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# MARINE SPATIAL PLANNING: A CAUTIONARY TALE

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## Abstract
Marine Spatial Planning (MSP) has emerged as a key instrument for governing marine spaces within the evolving paradigms of the blue economy, blue growth, and ecosystem-based management (EBM). This paper critically surveys the conceptual and practical dimensions of MSP by framing it within the context of wicked problems—ill-defined, complex, and socially embedded challenges that resist definitive solutions. Through a synthesis of literature across marine governance, participatory planning, and creative problem solving, the study identifies key barriers to effective MSP, including stakeholder fragmentation, short-termism, and cognitive bias, and explores how tools such as scenario planning and dialogue mapping can help address these barriers. The paper presents a conceptual framework that clarifies the interrelations among the blue economy, blue growth, and MSP, and critiques how current implementations risk reinforcing power asymmetries and marginalising vulnerable stakeholders. By positioning MSP as a creative, adaptive, and participatory response to complexity, the paper offers a cautionary perspective and practical insights for improving marine governance.

**Keywords:** Blue economy, maritime business administration, marine spatial planning, strategic management, wicked problems

## Introduction
Over the past two decades, marine spaces have been increasingly understood not merely as economic or physical zones, but as interconnected socio-ecological systems. This paradigm shift, emerging largely since the early 2000s, is driven by the rise of the blue economy and blue growth narratives (Eikeset et al., 2018; Bennett et al., 2021). These narratives have led to the development of approaches and tools designed to support blue growth strategies. Namely, ecosystem-based management (EBM) and marine spatial planning (MSP) are now considered

significant approaches that support the transformation of marine spaces (Keen et al., 2018; Kyvelou & Ierapetritis, 2019).

Despite the influence of these terms on marine spaces and their widespread use, there are no universally accepted definitions for several key concepts, such as the blue economy and blue growth (Choi, 2017; Eikeset et al., 2018). The literature presents a variety of interpretations of the concepts, some of which overlap or conflate in meaning (Caswell et al., 2020; Voyer et al., 2018). Furthermore, the complex and interrelated nature of these concepts can make understanding their relationships challenging.

This study synthesises key literature across marine governance to critically examine the intersection of blue economy concepts and marine spatial planning. It advances existing theoretical discussions by framing MSP practices as a means of addressing wicked problems. By doing so, the paper explores practices and transferability of knowledge from other domains and presents them in the context of MSP. Furthermore, the study conceptualises the terms, explaining their functions in the governance of marine spaces. The author also provides examples of methods that are both in use and potentially helpful in managing the marine spaces, such as scenario planning and dialogue mapping.

This paper does not follow a systematic review protocol but rather synthesises insights from key works across disciplines, adopting a narrative literature review approach (Baumeister & Leary, 1997). It builds on a review of recent MSP case studies and theoretical literature on wicked problems, the blue economy, blue growth, the ecosystem-based approach, cognitive psychology, creativity, and participatory methods.

The following section presents the essential terms, including the blue economy, blue growth and marine spatial planning. This is followed by introducing the term wicked problem and exploring its relevance to MSP and the areas that MSP practices can borrow from other domains. After demonstrating the relationship between the concepts commonly used to govern marine spaces, the paper presents a critique of the blue economy and blue growth. A conclusion and future research directions are presented next.

**Common Definitions in the Marine Spatial Planning Landscape**

Although interpretations of the blue economy vary, scholars generally agree on several key characteristics. First, the blue economy is a normative framework (Germond-Duret, 2022) that seeks to establish a behavioural norm. Second, it promotes the sustainable use of marine resources (Verma & Jolly, 2019), striking a balance between environmental protection and economic development (Smith-Godfrey, 2016). Third, it emphasises social equity (Croft et al., 2024) and inclusion (Keen et al., 2018). While the blue economy serves as a lens through which marine spaces are understood and governed, its implementation is often referred to as blue growth (Burgess et al., 2018; Kyvelou & Ierapetritis, 2019; Lillebø et al., 2017).

Blue growth "aims to promote the growth of ocean economies while holistically managing marine socioecological systems" (Caswell et al., 2020). While the blue economy emphasises balanced economic expansion, prioritising sustainability and social equity, its implementation through blue growth has shifted the focus disproportionately towards economic expansion, often overlooking social equity considerations (Boonstra et al., 2018; Bennett et al., 2019; Caswell et al., 2020). The blue economy is criticised for acting as a greenwashing discourse used by powerful institutions and corporations (Voyer et al., 2018; Verma & Jolly, 2019), which

results in neglecting small-scale fishers, indigenous rights and gender considerations (Smith-Godfrey, 2016; Keen et al., 2018).

Nonetheless, as these frameworks gained prominence, scholars and planners began to reframe seas and oceans not merely as physical or economic domains, but as complex socio-ecological systems that require integrated management approaches (Howard, 2018). This evolving perspective has led to the development of new governance approaches, one of which is marine spatial planning (MSP) (Young, 2015). MSP is analogous to land-use planning in terrestrial settings and refers to a decision-making process that adopts an ecosystem-based approach (EBA) to regulating human activities in marine areas. It aims to maintain the ecological goods and services provided by oceans, benefiting human populations and all living organisms globally (Ehler & Douvere, 2007). This emerging model of maritime governance advocates for the coordinated management of human activities, aiming to utilise marine services while sustainably preserving ecosystem integrity. MSP is a critical tool in facilitating the shift from conventional sector-based management to an ecosystem-based management (EBM) framework for oceans (Quero García et al., 2019). EBM is therefore characterised as a holistic, integrated management strategy that explicitly incorporates ecological, economic, social, and cultural dimensions, aiming to maintain ecosystem services while considering human-environment interactions sustainably (Keen et al., 2018; Smith-Godfrey, 2022). Despite the emphasis on human factors, scholars argue that socio-economic aspects of MSP have attracted comparatively less attention than spatial data considerations (Tolvanen et al., 2019). This is a significant barrier to successful MSP practices as MSP deals with wicked problems (Smith & Jentoft, 2017; Morf et al., 2019).

**Wicked Problems**

Wicked problems, defined as ill-defined, context-dependent problems resistant to clear solutions, are intertwined with political and social dimensions (Rittel & Webber, 1973). In the context of the governance of marine spaces, the issues that MSP deals with are inherently wicked problems (Jentoft & Knol, 2014; Boucquey et al., 2016). Therefore, resolving emerging issues through MSP without sufficient social science research downplays the efforts made through MSP practices. Framing MSP's problem space as a wicked problem enables planners and stakeholders to draw on tacit and theoretical knowledge from across disciplines. The following section presents the literature on wicked problems, along with an examination of how past research and practices have addressed such problems in the context of MSP and other domains.

**MSP as a Wicked Problem and How to Cope with It**

There is no single and definitive solution to wicked problems. Instead, there are 'good enough' solutions (Simon, 1996; Conklin, 2005). Given that Marine Spatial Planning (MSP) operates in the realm of wicked problems, it is helpful to examine the key barriers to addressing them and the strategies recommended to cope with these challenges. First, wicked problems are ambiguous, complex and challenging to define (Rittel & Webber, 1973). This suggests that addressing such problems requires systematic, iterative approaches to problem construction. Second, fragmentation is a significant barrier to coping with such problems (Head & Alford, 2015). This is caused by social complexity, and reaching a shared understanding is offered as a remedy for fragmentation (Conklin, 2005). The third barrier is similar to the second one. It is insufficient stakeholder inclusion (Balint et al., 2011).

Unsurprisingly, MSP practices emphasise stakeholder inclusion during the MSP processes (Erkkilä-Välimäki et al., 2022; Gacutan et al., 2022). Such efforts can be found in the earliest

discussions on MSP (Ehler & Douvere, 2007). The fourth barrier to coping with wicked problems is short-termism (Levin et al., 2012). Embedding strategic foresight and scenario planning (Bradfield, 2012) into the problem-solving process increases the likelihood of considering problems on a longer time horizon, potentially mitigating short-termism.

The fifth barrier is resource constraints: no single actor possesses all the necessary resources (van Bueren et al., 2003). This calls for networking, collaboration and resource sharing. The sixth barrier is the conflicting economic and political interests among parties (van Bueren et al., 2003; Balint et al., 2011). This barrier relates to the previous ones. Conflicting values (Head & Alford, 2015) can lead to insufficient stakeholder inclusion, fragmentation, and poor resource allocation, ultimately resulting in constraints and stagnation. As a response, approaches to governance types such as collaborative governance (Ansell & Gash, 2007) are recommended. Finally, another barrier lies in cognitive limitations, specifically cognitive biases and rigid mental models (Sterman, 2006).

Addressing wicked problems requires creative thinking throughout the entire planning process—from problem formulation to the generation of possible solutions (Elia & Margherita, 2018). Cognitive biases, defined as a "systematic pattern of deviation from norm or rationality in judgment" (Haselton et al., 2015), can negatively affect creative thinking and problem solving (Mumford et al., 2006). Likewise, mental models, "psychological representations of real, hypothetical, or imaginary situations" (Johnson-Laird et al., 1998), can limit creativity by fostering conformity and rigidity (Smith et al., 1993). Because MSP often involves conflicting priorities and uncertain futures, creative thinking is necessary to frame problems more constructively and identify unconventional solutions.

The literature reports several MSP practices that address, either fully or partially, the barriers above. For instance, several MSP practices involved stakeholder participation during the process. As expected, these practices reported cross-sectoral integration (Lillebø et al., 2017), decreased misunderstanding and conflict among stakeholders (Flannery et al., 2018), improved transparency and accountability (Bennett et al., 2021) and MSP outcomes that are accepted and implementable (Young, 2015; Howard, 2018). Strategic foresight and scenario development are frequently integrated into MSP practices (Erkkilä-Välimäki et al., 2022; McGowan et al., 2019). These approaches foster creative thinking, mitigate cognitive biases, and help participants collaboratively reshape and adapt their mental models, supporting shifts toward more social and systems-oriented perspectives (Glick et al., 2012; Cairns et al., 2013; Meissner & Wulf, 2017; Gokmen & McKiernan, 2025). A recent paper (Zuercher et al., 2022) examined the enabling conditions for marine spatial planning. The enabling conditions reported in the MSP context align well with the perspective of wicked problems. Accordingly, nineteen conditions, categorised under four headings — plan attributes, legal context, plan development, and social context, and integration — share substantial overlap with the recommendations given for coping with wicked problems.
Table 1 presents the shared similarities. While the reported enablers for effective MSP are mostly comprehensive, they lack a detailed account of cognitive perspectives, such as mental model rigidity and cognitive bias issues. As previously discussed, mental models, cognitive biases, and creative thinking are essential factors in addressing wicked problems, and MSP is no exception.

**Table 1.** Mapping of Wicked Problem Coping Strategies and Enabling Conditions for MSP

| Wicked Barrier | Coping Strategies for Wicked Problems | Enablers for Effective MSP (Zuercher et al., 2022) |
|---|---|---|
| **Ambiguity in Problem Framing** | Systematic and Iterative Problem Construction | Clear Objectives; Shared Vision and Goals |
| **Fragmentation** | Shared Understanding Among Stakeholders | Co-production; Procedural Justice; Cross-sectoral and Multilevel Coordination |
| **Insufficient Stakeholder Inclusion** | Participatory Processes | Stakeholder Engagement and Co-production; Procedural Justice; Recognition of Rights and Knowledge Systems |
| **Short-termism** | Collaborative Governance; Strategic Foresight | Long-term Vision; Adaptive Learning; Monitoring; Political Leadership |
| **Resource Constraints** | Capacity Building; Strategic Prioritization | Capacity and Resources; Knowledge and Data Availability |
| **Conflicting Interests-power Issues** | Inclusive Dialogue; Conflict Resolution | Procedural Justice; Conflict Resolution Mechanisms; Recognition of Rights |
| **Cognitive Rigidity and Bias** | Creativity and mental model flexibility | Adaptive Learning; Shared Vision; Stakeholder Co-production |

**Conceptualisation of the Terms**

The terms introduced in the previous sections are commonly used in the governance of marine spaces. While the definitions of terms offer practical guidelines and establish a widely understood discourse, operationalising the concepts and having a broader view on their interrelationship can be challenging. The author conceptualises the terms and presents their relationship in Figure 1.

The blue economy is a lens, a way of seeing marine spaces, and it reconfigures how ocean space is understood, valued, and governed (Voyer et al., 2018). Ecosystem-based management is an approach to acting (Young, 2015), leading stakeholders to consider marine spaces as ecosystems when implementing strategies like blue growth (Mulazzani & Malorgio, 2017). MSP is a way of acting; it enables the operationalisation of blue economy principles (Kyvelou & Ierapetritis, 2019). Participatory planning and governance are embedded in MSP, providing a useful guideline for the 'how' of the action. Finally, methods such as scenario planning and dialogue mapping are available to marine spatial planners, consultants and scholars, equipping them to achieve the intended outcomes.

There are different approaches to developing scenarios (Bradfield et al., 2005), and several MSP projects have employed a version of scenario planning. For instance, scenario development was reported as part of the Belgian MSP process (Douvere et al., 2007). In the Belgian MSP case, scenario development was not participatory and served as a tool for dialogue and negotiation around the future vision. In the Finnish MSP cases, the scenario development processes were participatory (Haapasaari & van Tatenhove, 2022). Including participatory approaches to planning is especially important. In a Finnish MSP case, the scenario

development process enabled the stakeholders to identify trade-offs and reconcile tensions between economic development and achieving good environmental status.

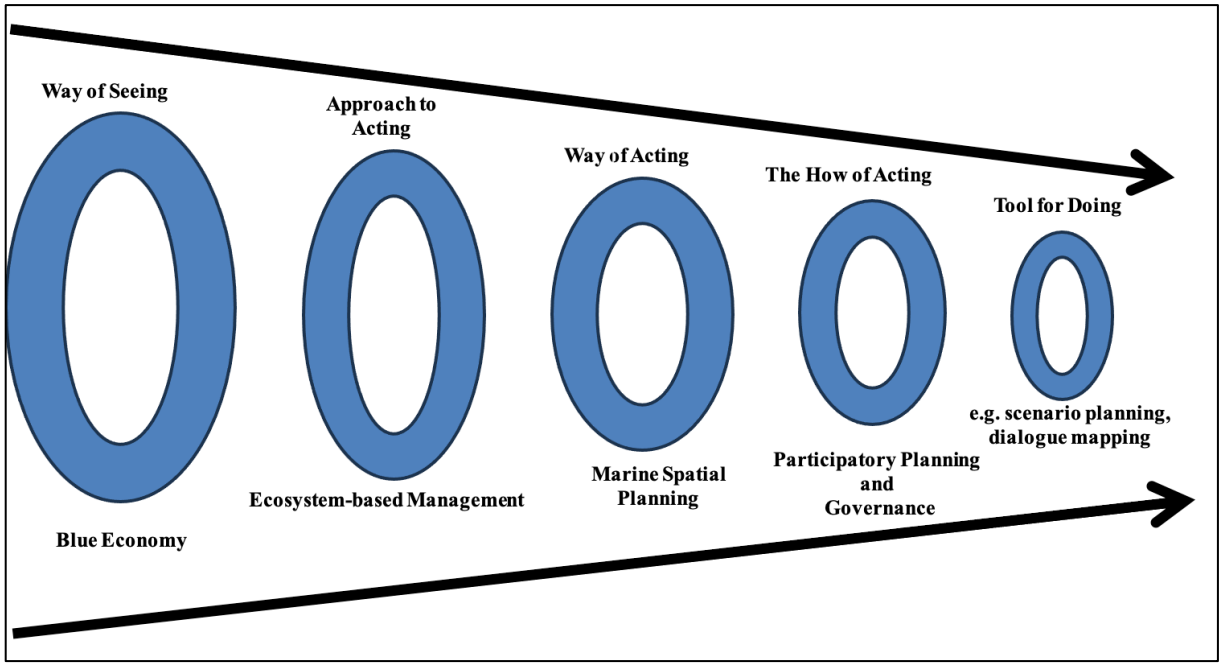


**Figure 1.** Conceptual Framework for Marine Governance Approaches

Evidence suggests that scenario development approaches, such as Intuitive-Logics, facilitate a shared understanding among scenario developers (Bouhalleb & Tapinos, 2023; Frith & Tapinos, 2020). Reaching a shared understanding is especially crucial in MSP, as fragmentation and a lack of shared understanding are significant barriers to addressing wicked problems.

Another fruitful method that MSP processes can utilise is dialogue mapping. Similar to scenario development, dialogue mapping enables a diverse group of people to exchange ideas systematically, identify commonalities among them, and ultimately reach a shared understanding of the issue at hand (Conklin, 2005).

**Critique of Blue Growth and the MSP Processes**

Although state-of-the-art MSP processes seem to adopt versions of the conceptualisation shown in Figure 1, they have not escaped criticism. It is essential to remember that MSP operates in dynamic marine environments with no clear solutions. Therefore, planning should be continuous and adaptive. Certain sectors, such as offshore wind farms, often compete with fishing, tourism, and conservation efforts, emphasising the need for effective conflict management. The literature offers recommendations for managing conflict in participatory processes, such as promoting communication, establishing a committee (Ash et al., 2010), and employing scenario planning (Chermack et al., 2015). Effective conflict management not only enhances the quality of conversations but also increases the chances of developing creative ideas (Kaufman & Sternberg, 2010) and creative problem-solving to tackle wicked problems.

Several scholars report that MSP fails to involve stakeholders comprehensively and sometimes does more harm than good (Flannery et al., 2018). Additionally, some argue that MSP leads to power asymmetries and exclusionary practices that marginalise certain groups, especially small-scale fishers and local stakeholders (Said & Macmillan, 2020). There is an increasing call

for placing equality and social equity at the center of the blue growth and MSP processes (Bennett et al., 2021). While participatory approaches are called for, concerns and limitations exist regarding their practical implications, such as participant fatigue (Duckett et al., 2017), resource constraints (Godet, 2001; Andersen et al., 2021), and representational imbalance (Ansell & Gash, 2007). Hence, participatory approaches in MSP practices require careful design and implementation.

## Conclusion

Marine Spatial Planning (MSP) has gained significant traction as a governance mechanism in recent years, particularly under the banners of the blue economy and blue growth. While its frameworks are increasingly embedded in marine policy discourse, this paper has shown that the application of MSP remains far from straightforward. MSP is caught between competing visions of sustainability, economic development, and equity and is entangled in fragmented institutions and uneven stakeholder engagement. This study examines MSP through the lens of wicked problems, shedding light on the deep uncertainties and intertwined challenges that define marine governance. This perspective encourages a shift toward planning approaches that are not only more inclusive but also more responsive to the diverse values and needs of individuals. Tools such as scenario planning and dialogue mapping have shown potential in supporting long-term thinking and shared understanding. If MSP is to move beyond its current function as a procedural framework, it must more directly engage with questions of fairness and representation. There is a growing concern that planning processes, when insufficiently inclusive, may perpetuate existing inequities, especially for small-scale fishers, indigenous communities, and other groups with limited influence. Future efforts must prioritise the development of planning models that are not only methodologically sound but also perceived as fair and legitimate by all those affected. The promise of MSP lies not in its ability to deliver fixed outcomes but in its potential to foster adaptive, deliberative, and equitable modes of marine governance. That promise will only be realised through continuous reflection, grounded field research, and a willingness to rethink inherited assumptions about how marine spaces should be governed.

Further research can examine how MSP processes meaningfully integrate creative, participatory, and adaptive strategies in practice. Field-based studies are needed to evaluate the impact of scenario planning and dialogue mapping on stakeholder engagement, conflict resolution, and long-term planning outcomes. Furthermore, future research can investigate how cognitive dimensions—such as mental models, framing effects, and group biases—impact planning processes and outcomes. By grounding these inquiries in both theory and practice, research can help chart a path toward more just, transparent, and resilient marine governance systems.

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Not available

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