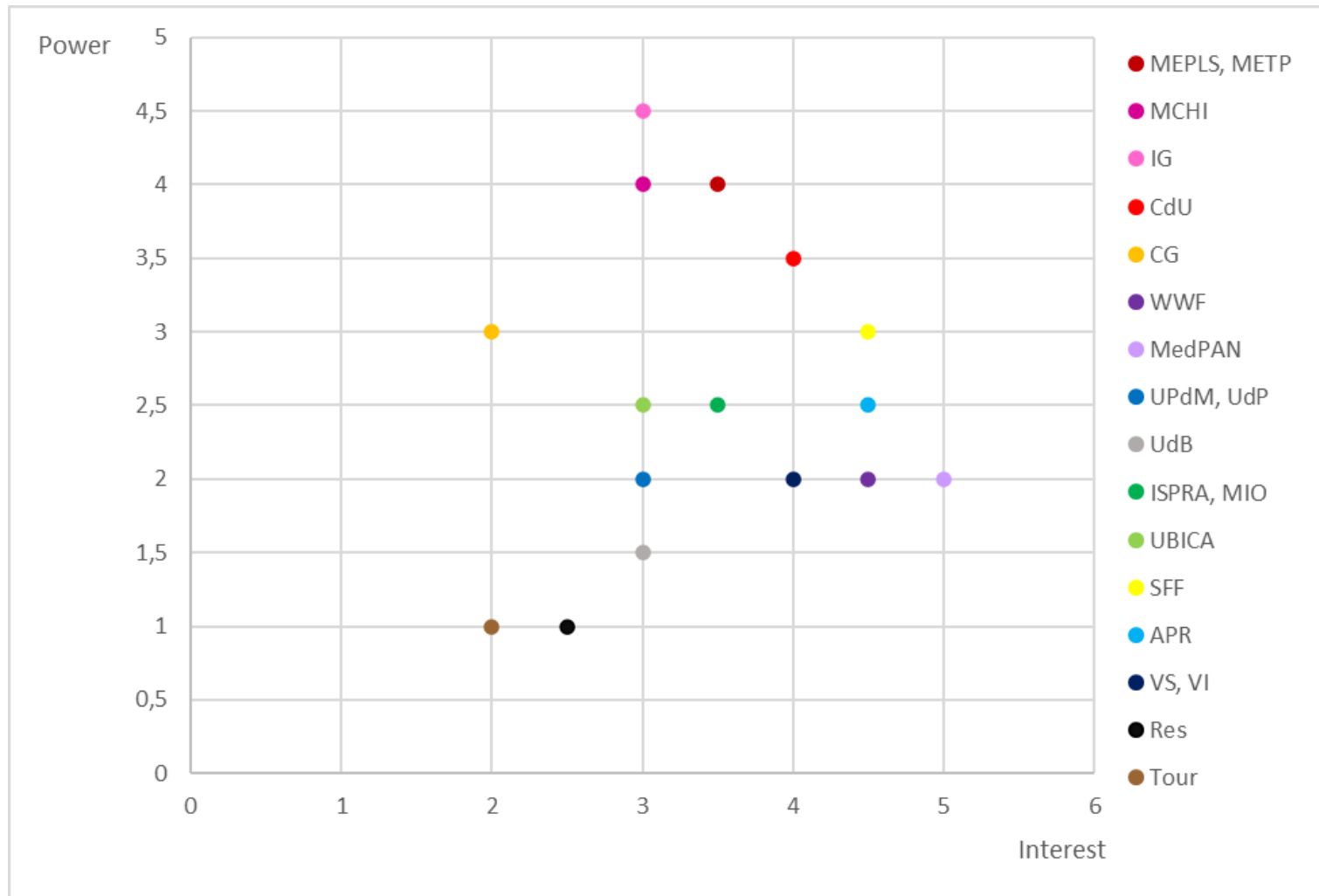


Figure 13. Stakeholder mapping – Italy



6 Conclusion

To summarize, as climate change is increasingly damaging the Earth by causing unprecedented warming, it becomes apparent that measures need to be taken. One of the tools intended aid in the effort to protect and restore the ocean is the creation of Marine Protected Areas. Over the last few years, more MPAs have been established worldwide, and specifically in the EU, to increase ocean protection. Europe has various environmental and ocean management policies in place to facilitate the implementation of MPAs. However, research by the EEA (2015a) has shown that there are not enough EU MPAs and that they lack in effectiveness. Therefore, additional efforts to establish more effective MPAs and improve existing MPAs in the EU is necessary. With this in mind, this thesis aimed to answer the question: *“How can the pitfalls and achievements of the European MPA policy (so far) be explained and how can the policy process be improved upon to further facilitate the establishment of MPAs?”*.

This thesis started off with a discussion of the climate change and MPA context, in which it outlined the current situation and policy of MPAs in the European Union. It went on to present the policy cycle and policy network approach theory, based upon which the collected empirical data could be made sense of. Empirical data was collected through document analysis and stakeholder mapping using a power-interest matrix. The data from these sources was complemented by two written interviews. Together, this information was used to examine the EU MPA policy process and how this affects the establishment and effectiveness of MPAs.

While it is difficult to draw any strong conclusions due to the limitations of this research (referring to the limited number of interview and documents to base the conclusions upon) and the need for further research, some insights from the analysis stand out.

Based upon the analysed documents, the analysis repeatedly underlines the importance of knowledge. Various actors mention the need to share currently available knowledge, both on a national and international level, in addition to gathering more information through further research to overcome the knowledge gap that currently has a negative impact on the policy cycle and in turn of the establishment and effectiveness of MPAs.

Additionally, the results highlighted the importance of coordination and cooperation between the different actors involved both nationally and internationally. Due to the spillovers and transboundary nature of the problems, stakeholders from different countries will need to work together. Furthermore, cooperation is necessary to deal with dependencies and shortages of resources, such as time, funds, personnel, and knowledge.

A final point worthy of note, which is in line with a need for cooperation, is a demand for more coherent implementation across the EU, which can be facilitated by the creation of common practices and tools to be established at the EU level. When designing these tools, the importance of street-level bureaucrats should be kept in mind. The tools should help them gain the things they need, like better understanding of the policy (taking away uncertainties) and policy implementation resources (time, money, knowledge), that will allow them to implement the policy to the best of their ability without creating too much extra administrative burden.

Overall, the tentative answer to the research question would be that despite the achievement of a steady rise in the number of MPAs being established in the EU and the involvement of various stakeholders in the policy process, the EU MPA policy and policy process is plagued by some pitfalls. These take the shape of uncertainties and lack of knowledge as well as significant differences in MPA implementation, which can create an obstacle for achieving the international cooperation. To further facilitate the establishment of MPAs in the future, the EU should consider creating more and clearer guidelines and tools for member states to use during MPA implementation and management. This would result in more coherent implementation and a more holistic and integrated approach. Lastly, the EU should aim to increase its knowledge by continuing to work with research institutions and

(financially) supporting them in their efforts. Further research on the EU MPA policy and policy process is encouraged to be able to provide a better and more conclusive answer to the research question.

Finally, it is important to reflect on the limitations of this research and how this affects its reliability and validity. Starting with the document analysis, which, despite having some significant benefits, also has some drawbacks. One of the drawbacks was that, due to the specific nature of this research and the cases that were chosen, it was sometimes difficult to find relevant documents. Additionally, as described in the methodology (section 4.5), it is important to be aware that the selection of documents is a biased process that is up to the discretion of the researcher. As a result, different researchers might produce (slightly) different documents, which should not hinder this method from being used but should be noted as it might affect its reliability. The most important limitation of the document analysis (also in section 4.5) is the possible researcher bias incurred during the analysis. The coding process is influenced by the researcher, which affects its reliability and validity. To limit the effects of the bias, this thesis tried to carefully display the coding process by presenting the open deductive codes (Table 8), the preliminary results codes (Table 9) and the overview of codes and themes with excerpts (Table 10, Appendix B). Internal consistency was achieved by coding and re-coding the documents several times, especially when encountering a new code.

The interviews also came with limitations. Some are inherent to the nature of a written interview, such as the risk of the responses being less spontaneous and more formal because respondents might feel the need to give a 'politically correct' answer. Additionally, there is less opportunity for the respondents indicate unclarity and for the researcher to steer respondents in the right direction in case of misinterpretation. The thesis tried to overcome this problem by creating an interview protocol that included explanations and clarifications of concepts and clearly stating the questions. Finally, as laid out in section 4.5, the scope of the interview was limited. This was partially intended (only three interviews were planned) and partially not, because while all three respondents agreed to take part in the interview, due to resource restrictions (in terms of time and personnel), personal circumstances and other unknown disturbing factors, unfortunately only 2 out of three respondents were able to follow through and actually sent in their answers, affecting the generalizability of the answers.

Lastly, the power-interest matrix has its limitations due to the nature of the concepts of power and interest as described in section 4.5. Additionally, it should be mentioned that the ranking system is normative and up to the researchers' discretion, affecting the consistency across raters. However, because of the theoretical base of the concepts, the explanation and substantiation of the ranking process (in the methodology and as part of the analysis), other researchers should come to similar scores.

7 References

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8 Appendices

Appendix A

Interview questions

This interview is conducted as part of my master thesis research into European Marine Protected Areas (MPAs) policy and policy process. For my research I am examining the current MPA policy and am trying to explain its pitfalls and achievements. The question that I want to answer is: “How can the policy-making process be improved upon to facilitate the establishment of MPAs?”.

Because a democratic policy process demands a due stakeholder engagement process, I wanted to ask you, as a key stakeholder, some questions about your experience in this MPA-related policy cycle. I am sure your knowledge of MPAs would be valuable for my research. The interview is structured into distinct parts, each containing specific questions. It starts with questions concerning the European MPA policy framework, followed by questions about the National/Regional policy that are focused on the various policy cycle stages. Then it dives deeper into MPA management and finally there are some general questions.

European policy

These questions are about the European policy framework for Marine Protected Areas. Are you aware of the European MPA policy framework? If yes, please answer the next three questions, if not please skip ahead to the next section (national/regional policy).

1. What would you say are the biggest achievements of the European MPA policy so far?
2. What would you say are the biggest pitfalls of the European MPA policy so far?
3. If you could change anything about the European MPA policy, what (if anything) would you change?

National/Regional policy

These questions are about the national and regional policy for Marine Protected Areas. They are structured based on the policy process (the cycle from agenda-setting to implementation). Four policy cycle stages are examined in my research: agenda-setting, policy formulation, policy design/adoption and policy implementation. Before each section, you will find a brief explanation of what each policy cycle stage entails, followed by the questions. The questions are the same for each section, allowing you to go through them in a few minutes.

The questions also concern stakeholder involvement in the different stages of the policy cycle. In this case, stakeholders are those who use and depend on the MPA, whose activities affect it or who have an interest in it.

1. Can you briefly describe the policy process for your MPA?
2. Can you indicate the scale of the main decision-making institution for your MPA (e.g., municipal, provincial/regional, national)?

Agenda setting phase

The agenda setting phase is the first phase of the policy cycle that deals with what kind of problems need to be prioritized by policymakers and, therefore, need to be on the agenda.

1. How involved would you say stakeholders were and you specifically?
2. What were the achievements during the agenda-setting phase?
3. What were the pitfalls and points of improvement during the agenda-setting phase?

Policy formulation phase

The policy formulation phase is the second phase of the policy cycle that aims to generate options on what to do about a public problem that was recognized during the agenda-setting phase. Policy formulation consists of identifying and assessing the various solutions available to solve policy problems.

1. How involved would you say stakeholders were and you specifically?
2. What were the achievements during the policy formulation phase?
3. What were the pitfalls and points of improvement during the policy formulation phase?

Policy design and adoption

The policy design and adoption phase are the third phase of the policy cycle that decides on which of the options discussed in the previous stages will be approved and followed as an official course of action.

1. How involved would you say stakeholders were and you specifically?
2. What were the achievements during the policy design and adoption phase?
3. What were the pitfalls and points of improvement during the policy design and adoption phase?

Policy implementation

The policy implementation phase is the fourth (and final – for this research) phase that concerns putting in place the decisions that were made during the previous stages. The best policy option(s) has been chosen and all that is left is to implement the policy.

1. How involved would you say stakeholders were and you specifically?
2. What were the achievements during the policy implementation phase?
3. What were the pitfalls and points of improvement during the policy implementation phase?

MPA management: beyond the policy-process

The next set of questions will focus on the management of MPAs. They specifically concern your role and functions in relation to the MPA.

1. In your opinion, what is the biggest achievement of your specific MPA?
2. In your opinion, what is the biggest pitfall of your specific MPA? How do you plan to overcome this pitfall?
3. How happy are you with the day-to-day functioning/working of the MPA?
4. Which actors do you work together with to execute your MPA functions? Which actors do you interact with most?
5. What is the communication like between you and these various actors?
6. Were there any lessons (good practices) that you learned while managing the MPA that you want to share with other European MPAs?

General questions

The final questions are more general questions that are not linked to a specific policy stage/topic.

1. How would you describe your role when it comes to your MPA?
2. Is there anything else that I might have missed that you would like to tell me about that you feel might contribute to my research?

This is the end of the interview. Thank you very much for taking part and answering my questions! If you would like to be informed of the results of my research, please let me know so I can share them with you. Again, thank you and have a nice day!

Appendix B

Table 10. *Document analysis – overview of concepts and themes (codes)*

| Category | Sub-category 1 | Sub-category 2 | Sub-category 3 | Excerpt (example) |
|---------------|-----------------|----------------|----------------|---|
| Marine policy | National policy | | | <ul style="list-style-type: none"> - “Sweden utilizes so-called ‘Environmental Goal System’, which is unique in an international context in that it brings together the goals for the entire society’s environmental work at local, regional and national level. The Government shall decide on strategies with milestones, policy instruments and measures in priority areas where initiatives are judged to be most urgent and where clear policy signals are needed.” (Reinfeldt & Ek, 2013) - “Sweden’s environmental objectives were established by the Riksdag and therefore carry weight in the context of national initiatives.” (Naturvardsverket, n.d.-b) - “As the Netherlands is an EU member state, Dutch environmental policy is to a large extent determined by European level institutions.” (Haastrecht & Toonen, 2010) - “The Cabinet is convinced that the economic potential of the sea can be put to even better use in the 21st century if approached in a sustainable manner, in balance with the marine ecosystem. This vision on ‘green growth’ has been explained in the letter to the Dutch House of Representatives on the Sustainability Agenda.” (MIE & MEA, 2012) - “The Dutch Marine Strategy for its own part of the North Sea is complementary to existing international policy frameworks for the protection and management of species and habitats.” (MIW, MANFQ, MEA & MIKR, 2021) - “The North Sea Agreement calls this task the nature transition. An increase in the scope and intensity of use is only justified if that use is more sustainable and if, at the same time, the restoration and conservation of the North Sea ecosystem are safeguarded.” (MIW, MANFQ, MEA & MIKR, 2021) |
| | EU policy | | | <ul style="list-style-type: none"> - “The EU’s integrated maritime policy (IMP) and marine strategy framework (MSFD) already express a determination to use an ecosystem approach for the integrated management of human activities” (EASAC & EC, 2016) - “Biodiversity conservation is high on the political agenda, as expressed in global and European ambitions to increase marine protected to a 30 percent coverage by 2030.” (Morf et al., 2022) - “According to 8 out of 12 interviews existing policy is perceived as providing clear and helpful guidelines for how to work with MPA management. However, several of the interviewees add that the rules and regulations are open for interpretations and that there is a continuous learning process on how to understand them.” (Sandström et al., 2016) - “The establishment of the European ecological network Natura 2000 is also of great importance for the conservation of biological diversity within the EU. It is |

Marine protected areas

important that the Swedish part of this network is complete and functional.” (Reinfeldt & Ek, 2013)

- “The design of EU fisheries and agricultural policies is also important, as is protection of areas of significant natural and cultural heritage interest.” (Naturvardsverket, n.d.-a)
- “Many global forms of cooperation, such as HELCOM do not contain legal rules of a binding nature.” (Bergquist, 2003)
- “Natura 2000 is the most relevant for the establishment of marine reserves on Swedish territory.” (Bergquist, 2003)
- “The EU has established the most comprehensive marine policy frameworks in the world, resulting in significant, sometimes decade-long, efforts being made by member states to protect and enhance Europe’s seas, including using them sustainably.” (EEA, 2019a)
- “The MPA concept encompasses a broad range of different institutional arrangements, such as marine national parks and marine nature reserves that are governed by different rules that reflect various degrees of protection. Thus, the balance between conservation and use differs significantly.” (Sandström et al., 2016)
- “Most MPAs are biologically important areas that deserve protection through effective management. MPAs are usually areas where human activity is strongly regulated or even not allowed at all (as in a no-take zone), but current legal definitions of MPAs embrace a range of objectives in relation to species, habitats and ecological processes” (EASAC & EC, 2016)
- “High natural values, and known threats towards these values, are the main motivation in creating new MPAs. Outspoken desires to enhance human use and attract visitors are also important motivations. Thus, existing MPAs are the results of several drivers and various overall management goals.” (Sandström et al., 2016)
- “Several managers emphasize that marine management lags behind terrestrial management in regards to several aspects. According to these interviewees, there is less guidance for how to work with marine conservation than terrestrial conservation, MPAs are less managed than protected areas on the land.” (Sandström et al., 2016)
- “Portugal, Italy, Spain, France, and Germany strongly agreed with the designation of protected areas with three quarters of the population ‘agreeing or strongly agreeing’ to designations.” (Potts et al., 2011)
- “The idea that marine protected areas (MPAs) can form an important contribution to the conservation of marine biodiversity and other ecological values is reflected by a range of international policy arrangements and instruments.” (Haastrecht & Toonen, 2010)
- “Proposals for new protected areas often meet local resistance and give rise to conflicts between societal groups.” (Morf et al., 2022)

MPA costs

MPA benefits

MPA benefits for stakeholders

- “Tools are required to assess cultural values of coastal areas and address the impact produced by different sea uses of them (offshore windfarm, port development, aquaculture, pipelines).” (Depellegrin & Blazauskas, 2013)
- “Most of the Italian legislation and regulations related to MPAs recognize to nature conservation an ‘added value’ able to diversify tourism economy. However tourism can be a double-edged blade that can negatively impact the environment (through e.g., discharge from cruise ships, building in coastal areas and increased sewage and waste).” (D’Anna et al., 2013)
- “Individuals will require an incentive structure to participate in the MPA and the process of design and implementation.” (FAO, 2006)
- “They also offer opportunities for use as field laboratories for marine scientists.” (EASAC & EC, 2016)
- “High natural values, and known threats towards these values, are the main motivation in creating new MPAs. Outspoken desires to enhance human use and attract visitors are also important motivations.” (Sandström et al., 2016)
- “There are also potential political benefits derived from the creation of a shared no-trawl area. A transboundary no-trawl area is expected to produce international cooperation between bordering countries, and may simplify the definition of their maritime boundaries.” (Bastari et al., 2016)
- “Fish populations in MPAs often increase in size through enhanced reproduction, with the spillover benefits beyond the protected area enhancing fisheries yields.” (EASAC & EC, 2016)
- “Can marine protected areas conserve or preserve stocks of commercially or recreationally fished species? Recent opinion suggests the answer is yes. Theoretically, creation of a no-take marine reserve would allow population growth through simultaneous decreases in adult mortality and increases in average female fecundity, and may additionally buffer the population against the cumulative effects of harvest pressure and environmental extremes. Adult biomass within the reserve would increase as both number and size of individuals expands in response to relaxed fishing pressure.” (Boersma & Parrish, 1999)
- “Several studies have concluded that reserves increase the size and number of a variety of formerly fished species relative to surveys conducted at the same site prior to reserve designation or in equivalent, but fished, habitat. When biomass of one or a very few former target species are assessed, the results are usually unequivocally positive, particularly in the first few years following reserve designation.” (Boersma & Parrish, 1999)
- “By establishing a marine reserve with a fishing ban, we can protect a marine area from overfishing of its resources and damage to the environment.” (Bergquist, 2003)
- “Several studies report evidence that limiting or banning bottom trawling from large areas can provide some of the positive economic and biological effects

MPA benefits for fisheries

MPA benefits for tourism

- expected from LMPAs, as well as additional benefits specific to benthic and demersal communities.” (Bastari et al., 2016)
- “No-trawl zones are expected to promote recovery of depleted target populations and benefit adjacent fishing ground and fisheries through larval, juvenile and adult spillover.” (Bastari et al., 2016)
 - “While LMPAs regulating fisheries alone cannot directly address additional pressures (such as climate changes, marine pollution), they are expected to increase population and ecosystem resilience to global change by decreasing cumulative impacts and recovering diversity and functional redundancy.” (Bastari et al., 2016)
 - “Generally speaking professional fishers look with interest at those tourist-related activities which produce an increase in their revenues. From this point of view no conflict seems to occur between fisheries and tourism.” (D’Anna et al., 2013)
 - “Other aims of MPAs include socio-economic benefits, such as enhanced income for local populations due to increased tourism, triggered by the enhanced profile of an area designated as an MPA.” (EASAC & EC, 2016)
 - “In apparent contrast to the destructive pressures of habitat conversion and overextraction of natural resources, increasing economic value is being realized from ecosystem preservation in the form of tourist and amenity income. Surprisingly, ecotourism accounts for 5-15% of global tourist dollars and this sector of the economy is growing at approximately 30% per annum.” (Boersma & Parrish, 1999)
 - “Preservation of coastal systems can also add to land values as retirees and vacationers are willing to pay more for aesthetic experiences provided by a functioning, relatively undisturbed ecosystem.” (Boersma & Parrish, 1999)
 - “The Adriatic region is one of the most visited sectors of the Mediterranean for tourism. Marine mammals, such as dolphins, whales, seals as well as sea turtles and sharks, were abundant in the Adriatic basin in the past. A no-trawl zone, could promote recovery of these species, which are important attractions for tourists interested in nature-related activities. It has been calculated that more than 300 millions per year are being spent by shark-watchers, supporting 10000 jobs.” (Bastari et al., 2016)
 - “Most of the Italian legislation and regulations related to MPAs recognize to nature conservation an ‘added value’ able to diversify tourism economy. However tourism can be a double-edged blade that can negatively impact the environment (through e.g., discharge from cruise ships, building in coastal areas and increased sewage and waste). Some stakeholders operating in the tourism sector stated that most tourists do not even know of the presence of an MPA: they rather come for the beauty of the landscape and seascape, for the archaeological sites and for the presence of traditional tuna fishery.” (D’Anna et al., 2013)

*MPAs as
policy/management
tool*

Climate change

*Climate change
challenges*

*Marine protected
area challenges*

- “We highlight that networks of marine protected areas need increased attention as tools within overall ecosystem-based management.” (EASAC & EC, 2016)
- “Marine protected areas are promoted as a tool for marine conservation, but also have potential to contribute to ecosystem-based management.” (EASAC & EC, 2016)
- “Within the last few decades, marine reserves have become a highly advocated form of marine conservation and management.” (Boersma & Parrish, 1999)
- “Marine reserves/protected areas are therefore an important tool for the conservation of diversity and can also benefit fisheries and other vulnerable species.” (Bergquist, 2003)
- “There is increasing recognition of the profound effect humans can have on marine systems, leading to a multiplicity of efforts aimed at slowing the degradation of oceans.” (Boersma & Parrish, 1999)
- “Pressure on coastal environments, either directly through habitat alteration or loss as a consequence of usurpation by humans, or indirectly as a consequence of the cumulative effects of dense human presence, is increasing.” (Boersma & Parrish, 1999)
- “An intensification of climate change and acidification of the oceans can be expected to have stark consequences for marine biodiversity and productivity at regional and global scale.” (EASAC & EC, 2016)
- “Mankind seems to believe that the sea can provide an infinite number of resources despite the fact that recent research reports have shown that this is not the case.” (Bergquist, 2003)
- “it is not only over-intensive fishing that threatens marine ecosystems. Marine areas are regularly subject to disturbances of various kinds, such as dredging and boat traffic.” (Bergquist, 2003)
- “The current, generally poor condition of Europe’s seas reflect the combined effects of multiple past and present pressures caused by a broad range of human activities. It means that the way we use the natural capital held in our seas does not appear to be sustainable, as already concluded by the EEA.” (EEA, 2019a)
- “The shallow, semi-enclosed North Sea is ecologically rich, but it is also one of the world’s busiest seas, and a wide range of human activities impact its ecological values, including fishing, shipping, oil and gas extraction, energy production, military operations and the laying of cables and pipelines. Fishing in particular is considered to be the most significant human activity causing change, and reducing the resilience of the North Sea environment to other pressures, such as climate change.” (Haastrecht & Toonen, 2010)
- “Climate change may impact a number of abiotic factors in the North Sea environment on which living organisms depend and/or with which they interact.” (MIE & MEA, 2012)
- “Because fisheries overexploitation is commonly viewed as the chief problem marine communities face, marine reserves have been focused on exclusion of this user sector over others (e.g. tourists). However, even relatively

environmentally sensitive uses of coastal ecosystems can degrade ecosystem structure and function via increasing service demands (e.g. nutrient and toxics transformation) and visitation. There is gathering evidence that increasing tourist use, including boat-bound and diver visits, can negatively affect species abundance, species richness, as well as water and benthic habitat quality.” (Boersma & Parrish, 1999)

- “On a local scale, designation of an MPA could affect point sources of pollution by regulating discharge coastal and vessel sources. Chronic oil pollution may be even more widespread than oil spills. Thus, the effectiveness of a well-designed network of coastal MPAs could be compromised by regional to global pollution which easily crosses reserve boundaries.” (Boersma & Parrish, 1999)
- “Shipping can cause many problems in marine areas as there are always risks of discharges of pollution. There is a risk of oil spills, dumping of garbage and introduction of foreign species from ships.” (Bergquist, 2003)
- “There are various reasons why there are not many reserves in Sweden. Explanations may include the following: lack of knowledge, particular difficulties in protecting marine areas, sectoral responsibility, legal protection, public ignorance and resistance from the professionals concerned.” (Bergquist, 2003)
- “The Mediterranean Sea is a prime example of the difficulty of establishing comprehensive, coordinated marine conservation and management. The Mediterranean has been exploited for centuries and currently is one of the most intensely-used and most impacted seas in the world.” (Bastari et al., 2016)
- “European countries have a long tradition of designating protected areas with the aim of preserving certain natural features. However, incoherent national approaches to protected area designation and a lack of political will are widespread and hinder effective spatial protection for European habitat and species.” (Naumann et al., 2021)
- “The extent of protected area coverage is currently highly diverse across EU member states. A key challenge to achieving the 30% protection of land and sea target by 2030 as set out in the EU Biodiversity Strategy is the high administrative burden it places on member states. This is compounded by the currently insufficient human, financial and technical capacities in the respective countries.” (Naumann, et al., 2021)
- “it must be highlighted that ocean absorption of increased atmospheric heat and carbon dioxide resulting from human activities will significantly deepen the challenge of achieving marine sustainability” (EASAC & EC, 2016)
- “The sector stressed the need to shift the understanding of MPA as ‘physical space’ to be conserved towards the protection of biodiversity as ‘value’ represented by the marine ecosystem.” (Depellegrin & Blazauskas, 2013)
- “The North Sea and the Baltic Sea must have long-term sustainable production capacity and the biological diversity must be preserved. Coast and archipelago must have a high degree of biological diversity, experience values and natural

Network approach

Interdependence

Resource sharing

Knowledge sharing

- and cultural values. Industries, recreation and other utilization of the sea, coast and archipelago must be conducted so that so that sustainable development is promoted.” (Reinfeldt & Ek, 2013)
- “In recent years numerous international conventions have recognized the need to increase protection of marine resources and to reform ocean management to balance the multitude of human marine uses. Significant efforts are taking place worldwide to reach the objective of protecting 10% of costal and marine areas by 2020.” (Bastari et al., 2016)
 - “Marine resource overexploitation poses major threats to biodiversity, resulting in the decline in ecosystem function and flow of ecosystem services, a scenario that is complicated by climate change.” (Bastari et al., 2016)
-
- “On an overall perspective participants stressed the need to share knowledge and experience on how MPAs are managed on Pan-Baltic level (conservation regimes, uses, restrictions, etc.) and on how Baltic MPAs contribute to the protection of marine biodiversity in terms of ecosystem health and connectivity.” (Depellegrin & Blazauskas, 2013)
 - “A clearly expressed need by participants is the sharing of experience and knowledge on the management of marine areas and in particular of MPA in order to have a better understanding of different planning and management approaches (*what works and what doesn't?*). In this context the sector stressed the need for new stakeholder involvement and communication techniques.” (Depellegrin & Blazauskas, 2013)
 - “Given the urgency and complexity of the crisis faced, the time has come to move away from petty information exchange challenges and embrace the strong scientific heritage that resides within Europe.” (EEA, 2019a)
 - “The decisions making process continued to rely heavily on the ecological argumentation as provided by science, and policymakers underscored their trust in scientific judgment by referring to the system of quality control within the scientific community itself ‘the scientists involved are internationally renowned and their work is peer reviewed’.” (Haastrecht & Toonen, 2010)
 - “Scientific information, once taken up into the science-policy process, tends to ‘stick around’, which is apparent from the fact that the initial set of sites proposed by scientists in the beginning of the nineties bears great resemblance to the set of areas that have now been nominated.” (Haastrecht & Toonen, 2010)
 - “Another conclusion we can draw from our analysis is that especially in cases of uncertainty, or of gaps in the available ecological information, the decision making process becomes a close collaboration between scientists and policy makers, in which the latter will sometimes invite the former to suggest a possible course of action for them, based on expert judgment or gut feeling.” (Haastrecht & Toonen, 2010)

Knowledge gap

- “At the same time, scientists as well as policy makers appreciate the need for science to remain an impartial party in the process. After all, the legitimacy of political action is highly strengthened when based on scientific information that can be regarded as objective and not muddled by other interests.” (Haastrecht & Toonen, 2010)
- “This requires a substantially increased commitment to understand water movements and ecological connections between ecologically important and vulnerable areas. This knowledge needs to be built into the development of networks of MPAs” (EASAC & EC, 2016)
- “Conservation of biodiversity and environmental protection are embedded in a complex institutional framework with policies on multiple levels and are characterized by great so-called ‘substantive uncertainties’, which arise from insufficient knowledge as well as different interpretations of available knowledge.” (Sandström et al., 2016)
- “Another goal of the Swedish government is the increase of knowledge in central authorities.” (Reinfeldt & Ek, 2013)
- “Another key factor in safeguarding both natural and cultural values is improved knowledge.” (Naturvardsverket, n.d.-a)
- “Governance is further complicated due to the uncertainty originating from the availability and reliability of scientific information concerning the natural environment.” (Sevä, 2013)
- “Lack of knowledge makes it difficult for the responsible authorities to identify areas that are important to protect, increasing the risk that no decision will be taken on new marine protected areas.” (Bergquist, 2003)
- “While a wealth of information on European terrestrial and marine protected areas is available, many aspects remain less known, such as qualitative descriptions about national and subnational implementation and management and the underlying reasons for similarities and discrepancies among the member states.” (Naumann et al., 2021)
- “If the EU is to make the required change to achieve clean, healthy, and productive seas, while allowing for their sustainable use, it needs data and information to facilitate the change now and in the future. This is in regard to closing the information gaps in the implementation of existing legislation, but also in regard to better informed EBM. This will require not only better use of existing data but also new data. This includes making use of novel ways that are available for collecting analyzing and presenting information, while ensuring that existing gaps are closed.” (EEA, 2019a)
- “to achieve real progress, the EU and its member states need to have better knowledge overall. This includes becoming better at evaluating the measures put in place to manage human uses of Europe’s seas, i.e. to check whether progress stays in line with expectations and to be able to react if not. A condition for this is to make evidence-based decisions for setting environmental targets and threshold values to determine ‘good’ ecosystem condition.” (EEA, 2019a)

Coordination

Cooperation

- “The (potential) effects of these influences on the marine ecosystems are difficult to indicate or predict, as there is too little insight into the working of the various mechanisms and only limited data is available.” (MIE & MEA, 2012)
- The use of policy and management to actually make this effort is hampered by a structural lack of knowledge. That is why it is crucial to continue gathering knowledge” (MIW, MANFQ, MEA & MIKR, 2021)
- “Additional research will be needed to support the additional area protection measures. This also supports the preparation of international consultations and the substantiation of fishery restriction measures.” (MIW, MANFQ, MEA & MIKR, 2021)
- “The survey underlines that existing EU legislation and formats play an important role in fostering transboundary conservation, such as the Nature Directives, the Water Framework Directive and the Marine Strategy Framework Directive as well as the Biogeographical seminars.” (Naumann et al., 2021)
- “Policymakers and scientists need to work together to define what level of disturbance constitutes too much disturbance.” (EASAC & EC, 2016)
- “Sweden aims to fulfill all EU targets and implement directives by 2020. Additionally, the country wants to strengthen the collaboration between HELCOM and OSPAR.” (Reinfeldt & Ek, 2013)
- “The transboundary nature of the sea means that action is needed both in Sweden and internationally to reduce emissions and the negative impacts of activities that make for a poorer environment. Cooperation to improve the marine environment is for example taking place under the EU’s Marine Strategy and Water Framework Directives and the Helsinki and OSPAR conventions.” (Naturvardsverket, n.d.-a)
- “The implementation of Agenda 2030 requires global solidarity to ensure that no country or group is left outside the development process. Agenda 2030 thus emphasizes the responsibility of nations to help reduce environmental problems in other countries.” (Naturvardsverket, n.d.-b)
- “A sub-regional network included in the broader MedPAN network, represents an encouraging precedent of the willingness to develop a collaborative strategy among MPAs in the Adriatic region.” (Bastari et al., 2016)
- “A possible way forward to close this gap would be for the responsible public institutions across different policies (e.g. environmental protection, fisheries, maritime transport, agriculture and waste management) to act in a truly coordinated manner and use the same information platform (so that, for example, marine monitoring can properly inform whether the use of the sea is sustainable).” (EEA, 2019a)
- “Understanding whether EU or European regional seas networks of MPAs are coherent will be optimally supported by an EU-wide network of monitoring stations and observations for evaluating the status of biodiversity within MPAs.” (EASAC & EC, 2016)

Coalitions

- “On an overall perspective participants stressed the need to share knowledge and experience on how MPAs are managed on Pan-Baltic level (conservation regimes, uses, restrictions, etc.) and on how Baltic MPAs contribute to the protection of marine biodiversity in terms of ecosystem health and connectivity.” (Depellegrin & Blazauskas, 2013)
- “All countries adjacent to the Baltic Sea have signed several treaties that aim to conserve biological biodiversity and protect the sea from further environmental degradation. However, common treaties do not necessarily imply common practices.” (Sevä, 2013)
- “The Netherlands focuses on international collaboration within the framework of the OSPAR Convention and the CFS scope, emphasizing the countries in the Southern part of the North Sea subregion.” (MIE & MEA, 2012)
- “Advocacy coalitions, that is, groups of actors with shared beliefs, whether in favour of or against protection, coordinate their actors to influence these processes.” (Morf et al., 2022)
- “One of the needed skills of a policy entrepreneur is indeed the capacity of building coalitions and broader networks. Networking is needed because it helps policy entrepreneurs discovering opportunities and enable them to collect reliable information in a more easy and efficient manner.” (Tonino, 2014)
- “By means of coalitions and networks, policy entrepreneurs gain resources, money and support.” (Tonino, 2014)
- “Maintaining efficient relations within coalitions and networks requires a delicate process of trust building: this has to be another skill of the policy entrepreneur.” (Tonino, 2014)
- “Policy change is a process that usually does not regard a single person only but includes several people that gain together because they share the same interests and objectives and because together they can more easily reach a common target.” (Tonino, 2014)

Transboundary

- “Coalitions and alliances are common to gain support, resources, information, and knowledge in the process of spreading new policy ideas.” (Tonino, 2014)
- “must also take into account the connectivity of the marine system within and between Member States’ marine waters.” (EASAC & EC, 2016)
- “A focus on protected areas, disregarding the surrounding environment, fails to consider the openness of marine systems. The features of a given site are strictly linked to the conditions of other sites” (EASAC & EC, 2016)
- “The transboundary nature of the sea means that action is needed both in Sweden and internationally to reduce emissions and the negative impacts of activities that make for a poorer environment.” (Naturvardsverket, n.d.-a)
- “Thus, the effectiveness of a well-designed network of coastal MPAs could be compromised by regional to global pollution which easily crosses reserve boundaries.” (Boersma & Parrish, 1999)
- “Connectivity between landscapes is vital to maintain healthy species, communities and ecosystems as large-scale ecological and evolutionary

Policy cycle/process

- processes rely on it. Yet natural landscapes across Europe are often fragmented and split into disconnected areas.” (Naumann et al., 2021)
- “In practice, most EU member states have multiple transboundary protected areas along their borders. According to the survey, transboundary perspectives are generally addressed on the regional or local level (predominantly in border regions) and are not strategically included in any national protected area design or planning procedures.” (Naumann et al., 2021)
 - “The Marine Strategy is, above all, an international strategy. In the open sea, where neither ecosystem nor use stays within national boundaries, an international approach is the most effective.” (MIE & MEA, 2012)
 - “The process of establishing new MPAs is normally coordinated by a smaller core groups of people including both marine and terrestrial competence within the studied regional authorities. Other experts, such as consultants and researchers, are included when needed.” (Sandström et al., 2016)
 - “The key policy message is that there appears to be considerable goodwill and political capital in the public mind for the designation and development of marine protected areas, and this goodwill should be used wisely to develop transparent, participatory, publicly supported and ecologically coherent marine protected areas.” (Potts et al., 2011)
 - “MPAs and networks of MPAs may be initiated from the bottom up (e.g. by individuals and local communities seeking sanction from higher scales of governance) or from the top down (e.g. high level policies implemented locally). Effective governance in the long term is likely to depend on sharing responsibility over a hierarchy of scales, with responsibility delegated to the lowest (i.e., most local) scale that has the ability to achieve objectives.” (FAO, 2006)
 - ““In policymaking, there is often a delay between stating a problem and dealing with it. Policy makers of the different departments involved did not see how this topic was linked to their own field. It took some years for them to realize what they had to do with it’. In that sense, the case of protected areas at sea was not unlike other policy issues, although probably somewhat more challenging because it had to be dealt with in and between different departments.” (Haastrecht & Toonen, 2010)
 - “Biodiversity conservation is high on the political agenda, as expressed in global and European ambitions to increase marine protected to a 30 percent coverage by 2030.” (Morf et al., 2022)
 - “In order to be successful, policy entrepreneurs should recognize and exploit particular moments wherein present and promote their ideas. This is considered a strategy called ‘window of opportunity’.” (Tonino, 2014)
 - “This window offers opportunities for policy entrepreneurs to propose a new idea and gaining support for new policy proposals. Windows of opportunity last just for a short time, therefore it is fundamental for policy entrepreneurs to recognize and exploit those moments appropriately.” (Tonino, 2014)

Agenda-setting

Window of opportunity

- “After this first period of interest in area-based management measures in the Dutch part of the North Sea, attention drifted away.” (Haastrecht & Toonen, 2010)
 - “Several policy makers emphasized that in policy making ‘the time has to be right’.” (Haastrecht & Toonen, 2010)
 - “In that sense, the case of protected areas at sea was not unlike other policy issues, although probably somewhat more challenging because it had to be dealt with in and between different departments. ‘Whether a project such as this is taken up depends on creating support among all involved parties, as well as a shared sense of urgency’.” (Haastrecht & Toonen, 2010)
 - “In any case, interest for area-based nature conservation in the Dutch part of the North Sea did not pick up again until a few years later. The new impulse to the process was given by the fact that in 1997 the EU decided that Natura 2000 provisions also applied to the EEZ of member states, and in 1998, Greenpeace threatened the UK government with court action, because it did not comply with the Habitats Directive in its EEZ. In the Netherlands, this was felt as a warning of imminent complications in marine spatial planning and created a sense of urgency that action needed to be taken.” (Haastrecht & Toonen, 2010)
 - “Two years went by before the process picked up speed again. The 2002 Bergen Declaration, along with the commitments made to the international community, eventually led policymakers to take up the project again with renewed energy, aware of the fact that this time the Netherlands would have to meet the international requirements.” (Haastrecht & Toonen, 2010)
- Policy formulation
- Policy
brokers/entrepreneurs*
- “Individual key actors can play a vital role for policy-oriented learning. So-called policy brokers can facilitate learning in their search for compromises and promote collaborative ties. These brokers are often administrative actors with relatively moderate beliefs, solid reputations, and connections to actors from more than one coalition.” (Morf et al., 2022)
 - “Maintaining efficient relations within coalitions and networks requires a delicate process of trust building: this has to be another skill of the policy entrepreneur.” (Tonino, 2014)
 - “Networking requires also the capability by the policy entrepreneur to understand which venue can better fit the objectives of the policy change process.” (Tonino, 2014)
- Policy implementation
- “The findings of this paper, generated through the lens of frontline bureaucrats, point towards policy beliefs and implementation resources being in the two decisive factors defining policy outcomes in policy subsystems characterized by great institutional and substantial uncertainty. The findings have implications for policy and management.” (Sevä, 2013)
 - “the Swedish case calls for deliberative strategies from central policymakers to more effectively govern frontline bureaucrats to gain more equal policy output.” (Sevä, 2013)

*Street-level
bureaucrats*

- “One could be that somewhere within the institutional set-up and implementation process, at the EU, regional and national levels, there is a tension between how different policies or institutions interpret such goals and/or a gap between policy visions and the achievement of objectives through the necessary management measures.” (EEA, 2019a)
- “in order to help close the implementation gap, the targets measuring progress towards these objectives should be strictly based on scientific evidence targets (rather than, for example, fishing quotas not always being set according to scientific advice).” (EEA, 2019a)
- “The crucial role of low-level public managers, typically referred to as street-level or front-line bureaucrats, for the implementation of public policy has long been emphasized by scholars of public administration. The location of these managers at the end of the policy chain places them in a position to influence the interpretation of centrally imposed policies and translate them into practical management strategies and concrete action.” (Sandström et al., 2016)
- “Given the great uncertainty surrounding conservation policy, the ways in which regional conservation managers read and interpret these rules matter significantly. The assumption is that their perceptions of policy and notions of what is expected from them in order to work in line with the instructions affect their performances.” (Sandström et al., 2016)
- “The basic idea is that the policy beliefs function like a filter through which both formal policy and new information passes before decisions are made. Thus, the regional managers’ policy beliefs – their appreciation of how important genetic biodiversity is, to what extent genetic biodiversity is threatened and what appropriate management solutions to be problems are – might influence regional practice.” (Sandström et al., 2016)
- “According to 8 out of 12 interviews existing policy is perceived as providing clear and helpful guidelines for how to work with MPA management. However, several of the interviewees add that the rules and regulations are open for interpretations and that there is a continuous learning process on how to understand them.” (Sandström et al., 2016)
- “the Swedish case calls for deliberative strategies from central policymakers to more effectively govern frontline bureaucrats to gain more equal policy output.” (Sevä, 2013)
- “The basic idea is that the policy beliefs function like a filter through which both formal policy and new information passes before decisions are made. Thus, the regional managers’ policy beliefs – their appreciation of how important genetic biodiversity is, to what extent genetic biodiversity is threatened and what appropriate management solutions to be problems are – might influence regional practice.” (Sandström et al., 2016)
- “In cases of uncertainty or vague policies, the bureaucrats’ own policy beliefs become a decisive factor in the implementation process.” (Sevä, 2013)

Policy beliefs

*Policy
understanding*

- “The formal policy, in regards to both substance and process, might not correspond with bureaucrats’ own beliefs, thereby leading to selective strategies or non-cooperation in different ways. Thus, the policy beliefs held by bureaucrats affect the implementation of formal policy, and divergent beliefs might explain differences in decision making at the lower levels of administration.” (Sevä, 2013)
- “Given the great uncertainty surrounding conservation policy, the ways in which regional conservation managers read and interpret these rules matter significantly. The assumption is that their perceptions of policy and notions of what is expected from them in order to work in line with the instructions affect their performances.” (Sandström et al., 2016)
- “According to 8 out of 12 interviews existing policy is perceived as providing clear and helpful guidelines for how to work with MPA management. However, several of the interviewees add that the rules and regulations are open for interpretations and that there is a continuous learning process on how to understand them.” (Sandström et al., 2016)
- “Vague policies are a common feature in policy sectors, where it is difficult for politicians to have a clear view of the exact policy content because of the complexity of problems. Furthermore, policies in a subsystem can be extensive and non-coherent, which can result in selective implementation. All in all, these factors might result in frontline bureaucrats developing different understandings of formal policy, its substance, and implications. It is assumed that their understanding of policy affects their decisions.” (Sevä, 2013)
- “Swedish bureaucrats expressed different views regarding the clarity and substance of rules, regulations and guidelines. They also made different interpretations regarding what policy actually implies for their own decisions. Two bureaucrats perceived regulations as generally clear, although interpretations are needed. Meanwhile, others considered them to be ambiguous” (Sevä, 2013)

*Implementation
resources*

- “Implementation resources constitute the second factor in the analytical framework. The concept is normally understood as individuals (or organizations), i.e. the network of resource providers, that assist in the implementation of policy, for example by providing information, knowledge and good examples to the managers.” (Sandström et al., 2016)
- “the characteristics of the regional managers’ networks of advice – where and to whom they turn for guidance – are considered influential, especially in the decision-making situations characterized by uncertainty and when there are many possible interpretations of policy.” (Sandström et al., 2016)
- “Analysing the managers’ networks of advice, it can be noted that a broad range of actors assists the regional managers in their work depending on the particular management.” (Sandström et al., 2016)
- “All managers describe a working situation characterized by a great shortage of resources in terms of money, time and knowledge.” (Sandström et al., 2016)

Stakeholder involvement

- “The implementation process brings about significant challenges as many different levels of governance, supranational, national, regional and local are engaged in the process of realizing these far-reaching goals. Multilevel governance structures, and the existence of a multitude of actors representing different policy sectors, can result in different interpretations, disagreements and divergences.” (Sevä, 2013)
- “Policy does not always provide frontline bureaucrats with explicit knowledge on how to translate it into action (i.e., guidance for practice). In order to enhance understanding of policy, frontline bureaucrats can turn to different actors, such as government institutions, universities, professional associations, or consultants. Thus, the implementing resources to which frontline bureaucrats turn, if they need help to interpret policy, affect their knowledge of policy and therefore shape decisions and the implementation of policy.” (Sevä, 2013)
- “The Swedish bureaucrats consulted academic research in their work and defined the crucial role of the SwAM as a mediator for scientific knowledge through their reports and conferences. Three of four bureaucrats also mentioned contact with universities.” (Sevä, 2013)
- “in order to help close the implementation gap, the targets measuring progress towards these objectives should be strictly based on scientific evidence targets (rather than, for example, fishing quotas not always being set according to scientific advice).” (EEA, 2019a)
- “At the operational level, bureaucrats have to ‘navigate within a complex policy subsystem of multiple actors and policy-making institutions, conflicting goals and disparate problem definitions’.” (Sevä, 2013)
- “The findings illustrate the importance of transparent mechanisms whereby scientific evidence is explicitly included in the decision making process and that civil society has a very important ‘seat at the table’.” (Potts et al., 2011)
- “Communication about the purpose and intent of the MPA must be clear and transparent and presented early in the process so that any misperceptions can be addressed. Different perspectives of individuals and local groups will need to be understood and considered.” (FAO, 2006)
- “However, many other ‘stakeholders’ or ‘actors’ would also be ‘interested parties’ with respect to the implementation of the MSFD, if they have an interest in the outcome or an influence on the outcome. They include the many people whose livelihood and welfare depends on the sea, such as: fishers and shellfish harvesters; aquaculture farmers; offshore extractors of minerals such as oil, gas, sand and gravel; offshore wind farms, tidal and wave energy; coastal, cruise and eco-tourism developers; and maritime transport. This also includes the millions of people who choose ‘sun, beach, and sand’ vacations.” (Newton & Elliott, 2016)
- “the Dutch approach to sustainable marine governance is characterized by the balancing of interests and providing maximum flexibility to economical

- interests, ‘allowing as much scope as possible for private sector initiatives’.” (Haastreht & Toonen, 2010)
- Stakeholder perceptions*
- “The majority of the Dutch believe that both the government and citizens are responsible for solving the (potential) environmental issues regarding the North Sea.” (MIE & MEA, 2012)
 - “How far actors are ready to invest in participation depends on their stakes and power and the availability of alternative ways of achieving their objectives.” (Morf et al. 2022)
 - “Attitudes of all stakeholders towards the MPA will need to be understood and followed, as they will shift over time.” (FAO, 2006)
 - “Perceptions and attitudes towards MPAs will also be shaped by cultural traditions and values. Different groups of resource users and stakeholders may hold different, or unexpected, positions regarding MPAs and marine resources due to their uses of the resource, culture, family and community traditions, beliefs, expectations about the future, environmental knowledge and the value that they put on the resource.” (FAO, 2006)
- Need for (increased) stakeholder involvement*
- “It was further noted that there is a specific requirement by the sector for a stronger stakeholder involvement, development of consultation methods and the need for socio-economic valuation studies in order to better address the research topics to decision makers.” (Depellegrin & Blazauskas, 2013)
 - “the sector stressed the need for new stakeholder involvement and communication techniques.” (Depellegrin & Blazauskas, 2013)
 - “it needs to be recognized that there is a trade-off between the extent and impact of externalities on the ability to govern and the extent of participation by multiple sectors.” (FAO, 2006)
 - “Successful integrated marine management requires the coordination of many aspects, from an assessment of the source, causes, and consequences of problems, the delivery of ecosystem services and societal benefits, the incorporation of governance from the local to the global, and implementing the ecosystem approach. The success of each of these requires the input from and often agreement with the ‘stakeholders’.” (Newton & Elliott, 2016)
- Stakeholder involvement process*
- “The process of establishing new MPAs is normally coordinated by a smaller core groups of people including both marine and terrestrial competence within the studied regional authorities. Other experts, such as consultants and researchers, are included when needed and some stages of the process usually involve consultation with concerned stakeholders such as property owners, hunting and fishing organizations and the general public.” (Sandström et al., 2016)
 - “The development, management and performance of MPAs are shaped by a convergence of institutional interests between resource users, resource stakeholders, community, local government, national government, and international agencies.” (FAO, 2006)

*Benefits of
stakeholder
involvement*

*Holistic/integrated
approach*

- “Important to note is that this was not only interplay between scientists and policy-makers. There was a strong combined lobby of several of the Dutch environmental NGOs at the time, lead by the Working Group North Sea, the predecessor of the present North Sea Foundation and the Wadden Sea Foundation. These NGOs sought cooperation with marine scientists to provide supporting evidence for their cause, which eventually led to a more active involvement of scientists in the policy process as well. In the years to follow, environmental NGOs continued to fuel the debate.” (Haastrecht & Toonen, 2010)
- “The decisions making process continued to rely heavily on the ecological argumentation as provided by science, and policymakers underscored their trust in scientific judgment by referring to the system of quality control within the scientific community itself ‘the scientists involved are internationally renowned and their work is peer reviewed’.” (Haastrecht & Toonen, 2010)
- “Another conclusion we can draw from our analysis is that especially in cases of uncertainty, or of gaps in the available ecological information, the decision making process becomes a close collaboration between scientists and policy makers, in which the latter will sometimes invite the former to suggest a possible course of action for them, based on expert judgment or gut feeling.” (Haastrecht & Toonen, 2010)
- “Building strategic partnerships with private and societal stakeholders, including networks of non-governmental organizations and bottom-up citizens’ initiatives, can help to actively protect valuable land.” (Naumann et al., 2021)
- “Ideally, governance structures and processes for MPAs should incorporate relevant multi-sectoral interests (e.g. mining, transportation, tourism, fisheries) as a means to facilitate improved implementation and compliance.” (FAO, 2006)
- “Stakeholder engagement and involvement is the basis of a participatory process and is fundamental to acceptance of management actions and by definition the process is not participatory if stakeholders are not involved.” (Newton & Elliott, 2016)
- “Government therefore strive to engage stakeholders to influence policy and to reach a consensus for sustainable management.” (Newton & Elliott, 2016)
- “The EU’s integrated maritime policy (IMP) and marine strategy framework (MSFD) already express a determination to use an ecosystem approach for the integrated management of human activities” (EASAC & EC, 2016)
- “We urge that the ecosystem approach is applied in a holistic manner to strengthen the EU’s integrated maritime policy through concerted application of the common framework of goals for good environmental status under the MSFD.” (EASAC & EC, 2016)
- “This framework for ecosystem health should be used to achieve a closer integration of EU marine environment, maritime, marine fisheries, and marine nature policies.” (EASAC & EC, 2016)

Ecosystem-based approach

- “Sweden underlines the importance of an integrated approach. Arguing that the strategy is needed for a holistic view in the development of environmental considerations within the use and the voluntary efforts as well as the authorities’ measures.” (Reinfeldt & Ek, 2013)
- “Efforts for the conservation of biological diversity and ecosystem services need to be made with a holistic perspective where ecological connections are taken into account.” (Reinfeldt & Ek, 2013)
- “When trying to steer towards a systemic approach aiming to achieve long-term sustainability, one needs to realize the various temporal and spatial scales involved in achieving current targets and future visions.” (EEA, 2019a)
- “To achieve such integration, cooperation at various geographical scales (local, national, regional and EU-level), across scientific disciplines, businesses and countries, and with citizens is more relevant than ever for halting ecosystem degradation.” (EEA, 2019a)
- “The EU’s integrated maritime policy (IMP) and marine strategy framework (MSFD) already express a determination to use an ecosystem approach for the integrated management of human activities” (EASAC & EC, 2016)
- “We urge that the ecosystem approach is applied in a holistic manner to strengthen the EU’s integrated maritime policy through concerted application of the common framework of goals for good environmental status under the MSFD.” (EASAC & EC, 2016)
- “We highlight that networks of marine protected areas need increased attention as tools within overall ecosystem-based management.” (EASAC & EC, 2016)
- “Marine protected areas are promoted as a tool for marine conservation, but also have potential to contribute to ecosystem-based management.” (EASAC & EC, 2016)
- “The Habitats Directive does not currently take into account the water column as a habitat, focusing on the benthic realm. This shortcoming needs to be corrected to facilitate effective MPA network design, because the functional properties of pelagic systems are extremely important in ecosystem functioning.” (EASAC & EC, 2016)
- “The sector stressed the need to shift the understanding of MPA as ‘physical space’ to be conserved towards the protection of biodiversity as ‘value’ represented by the marine ecosystem.” (Depellegrin & Blazauskas, 2013)
- “Research suggests that social factors, not biological or physical variables, are the primary determinants of MPA success or failure.” (FAO, 2006)
- “Fishers, fishing households and fishing communities worldwide are not homogenous. It is critical to recognize that each location has its unique social and ecological context that influences MPA design, implementation and impact.” (FAO, 2006)
- “social science has identified some generalities about coastal people and communities which may affect MPA design and implementation, and that are important to take into consideration. Coastal communities in many locations

Social equity/social factor

Evaluation/evaluating

around the world face a growing degree of insecurity as a result of poverty and high dependence upon natural resources. MPA design and implementation should seek to understand the diversity of coastal people and communities, especially in relation to their livelihood strategies. It also requires understanding the means by which households adapt to reduce their risks, the incentives that drive the decisions of resource users, and the sources of vulnerability to stresses and shocks.” (FAO, 2006)

- “Marine reserves are not only the product of social processes, but also have social ramifications. Marine reserves, like other forms of resource management, allocate access to and use of marine resources among individuals and social groups and, thereby, directly and indirectly shape society.” (FAO, 2006)
 - “A particular MPA may be both a biological ‘success’ – resulting in increased fish abundance and diversity and improved habitat – and a social ‘failure’ – lacking broad participation in management, sharing of economic benefits, and conflict resolution mechanisms. Short term biological gains will likely disappear unless these social issues are addressed.” (FAO, 2006)
 - “MPA design and implementation should seek to understand the diversity of coastal people and communities, especially in relation to their livelihood strategies. It also requires understanding the means by which households adapt to reduce their risks, the incentives that drive the decisions of resource users, and the sources of vulnerability to stresses and shocks.” (FAO, 2006)
 - “Understanding whether EU or European regional seas networks of MPAs are coherent will be optimally supported by an EU-wide network of monitoring stations and observations for evaluating the status of biodiversity within MPAs.” (EASAC & EC, 2016)
 - “Additional efforts are required to improve valuation methodologies and the need for valuation tool kits addressing biological/ecological and socio-economic values of MPA.” (Depellegrin & Blazauskas, 2013)
 - “The management plans should be evaluated every 10-15 years. According to the interviewed managers, however, the actual realisation of these ambitions is wanting.” (Sandström et al., 2016)
 - “As part of the Aichi Target 11, CBD parties committed themselves to secure a system of ‘effectively and equitably managed’ protected and conserved areas. This requires undertaking a systematic assessment of the management effectiveness of protected areas to verify whether they achieve their conservation objectives or if management objectives and activities need to be modified. However, with the exception of national parks or specific species groups, the surveyed member states have not implemented comprehensive – or, in some cases- any – monitoring to measure the effectiveness of protected areas. One of the reasons for the lack of monitoring of the effectiveness of management measures is the absence of a standardized measurement approach.” (Naumann et al., 2021)
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- “measures should undergo a systematically and periodical evaluation of progress. Lack of progress should trigger the instalment of further measures.” (EEA, 2019a)
-