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REVIEW

Marine spatial planning and ocean governance in Small Island Developing States

Priyatma Singh[1,2] · Björn-Ola Linnér[2] · Ashneel Ajay Singh[3]

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Abstract

Marine spatial planning (MSP), initially developed to address the needs of the global North, is gaining significant traction in Small Island Developing States (SIDS) and is hailed as a collaborative governance instrument for managing and optimizing the allocation of ocean space. Despite its growing adoption, there has been limited attention given to what is needed for MSP to be effective and collaborative in SIDS, which is struggling with issues of fragmented ocean governance, insufficient funding, data limitations, and ad hoc stakeholder engagement. A research gap exists in identifying the conditions necessary for MSP to function effectively as a collaborative governance instrument in SIDS. By employing an analytical framework grounded in collaborative governance models, this paper reviews 40 academic articles and 15 grey literature sources to assess MSP's application in SIDS and identify factors critical for its success as a collaborative instrument. We used NVivo software to conduct content analysis of SIDS-based academic articles. The analysis was guided by pre-defined categories within our analytical framework. The mapping and analysis of the literature point towards leadership and institutional mechanisms, which have proven essential for mobilizing MSP, integrating existing marine management strategies into MSP frameworks, and addressing local socio-cultural priorities. The literature reveals inadequate consideration for social objectives in MSP and highlights the flaws in government-led participatory initiatives. In the absence of strong leadership, inclusive governance, and sustainable institutional and financial support, MSP in SIDS risks becoming merely symbolic, addressing international commitments without delivering tangible local benefits. This study highlights the need to prioritize the process of MSP rather than solely focusing on outcomes and recommends including Indigenous knowledge and practices. A customized MSP approach for SIDS is proposed, incorporating incentives to actively engage Indigenous Peoples and local stakeholders in a collaborative ocean governance framework.

Keywords Marine spatial planning · Collaborative governance · Small Island Developing States · Stakeholder engagement · Leadership · Indigenous knowledge

Introduction

Marine spatial planning (MSP) is designed to be a pragmatic and coordinated plan-based approach for marine management that is intended to minimize trade-offs and encourage compatibility among different users (Ehler 2018; Jay et al. 2012; Rayner et al. 2019). Its purpose is to strike a balance between safeguarding the marine environment and meeting the social and economic needs, all within a democratic framework. Although MSP has gained widespread attention as a practical approach to ecosystem-based management, there has been limited investigation into the social and governance elements necessary for it to be effective (Frazão Santos et al. 2021; Gilek et al. 2021; Jacob et al. 2023; Queffelec et al. 2021).

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✉ Priyatma Singh
priyatmas@unifiji.ac.fj

Björn-Ola Linnér
bjorn-ola.linner@liu.se

Ashneel Ajay Singh
ashneel.singh@usp.ac.fj

[1] Department of Science, The University of Fiji, Lautoka, Fiji

[2] Department of Thematic Studies – Environmental Change, Linköping University, Linköping, Sweden

[3] School of Agriculture, Geography, Environment, Ocean and Natural Sciences, the University of the South Pacific, Suva, Fiji

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Marine spatial planning is becoming increasingly prominent in SIDS governance and political arenas. Despite this recent momentum, elements of MSP, such as marine zoning, shipping lanes, fishing areas, locally managed marine areas, and marine protected areas (MPAs), have long been in use. However, these elements have typically been applied in a sector-specific manner rather than through an integrated approach, often seizing ad hoc opportunities rather than a strategically planned process (Chan 2018; Winther et al. 2023). Since MSP emphasizes an integrated and collaborative approach, SIDS may need to review its policy and institutional framework (Winther et al. 2023). A key question is whether MSP should build on existing MPA efforts or start anew. As MSP emerged from the needs of the global North, it has tended to give precedence to managing competing interests among influential ocean actors who are increasingly involved in activities such as oil or gas extraction, offshore energy, industrial fishing, and recreation, which are prevalent in the global North (Ehler and Douvere 2007). In contrast, many of these activities are not adopted by local actors in small island nations, which raises questions about the equity and urgency of MSP for SIDS.

The Small Island Developing States constitute a heterogeneous group of nations that share some common traits, such as geographical isolation and vulnerability to economic and environmental shocks (Ferdinand 2020). They have a small land mass but are commonly referred to as large ocean states with remarkable resilience and shared commitment to ocean governance (Chan 2018). The Small Island Developing States exhibit strong habitat connectedness among terrestrial, freshwater, and marine ecosystems, surpassing that of developed nations. The heightened habitat connectivity poses a considerably greater challenge for ocean governance. Limited financial and technological resources, along with vulnerability to climate change, present additional challenges for MSP applications in SIDS (Bakshi 2019; Fanning et al. 2021). Also, the Indigenous Peoples and local communities in SIDS have strong cultural ties to the ocean and depend heavily on marine resources for their livelihoods (Govan and Katafono 2017; Vierros et al. 2020). This raises questions about how effectively MSP integrates their voices and how it supports equitable and sustainable ocean governance. The unique context of SIDS may affect the MSP process differently from that of the global North.

Previous studies have focused on the theoretical underpinnings of MSP, and its integrated and collaborative nature has been widely discussed in the context of the global North that is quite advanced in its MSP efforts (Agardy et al. 2011; Douvere and Ehler 2008; Ehler and Douvere 2009; Ehler 2020; Flannery et al. 2020). As the Small Island Developing States embrace MSP with support from donor agencies and international organizations, its application presents challenges due to SIDS diverse environmental, socioeconomic, and governance systems (Flower et al. 2020; Iglesias-Campos et al. 2021; Pomeroy et al. 2014). There is a research gap in contextualizing the requirements for MSP to function effectively as a collaborative governance instrument in SIDS. The limited in-depth analysis of SIDS perspectives on MSP discussions highlights the need for both conceptual and empirical research on MSP in these regions. We employed a semi-systematic review approach, which is useful for topics that have been developed across diverse disciplines (Snyder 2019), such as MSP. By reviewing academic literature on MSP in SIDS and an analysis of its potential applications in these regions, this paper aims to identify what is essential for MSP to function as a collaborative governance instrument.

Theoretical framework

Governance analysis broadens the focus from the formal institutions of states and governments to include public, private, or civic actors organized in networks, partnerships, or other forms of informal organizations (Abe et al. 2016; Armitage et al. 2012). Collaboration among stakeholders is one aspect of environmental governance, which scholars often suggest as an effective approach for resolving complex ecosystem management issues (e.g. Dressel et al. 2021; Ulibarri et al. 2023; Westerink et al. 2017).

Collaborative governance builds on the principles of legitimacy, transparency, and accountability (Dupuy and Defacqz 2022). It entails participatory processes that weave a coalition network between national leaders, local authorities, the private sector, non-government organizations (NGOs), and the general public in both the design and the implementation of plans and policies (Gray et al. 2018). Collaborative governance involves collective decision-making, joint fact-finding, and shared responsibility for the process among public, non-profit, and private actors (Emerson and Nabatchi 2015). It relies not only on participants' interdependence, dedication, and mutual trust but, more importantly, on the ability of public offices to integrate the process into their mandates (Michel 2017). Marine spatial planning is a public process to foster collaboration among diverse stakeholders and empower those affected to participate actively (Frazão Santos et al. 2019; Lukambagire et al. 2024). Collaboration is key to ensuring that MSP effectively addresses its distributional aspects (Gilek et al. 2021; Gopnik et al. 2012). The collaborative process can facilitate the co-creation of knowledge in MSP, reshape norms and values, tackle political interests, or even shift narratives based on the uncertainty and consensus related to the issues being discussed (Lukambagire et al. 2024). The collaborative governance frameworks are typically based on case studies from the global North, often characterized by high-income and liberal democracies (Ulibarri et al. 2023).

Its feasibility and effectiveness in the SIDS context are yet to be determined.

Ansell and Gash's (2008) collaborative governance model includes four general variables: starting conditions, institutional design, leadership, and collaborative process. The *starting conditions* establish the foundation for collaboration, influencing both the level of trust and potential tensions between collaborators. These conditions can either serve as assets or limitations during the first phase of collaboration. The *institutional design* determines the fundamental principles and rules that govern the collaborative process, thereby ensuring the procedural legitimacy of the process. The role of *leadership* in collaborative governance involves the power to convene meetings, facilitate discussions, and maintain the integrity of the collaborative process by mediating conflicts through relevant authority. Leadership also plays a vital role in establishing goals and determining national and local priorities. The *collaborative process* entails face-to-face dialogue and trust-building between stakeholders. It also requires taking ownership of the collaborative process while demonstrating a shared understanding of the key objectives.

Similarly, Emerson and Nabatchi (2015) emphasize the significance of motivation, engagement, and capacity for collective action within a collaborative governance framework. *Motivation* is critical in developing social capital and interpersonal relationships by building trust and mutual understanding among collaborators. *Engagement* involves ongoing communication and face-to-face interactions between stakeholders to achieve a consensus. Finally, *collective action* refers to establishing governance mechanisms, such as planning processes, institutional structures, and resource sharing, which form the foundations of collaborative actions.

In this paper, we build on the collaborative governance models of Ansell and Gash (2008) and Emerson and Nabatchi (2015), as they provide an operational framework for an otherwise abstract concept. Their approach is systematic, taking into account the initial context of collaboration, highlighting the process and face-to-face interactions, and exploring the dynamics that unfold. Ultimately, the model highlights the outcomes generated by the process.

We summarized the two models using three variables: *Leadership and goal setting*, which focuses on goals and authority; *Governance arrangements*, which includes institutional design, planning processes, and implementation; and finally, *Social capital*, which includes interpersonal relationships among the stakeholders, trust, and legitimacy of the collaborative process (Fig. 1). Starting conditions refer to the pre-existing socio-ecological context, cultural and political circumstances, and resources. These conditions help define the opportunities, constraints, and potential paths for leadership, governance, and stakeholder engagement throughout the process. Outcomes are the results of the collaborative process, the policies, and actions after implementation.

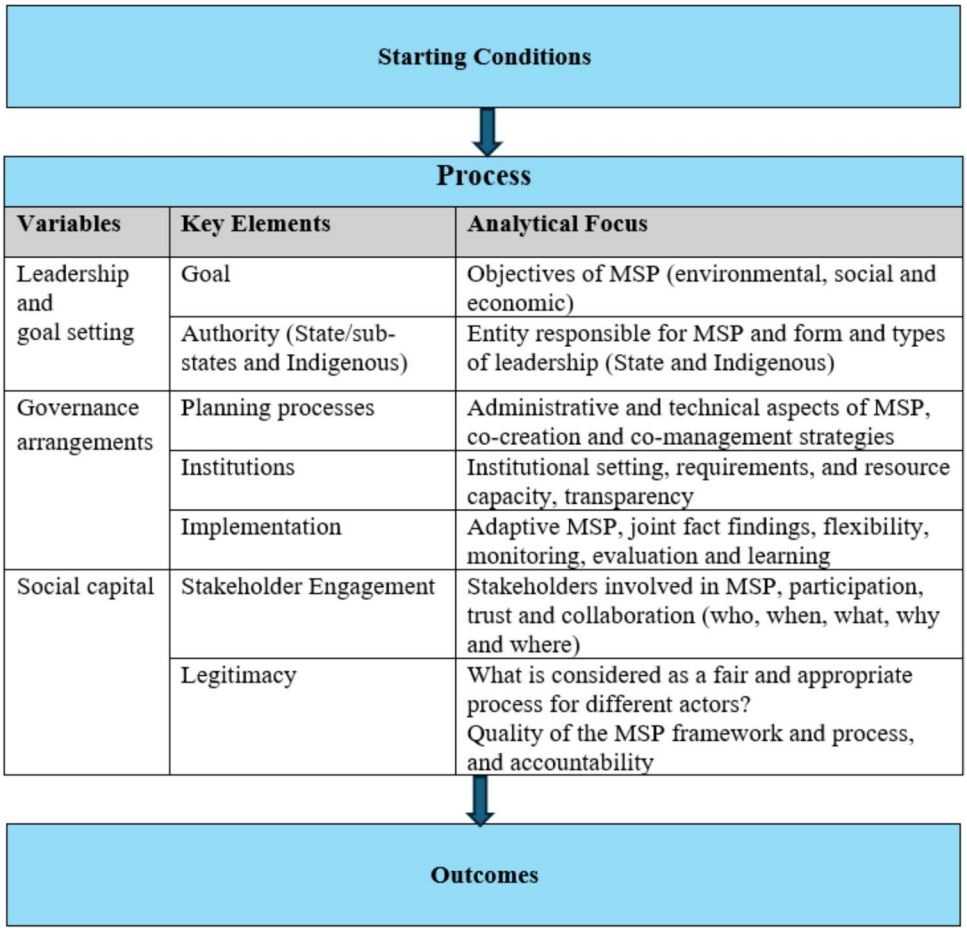
We applied this framework and focused on the process of categorizing analytical elements in the literature about MSP in SIDS.

Methodology

The SIDS in this study refer to a group of 39 states and 18 associate members of UN regional commissions (https://www.un.org/ohrlls/content/list-sids) that are characterized by low-income, political instability, and a developing economy. The research took place from August 2022 to June 2023. For the literature search, we used bibliographic databases: Google Scholar, Web of Science, and Scopus. To focus on MSP and key elements of the analytical framework, we employed the following search string ((“marine spatial plan”) OR MSP AND (“Small Island Developing States”)) AND (Goals OR “Planning processes” OR Authority OR Outcomes OR Stakeholders OR Institutions OR Participation OR “Indigenous Knowledge”). As MSP in SIDS began gaining momentum in 2006, we searched for articles published between 2006 and June 2023. The search yielded 744 results, of which 359 were duplicates. The remaining 385 articles were imported into the EndNote reference management program. The titles and abstracts of these articles were screened for relevance to MSP in SIDS. In particular, each abstract was assessed based on the following criteria: (i) specific mention of MSP in SIDS; (ii) reference to key components of the analytical framework (Fig. 1). Several articles ($n = 214$) did not meet the relevance criteria and were excluded from the analysis. For instance, some articles focused on island regions that did not align with our SIDS criteria, such as MSP in Rhodes Island and the Shetland Islands. Additionally, several abstracts mentioned MSP only in the context of MPA and fisheries management, with minimal attention to the elements of the analytical framework. Following this initial screening, 171 articles were retained and stored in a separate folder.

During the second screening, we carefully reviewed the introduction, results, and conclusions of the 171 articles to ensure that they explicitly discussed MSP and collaborative governance or its key elements. Several articles were excluded because they focused primarily on technical aspects of MSP without sufficiently addressing the collaborative governance elements, such as leadership and social capital. Each article was initially reviewed by one author, and in cases of uncertainty, decisions about exclusion were made in consultation with the other authors. This process resulted in a final selection of 40 academic articles (Fig. 2), which are listed in the “References” section. We conducted a content analysis of these articles using NVivo software to identify the nature, scope, and development of the literature on MSP in SIDS. Qualitative content analysis is a

Fig. 1 Analytical framework



commonly used technique when employing semi-systematic reviews. "This type of analysis can be useful for identifying components of a theoretical concept and mapping a field of research" (Snyder 2019 p 335). The coding was guided by the categories of the analytical framework and entered into NVivo. Relevant data segments from each article were systematically assigned to these codes. This process facilitated the identification of proposed actions associated with MSP implementation in SIDS, including problem descriptions, leadership, goals, authority, institutional requirements, stakeholders, planning processes, and legitimacy.

To ensure intercoder reliability, the authors independently tested all existing codes and additional codes generated through the article review. Ultimately, the new codes were merged with the existing ones based on their relevance to the pre-defined categories outlined in the analytical framework. The results were organized according to these categories.

We focused on the 40 academic articles for results and analysis, but considering that several SIDS are in the formative phase of MSP, we also compared these results with a scoping of grey literature to establish the background and status of MSP in SIDS (see the "Current state of knowledge" section). We conducted a grey literature search on Google for the term "Marine Spatial Planning" in the SIDS described above. We focused only on 15 sources that offered substantial information on MSP (Fig. 3). Most relevant information was available through the websites of NGOs involved in MSP activities in these island nations ($n = 9$), and the remaining documents were gathered through the government websites ($n = 6$).

Results and analysis

The 40 peer-reviewed academic articles that we retained for analysis focus on case studies addressing various aspects of MSP, including stakeholder engagement, institutional mechanisms, and marine management strategies. Twenty-three of these articles were from Caribbean and Atlantic, Indian Ocean, and South China Sea (AIS) countries, eleven were

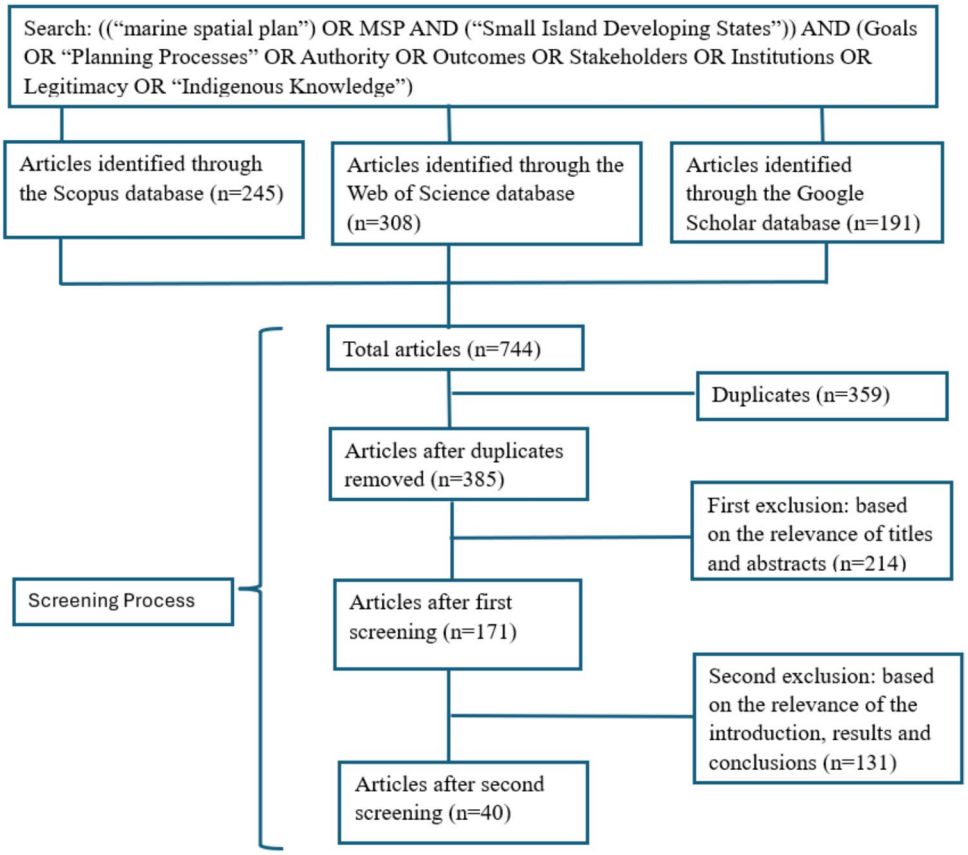


Fig. 2 Academic article screening process

from the Pacific Island Countries (PICs), and the rest were from the Associate Members of United Nations Regional Commissions.

Current state of knowledge

The scoping of grey literature has indicated that a majority of MSP initiatives in SIDS have been in progress since 2010, with notable advancements observed since 2015 (Calado et al. 2020; IOC-UNESCO 2022; Mahadeo 2022). We identified 28 initiatives mentioning MSP at different stages, including stakeholder consultation, planning, data collection, design, and implementation. The rest of the countries are either working towards MSP or are heavily engaged in MPA initiatives. The Eastern Caribbean countries are leading in MSP efforts. Under the Caribbean Regional Oceanscape Project (CROP), Dominica, Grenada, Saint Lucia, St. Kitts and Nevis, and Saint Vincent have prepared marine spatial plans for their entire Exclusive Economic Zone (EEZ) (Organisation of Eastern Caribbean States 2021). The regional and national ocean policies play a key role in mobilizing MSP plans across SIDS. The case for marine zoning has been remarkably strong in the Caribbean (Mahadeo 2022; McConney and Chuenpagdee 2011), while MPA and LMMA Network have been a popular paradigm in the PICs (Ceccarelli et al. 2018; Le Cornu et al. 2018). MSP is gaining momentum as SIDS garners support from various donor agencies, philanthropic foundations, and international organizations.

A commonly cited rationale for embracing MSP is embedded in its capacity to facilitate a holistic and integrated approach to marine management, which is generally lacking (Becker-Weinberg 2020; Smith 2017; Twyford 2021; UNESCO-IOC 2021). The Small Island Developing States embrace MSP to advance the objectives of a blue economy and support sustainable development in the ocean realm (Baker et al. 2023; Benzaken et al. 2022; Louey 2022; Lubchenco and Haugan 2023; Mahadeo 2022; Popoola and Olajuyigbe 2023). The Caribbean Regional Oceanscape Project (CROP) is paving the way for a transboundary MSP within the Organization of Eastern Caribbean States (Organisation of Eastern Caribbean States 2021). Similarly, for the PICs, the Marine and Coastal Biodiversity Management in Pacific Island Countries and Atolls (MACBIO) Project supported several island nations in the Pacific, such as Fiji, Kiribati, Solomon Islands, Tonga, and Vanuatu, in the collection and analysis of spatial data related to current and future marine resource use (Ceccarelli et al. 2018). The motivations for adopting MSP vary between SIDS. For example, Seychelles has made provisions under MSP for allocating 30%

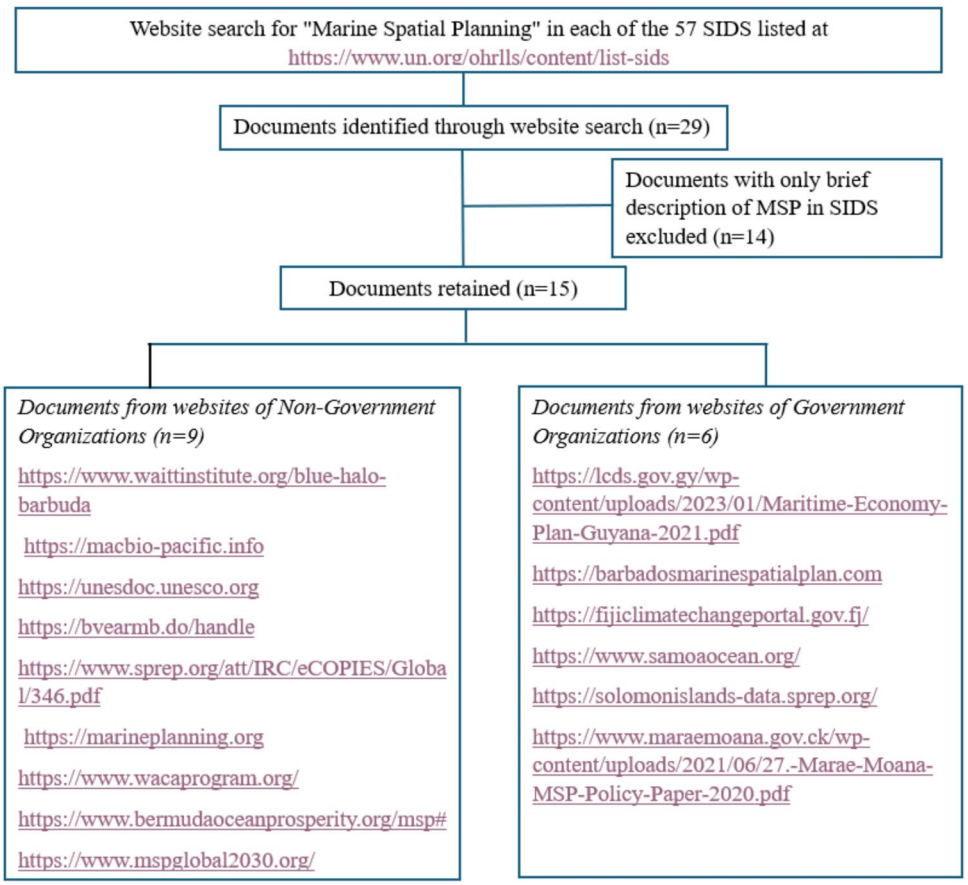


Fig. 3 Grey literature screening process

of its EEZ for conservation. Seychelles is also well-known for using debt-for-nature swaps as a financial mechanism to alleviate debt obligations while simultaneously establishing environmental initiatives such as MSP (Booth and Brooks 2023). Barbuda is initiating its MSP journey with a focus on conservation, implementing a zoning system comprising four categories, which include marine sanctuaries, shipping zones, no-net zones, and anchoring and mooring zones (Johnson et al. 2020). MSP represents an innovative addition to Vanuatu's National Ocean Policy that aims to identify priority areas for both development and conservation, thereby delineating areas of conflicting interests and enhancing resilience against the impacts of climate change and natural hazards (Hilaire 2022).

Guyana has developed a roadmap to guide its MSP, providing strategic direction for the sustainable use of its maritime territory, particularly in light of the emerging oil and gas sector (The Commonwealth Marine Economies (CME) Programme 2021). Fiji, too, acknowledges substantial prospects stemming from its single largest tangible economic asset, its ocean, and is embarking on its MSP journey through the newly launched National Ocean Policy (Parliament of the Republic of Fiji 2023). In line with the principles of the blue economy, the Kiribati government has made a collective decision to reopen the Phoenix Islands Protected Area (PIPA) and implement MSP. This strategic move aims to ensure the sustainable utilization of marine resources and boost economic benefits, addressing the nation's future development requirements, especially as the economic challenges posed by climate change continue to intensify (Komai 2021).

SIDS faces many development constraints, including impacts of climate change, fragmented ocean governance and funding issues, poor land-based practices, lack of policy coordination, data accessibility, and inadequate human and technical capacity. These limitations also apply to the development of MSP in SIDS (Calado et al. 2020; Cockerell and Jones 2021; Hilmi et al. 2023; Pomeroy et al. 2014; Popoola and Olajuyigbe 2023). In the subsequent section, we present the key findings of different analytical elements as they relate to the advancement of MSP and ocean governance in SIDS.

Goals

Almost all articles ($n = 35$) made references to MSP goals, focusing on economic, environmental, and social outcomes. In our review, the environmental outcomes dominate the

scientific basis of MSP, but we also noted a shift in goal priorities, from conservation-inspired goals to facilitate the designation of MPA initially to managing conflicting maritime uses in crowded ocean space and more recently to blue economy initiatives (Baker et al. 2023; Benzaken et al. 2022; Mahadeo 2022; Popoola and Olajuyigbe 2023). While several articles ($n = 19$) have tackled both ecological and economic objectives in depth, more recent publications are probing into the social dimensions of MSP, emphasizing the systematic inclusion of socio-cultural goals and the aspirations of marginalized groups in the MSP process (Baker et al. 2023; Dancette and Brêthes 2019; Gilek et al. 2021; Gurney et al. 2021; Haas et al. 2022; Johnson et al. 2020; Lopes et al. 2021).

Giffin et al. (2020), Keen et al. (2018), Liu (2021), Mahadeo (2022), and Pomeroy et al. (2014) stress that MSP goals must be well-defined, localized, and set according to country priorities, determined collectively by resource users and policymakers. There is a need for an explicit hierarchy if there are multiple goals. Some articles ($n = 14$) mention the integration of different goal priorities and knowledge systems in MSP. However, it is not yet clear how to integrate Indigenous and local knowledge systems in the designing of MSP (Argus 2021; Baker et al. 2023; Pollack 2018). How to evaluate and justify different forms of knowledge in MSP governance contexts is a lingering question.

Some articles ($n = 11$) have noted that resource-constrained developing nations face difficulties in achieving a balance between conflicting goals across various sectors, particularly the fisheries sector and both formal and informal conservation strategies (Baker et al. 2023; Lester et al. 2017; Lopes et al. 2021). Also, there is a lack of capacity to integrate MSP into existing ecosystem-based approaches, which requires both analytical and technical capacity to assess trade-offs and align objectives (Baldwin and Mahon 2014; Giffin et al. 2020; Lopes et al. 2021; Pomeroy et al. 2014). Only one paper, Gurney et al. (2021), proposes that goal statements for equality and attainability should be explicit in identifying the perceptions of fairness held by those who are most impacted by the implementation of MSP goals.

Authority

Several articles ($n = 21$) stated that MSP is clearly in the purview of the government, which is the main authority responsible for its effective implementation (e.g., Cockerell and Jones 2021; Johnson et al. 2020; Pomeroy et al. 2014). The central government may offer leadership, guidance, and resources as well as establish legal and financial mechanisms. The analysis of the results indicates that Indigenous customary ocean governance systems are prevalent in SIDS and can potentially expedite MSP implementation. However, Kitolelei et al. (2022) argue that customary leadership has weakened gradually due to the prolonged impact of colonial and government interventions. Some authors ($n = 15$) identified ensuing bureaucratic ambiguities regarding MSP authority both within the government departments and between the government and external stakeholders, including Indigenous authorities (Gruby and Basurto 2013; Kitolelei et al. 2022).

Collective actions are crucial for establishing authority and institutional mechanisms for guiding MSP implementation. For instance, Fa'otusia et al. (2018) research on MSP in Tonga emphasizes the importance of collaborative effort, strong political frontier, and leadership in laying a sturdy foundation for effective ocean governance through MSP. They further assert that SIDS is well-positioned to build such a foundation, given that they are at the early stages of their MSP journey. Several articles ($n = 25$) argue that effective implementation of MSP demands innovative governance mechanisms that prioritize the basic needs of local communities. A few authors ($n = 9$) argue that the influence of both local and global markets significantly shapes the planning processes, operations, and outcomes of MSP governance, potentially heightening the risk of ocean grabbing in SIDS (Baker et al. 2023; Chan 2018; Lopes et al. 2021).

Most of the articles ($n = 27$) seek conceptual and empirical clarifications on how MSP authority can resolve stakeholder and sectoral conflicts in a power-neutral and consensual way. According to Khan and Amelie (2015), conflicts in SIDS predominantly arise between artisanal fishers and government officials tasked with balancing the social, ecological, and economic objectives of MSP. Several articles ($n = 25$) suggest establishing an MSP task force that can advance MSP efforts by mapping all relevant stakeholders and engaging them throughout the MSP process. These articles make several recommendations, including forming multi-partner alliances, such as public–private partnerships, community-based collaborative regimes, and social-private partnerships to foster stakeholder collaborations in SIDS.

Planning processes

A majority of the articles ($n = 30$) focused on ecosystem-based approaches to marine planning and management. These articles provide insight into what distinguishes MSP from other approaches to marine management, such as MPA, ICZM, LMMAs, and fisheries management. They stress the collaborative nature of MSP and its ability to synchronize sectoral management approaches in the ocean while integrating land-based human activities. Mills et al. (2011) reported that LMMAs in Fiji, despite their acclaimed status as an effective marine management model, are grappling with declining resources. They state that ensuring the long-term

sustainability of inshore fisheries may require more inclusive management plans that encompass a broader range of stakeholders and strategies to manage the ocean resources.

Several articles ($n = 29$) address the need to include traditional ecological knowledge, cultural connections, and values of local people in the planning process. Some authors have highlighted that MSP processes remain largely insensitive to the challenges and needs of Indigenous and local community-based fisherfolks, whose ideas and knowledge are not taken into consideration in the current planning of marine space (Baker et al. 2023; Lubchenco and Haugan 2023; McAteer et al. 2022). Johnson et al. (2020) point to a risk when the authority of the MSP process is decentralized to only a subset of stakeholders, typically those that can wield more power and resources to influence governance, for example, when stakeholders from Barbuda's commercial fishing and tourism sectors, which represent the main ocean-based activities on the island, were more frequently engaged and consulted than marine conservation groups, women fisherfolks, and traditional fishing communities.

The exclusion of Indigenous and traditional practices and perspectives may lead to shortcomings in MSP implementation. Examining social equity in ocean governance in Seychelles, Baker et al. (2023 p 11) conclude "Artisanal fishers raise concerns that the Marine Plan has been developed using what they deemed as 'foreign ideas,' disregarding traditional practices." In some instances, authors propose that the co-creation of knowledge is deemed a crucial foundation for the MSP framework. For example, fisherfolks are more familiar with their surrounding and local conditions, which may not be discernible through assessments conducted by national authorities (DeGraff and Ramlal 2015; Kitolelei et al. 2022; Mills et al. 2011).

Since several SIDS are currently in the plan-making phase of MSP, they rely on external contractors and international donor organizations to facilitate the planning process. This, as indicated by some articles ($n = 15$), poses a challenge for the long-term development of MSP in SIDS. The literature highlights a deficiency in MSP professionals and inadequate institutional and technical capacity. Some articles ($n = 7$) state that planning teams frequently face resource constraints and lack the foresight to effectively evaluate MSP as an adaptive process. They have also indicated that fear of an increased workload, unappealing remuneration, and insufficient collaboration between scientists and policymakers thwart adaptive MSP. The ocean planning and governance issues are further exacerbated by the migration of local experts, given that brain drain is emerging as a significant concern in SIDS (Mahadeo 2022; Singh 2014). Additionally, several of the plans lack legal enforcement due to capacity constraints (Mahadeo 2022; Pomeroy et al. 2014).

Several articles ($n = 25$) address the role of non-governmental organizations (NGOs) as boundary organizations and knowledge brokers in developing nations. They significantly impact the decision-making process by offering technical expertise, community voice, and sometimes financial support to advance ocean-related initiatives and policies. However, a few articles ($n = 3$), particularly those focussing on the Seychelles case study, express concerns that NGOs might occasionally encroach on sovereign decision-making (Benzaken et al. 2022; Cockerell and Jones 2021; Khan and Amelie 2015). A few authors ($n = 7$) also highlighted a lack of procedural fairness as MSP is conducted on an ad hoc basis, and the absence of well-established procedures hinders marginalized groups from expressing their views effectively (e.g. Baker et al. 2023; Benzaken et al. 2022; Johnson et al. 2020).

Almost all articles ($n = 34$) have pointed out that the marine management systems are too fragmented across administrative boundaries and sectors in the SIDS. The authors also note a lack of monitoring and compliance, and some suggest that it could be improved via supranational efforts and transboundary MSP. For instance, the Framework for a Pacific Oceanscape (Pratt and Govan 2010) has indicated the PICs' regional interest in collaborating and managing areas within and beyond national jurisdiction (Lopez 2007; Vince et al. 2017). Such an initiative would be consistent with the recently adopted High Seas Treaty and could attract substantial global support. However, establishing a transboundary MSP or even a fully fledged national one poses a formidable challenge, given that PICs have small and fragile economies. They heavily depend on sector-based management approaches, external aid, expertise, and NGOs for their development. This will not only affect planning processes but will have implications for several other elements in the analytical framework (Fig. 1). For instance, engaging all relevant stakeholders would be challenging as it is associated with significant expenses, including increased financial and human resources requirements. Influential actors and donors with vested interests may dominate the stakeholder engagement process, thus affecting goal priorities and the legitimacy of the MSP process (Dancette and Brêthes 2019).

Institutions and institutional capacity

Institutions generally pertain to various government and non-government organizations engaged in MSP processes, along with the associated human and technical resources, legal frameworks, and strategic approaches. These aspects are discussed widely in the literature, with particular emphasis on the need for proper coordination and legal framework for MSP in SIDS. Some authors state that the involvement of various authorities and agencies in SIDS can lead to institutional ambiguity (Abe et al. 2016). For instance, a few articles ($n = 9$) state that government departments responsible for various ocean-based policy agendas struggle to

synchronize their priorities, resulting in challenges with horizontal integration. Similarly, several authors ($n = 21$) have highlighted the detrimental effects of insufficient coordination and collaboration across different tiers of government on MSP processes.

More than half the articles ($n = 27$) propose that it would be more effective to establish a governance framework early in the MSP process delineating roles and responsibilities of committees and institutions, tailored to the governance requirements of individual SIDS and their citizens while ensuring that they comply with international standards (Hilmi et al. 2023; Karnad and St. Martin 2020; Mahadeo 2022; Rivers et al. 2023). These authors, along with a few others, recommend that developing nations exercise caution when engaging with international entities, as they may have agendas that could distort local power relations, particularly if internal institutional arrangements are weak (Benzaken et al. 2022; Cockerell and Jones 2021; Mahadeo 2022) The absence of financial support, in addition to large debt burdens, poses an additional obstacle to the institutionalization and implementation of MSP in SIDS (Silver and Campbell 2018). Some articles ($n = 18$) have suggested exploring existing institutional and financial mechanisms for embedding MSP. However, a few articles ($n = 6$) have raised concerns regarding transparency and accountability in using existing mechanisms (Argus 2021; Baker et al. 2023; Benzaken et al. 2022).

Implementation

A central argument ($n = 25$) is that MSP must be flexible or adaptive. It needs to be periodically reviewed and updated to meet the demands of a constantly changing social-ecological system. Three overarching problems can be identified as to why adaptive MSP in SIDS is difficult to accomplish. First, the absence of a long-term commitment and dedicated source of finance to maintain a properly monitored and adaptive process that involves procedural multiple stakeholders. Consequently, the literature points to a tendency to engage in short-term planning and neglect the lessons learned from previous programs and projects.

Second, several articles ($n = 21$) have stated that data represents a significant constraint for implementing MSP. Some authors suggest enhancing data collection standards for a shared data repository within SIDS regions (Baldwin and Mahon 2014; Mahadeo 2022; Schill et al. 2011). According to Gill et al. (2019 p 205) "cost-effective interview surveys of fisherfolks can help address critical information gaps in marine resource management and spatial planning outcomes for SIDS." Third, fragmentation and institutional silos continue to be impediments to MSP implementation in SIDS ($n = 34$). A few articles ($n = 10$) have stated that MSP outcomes may not please all stakeholders. The pursuit of an absolute consensus in MSP can be counterproductive for its implementation. Instead, they suggest increasing transparency and accountability within the MSP process will enhance its legitimacy and implementation efforts.

Stakeholder engagement

Almost all the articles ($n = 36$) emphasized the significance of consistently engaging stakeholders in the MSP process. A persistent conclusion is the importance of taking into account the perspectives of local stakeholders. This is particularly crucial due to the frequent lack of historical data and inadequate current data on marine resources in SIDS (e.g., Gill et al. 2019). Yet, state-collected data must also be shared transparently with local stakeholders (Fache and Breckwoldt 2018; Johnson et al. 2020).

Participatory mapping stands out as a highly valuable tool for MSP in SIDS, particularly effective for visualizing the spatial narratives of local communities and the wealth of local and Indigenous knowledge (DeGraff and Ramlal 2015; Giffin et al. 2021; Gill et al. 2019; Kitolelei et al. 2022). Some authors propose a participatory mapping approach to incorporate socio-cultural values and thereby resolve conflicts by anticipating the outcomes of different courses of action (Kitolelei et al. 2022). The social dimensions in MSP, such as trust, motivation, mutual understanding, and respect, build the foundation for robust stakeholder engagement.

The approach to stakeholder participation is a subject of considerable debate ($n = 28$). Given the strong connection most SIDS populations have with the ocean, gathering stakeholder input can be especially challenging (Johnson et al. 2020). The specific means to achieve participation remain vague, resulting in the exclusion of important stakeholders from the decision-making process (Fa'anunu 2019). Seychelles has gained international recognition as a notable success story among SIDS due to its effective implementation of MSP, which can be attributed to global advocacy efforts and innovative financing mechanisms. Yet, other authors have identified a lack of meetings and publicly available information resulted in minimal involvement of local stakeholders in Seychelles, prompting the authors to express concerns about the long-term sustainability of MSP (Baker et al. 2023; Benzaken et al. 2022; Cockerell and Jones 2021).

While it is typical for MSP processes to promote stakeholder engagement and public participation, it ultimately gets entangled in a top-down development approach through government orchestration (Argus 2021 p 54). Furthermore, the dominance of consultants from the global North primarily focussed on information sharing and data collection rather than actively seeking local input and experiences to shape policymaking (Baker et al. 2023). Several authors propose the establishment of a robust political framework during the planning phase to prevent MSP interactions from

becoming tokenistic and to ensure that stakeholders are not only involved in the later stages when their contribution is less likely to have a significant impact (e.g., Gilek et al. 2021; Gopnik et al. 2012; Gurney et al. 2021).

Several articles ($n = 19$) highlight the risks of power imbalances among stakeholders where the MSP process may be biased towards certain actors' agendas. This raises concerns regarding the legitimacy, transparency, and social equity dimensions of MSP (e.g., Argus 2021). They underscore the significance of thoughtful consideration regarding who participates in the MSP process as well as the timing and manner of their participation. For instance, whose ideas and interests are being prioritized by MSP, and who stands to gain the most from its implementation? For example, in Seychelles, some MSP zones impose restrictions on long-line fishing activities carried out by artisanal fisherfolks, yet these restrictions do not extend to charter and recreational anglers, underscoring issues about distributional justice (Baker et al. 2023). Haas et al. (2022 p 259) point to the risk that "the ocean will continue to be governed by a small elite with members having trade powers and rights of exploitation but different perceptions and understandings of environmental risks and fairness."

According to some literature sources, MSP could promote or worsen ocean grabbing unless power imbalances between stakeholders are addressed (Durbin 2018; Keen et al. 2018; Popoola and Olajuyigbe 2023; Queffelec et al. 2021). On the other hand, a few articles ($n = 5$) propose that conflicts among stakeholders should not always be perceived as negative, and they may not always require immediate solutions. Rather, conflicts can be considered an inherent component of the MSP process that can be refined over time to promote social justice and equity. For instance, "identifying potential conflicts before the MSP process begins can inform strategic consultation and mediation regarding contentious topics and, ideally, expedite decision making" (Lester et al. 2017 p 242).

Legitimacy

Stakeholder perceptions and constructive interactions are seen as integral aspects of legitimate MSP by several authors ($n = 15$). In contrast, a few articles ($n = 6$) question MSP as a legitimate form of marine governance, highlighting power relations and non-participation as critical deficiencies. Some authors ($n = 7$) also highlighted the absence of legal mechanisms to hold MSP authorities accountable for their actions. Several authors have raised concerns regarding the legitimacy of decisions that prioritize certain actors while leaving others on the periphery (Benzaken et al. 2022; Gilek et al. 2021). We did not find substantive solutions to address inclusivity and social equity related to stakeholder engagement in SIDS, indicating a need for more case-based empirical studies in developing island country contexts. A summary graph (Fig. 4) illustrates the relative emphasis on various aspects of collaborative governance in the reviewed literature.

Discussion

The theoretical framework of collaborative governance literature highlights the essential role of leadership and goal setting, governance arrangements, and social capital. These governance aspects apply to MSP, but less attention is paid to some aspects in the MSP literature than in the theoretical framework. Our proposed collaborative governance framework for MSP adds some reflection points to existing literature.

Leadership and goal setting

Leadership is central to collaborative governance. However, the literature pays scant attention to the diverse forms of leadership within MSP. Yet, in line with the collaborative

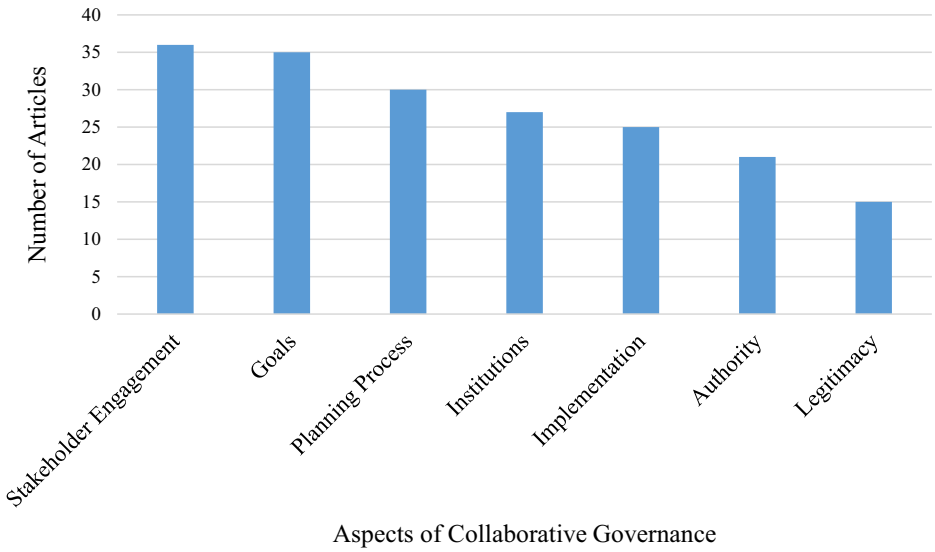


Fig. 4 Key aspects of collaborative governance in MSP literature in SIDS

governance framework, we argue that leadership itself is crucial in convening diverse sectors and their representatives, as well as navigating the challenges that arise during the collaborative process. MSP has the capacity to align the planning efforts of various authorities in SIDS, addressing the complexities of sectoral management. It is not a substitute for existing marine management strategies but possesses a unique potential to integrate existing sectoral strategies into a unified framework while also addressing areas of the ocean that may currently lack any form of management but could become areas of interest in the future. A national MSP headed by a prominent elected government figure, such as a government minister, can also pave the way for transboundary MSP efforts, thereby building regional collaboration.

Leadership for MSP extends beyond government agencies. The literature has emphasized the pivotal role of some non-state stakeholders that are instrumental to MSP efforts in SIDS, notably the local and Indigenous fishing communities as well as various NGOs engaged in marine conservation initiatives (Cockerell and Jones 2021; Fa'otusia et al. 2018; Kitolelei et al. 2022; Mahadeo 2022; Ntona and Morgera 2018). An investment in human capital, which involves empowering and incentivizing individuals with diverse knowledge, skill sets, and expertise, can contribute significantly towards an effective MSP. Additionally, we conclude that countries planning to establish an MSP must explicitly specify goal priorities based on the individual countries and its citizens' needs. For example, countries must identify the need for MSP and determine why it is the optimal method to achieve their goals and objectives while considering matters of ocean equity. This also involves conducting nationwide awareness campaigns, consultations, and training programs to promote ocean literacy in SIDS, where nearly all citizens depend on the ocean in various capacities.

The objectives and agenda of MSP may vary significantly between different countries and regions. For instance, a plan that prioritizes environmental conservation may not be equipped to uphold and restore the rights of Indigenous Peoples or effectively enhance the livelihood of small-scale fisherfolks. In some SIDS, it may seem more practical to improve well-established existing frameworks rather than adopting new ones, but any decision to do so must be agreed upon by all stakeholders at the early stages of MSP development. In SIDS, where Indigenous and local community leadership is critical to community-led marine initiatives, it is important for the state leaders of the MSP authority to be accepted by Indigenous and local communities. Such acceptance may also create space for a co-leadership model with Indigenous representatives, which can prove invaluable for the co-production of knowledge as well as other aspects of MSP implementation. Engaging Indigenous and local communities and making provisions for the co-creation of knowledge can help redefine knowledge integration in MSP, but this requires an effective form of leadership and a high level of collaboration across all sectors, including government, NGOs, private sectors, research institutes, boundary organizations, and local citizens.

Governance arrangements

The institutional capacity and role of the state as a strong convenor of MSP emerged as an important driver for adaptive MSP processes. For example, the government authorities that are mainly involved in MSP processes ideally should have the mandate to drive national awareness and conduct outreach activities, oversee goal setting and prioritization, and maintain an effective institutional framework that ensures the legitimacy of the MSP process (Cockerell and Jones 2021; Johnson et al. 2020; Pomeroy et al. 2014). While institutional capacity is widely recognized in the literature as a critical enabling factor for MSP, it is still typically at rudimentary levels in SIDS. The literature attributes this primarily to inadequate policies and regulations, as well as the capacity constraints within government agencies to collaborate and complement their sectoral priorities. This challenge is exacerbated in situations where existing agencies lack the authority to compel other government agencies to adhere to the established plan.

Nearly all SIDS lean on some form of donor funding for the implementation of MSP (Mahadeo 2022; Pomeroy et al. 2014). The donor and practitioner communities are urged to actively involve locally based practitioners and their networks in shaping and influencing the marine planning and management process (Enrici et al. 2023). We suggest establishing a Memorandum of Understanding and Terms of Reference between the primary MSP authority and subsidiary agencies. This approach can enhance clear communication, define responsibilities, and increase local capacity for effective implementation of MSP.

To operationalize a collaborative governance framework for MSP, we suggest creating a community of practice that includes professionals from various agencies with diverse skills. SIDS can reap the rewards of adopting a long-term strategy to enhance local competencies in various domains. This can facilitate the transition towards a co-managed MSP approach, in which national agencies, local communities, NGOs, technical institutes, and the private sector play a more significant role in the planning process (Baker et al. 2023; Lubchenco and Haugan 2023; Pomeroy et al. 2014). A community of practice can also facilitate resource mobilization, including technical, human, and financial resources. While collaborative governance does not explicitly focus on resource mobilization strategies, interactions between various actors and their roles can help tap into the diverse resources needed for implementing MSP.

The absence of consistent and well-defined mandates within government agencies and limited public sector capacity exacerbates implementation challenges. Nonetheless, our analysis of the literature suggests that MSP holds the potential to function as a collaborative and overarching governance framework for SIDS that can coordinate sectoral ocean activities, mobilize resources, and address sociopolitical gaps. Also, MSP objectives become more feasible to achieve if planning processes and regulations are firmly integrated into SIDS legal frameworks. However, to maintain the democratic nature of MSP, it is imperative to analyze the role of ideas, interests, and political and institutional factors that impact it. Some of the key questions to consider include who is initiating MSP? Whose ideas and interests are being served by MSP? Who are the beneficiaries? Who incurs losses? Given that none of the SIDS is a specific MSP policy or legislative framework are the supporting policies, such as the ocean policy, maritime transport policy, fisheries policy, and other environment-related policies governing MSP, coherent? SIDS often lack the necessary expertise, financial support, and institutional structures to address policy incoherence, which may undermine the effectiveness of MSP outcomes (Benzaken et al. 2022).

It is also important to devise a sustainable financing mechanism to sustain MSP beyond donor support. Seychelles debt swap for Conservation and Climate Adaptation facilitated the implementation of the Seychelles MSP, but its efficacy in other SIDS remains to be explored (Booth and Brooks 2023). The literature points to four key trends to ensure effective implementation of MSP. Firstly, there is a need for strong MSP leadership and the sharing of leadership roles among local and Indigenous communities, NGOs, the private sector, and research institutes. Secondly, an advanced system of monitoring and evaluation is an absolute necessity for MSP to be an adaptive governance process. However, this can pose challenges for countries in the SIDS, which may struggle with implementation issues due to inadequate surveillance. In this case, a supranational MSP, such as a transboundary MSP for Pacific or Caribbean SIDS, may bring more benefits. Thirdly, substantive changes to policies are needed, along with reforms to existing governance and institutional practices, to ensure the compatibility of MSP with existing marine management approaches and policies. Along with transparency and accountability, these considerations are crucial when choosing between establishing a new administrative agency or assigning the MSP process to an existing one. It is important to evaluate whether the current institutional setup is fit for purpose or capable of adapting to meet broader objectives before entrusting it with the complex demands of managing an MSP. Finally, maintaining consistent stakeholder engagement throughout the MSP process is a critical component of the collaborative framework.

Social capital

Social capital is crucial in fostering a collaborative, equitable, and legitimate MSP (Baker et al. 2023; Dancette and Brêthes 2019; Gurney et al. 2021; Johnson et al. 2020). Ansell et al. (2020) argue that although collaborative networks typically exhibit inclusivity by engaging diverse stakeholders and viewpoints from various sectors, a more detailed understanding of the motivations, incentives, and roles of collaborators is needed. Investments in human capital and respect for human values are important prerequisites to MSP in SIDS. Stakeholder engagement and trust-building are essential components of the collaborative governance framework, but we conclude that conflicts among stakeholders can also be seen as a natural part of the MSP process rather than a detrimental element to be avoided at all costs. Conflicts must, however, be resolved using a human rights–based approach where moral obligations and ethics form an integral part of the MSP process, including local and Indigenous rights, human values, cultural connections, local knowledge, and livelihood needs. Establishing an Administrative Appeals Tribunal can help review government decisions, especially if unresolved issues exist between various stakeholders, including the MSP authority.

The ocean is primarily a cultural embodiment and spiritual conduit for many Indigenous and local communities. Pacific communities are surrounded by vast ocean space and hold a deep bond with the ocean. They possess extensive Indigenous knowledge and engage in cultural practices that are deeply intertwined with the ocean space and resources. Indigenous institutions are missing from Ansell and Gash (2008) and Emerson and Nabatchi (2015) collaborative governance model. Thus, we argue that local and Indigenous norms and practices could be a category of their own to be considered for the MSP collaborative governance model, particularly in the SIDS context. However, the existing literature on MSP offers limited insights into how MSP can effectively coexist with or operate within Indigenous governance structures. There is also insufficient information about the implications of MSP for small and vulnerable groups that depend heavily on ocean resources for subsistence, spirituality, and identity.

A key challenge to the legitimacy and mobilization of MSP stems from weak institutional arrangements for meaningful stakeholder engagement (Benzaken et al. 2022). MSP processes must be transparent from the outset. There is a considerable risk that a market-oriented establishment exacerbates inequality and contributes to mismanagement of ocean space (Ellis and Flannery 2016). The spatial management of physical resources goes to the core of political economy analyses of "the processes by which some actors benefit from particular systems or processes at the exclusion of others" (Sovacool et al. 2015 p 18). To a certain extent,

Table 1 Summary of enablers, barriers, and recommendations for MSP in SIDS

Starting Conditions				
Process				
Variables	**Key Elements**	**Enablers**	**Barriers**	**Recommendations**
Leadership and goal setting	Goal	Well-defined and localized goals that are measurable and determined collectively by resource users and traditional custodians Goals that place equal emphasis on environmental (e.g. conservation), social (e.g. local livelihood and values) and economic objectives (e.g. revenue)	Lack of capacity within public agencies to integrate different goal priorities Lack of capacity to assess trade-offs and align objectives Achieving a balance between conflicting goals across various sectors	Engaging Indigenous, local communities, and the private sector in co-creating knowledge can redefine knowledge integration in MSP. Effective MSP is highly reliant on strong leadership and cross-sector collaboration Goals must be designed to reflect the fairness perceptions of those most impacted by MSP An MSP taskforce can drive progress by mapping stakeholders and engaging them throughout the MSP process Multi-partner alliances such as public-private partnerships, community-based collaborative regimes, and social-private partnerships are key to driving stakeholder collaborations in SIDS.
	Authority (State/sub-states and Indigenous)	Leadership, guidance, and resources from state facilities create a strong political frontier for MSP Indigenous customary ocean governance systems can be leveraged to drive local MSP initiatives	Erosion of customary leadership from colonial and top-down government interventions creates tensions between Indigenous and government authorities Bureaucratic ambiguities over MSP authority within government and among external stakeholders, including Indigenous authorities National and global market influences on the MSP process increase the risk of ocean grabbing Inadequate capacity of the MSP authority to resolve stakeholder and sectoral conflicts neutrally and consensually	
Governance arrangements	Planning processes	NGOs in SIDS serve as boundary organisations and knowledge brokers to advance planning processes NGOs offer technical expertise, community voice, and sometimes financial support Supranational efforts to advance transboundary MSP could enhance monitoring and evaluation in various SIDS region, such as the MSP for Pacific and Caribbean	NGOs may occasionally encroach on sovereign decision-making, which can distort local priorities Inadequate integration of traditional ecological knowledge and local cultural values in the planning process Risks arise when MSP authority is decentralised to only a subset of stakeholders with more power and resources to influence planning process A shortage of trained MSP professionals increases reliance on external expatriates, who may lack local context, thus complicating long-term planning of MSP Lack of foresight to effectively evaluate MSP as an adaptive process Unappealing remuneration and increased workload limit planners' capacity to engage diverse stakeholders in the planning processes Lack of a systematic mechanism to engage academics and researchers in the planning process and decision-making processes of MSP Absence of a robust stakeholder engagement criteria leads to ad hoc planning processes	Establishing a Memorandum of Understanding and Terms of Reference between the primary MSP authority and subsidiary agencies. This approach can enhance clear communication and define responsibilities as well as increase local capacity for effective implementation of MSP To operationalize a collaborative governance framework for MSP, we suggest creating a community of practice that includes professionals with diverse skills from various agencies including Indigenous institutions Maintain transparency in discussions about trade-offs and ensure accountability when assessing the costs and benefits to marginalized populations and threatened biodiversity throughout the planning and decision-making process

Table 1 (continued)

	Institutions	Existing institutional and policy frameworks support cooperation in MSP	Involvement of multiple authorities and agencies in MSP processes in SIDS creates institutional ambiguity	Establish a comprehensive legal and policy framework for MSP that defines the roles and responsibilities of various committees and institutions, tailored to meet the governance needs of individual SIDS and their citizens, while ensuring alignment with international standards SIDS must exercise caution when engaging with international donor entities, as they may have their own agendas that could distort local power relations, particularly if internal institutional arrangements are weak Establish funding mechanisms through national budget allocations
	Implementation	Recognition of a flexible MSP to accommodate the evolving needs of the social-ecological system Political will and leadership to drive MSP initiatives	Lack of long-term commitment, dedicated funding sources, and large debt burdens faced by several SIDS Fragmentation and institutional silos Inadequate technology and related resources for data collection Lack of social data and information regarding social-ecological linkages Lack of enforcement and inadequate incentives to ensure compliance with the plan	Establish a national data repository that can be shared with the public Manage sensitive data through MSP authority Promote the collection of qualitative data, e.g., interviews, storytelling, focus group discussions with fisherfolk Support or revive Indigenous governance systems and engage local communities in monitoring, evaluation, and learning efforts
Social capital	Stakeholder Engagement	Participatory mapping stands out as a highly valuable tool for visualizing the spatial narratives of local communities and incorporating their socio-cultural values Trust, motivation, mutual understanding, and respect build the foundation for robust stakeholder engagement Acknowledging conflicts among stakeholders can refine the MSP process	Specific means to achieve participation remain vague, resulting in the exclusion of important stakeholders from the decision-making process The dominance of consultants from the global North is perpetuating a top-down approach Power imbalances among stakeholders and a lack of incentives & motivation for local people to participate in MSP processes	Conduct a comprehensive stakeholder mapping and analysis to identify and address potential conflicts before initiating the MSP process Invest in human capital, which involves empowering and incentivising individuals with diverse knowledge, skill sets, and expertise
	Legitimacy	Recognition of strong leadership and the inclusion of rights-holders, particularly Indigenous peoples and local communities (IPLCs), in MSP decision-making processes	Lack of a robust criterion for engagement of all relevant stakeholders Absence of legal mechanisms to hold MSP authorities accountable for their actions	Building trust and social capacity within MSP must occur without creating a hierarchy for different sources of knowledge To operationalize a collaborative governance framework for MSP in SIDS, we suggest systematic integration of local and Indigenous values, knowledge, and practices into MSP from the outset

Outcomes

influential private sector stakeholders, such as those in the fishing or tourism industry, which are both vital components of the SIDS economy, can influence government decisions and create hurdles for MSP implementation.

To understand how ocean users can be meaningfully engaged in the decision-making process, our analysis suggests a deeper focus on stakeholder participation involving different platforms and means of interaction. We identified some strategies as stated below:

1. Creating sufficient awareness of MSP goals and outcomes should be a key priority before initiating the planning process. Even more important for SIDS is co-creating MSP objectives in consultation with local communities and the private sector, two of the most important set of stakeholders in SIDS.
2. Before initiating MSP, it is crucial to decode the interests and ideas that may shape the diverse needs of various groups.
3. Establishing a collaborative institutional support mechanism that caters to different knowledge systems and knowledge holders may be necessary. A co-leadership approach could potentially provide the necessary support in this regard.
4. Providing financial support for some stakeholder groups might be important to ensure appropriate inclusivity in MSP. This may include subsidizing travel, meals, and accommodation for groups that would otherwise be unable to gather at a central location.
5. Collaborating with boundary organizations to establish citizen science programs that empower local groups to provide data in ways that align with their knowledge systems. Participatory mapping has the potential to enhance public participation in MSP governance and promote active engagement within communities.
6. Gathering relevant data throughout the MSP process and soliciting ongoing feedback at every stage of the process can garner public support for MSP.
7. It is necessary to uphold stakeholder engagement in MSP and ensure transparency by communicating how the information acquired from various stakeholders at every stage of MSP formulation was integrated into the policy and planning process.
8. Developing standard operating procedures for effectively engaging stakeholders in MSP processes.

Implementing MSP in SIDS is a significant undertaking that requires meaningful collaboration, cultural appreciation of people's connection to the ocean, trust, and a genuine desire to achieve legitimate outcomes that are accepted by all stakeholders. The collaborative governance framework we used, building on Ansell and Gash (2008) and Emerson and Nabatchi (2015) work, needs to incorporate Indigenous norms and local practices, co-leadership, and innovative stakeholder engagement. Drawing from our findings and discussions, we have created a summary table (Table 1) that outlines the enablers and barriers to MSP in SIDS, along with key recommendations.

Conclusion

This paper set out to identify what will be required of MSP in SIDS to function as a collaborative governance mechanism. The theoretical framework of collaborative governance literature highlights the essential role of leadership and goal setting, governance arrangements, and social capital, elements that are largely reflected within the literature on MSP in SIDS. Yet, we identified a gap in MSP research related to developing countries. The key potential of MSP, among its many traits, resides in its capacity to provide space for robust stakeholder engagement and public debate about the use of ocean space. However, as competing interests over ocean space escalate, the role of stakeholders becomes increasingly important. As such, leadership and social capital emerged as highly relevant for operationalizing MSP as a collaborative governance framework. Leadership is a crucial factor that can positively or negatively influence the MSP governance framework. The institutional arrangements should include a government ministry tasked with spearheading MSP initiatives and empowered with the authority to coordinate functions across government and non-government agencies. A prominent political figure, such as a government minister, can motivate and endorse MSP initiatives and promote both horizontal and vertical coordination in SIDS. Government-led MSP authorities and local leaders representing non-government stakeholders are frequently the links between local people and organizations involved in MSP initiatives. They play an essential role in setting goal priorities, motivating and promoting collaboration between stakeholders, as well as protecting the values of local people.

The literature points to inadequate consideration for social categories and objectives in MSP and highlights the deficiencies in MSP participatory exercises commonly undertaken by the government. SIDS generally lack the financial and human capacity to carry out equitable, fair, and meaningful engagement processes with all relevant stakeholders. As such, we propose a systematic and sustained investment in human capital and values as an important prerequisite to MSP in SIDS. An investment in capacity building at the leadership level is also crucial for generating social capital at various levels. Developing trust and fostering social capacity within MSP must take place without creating a hierarchy for those considered knowledgeable and those considered less knowledgeable. We suggest systematically integrating local and Indigenous values, knowledge, and practices to cater to a collaborative governance framework that may enable effective MSP in SIDS. Failure to integrate values and ethical considerations within the MSP framework can escalate

conflicts and impede cooperation, particularly in SIDS, where a large proportion of the population relies heavily on marine resources for their livelihood.

In the absence of an integrated and sustainable institutional support system, a well-designed MSP may only exist "on paper" and could end up merely "ticking the box" for international sustainability agreements. Successful implementation of MSP will be highly contingent on its legitimacy by various stakeholders. It needs to systematically capture the interests of various stakeholders while embracing cultural values and norms, Indigenous knowledge, and scientific principles underlying the MSP process. This does not necessarily require consensus on an all-encompassing solution to ocean-related governance challenges. MSP may necessitate difficult trade-offs between groups' prioritized goals. Nevertheless, it offers a network environment characterized by a high level of social interconnectedness and collaborative efforts that can facilitate trust-building and reciprocity. As MSP is a highly politicized process, emphasis should be placed on the planning and policymaking processes rather than the MSP outcomes only.

With MSP's increasing popularity, particularly through its promotion by international entities, there is a pressing need to integrate varied worldviews and epistemologies of SIDS into the early stages of MSP formulation and implementation. This will help address the missing layers in MSP and ensure a more comprehensive and holistic approach. The planning approaches adopted by various SIDS reveal the peculiarities of the context, particularly the capacity challenges faced by the islands. Leadership, long-term funding system, socio-cultural dimensions, human and technical resource deficits, data constraints, and institutional inertia must be addressed if MSP is to become institutionalized as a collaborative framework for governing the ocean space. The full extent to which MSP would succeed in countries with limited resources and small, vulnerable economies remains to be thoroughly investigated via empirical research. This study calls for more robust research efforts by SIDS into their unique challenges that shape MSP implementation nationally, regionally, and internationally.

Data Availability The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Conflict of interest The authors declare no competing interests.

References

Abe J, Brown B, Ajao EA, Donkor S (2016) Local to regional polycentric levels of governance of the Guinea current large marine ecosystem. Environ Dev 17:287–295. https://doi.org/10.1016/j.envdev.2015.06.006

Agardy T, Di Sciara GN, Christie P (2011) Mind the gap: addressing the shortcomings of marine protected areas through large scale marine spatial planning. Mar Policy 35(2):226–232. https://doi.org/10.1016/j.marpol.2010.10.006

Ansell C, Gash A (2008) Collaborative governance in theory and practice. J Public Adm Res Theory 18(4):543–571. https://doi.org/10.1093/jopart/mum032

Ansell C, Doberstein C, Henderson H, Siddiki S, Hart P't (2020) Understanding inclusion in collaborative governance: a mixed methods approach. Policy Soc 39(4):570–591. https://doi.org/10.1080/14494035.2020.1785726

Argus J (2021) Power, politics & resources: a case study of the Marae Moana, Cook Islands. https://studenttheses.uu.nl/handle/20.500.12932/149. Accessed 25 Sept 2022

Armitage D, De Loë R, Plummer R (2012) Environmental governance and its implications for conservation practice. Conserv Lett 5(4):245–255. https://doi.org/10.1111/j.1755-263X.2012.00238.x

Baker S, Constant N, Nicol P (2023) Oceans justice: trade-offs between sustainable development goals in the Seychelles. Mar Policy 147:105357. https://doi.org/10.1016/j.marpol.2022.105357

Bakshi A (2019) Oceans and small island states: prospects for the blue economy. Int Res J Human Resour Soc Sci 6:43–60

Baldwin K, Mahon R (2014) A participatory GIS for marine spatial planning in the Grenadine Islands. Electron J Inf Syst Dev Countries 63(1):1–18. https://doi.org/10.1002/j.1681-4835.2014.tb00452.x

Becker-Weinberg V (2020) Maritime boundary-making and improving ocean governance in Timor-Leste. Ocean Yearb Online 34(1):113–135. https://doi.org/10.1163/9789004426214_006

Benzaken D, Voyer M, Pouponneau A, Hanich Q (2022) Good governance for sustainable blue economy in small islands: lessons learned from the Seychelles experience. Front Political Sci 4:1040318. https://doi.org/10.3389/fpos.2022.1040318

Booth M, Brooks C (2023) Financing marine conservation from restructured debt: a case study of the Seychelles. Front Mar Sci 10:899256. https://doi.org/10.3389/fmars.2023.899256

Calado H, Pegorelli C, Frazão Santos C (2020) Maritime spatial planning and sustainable development. In: Leal Filho W, Azul AM, Brandli L, Lange Salvia A, Wall T (eds) Life below water. Springer International Publishing, pp 1–11. https://doi.org/10.1007/978-3-319-71064-8_122-1

Ceccarelli D, Davey K, Fernandes L (2018) Developing a marine spatial plan: a toolkit for the Pacific. Suva, MACBIO (SPREP/IUCN/BMU), p 39

Chan N (2018) "Large ocean states": sovereignty, small islands, and marine protected areas in global oceans governance. Glob Gov Rev Multilateralism Int Organ 24(4):537–555. https://doi.org/10.1163/19426720-02404005

Cockerell LM, Jones PJ (2021) Governance analysis of St Anne Marine National Park, Seychelles. Mar Policy 127:103912. https://doi.org/10.1016/j.marpol.2020.103912

Dancette R, Brêthes J-C (2019) An analysis of actors' perceptions of Maio island's (Cape Verde) marine governance. Mar Policy 104:177–197. https://doi.org/10.1016/j.marpol.2019.02.047

DeGraff AK, Ramlal B (2015) Participatory mapping: Caribbean small island developing states. In: Regional human development report on multidimensional progress for human development in Latin American and the Caribbean. United Nations Development Report, Trinidad and Tobago, p 15. https://doi.org/10.13140/RG.2.1.1112.0165

Douvere F, Ehler C (2008) Special issue on the role of marine spatial planning in implementing ecosystem-based, sea use management - Introduction. Mar Policy 32(5):759–761. https://doi.org/10.1016/j.marpol.2008.03.019

Dressel S, Sjölander-Lindqvist A, Johansson M, Ericsson G, Sandström C (2021) Achieving social and ecological outcomes in collaborative environmental governance: good examples from Swedish moose management. Sustainability 13(4):2329. https://doi.org/10.3390/su13042329

Dupuy C, Defacqz S (2022) Citizens and the legitimacy outcomes of collaborative governance an administrative burden perspective. Public Manag Rev 24(5):752–772. https://doi.org/10.1080/14719037.2021.2000254

Durbin TJ (2018) "What now, fishgate?" scandal, Marae Moana, and nation making in the Cook Islands. Contemp Pac 30(1):1–31. http://www.jstor.org/stable/26408027

Ehler CN (2020) Two decades of progress in marine spatial planning. Mar Policy 132:104134. https://doi.org/10.1016/j.marpol.2020.104134

Ehler C, Douvere F (2009) Marine spatial planning: a step-by-step approach toward ecosystem-based management. Report by United Nations Educational, Scientific and Cultural Organization. Manual and Guides No 153 ICAM Dossier No 6. Paris Intergovernmental Oceanographic Commission UNESCO IOC, p 99. https://doi.org/10.25607/OBP-43

Ehler C, Douvere F (2007) Visions for a sea change: report of the First International Workshop on Marine Spatial Planning, Intergovernmental Oceanographic Commission and the Man and the Biosphere Programme UNESCO Headquarters. Paris, France. 8–10 November 2006. Paris, France, UNESCO, p 83. (Intergovernmental Oceanographic Commission Manuals and Guides; 46). https://doi.org/10.25607/OBP-1415

Ehler CN (2018) Marine spatial planning: an idea whose time has come. In: Offshore energy and marine spatial planning. Routledge, pp 6–17. https://doi.org/10.4324/9781315666877

Ellis G, Flannery W (2016) Marine spatial planning: Cui bono? Plan Theory Pract 17(1):122–128. https://doi.org/10.1080/14649357.2015.1131482

Emerson K, Nabatchi T (2015) Collaborative governance regimes. Georgetown University Press. http://www.jstor.org/stable/j.ctt19dzcvf

Enrici A, Gruby RL, Betsill MM, Le Cornu E, Blackwatters JE et al (2023) Who's setting the agenda? Philanthropic donor influence in marine conservation. Ecol Soc 28(3). https://doi.org/10.5751/ES-14091-280302

Fa'anunu HL (2019) Assessing stakeholder expectations for marine spatial planning in Tonga: Implications for governance [Master's thesis, World Maritime University] Maritime commons. https://commons.wmu.se/cgi/viewcontent.cgi?article=2140&context=all_dissertations. Accessed 18 Jan 2023

Fache E, Breckwoldt A (2018) Small-scale managed marine areas over time: developments and challenges in a local Fijian reef fishery. J Environ Manage 220:253–265. https://doi.org/10.1016/j.jenvman.2018.05.029

Fanning L, Mahon R, Compton S, Corbin C, Debels P et al (2021) Challenges to implementing regional ocean governance in the wider Caribbean region. Front Mar Sci 8:667273. https://doi.org/10.3389/fmars.2021.667273

Fao'tusia A, Mafi AT, Veikoso E (2018) Plan, engage, coordinate, change: charting the path ahead for marine spatial planning. Envtl Pol'y & l 48:420. https://doi.org/10.3233/EPL-1801

Ferdinand M (2020) Global environmental governance and small states: architectures and agency in the Caribbean, by Michelle Scobie. New West Indian Guide / Nieuwe West-Indische Gids 94(1–2):173–174. https://doi.org/10.1163/22134360-09401009

Flannery W, Toonen H, Jay S, Vince J (2020) A critical turn in marine spatial planning. Marit Stud 19(3):223–228. https://doi.org/10.1007/s40152-020-00198-8

Flower J, Ramdeen R, Estep A, Thomas LR, Francis S et al (2020) Marine spatial planning on the Caribbean island of Montserrat: lessons for data-limited small islands. Conserv Sci Pract 2(4):e158. https://doi.org/10.1111/csp2.158

Frazão Santos C, Agardy T, Andrade F, Crowder LB, Ehler CN et al (2021) Major challenges in developing marine spatial planning. Mar Policy 132:103248. https://doi.org/10.1016/j.marpol.2018.08.032

Frazão Santos C, Ehler CN, Agardy T, Andrade F, Orbach MK et al (2019) Chapter 30 - Marine spatial planning. In: Sheppard C (ed) World seas: an environmental evaluation, second edn. Academic Press, pp 571–592. https://doi.org/10.1016/B978-0-12-805052-1.00033-4

Giffin AL, Brown CJ, Nalau J, Mackey BG, Connolly RM (2020) Marine and coastal ecosystem-based adaptation in Asia and Oceania: review of approaches and integration with marine spatial planning. Pac Conserv Biol 27(2):104–117. https://doi.org/10.1071/PC20025

Giffin AL, Brown CJ, Nalau J, MacKey BG, Connolly RM (2021) Marine and coastal ecosystem-based adaptation in Asia and Oceania: review of approaches and integration with marine spatial planning [Review]. Pac Conserv Biol 27(2):104–117. https://doi.org/10.1071/PC20025

Gilek M, Armoskaite A, Gee K, Saunders F, Tafon R et al (2021) In search of social sustainability in marine spatial planning: a review of scientific literature published 2005–2020. Ocean Coast Manag 208:105618. https://doi.org/10.1016/j.ocecoaman.2021.105618

Gill DA, Oxenford HA, Turner RA, Schuhmann PW (2019) Making the most of data-poor fisheries: low cost mapping of small island fisheries to inform policy. Mar Policy 101:198–207. https://doi.org/10.1016/j.marpol.2017.10.040

Gopnik M, Fieseler C, Cantral L, McClellan K, Pendleton L et al (2012) Coming to the table: early stakeholder engagement in marine spatial planning [Article]. Mar Policy 36(5):1139–1149. https://doi.org/10.1016/j.marpol.2012.02.012

Govan H, Katafono R (2017) Ocean governance–our sea of islands. In: A sustainable future for small states: pacific 2050. Commonwealth Secretariat, p 163. https://doi.org/10.14217/9781848599574-en

Gray B, Purdy J, Gray B, Purdy J (2018) Collaborative governance. In: Collaborating for our future: multistakeholder partnerships for solving complex problems. Oxford University Press. https://doi.org/10.1093/oso/9780198782841.003.0009

Gruby RL, Basurto X (2013) Multi-level governance for large marine commons: politics and polycentricity in Palau's protected area network. Environ Sci Policy 33:260–272. https://doi.org/10.1016/j.envsci.2013.06.006

Gurney GG, Mangubhai S, Fox M, Kim MK, Agrawal A (2021) Equity in environmental governance: perceived fairness of distributional justice principles in marine co-management. Environ Sci Policy 124:23–32. https://doi.org/10.1016/j.envsci.2021.05.022

Haas B, Mackay M, Novaglio C, Fullbrook L, Murunga M et al (2022) The future of ocean governance. Rev Fish Biol Fish 32(1):253–270. https://doi.org/10.1007/s11160-020-09631-x

Hilaire B (2022) PENAMA approves provincial marine spatial plan. Daily Post. https://www.dailypost.vu/news/penama-approves-provincial-marine-spatial-plan/article_f916ff75-173c-5c5c-a6f1-4ebc9de3f1db.html. Accessed 19 Dec 2022

Hilmi N, Basu R, Crisóstomo M, Lebleu L, Claudet J et al (2023) The pressures and opportunities for coral reef preservation and restoration in the Maldives. Front Environ Econ 2:1110214. https://doi.org/10.3389/frevc.2023.1110214

Iglesias-Campos A, Rubeck J, Sanmiguel-Esteban D, Schwarz G (2021) MSPglobal international guide on marine/maritime spatial planning. Paris, France, UNESCO, 152pp. (IOC manuals and guides no 89). https://doi.org/10.25607/OBP-1666

IOC-UNESCO (2022) State of the ocean report, pilot edition. https://unesdoc.unesco.org/ark:/48223/pf0000381921

Jacob C, Diederichsen SD, Fullbrook L, Lombard AT, Rees SE et al (2023) A two way process–social capacity as a driver and outcome of equitable marine spatial planning. Mar Policy 149:105507. https://doi.org/10.1016/j.marpol.2023.105507

Jay S, Ellis G, Kidd S (2012) Marine spatial planning: a new frontier? J Environ Plan Policy Manage 14(1):1–5. https://doi.org/10.1080/1523908X.2012.664327

Johnson AE, McClintock WJ, Burton O, Burton W, Estep A et al (2020) Marine spatial planning in Barbuda: a social, ecological, geographic, and legal case study. Mar Policy 113:103793. https://doi.org/10.1016/j.marpol.2019.103793

Karnad D, St. Martin K (2020) Assembling marine spatial planning in the global south: international agencies and the fate of fishing communities in India. Mar Stud 19(3):375–387. https://doi.org/10.1007/s40152-020-00164-4

Keen MR, Schwarz A-M, Wini-Simeon L (2018) Towards defining the Blue Economy: practical lessons from Pacific ocean governance. Mar Policy 88:333–341. https://doi.org/10.1016/j.marpol.2017.03.002

Khan A, Amelie V (2015) Assessing climate change readiness in Seychelles: implications for ecosystem-based adaptation mainstreaming and marine spatial planning. Reg Environ Change 15:721–733. https://doi.org/10.1007/s10113-014-0662-4

Kitolelei S, Lowry JH, Qaqara N, Ryle J, Veitayaki J et al (2022) Spatial use of marine resources in a rural village: a case study from Qoma, Fiji. Front Mar Sci 9:993103. https://doi.org/10.3389/fmars.2022.993103

Komai M (2021) Government of Kiribati lifts closure of Phoenix islands protected area. Pacific Island News Association. https://pina.com.fj/2021/11/15/government-of-kiribati-lifts-closure-of-phoenix-islandsprotected-area/. Accessed 16 Feb 2023

Le Cornu E, Doerr AN, Finkbeiner EM, Gourlie D, Crowder LB (2018) Spatial management in small-scale fisheries: a potential approach for climate change adaptation in Pacific Islands. Mar Policy 88:350–358. https://doi.org/10.1016/j.marpol.2017.09.030

Lester SE, Ruff EO, Mayall K, McHenry J (2017) Exploring stakeholder perceptions of marine management in Bermuda. Mar Policy 84:235–243. https://doi.org/10.1016/j.marpol.2017.08.004

Liu C (2021) An approach to spatial variations and resilience of small island sustainability: a case study of Kiribati. IOP Conf Ser: Earth Environ Sci 693(1):012130. https://doi.org/10.1088/1755-1315/693/1/012130

Lopes F, Vergílio M, Calado H (2021) Advancing martime economy and planning in small island states: a contribution from perceptions of local stakeholders in Cabo Verde. Acoreana XI(3):545–560

Lopez RS (2007) Ocean governance in the developing countries: a comparative analysis of Fiji and the Philippines [Master's Thesis]. World Maritime University. Maritime commons. https://commons.wmu.se/cgi/viewcontent.cgi?article=1307&context=all_dissertations. Accessed 11 Dec 2022

Louey P (2022) The Pacific blue economy: an instrument of political maneuver. Mar Policy 135:104880. https://doi.org/10.1016/j.marpol.2021.104880

Lubchenco J, Haugan PM (2023) Integrated ocean management. In: The blue compendium: from knowledge to action for a sustainable ocean economy, pp 523–552. https://doi.org/10.1007/978-3-031-16277-0

Lukambagire I, Matovu B, Manianga A, Bhavani RR, Anjana S (2024) Towards a collaborative stakeholder engagement pathway to increase ocean sustainability related to marine spatial planning in developing coastal states. Environ Challenges 15:100954. https://doi.org/10.1016/j.envc.2024.100954

Mahadeo S (2022) Marine spatial planning in the Eastern Caribbean: trends and progress. Mar Policy 145:105277. https://doi.org/10.1016/j.marpol.2022.105277

McAteer B, Fullbrook L, Liu W-H, Reed J, Rivers N et al (2022) Marine spatial planning in regional ocean areas: trends and lessons learned. Ocean Yearbook Online 36(1):346–380

McConney P, Chuenpagdee R (2011) Report of session on marine spatial planning in small islands and other developing states: practices and prospects held on 16 May 2011 at the 2nd International Marine Conservation Congress, Victoria, British Columbia, Canada

Michel CL (2017) Collaborative governance: beyond mere participation. Third International Public Policy Conference, Singapore. https://www.ippapublicpolicy.org/file/paper/594b2070b72f6.pdf

Mills M, Jupiter SD, Pressey RL, Ban NC, Comley J (2011) Incorporating effectiveness of community-based management in a national marine gap analysis for Fiji. Conserv Biol 25(6):1155–1164. https://doi.org/10.1111/j.1523-1739.2011.01749.x

Ntona M, Morgera E (2018) Connecting SDG 14 with the other sustainable development goals through marine spatial planning. Mar Policy 93:214–222. https://doi.org/10.1016/j.marpol.2017.06.020

Organisation of Eastern Caribbean States (2021) The OECS – a leader in marine spatial planning. https://pressroom.oecs.int/the-oecs-a-leader-in-marine-spatialplanning#:~:text=The%20OECS%20is%20the%20most,Saint%20Vincent%20and%20the%20Grenadines. Accessed 10 Apr 2023

Parliament of the Republic of Fiji (2023) Fiji commits to preserving our oceans and combatting climate change. https://www.parliament.gov.fj/fiji-commits-to-preserving-our-oceans-and-combatting-climatechange/.

Pollack A (2018) Bridging the gap: the nexus of tradition, tourism and collaborative marine management in the republic of Palau [Master's Thesis] University of Hawai'i at Manoa. https://www.proquest.com/docview/2190795046?pq-origsite=gscholar&fromopenview=true. Accessed 10 Oct 2022

Pomeroy RS, Baldwin K, McConney P (2014) Marine spatial planning in Asia and the Caribbean: application and implications for fisheries and marine resource management. Desenvolvimento e Meio Ambiente 32:151–164. https://doi.org/10.1016/j.marpol.2008.03.017

Popoola OO, Olajuyigbe AE (2023) Operationalizing the blue economy in the gulf of Guinea, Africa. Front Polit Sci 5:1070508. https://doi.org/10.3389/fpos.2023.1070508

Pratt, Govan H (2010) Our sea of islands our livelihoods our oceania - framework for a Pacific Oceanscape: a catalyst for implementation of ocean policy. Suva, Fiji. https://opocbluepacific.org/ocean-policiespolitical-statements/#69-pacific-regional-ocean-policies-declarations-p3. Accessed 17 Aug 2022

Queffelec B, Bonnin M, Ferreira B, Bertrand S, Da Silva ST et al (2021) Marine spatial planning and the risk of ocean grabbing in the tropical Atlantic. ICES J Mar Sci 78:1196–1208. https://doi.org/10.1093/icesjms/fsab006

Rayner R, Jolly C, Gouldman C (2019) Ocean observing and the blue economy. Front Mar Sci 6:330. https://doi.org/10.3389/fmars.2019.00330

Rivers N, Strand M, Fernandes M et al (2023) Pathways to integrate Indigenous and local knowledge in ocean governance processes: lessons from the Algoa Bay Project, South Africa. Front Mar Sci 9:1084674. https://doi.org/10.3389/fmars.2022.1084674

Schill SR, Knowles JE, Rowlands G, Margles S, Agostini V et al (2011) Coastal benthic habitat mapping to support marine resource planning and management in St. Kitts and Nevis. Geogr Compass 5(12):898–917. https://doi.org/10.1111/j.1749-8198.2011.00462.x

Silver JJ, Campbell LM (2018) Conservation, development and the blue frontier: the Republic of Seychelles' debt restructuring for marine conservation and climate adaptation program. Int Soc Sci J 68(229–230):241–256. https://doi.org/10.1111/issj.12156

Singh A (2014) Environmental governance in small Island developing states. Anuario de Integración 10. https://cries.org/wp-content/uploads/2014/11/23-Asha.pdf. Accessed 18 June 2022

Smith J (2017) Options for adopting marine spatial planning. In: Cervigni R, Scandizzo Lucio P (eds.) The ocean economy in Mauritius - making it happen, making it last. The Ocean Economy in Mauritius, p 239

Snyder H (2019) Literature review as a research methodology: an overview and guidelines. J Bus Res 104:333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Sovacool BK, Linnér B-O, Goodsite ME (2015) The political economy of climate adaptation. Nat Clim Chang 5(7):616–618. https://doi.org/10.1038/nclimate2665

The Commonwealth Marine Economies (CME) Programme (2021) Maritime economy plan Guyana. https://lcds.gov.gy/wp-content/uploads/2023/01/Maritime-Economy-Plan-Guyana-2021.pdf. Accessed 5 Mar 2023

Twyford K (2021) Advancing marine spatial planning in Marae Moana (Cook Islands Marine Park): policy paper. Prepared for Marae Moana technical advisory group and ridge to reef (R2R) project. https://cookislandsdata.sprep.org/system/files/27.%20Marae%20Moana%20MSP%20Policy%20Paper%202020_0.pdf. Accessed 6 Apr 2023

Ulibarri N, Imperial MT, Siddiki S, Henderson H (2023) Drivers and dynamics of collaborative governance in environmental management. Environ Manage 71(3):495–504. https://doi.org/10.1007/s00267-022-01769-7

UNESCO-IOC I (2021) A sustainable Blue Economy for Trinidad and Tobago. Paris, UNESCO (IOC Technical Series 166 / ICAM Dossier no 16). https://unesdoc.unesco.org/ark:/48223/pf0000375761

Vierros MK, Harrison AL, Sloat MR, Crespo GO, Moore JW et al (2020) Considering indigenous peoples and local communities in governance of the global ocean commons [Article]. Marine Policy 119:104039. https://doi.org/10.1016/j.marpol.2020.104039

Vince J, Brierley E, Stevenson S, Dunstan P (2017) Ocean governance in the South Pacific region: progress and plans for action. Mar Policy 79:40–45. https://doi.org/10.1016/j.marpol.2017.02.007

Westerink J, Jongeneel R, Polman N, Prager K, Franks J et al (2017) Collaborative governance arrangements to deliver spatially coordinated agri-environmental management. Land Use Policy 69:176–192. https://doi.org/10.1016/j.landusepol.2017.09.002

Winther J-G, Dai M, Douvere F, Fernandes L, Halpin P et al (2023) Integrated ocean management. In: Lubchenco J, Haugan PM (eds) The Blue Compendium: from knowledge to action for a sustainable ocean economy. Springer International Publishing, pp 523–552. https://doi.org/10.1007/978-3-031-16277-0_14