Marine Policy 173 (2025) 106526

Contents lists available at ScienceDirect

Marine Policy

journal homepage: www.elsevier.com/locate/marpol

Promoting gender equity in marine protected areas: A self-assessment tool

Sara E. Bonilla Anariba [a,b,*], Arie Sanders [c], Steven W.J. Canty [b]

[a] WorldFish, Nairobi, Kenya
[b] Smithsonian Environmental Research Center, Edgewater, MD 21037, USA
[c] Zamorano University, San Antonio de Oriente, Honduras

ARTICLE INFO

Keywords:
Marine Protected Areas
Women
Gender Equity
Gender Assessment
Sustainable Development Goals

ABSTRACT

There is an increasing role of marine protected areas (MPAs) to be the dominant form of marine resource management to protect biodiversity, promote livelihoods, and build food security as part of the sustainable development agenda. However, the effective and equitable achievement of these goals requires understanding women's use, access to, and dependence on marine resources and integrating their knowledge and experiences. Currently, there is inherent gender blindness in the establishment and management of MPAs, which is likely to be confounded as existing MPAs are expanded and new areas are designated. Here we present a self-assessment tool for gender sensitivity within MPA management interventions. The tool is centered on the Feminist Political Ecology approach, which central argument is that different genders experience the environment differently due to their divergent social and cultural roles. The tool evaluates gender sensitivity of management interventions using a total of 15 questions evenly distributed between five themes: Gender power roles; Gendered uses and values; Gendered knowledge, interests, and priorities; Gender-responsiveness management design; and Gender-inclusiveness management design. Responses to all questions are evaluated on a gender awareness scale; 1 = incipient gender awareness; 2 = becoming gender aware; 3 = gender aware; and 4 = gender transformative. The scores for each theme and across the entire assessment are averaged to identify where actions need to be focused. Understanding the power dynamics associated with the access to and control of marine resources will facilitate greater inclusion of women in marine resource management and contribute to the sustainable development agenda.

1. Introduction

Over the last four decades, the establishment of marine protected areas (MPAs) has gained momentum worldwide as a crucial strategy for conserving marine biodiversity, promoting healthy and resilient marine ecosystems, and providing societal benefits [1–3]. All these efforts align with the recent pledge to protect 30 % of the ocean by 2030 as part of the Kunming-Montreal Global Biodiversity Framework [4] and the Sustainable Development Goals [5], with the aim of conserving biodiversity and providing benefits to people, such as food security and livelihoods. While the increase in the number of MPAs and their coverage is a positive achievement [6], it is equally important to critically examine the current management practices within these areas and to assess their ability to achieve their ecological goals and contribute to the SDGs and social equity [7].

While not all MPAs have dual goals of conserving biodiversity and providing social benefits, the majority encounter the difficulty of balancing conservation efforts with human activities [8]. A recent study has shown that co-benefits can be achieved, under certain management conditions [9]. For those MPAs that aim to integrate ecological and social goals, inclusive and effective management is crucial for their success. However, women's knowledge and perspectives have been marginalized and excluded from MPA governance [10–13]. By disregarding women's active involvement in productive activities that utilize and depend upon key marine resources, such as fisheries and tourism, we fail to consider their unique knowledge, experiences, needs, aspirations, and priorities when designing and implementing management strategies [11,14–16]. It is worth noting that addressing management challenges may not be a matter of simply integrating social science insights into pre-existing conservation frameworks; instead, research focused on specific topics (e.g., gender, culture, traditional knowledge, and indigenous approaches) will be needed [7,17]. For instance, a significant concern is the male-dominated focus of MPA management, for example, the exclusion of women based on fishing gear

* Correspondence to: Gender and Social Inclusion, WorldFish, Nairobi, Kenya.
E-mail address: S.Bonilla@cgiar.org (S.E. Bonilla Anariba).

https://doi.org/10.1016/j.marpol.2024.106526
Received 17 October 2023; Received in revised form 11 July 2024; Accepted 16 November 2024
Available online 2 December 2024

in the case of the Danajon Bank in the Philippines, which exacerbates existing gender inequalities and undermines the full potential of effective conservation [14].

Although the expansion of MPAs has occurred and continues to occur at a historical moment where decentralized governance is the dominant management paradigm [18–20], "community-based" conservation approaches have not been sufficient to ensure the nominal and effective participation of women and marginalized groups in resource management [14,21,22]. Several MPA management assessments and indicators show gender blindness [10,23–25], examples include: the widespread lack of disaggregated data by sex [10,26]; the use of 'neutral-gendered' categories to refer to resource users, such as "stakeholders", "users", and "fishers" [27]; and the lack of consideration of a gender-differentiated displacement effects [14,21,28]. This gender blindness, or lack of awareness, not only obscures the position, role, and contribution of women but also portray them as passive recipients of MPA management strategies. This is also in part due to MPAs being used as a fisheries management tool [29–31], which primarily focuses on only one aspect of the fisheries market chain – where men are assumed to dominate [26,32]. This ignores the important roles of women throughout the fisheries market chain, including actively fishing [33,34], and who account for just under 50 % of the global fisheries workforce [35].

Moreover, MPAs are often designed and managed with limited input from women, leading to their underrepresentation in decision-making processes [11,16]. Women's invisibility in MPA governance perpetuates existing gender disparities and overlooks the valuable contributions and unique knowledge that women possess [12]. By marginalizing women's voices and perspectives, MPA management fails not only to integrate their knowledge, expertise, and insights necessary for effective conservation but also does not respond to women's specific needs and priorities. Furthermore, it overlooks the gendered dimensions of resource use and dependence, leading to a lack of representation and support for women's livelihoods [12,13]. These are fundamental issues, and the urgency of addressing gender inequalities in MPA management cannot be overstated, with the predicted proliferation of MPAs in the coming years [10,17]. By addressing these inequalities significant progress towards sustainable development can be achieved, through the creation of more equitable and just conservation outcomes (SDG 5 & 10), sustainable livelihoods (SDG 1), food security (SDG 2), and the conservation and sustainable use of marine resources (SDG 14). To promote gender equity (SDG 5), MPA managers need to adopt gender-responsive approaches that recognize and value women's contributions, enhance their meaningful participation in decision-making, and address the specific challenges and barriers they face. The first step in this process is to recognize how gender shapes the access, use, and management of marine resources, this requires understanding: (i) gender roles and power relations; (ii) gendered uses and values; and (iii) gendered knowledges, interests, and priorities, in the MPA context.

Here we provide a self-assessment tool to identify gender inequalities in MPA management, from planning to implementation. The tool is based on the feminist political ecology (FPE) approach, which focuses on gendered power relations in natural resource management, to assess gender inequalities in MPA management. FPE offers a valuable lens through which MPA managers can assess and promote gender equity. In the following section, we outline the theoretical foundation of the proposed gender self-assessment tool using a set of indicators that assess gender inequities and allow for corrective actions. Then, we describe the development process of the proposed tool and the resources used for its design. Finally, we describe each component of the proposed tool and outline some considerations that we consider necessary to promote gender equity in MPA management.

2. Gender and marine governance from a feminist perspective

The provision of goods and services that can be consumed or sold to generate income is fundamental for human well-being [36–42], thus understanding how people access and control these resources is an integral part of MPA design and implementation. Evidence shows that access to and control over natural resources is not equitable among genders, regardless of geographic region or a country's economic status [43–46]. Hence, to design effective management policies and interventions, it is essential to understand the gendered nature of natural resource access, use, and management, and how this impacts individuals and household livelihoods. Here, we focus solely on the literature that addresses gender inequalities in the access to and control over marine resources.

There has been a growing interest in understanding the links between gender and nature. The principal argument has been focused on the relation between women and the environment, where women are viewed to have responsibilities that closely depended on natural resources such as gathering food and fuel sources [47,48]. From the exploration of this relationship three approaches have emerged (i) *Ecofeminism* [48], (ii) *Women Environment and Development* [49,50], and (iii) *Feminist Political Ecology* [51,52].

Ecofeminism is based on the notion that women are especially "close to nature" in a natural and spiritual sense [48]. As a theoretical framework and social movement, ecofeminism presents a critical analysis of the interrelated structures of patriarchy, capitalism, and environmental degradation [53]. Ecofeminists believe that there exist parallel manifestations of subjugation and exploitation of women and nature, which can be traced back to historical and cultural ideologies that have traditionally deemed both as inferior and susceptible to exploitation [53]. In some cases, ecofeminism has the potential to oversimplify complex matters and essentialize the experiences of women and nature [47,50]. Furthermore, the understanding of the diverse relationships between women and nature which requires the adoption of intersectional approaches that acknowledge the presence of diverse identities and experiences is often lacking [47,54,55].

Women Environment and Development (WED) takes a gendered division of labor as a starting point, and then builds out recognizing the extensive knowledge base of women on the natural resources they use and depend on to ensure household survival [49]. This approach assumes that gender inequalities intersect with environmental degradation and development challenges, and that by addressing these interconnected factors, it is possible to achieve outcomes that are both more sustainable and equitable [49]. The WED approach can oversimplify these multifaceted interactions, which can overlook their diverse roles and agency in environmental and development contexts, potentially reducing women to passive victims [47,56]. Moreover, the WED approach has been insufficiently critical of dominant development paradigms and has not always adequately addressed power imbalances [56–59].

Feminist Political Ecology (FPE) emerged in mid-1990s this ideology considers gender as a critical variable in the configuration of access to and control over natural resources, interacting with multiple factors of social differentiation, such as race, class, ethnicity, age, and sexuality, influencing processes of environmental change, livelihoods and development perspectives [51,52]. FPE centers on gendered power dynamics and argues that men and women experience the environment differently and often have different access to and control over ecological systems as a result of their divergent social and cultural roles [60]. The approach draws on feminist theories and perspectives to understand how gender and power relations shape environmental outcomes, as well as how environmental issues and policies affect women and men differently [59–61]. There is an emphasis on the importance of incorporating women's voices and experiences in environmental policy and decision-making [14,62,63]. This is important because women are more likely to rely on natural resources for their livelihoods and well-being in many societies and are frequently more directly and disproportionately affected by environmental regulation and degradation, such as limited access to resources or increased exposure to environmental risks [13,64,65]. FPE acknowledges these gendered dimensions of environmental issues and seeks to address them through a gender-sensitive examination of environmental policies and practices [66].

Whilst much of the existing literature on feminist theory and gender equity primarily focuses on rural communities [67], there is increasingly more research assessing the role of gender and marine resources, specifically the recognition and understanding of gender dimensions of natural resource use, access, and control [68,69]. Despite these advances, MPA management continue to overlook the crucial role that women play in managing marine resources [10,70]. This oversight has led to a significant gap in knowledge regarding women's contributions to, knowledge of, and their reliance on marine resources [15,46,71,72]. Women face four main barriers to influencing management of marine resources: (i) lack of access to and control over assets, such as land, fishing equipment, capital, skills, technologies, training, knowledge, social capital [73]; (ii) constraining gender norms, including gender segregation of public space and gendered behavioral norms [74]; (iii) household structure and family responsibilities, including gender-roles in decision-making and gender division of labor [46]; and (iv) characteristics of the management system, such as institutional setting, formal and informal rules and processes [21]. The exclusion of women from decision-making processes in natural resource management not only undermines their rightful position but also poses a significant threat to environmental sustainability. By dismissing the perspectives and values of a substantial portion of resource users, managers risk implementing counterproductive and ineffective strategies [13,69,75]. This oversight hampers the overall success of conservation efforts and hinders progress toward effective management and sustainable development.

To address these critical gaps there is a need to develop a gender assessment which facilitates the comprehensive and systematic evaluation of the gender dimensions for MPA frameworks and strategies. By incorporating gender-specific data collection methods and analysis techniques, we can better understand the roles, knowledge, and contributions of women in MPA management. A gender assessment tool would allow for the identification of the gender biases and help to define how to promote and facilitate the inclusion of women in decision-making processes. By harnessing the valuable insights and expertise of women, we can develop more holistic and effective management strategies that align with both environmental sustainability and gender equity goals e.g., SDG 5 – Gender Equality [5], GBF T22 – Ensure Participation in Decision-Making and Access to Justice and Information Related to Biodiversity for all, and GBF T23 – Ensure Gender Equality and a Gender-Responsive Approach for Biodiversity Action [4]. Such a tool could help bridge the gap between research and application by recognizing and addressing the unique challenges faced by women in MPAs, and natural resource management more broadly. Which would facilitate gender-responsive policies and interventions through informing resource managers, policymakers, and stakeholders during MPA designing and implementing phases.

3. Development process of the proposed tool

The development of the Gender Self-Assessment Tool for MPAs was an iterative process of practical and theoretical reflection on the role of women in MPA management. Collaborating with MPA managers and reflecting on the ways in which human activities shape nature, and how nature shapes human activities drew our attention to the human dimensions of marine resource use and management, particularly the issue of governance related to gendered power dynamics. Our work in socioeconomic monitoring (SocMon) [76,77] provided us with an empirical background on the critical position of women in decision-making on MPA design and management. During participatory workshops with MPA managers and coastal communities, it became evident that women played a crucial role in the success of MPAs, yet their needs and contributions were often overlooked [24,78]. By reviewing MPA management plans for the Mesoamerican Reef region, the same used to assess mangrove management [79], none of the documents mentioned a specific gender-sensitive program, strategy, or action to ensure women's inclusion (S1). All of the management plans consider actors gender-neutral without clearly distinguishing between men and women, for example, community leaders, fishers, and tourist operators. This lack of gender-sensitive strategies in MPA plans highlights the need for greater recognition of women's gender-specific needs, concerns, roles, and perspectives in marine conservation efforts, because men and women have different roles, needs, and perspectives. Existing literature on gender and MPA support our practical findings [11–14]. These studies underscore the importance of considering gender dynamics in marine conservation initiatives, as women often play crucial roles in resource use, management, and community engagement.

With the recognition of the critical role of women in many sectors and the acknowledgment of their marginal role in decision-making, there are many initiatives to assess the position of women. Additionally, we reviewed nine gender assessment tools based on their theoretical background and set of indicators (Table 1). With the recognition of the critical role of women in development and conservation and the acknowledgment of their marginal role in decision-making, there are many initiatives to assess gender equity, particularly the position of women. However, only a few of the existing tools were directly related to nature's conservation [32,71,80]. Those tools helped identify common themes and set key indicators.

4. Gender assessment tools

Gender assessment tools play a crucial role in rural and coastal development projects by ensuring that gender considerations are integrated into the planning, implementation, and evaluation processes [83,84]. These tools provide a structured approach to understanding the specific challenges, needs, and opportunities faced by women and men in rural and coastal communities, enabling development practitioners to design more inclusive and effective interventions [81,82,85]. Through the utilization of these tools researchers and practitioners can identify and examine gender disparities, as well as evaluate the ways in which conservation and development initiatives impact different genders in unique and separate manners [71,86,87]. By generating reliable data and shedding light on gender disparities, these tools enable policymakers to design interventions that consider the complexities of gender dynamics, foster social inclusivity, and support sustainable development [83,88].

It is worth noting that within the nine identified assessment tools, the primary focus is gender equity within development interventions, with a strong emphasis on women's engagement in economic activities. For example, the tool developed by the Asian Development Bank and Australian Aid is designed to assist development practitioners ensure that gender perspectives are incorporated into development initiatives, and to monitor and evaluate gender equality results [89]. The tool developed by Siles [71], in collaboration with UICN-USAID, is designed for strategic interventions that focus on incorporating gender considerations into fisheries management. It aims to address the challenges and opportunities that arise from gender dynamics within this sector. Conversely, the MFF-SEI approach [32] places a greater emphasis on qualitative analysis, particularly regarding the impact of reproductive responsibilities on women's economic activities. This perspective is critical in understanding the complex interplay between women's livelihoods and their productive roles, highlighting the need for targeted solutions that address these gender-specific challenges (Table 1). Whereas tools developed by organizations such as WorldFish, CGIAR, and CARE [80] focus on social justice, by addressing gender disparities and transforming gender relations within development programs (Table 1).

These tools provide valuable insights into gender dynamics within specific contexts; however, it is essential to acknowledge their varying foci (e.g., development, agriculture, fisheries), strengths, and limitations in shedding light on the often overlooked and distinct roles, needs, and

Table 1
Gender assessment tools.

Tool	Focus	Reference
A toolkit for integrating gender equality and social inclusion in design, monitoring, and evaluation	To provide guidance and tools to support staff in integrating gender equality and social inclusion perspectives in all stages of project design, monitoring, and evaluation. Evaluates nine areas where minimum standards are required for equitable and inclusive development and emergency relief. The checklist addresses policy, capacity, culture, participation, partnership, budget, analysis, data collection, indicators, 'do no harm,' and accountability.	World Vision, 2020 [79]
Gender assessment tool: Gender equality toolkit for IPPF member associations	Women's and girls' empowerment, and it is embedded in sexual and reproductive health and rights. Includes guidance and tools to help member associations assess the extent to which their work is gender transformative.	IPPF, 2019 [81]
Advancing gender in the environment: Gender in fisheries -A sea of opportunities	Aim is to identify gender differentials in the situation of women and men in the fishing sector in order to identify strategic areas of intervention to empower women along the fisheries value chain. The ultimate goal is to increase the effectiveness of USAID's environment programming through robust gender integration and to improve gender equality and women's empowerment outcomes in fisheries.	Siles et al., 2019 [1]
The gender impact assessment and monitoring tool	Facilitation of women and gender civil society organizations to implement the UN 2030 Agenda for Sustainable Development, with a particular focus on gender equality (SDG 5). The aim is to provide Women2030 partners with a common understanding of how to assess gender issues within local, regional, and national contexts.	WECFI, 2018 [74]
Gender analysis toolkit for coastal management practitioners	The toolkit is a practical guide for coastal and fisheries management practitioners to understand how gender impacts resource use, management, and resilience. Practitioners gain knowledge on gender aspects of coastal and natural resource use, livelihood development, and ecosystem management, achieved by assessing five domains: (i) access to and control of livelihood assets, (ii) gender norms, responsibilities, time and lived experiences, (iii) participation and decision-making, (iv) cultural norms, beliefs, and perceptions, and (v) laws, regulations, and institutional practices.	MFF, SEI, SEAFDC, 2018 [82]
Measuring gender-transformative change	Transformation of gender dynamics and promotion of gender equality. These indicators assess (i) power over income and labor, assets and resources; control over one's mobility and body; control over the agenda; (ii) capacities, skills, and awareness; (iii) power within internal and psychological resources; and (iv) collective agency and action.	Hillenbrand et al., 2015 [83]
Toolkit on gender equality results and indicators	Aim is to assist development practitioners to ensure that gender perspectives are incorporated into development initiatives, and to monitor and evaluate gender equality results. It presents a menu of gender equality outcomes, results, and indicators that may be selected or adapted by users. This tool is organized by gender equality dimensions, which are human capital, economic empowerment, voice and rights, and gender capacity building.	ADB & Australian Aid, 2013 [84]
Gender analysis, assessment, and audit manual and toolkit	This toolkit provides useful tools and methods for gender analyses and assessments, and guidance on how to operationalize a study from start to finish. It includes different tools that have been designed to collect data for gender studies, while also empowering community members to express their opinions and analyze their knowledge, behavior, and perceptions. This toolkit is meant to serve as a menu where practitioners can choose a few tools that work best for them and the scope of their gender study.	ACDI/VOCA, 2012 [85]
World Health Organization gender assessment tool	Addresses how gender norms, roles and relations affect health-related behaviors and outcomes as well as health sector responses. Its goal is to assess existing health programs and policies to guide policymakers through the process of developing gender-responsive actions for the health sector.	WHO, 2011 [77]

vulnerabilities of women and men living within and/or in proximity to MPAs. By recognizing the diversity of approaches of these tools managers and policymakers will be able to choose the most appropriate tool based on their objectives and the specific gender-related challenges they aim to address. It is important to continually expand the scope of gender assessment tools that focus on examining how marine management interventions impact different genders to ensure these interventions are not only ecologically sound but also socially equitable.

We adopted the five guiding principles to promote best practices for gender mainstreaming of Manfre and Rubin [90], which are: (i) There is no single approach for gender mainstreaming, because gender roles and relations are defined in space and time and are subject to change, therefore, researchers must be prepared to modify and adapt the methods and tools they use in different contexts; (ii) Know and understand the context because gender dynamics are rooted in socio-cultural dynamics, familiarity with the research site assists researchers identify the appropriate research methods and tools; (iii) Use quantitative and qualitative methods, the combination of methods allows for triangulation and increases confidence in the findings; (iv) Seek multiple perspectives, they warn that one of the biggest mistakes when integrating gender issues into research is to interview only a few individuals or to exclusively focus on one gender or a specific group of actors - this not only generates bias but fails to provide an understanding of where and how men's and women's opinions differ, conflict, or overlap; and (v) Allocate sufficient time and budget for the iterative research phases. Understanding gender dynamics is an iterative process that may require returning to the study site several times. It may also require more than one conversation with informants to entirely appreciate the gender dynamics of the household or community. Critical components that are woven into the creation of this tool were the inclusion of the: (a) Historical, socioeconomic, political and environmental contexts; (b) Everyday practices of women and men, including gender power relations; and (c) An understanding of the functioning and interaction of structures, institutions, and processes at different levels, as per the gender analysis toolkit for coastal management practitioners [32].

Manfre and Rubin [90] also place significant emphasis on the gender continuum, a concept that development agencies have utilized to enhance the development of interventions that are sensitive to gender dynamics. Projects can be positioned along a continuum, with varying degrees of consideration given to gender. This positioning is determined by the type of analysis employed, which can range from gender-incipient to gender-aware to gender-transformative (Table 2). The principles of Manfre and Rubin [90] can also be extended to the domains of research and environmental management. The continuum of approaches reflects the extent to which research and management seek to understand or change gender relations and the level of gender disaggregation and gender analysis envisaged in the research and management (Table 2).

5. Proposed gender assessment tool for MPAs

Here we introduce a self-assessment tool focused on gender awareness and responsiveness within MPA management. In terms of format, we used the WHO-GAT [85] design as the outline to guide the development of the proposed tool due to its simplicity and the ease with which we could customize the categories and indicators to suit the specific aspects of MPA management. We also selected the various indicators based on our theoretical framework of FPE, focusing on the nuanced understanding of gendered uses and values, knowledge, and power dynamics in environmental conservation [51,91] and components from other tools [32,71,80]. For example, the aim of the first part of the tool (Table 3 Q1-Q6) is to analyze the divergent utilization of marine resources by women and men and their unique perspectives on the importance of marine biodiversity. FPE acknowledges that societal roles influence how women and men interact with ecosystems. Women, for example, due to their care and domestic responsibilities may prioritize activities nearshore such as gleaning and tourism. The FPE examines the domain of gendered knowledge, interests, and priorities, acknowledging that women, due to their distinct roles in the fishing industry and environmental conservation, possess unique perspectives on the well-being and state of marine ecosystems and resources. The tool emphasizes the significance of incorporating women's gender-specific knowledge into MPA management systems (Table 3 Q7-Q9). Additionally, the tool assesses gendered power dynamics (Table 3 Q10-Q15) which involves analyzing the extent to which women and men are included and have influence in the decision-making processes of MPA. This provides us with an understanding of whether the MPA management plan explicitly pledges to advance gender equity, tackles gender norms and relationships, and guarantees the involvement and representation of women in decision-making. This component of the tool acknowledges that although women play important roles and possess valuable knowledge, they are often hindered from exerting their influence in MPA governance due to systemic obstacles.

Table 2
The gender sensitivity continuum.

	Gender sensitivity continuum		
	Gender incipient	**Gender aware**	**Gender transformative**
Conceptualization	No effort to disaggregate data by gender or to involve women or women's groups	Differences between men and women are conceptualized	Underlying causes of gender inequalities are identified
Analyses	Households and communities are treated homogenously, ignoring gendered power dynamics	Data is disaggregated by sex and the different interests, needs, and priorities of men and women are described	Data is disaggregated by sex and gender inequalities are assessed
Implementation	Management actions may reinforce gender inequalities and power imbalances	Management actions may improve participation and/or access to resources of women, but underlying power imbalances remain	Management actions seek to address gender inequalities in access to and control over resources
	Low	Gender sensitivity	High

Adapted from Manfre and Rubin (2012).

This specialized tool focuses on the gender dynamics relevant to MPA management, offering a holistic understanding of gender dynamics that influence marine resources use and management within these protected areas. More specifically, the tool focuses on conceptualizing the connection between gender and the marine environment as an integral part of dynamic social, cultural, and political relations situated within a historical and ecological context. In addition, there is a shared emphasis on men's and women's everyday life, meanings, and power relations, and on how these factors shape their access to and control over resources, identities, and knowledge. By shedding light on these issues, the tool seeks to empower managers, decision-makers, and stakeholders to design and incorporate gender-sensitive approaches within MPA management strategies. Awareness is an important starting point, but it needs to be matched with practical steps to make a real difference. We

Table 3
Gender assessment tool for MPAs.

A. Gender roles and power relations	
Question	Score (1–4)
1. Does the MPA management plan consider household dynamics, including different effects and opportunities for individual members? Such as the allocation of resources, decision-making power, labor distribution.	
2. Does the MPA management plan collect and report information about the access to and control over livelihood assets by sex? Including tangible (land, equipment, etc.) and intangible assets (education, social capital, etc.)	
3. Does the MPA management plan consider gender-based divisions of labor (paid versus unpaid work, productive versus reproductive work)?	
B. Gendered uses and values	
Question	Score (1–4)
4. Does the MPA management plan consider different uses of marine resources made by women and men?	
5. Does the MPA management plan consider different resource needs of women and men?	
6. Does the MPA management plan recognize and include women's and men's values attached to biodiversity?	
C. Gendered knowledge, interests, and priorities	
Question	Score (1–4)
7. Does the MPA management plan recognize and include gender-specific knowledge?	
8. Does the MPA management plan consider and include women's and men's needs, concerns, and priorities?	
9. Does the MPA management plan consider the living conditions and livelihood strategies of women and men?	
D. Gender-responsiveness management design	
Question	Score (1–4)
10. Do the goals, objectives, or principles of the MPA have an explicit commitment to promoting or achieving gender equity?	
11. Does the MPA management plan address gender norms, roles, and relations?	
12. Does the MPA management plan include sex-disaggregated data?	
E. Gender-inclusiveness management design	
Question	Score (1–4)
13. Have women and men participated in the design of the MPA management plan?	
14. Have actions been taken to ensure equal participation in the design of the MPA management plan of women and men?	
15. Do both female's and male's stakeholders have an equal role in decision-making?	
Score hints: 1 – may indicate that the MPA management is gender incipient. 2 – may indicate that the MPA management is becoming gender aware. 3 – may indicate that the MPA management is gender aware. 4 – may indicate that the MPA management is gender transformative.	

hope this tool helps MPA managers to set clear goals for gender inclusivity and keep track of their progress. Furthermore, the proposed tool can guide the process of updating current policies or creating new ones to promote the involvement of women in all aspects of MPA management, including planning, decision-making, implementation, and monitoring. MPA managers can be guided and motivated to incorporate gender-sensitive strategies into their management process by establishing clear benchmarks for gender inclusivity and closely monitoring progress by external agencies. This will not only enhance social equity by ensuring that both women and men have equal access to and benefit from marine resources but also will foster more sustainable and resilient MPAs. The proposed tool is composed of five categories, each contain a series of questions to determine gender sensitivity within various aspects of marine resource management (Table 3), specifically:

A. Gender roles and power relations – The distinction between access to resources and the exercise of power and control over them is essential: while having access to resources is a necessary condition for women's empowerment, it is not a sufficient condition. Empowerment occurs when women have control over those resources and when they are also equally involved in decision-making. This section assesses the roles of women and men in their use and management of resources, and determines power relationships of users and managers. This includes the analysis of gender differences in livelihoods, and the ability of women and men to access, hold power and control over their livelihood assets, including tangible assets (e.g., equipment), and intangible assets (e.g., social capital).

B. Gendered uses and values – Men and women experience the environment differently due to the gender distinction of their work and daily responsibilities. Addressing women's uses that have been largely ignored by MPA managers will increase the chances of success of management measures aimed at conserving and restoring critical habitats and species of importance to local livelihoods. This section specifically explores the differentiation in the uses and values that women and men assign to marine resources.

C. Gendered knowledge, interests, and priorities – There is a particular need to emphasize gender-specific needs, especially the differentiated needs of women, which relate to their biological condition and social and cultural factors that shape women's livelihoods, roles, and responsibilities. This section evaluates if the knowledge, interests, and needs of women and men are considered and incorporated in the MPA management plan.

D. Gender-responsiveness management design – For gender-sensitive management, gender issues need to be addressed from the beginning of the design process. Ideally, gender analysis should be conducted as part of the context analysis at the beginning of the management process and serve as the basis for designing the management plan. It is also essential to generate sex-disaggregated data as a basis for developing gender-sensitive management strategies and measures. This section aims to capture gender equity within the design of management plans and strategies.

E. Gender-inclusiveness management design – The lack of women's participation in the development of management rules and policies that directly affect them carries the risk that management decisions made will seriously harm not only women but also their families. Therefore, it is crucial to promote the participation of women and men from the design stage of management plans and to ensure that both have the same capacity to choose and influence decision-making. This category evaluates information on the participation of women and men in decision-making on the management of marine resources.

By linking these categories, the analysis progresses from understanding gender roles and power dynamics to examining resource uses and values, considering knowledge and needs, designing gender-sensitive management approaches, and ultimately focusing on the active participation of women and men in decision-making processes. This progression demonstrates the comprehensive and interconnected nature of gender assessment in the context of MPA management. It provides a roadmap for MPAs to assess their current gender awareness performance, set targets for transformation, and track progress over time. By progressing along the categories, MPAs can enhance their gender awareness performance, and contribute to a more inclusive and effective management.

To assess the level of gender sensitivity, questions within each section receives a score between 1 and 4, where 1 = incipient gender awareness, 2 = becoming gender aware, 3 = gender aware, and 4 = gender transformative. Here we go through the scoring rubric for question 1: Does the MPA management plan consider household dynamics, including different effects and opportunities for individual members? Such as the allocation of resources, decision-making power, labor distribution (Table 4). For the full rubric of how scores are defined see supplementary materials (S1). For each section the scores are tallied and divided by 12 to provide a mean score, similarly, all scores are tallied and divided by 60 to provide a mean total score of gender sensitivity across all sections. The metrics provided can be used to inform managers of the steps required to implement to move various components to gender transformative. This could be stepwise or monumental changes based on the current baseline and available resources but should allow for greater gender sensitivity over time.

The separation of the framework into five discrete categories enables the user to not only have a general score and assessment of gender inclusion/exclusion but also by categories so can more easily identify where improvements need to be prioritized (Table 3). By using the tool, MPAs can evolve from an initial state characterized by incipient gender awareness within their management strategies to a gender transformative state where gender considerations are deeply integrated into all aspects of MPA management. The assessment tool provides a logical approach for MPAs to enhance their gender awareness and develop effective gender-sensitive strategies over time. The five categories establish a progressive order that serves as milestones for MPAs to assess their progress toward transformative change in MPA design and management.

The proposed gender self-assessment tool analyzes the institutional framework and the MPA social and cultural realities in marine resource governance. By moving through the five focus areas, users will better understand the gendered distribution of power, resources, and opportunities and provide an understanding of the gendered division of labor, environmental rights, and responsibilities within their MPA (Table 3). Each theme provides relevant insights for addressing gender disparities and promoting inclusion in MPA management. First, it emphasizes the importance of evaluating and reshaping gender roles and power dynamics, particularly highlighting the importance of women's empowerment through resource control and active participation in decision-making processes. Second, it stresses the recognition that men's and women's experiences of the marine environment differ due to gender-related roles and responsibilities, consequently, their uses and values of marine resources will be different. Third, it emphasizes the importance of tailoring conservation efforts to address gender-specific needs, particularly women's unique needs. Fourth, it points out the importance of incorporating gender equity principles from the beginning of MPA design, ensuring that gender dimensions are considered and prioritized. Finally, it advocates for the active participation of both men and women in management decision-making processes, beginning with the design phase, to ensure equal influence over management decisions and more equitable benefit sharing.

6. Contribution of the proposed tool to gender equity

Several considerations are necessary for the gender assessment tool's practical application. First, we need to determine the MPA management category or protection level, ranging from fully protected areas to multiple use areas, and the age of the MPA. These factors may have influenced the degree of local stakeholder integration in MPA design, management, and enforcement and the extent to which decision-making

Table 4
Example of scoring rubric, using question 1. Does the MPA management plan consider household dynamics, including different effects and opportunities for individual members?.

Metric	Gender sensitivity score	
The MPA management plan does not address household dynamics or individual member effects or opportunities. Resource allocation, decision-making power, and labor distribution within households are not mentioned	1	Incipient gender awareness
The MPA management plan acknowledges household dynamics, but it lacks a comprehensive understanding of how these dynamics impact the management of the MPA. The plan briefly mentions the household's resource allocation, decision-making, and labor distribution.	2	Becoming gender aware
The MPA management plan shows a good understanding of household dynamics and their implications for MPA management. The plan thoughtfully addresses the household's resource allocation, decision-making power, and labor division	3	Gender aware
The MPA management plan demonstrates an excellent understanding of household dynamics and their importance in MPA management. The plan uses innovative and inclusive methods to distribute household resources, decision-making power, and labor. It includes mechanisms to monitor and adjust these measures to improve household dynamics in the MPA.	4	Gender transformative

processes incorporate gender perspectives. Second, there is a need to understand the goal(s) and objective(s) of the MPA, which could include one or more of the following biodiversity conservation, fisheries management, and cultural heritage. This may have determined who which people within local communities and which stakeholders were engaged in the conceptualization and implementation of the MPA. Third, consider the MPA governance approach and structure, including community-based, co-led, or government-led management. This will identify the perspectives that must be considered and incorporated into the MPA's assessment and management. While the tool can be broadly applicable across different MPAs globally, its effectiveness depends on several factors: (i) cultural sensitivity, which implies an understanding of local gender norms, respect for cultural practices, and the engagement of local people who are connoisseurs of the local culture; (ii) adaptation and customization, which implies customizing the tool's questions to reflect the specific cultural and social context; and (iii) capacity building, which implies training the team who will carry out the assessment using the proposed tool.

An inadequate understanding of the gender dimensions of marine resource use and management can lead to ineffective, counterproductive, and unjust MPA management. Existing literature on gender and MPA advises that the lack of knowledge of a significant segment of marine resource users, namely women, can lead to inefficient and unproductive management strategies [13]. Moreover, if women are not included in MPA management, we miss the complete picture of the social-ecological linkages of marine ecosystems [13]. Additionally, studies show how gender norms and dynamics influence people's interactions with marine ecosystems and highlight the importance of understanding these gender patterns is essential for creating more inclusive MPA management strategies that can meet the needs of all stakeholders [26].

Using the gender self-assessment tool for MPAs has the potential to make MPA management more effective and equitable. The tool assesses gender-specific dimensions of conservation efforts, such as women's and men's involvement and contributions in conservation activities and their access to resources and decision-making processes. It also analyzes the gendered outcomes of MPAs, such as the services and benefits for various gender groups. It offers insights into whether MPA management fosters gender equality and empowers women and men to influence decision-making.

The proposed tool is universally applicable and relevant for gender equity in marine conservation. It employs an FPE approach to recognize that men and women use and depend on marine resources differently due to their social and cultural roles. Its customizable questions and framework make it useful in various cultural, socioeconomic, and governance contexts, from fully protected areas to community-managed reserves. For instance, where women are primarily involved in the post-harvest processing of small-scale fisheries the tool can highlight their critical roles and contributions, ensuring they have a voice in decision-making processes, as they have valuable insights and knowledge of the fishery which are different to those involved in the direct capture of fisheries. Additionally, it can promote equal opportunities for women in leadership roles within MPA governance structures by better highlighting how women utilize and manage different fisheries within the same or different geographies.

By integrating gender perspectives into MPA management, more innovative and effective conservation strategies can be developed. Studies have shown that women and men have distinct knowledge, experiences, and insights regarding marine ecosystems, which can enhance efforts to conserve biodiversity [12,15,92]. Ensuring that MPA management considers these differences will contribute to more culturally appropriate and effective conservation strategies that respond to the diverse needs and values of the entire community. Furthermore, equity is a fundamental principle that underlies successful conservation efforts. The tool has been designed to detect gender inequalities in the access, use, and control over marine resources within MPAs. More inclusive MPA strategies can promote more equitable and just conservation outcomes by addressing these disparities and implementing resource management practices that recognize and protect the rights of underrepresented and marginalized groups, including women.

The proposed tool seeks to bridge research and practice by operationalizing academic insights into tangible management strategies. MPA managers and stakeholders can directly implement the practical, actionable steps that translate the theoretical foundations of the FPE framework. Through this practical application of research concepts, real-world marine conservation efforts effectively integrate the nuanced understanding of gender dynamics often highlighted in academic studies. Additionally, the proposed tool seeks to raise awareness among MPA managers and motivate them to commit to gender equity and confront gender norms. By raising gender awareness, we aim to contribute to the design and implementation of MPA management strategies that promote sustainable livelihoods for both males and females rather than worsening current gender disparities. This criterion moves beyond mere recognition of gender disparities to actively positioning equity as both a guiding principle and a measurable outcome of MPAs' conservation efforts.

The tool provides a broad overview of gender sensitivity issues across five key themes that can be conducted quickly and easily, without the need for expert knowledge. The tool is not a simple tick-box system, it has been developed to identify site-specific gender issues and promote a process of (self) reflection among MPA managers. We hope it functions as a starting point for discussions – with MPA managers learning from both the assessment process and the outputs of the assessment. Furthermore, the proposed tool makes it possible to establish gender equity goals in the MPA management and design strategies and actions to achieve those goals. Finally, it allows the measurement of the level of integration of gender dynamics within and across MPA management over time. We believe that this can have a positive impact on the position and participation of women in MPA management.

There are some limitations within the proposed tool, such as it does not provide detailed information on every component of a gender analysis. However, it serves as a starting point for discussion and provides guidance for decision-making processes focused on what actions can be taken to promote gender equity in MPA management. Although this tool will provide crucial information to identify priority areas that require immediate action, in order to be able to design targeted interventions managers will need to conduct a further comprehensive examination of any weaknesses identified. To facilitate a thorough examination, managers can utilize existing toolkits (see Table 1). These well-established tools provide the necessary resources and methodologies to conduct these more focused assessments, enabling managers to gain a nuanced understanding of the complexities of each area addressed by the proposed tool. By combining the insights from the proposed tool with the specialized toolkits, MPA managers can make informed decisions and implement tailored strategies that promote gender equity through their management interventions.

The tool can help MPA managers identify and address gender-specific barriers to participation in decision-making. By using the tool to assess gender power roles and knowledge, managers can implement targeted capacity-building programs that empower women and ensure their voices are heard in governance processes. The tool generates empirical evidence by collecting and analyzing data on gender roles, uses, and values within MPAs. This evidence can inform both local management decisions and broader policy recommendations. It can also contribute to the academic body of knowledge, offering insights into the effectiveness of gender-sensitive approaches in diverse contexts.

7. Conclusion

We emphasize the urgent need to address gender inequalities in MPA management to achieve equitable and sustainable conservation outcomes as well as sustainable livelihoods. When management overlooks various interests and priorities within a protected area, it risks falling short of its goals. This is especially relevant for MPA with tied ecological and social goals, where including all relevant users can lead to more effective management.

It is possible to unintentionally overlook the contributions and needs of women, who frequently rely on marine resources for their household's livelihood and food security. To rectify this, we have developed a gender self-assessment tool for MPAs based on FPE that would enable a comprehensive understanding of the gender dimensions within marine resource management. Such a tool would help identify the specific needs, knowledge, and contributions of women and men to MPA management, ensuring their meaningful participation in decision-making processes and informing gender-responsive management policies and interventions. By integrating gender considerations into MPA management strategies and practices, we can bridge the gap between research and practice, promote gender equity, and foster sustainable development.

The integration of gender considerations into MPAs management is an important part of the sustainable development agenda, which is reflected in the SDGs [5] and GBF [4]. Based on FPE perspective, we argue that the gender equity agenda is not just a means of improvement, but rather a requirement to guarantee that these conservation efforts are fair and enduring. Thus, the gender self-assessment tool is a mechanism for raising awareness among MPA managers to acknowledge and understand how gender dynamics shape the use and management of marine resources. The adoption of this tool can drive a shift towards gender-transformative approaches in MPA management, and promote a more comprehensive, efficient, and equitable approach to marine conservation.

CRediT authorship contribution statement

Sara Bonilla Anariba: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Steven Canty:** Writing – review & editing. **Arie Sanders:** Writing – review & editing.

Acknowledgements

We thank the members of the Gender Lab in the Rural Sociology Program at Penn State University and the reviewers for their valuable comments and feedback, which greatly improved this manuscript

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.marpol.2024.106526.

Data availability

No data was used for the research described in the article.

References

[1] N. Dudley, Guidelines for applying protected area management categories, Commun. Comput. Inf. Sci. (2008), https://doi.org/10.1007/978-3-319-66562-7_34.
[2] K. Grorud-Colvert, et al., The MPA guide: a framework to achieve global goals for the ocean, Science 373 (80) (2021).
[3] B. Worm, Marine conservation: how to heal an ocean, Nature 543 (2017) 630–631.
[4] Convention on Biological Diversity. Kunming-Montreal Global biodiversity Framework: Draft Decision Submitted by the President. (2022).
[5] United Nations. Sustainable Development Goals. https://sdgs.un.org/goals/goal2 (2015).
[6] K. Grorud-Colvert, et al., High-profile international commitments for ocean protection: empty promises or meaningful progress? Mar. Policy 105 (2019) 52–66.
[7] N. Bennett, et al., Advancing social equity in and through marine conservation, Front. Mar. Sci. 8 (2021) 1–13.
[8] J.-Y. Weigel, F. Feral, B. Cazalet, Governance of marine protected areas in the least-developed countries. Case studies from West Africa, FAO Fisheries and Aquaculture 548 (2011).
[9] Nowakowski, A.J. *et al.* Co-benefits of marine protected areas for nature and people. (2023) doi:10.1038/s41893-023-01150-4.
[10] G.C. Barreto, M. Di Domenico, R.P. Medeiros, Human dimensions of marine protected areas and small-scale fisheries management: a review of the interpretations, Mar. Policy 119 (2020) 104040.
[11] R.C. Di Ciommo, A. Schiavetti, Women participation in the management of a Marine Protected Area in Brazil, Ocean Coast. Manag. 62 (2012) 15–23.
[12] J.T. Masagca, M.B. Mercado, M.V. Abichuela, G.P.R. Lopez, Why gender equity matters in marine protected areas (Mpa): taking examples from mangrove conservation initiatives In Catanduanes Island, Luzon, Int. J. Sci. Res. Publ. 10 (2020) 98102.
[13] M. de la Torre-Castro, S. Fröcklin, S. Börjesson, J. Okupnik, N.S. Jiddawi, Gender analysis for better coastal management – increasing our understanding of social-ecological seascapes, Mar. Policy 83 (2017) 62–74.
[14] D. Kleiber, L. Harris, A.C.J. Vincent, Gender and marine protected areas: a case study of Danajon Bank, Philippines, Marit. Stud. 17 (2018) 163–175.
[15] P. Salmi, K. Sonck-Rautio, Invisible work, ignored knowledge? Changing gender roles, division of labor, and household strategies in Finnish small-scale fisheries, Marit. Stud. 17 (2018) 213–221.
[16] M. Baker-Médard, Gendering marine conservation: the politics of marine protected areas and fisheries access, Soc. Nat. Resour. 30 (2017) 723–737.
[17] N. Bennett, et al., Social science for conservation in working landscapes and seascapes, Front. Conserv. Sci. 79 (2022).
[18] E. Ostrom, Governing the commons: the evolution of institutions for collective action. Governing the commons: the evolution of institutions for collective action, Cambridge University Press, 1990.
[19] F. Berkes, Community-based conservation in a globalized world, Proc. Natl. Acad. Sci. U. S. A. 104 (2007) 15188–15193.
[20] M. Baker-Médard, V. Rakotondrazafy, M.H. Randriamihaja, P. Ratsimbazafy, I. Juarez-Serna, Gender equity and collaborative care in Madagascar's locally managed marine areas: reflections on the launch of a fisherwomen's network. Ecol. Soc. 28 (2023).
[21] M. Baker-Médard, Gendering marine conservation: the politics of marine protected areas and fisheries access, Soc. Nat. Resour. 30 (2017) 723–737.
[22] A.J. Nightingale, Commoning for inclusion? commons, exclusion, property and socio-natural becomings, Int. J. Commons 13 (2019) 16.
[23] R.S. Pomeroy, J.E. Parks, L.M. Watson, How Is Your MPA Doing? World (2004) https://doi.org/10.1016/j.ocecoaman.2005.05.004.
[24] S. Wongbusarakum, et al., Global SocMon Technical Report No. 2 Global SocMon Report 2022: Insights from more than 20 years of socioeconomic assessments, challenges, and opportunities (2023).
[25] J. Gallacher, et al., Evaluating the success of a marine protected area: a systematic review approach, J. Environ. Manag. 183 (2016) 280–293.
[26] Clabots, B. Gender Dimensions of Community-Based Management of Marine Protected Areas in Siquijor, Philippines. (2013).

[27] A.K.A. Lundberg, Gender equality in conservation management: reproducing or transforming gender differences through local participation? Soc. Nat. Resour. 31 (2018) 1266–1282.
[28] B.Y. Chung, Engendering the new enclosures: development, involuntary resettlement and the struggles for social reproduction in coastal Tanzania, Dev. Change 48 (2017) 98–120.
[29] E.R. Selig, et al., A typology of fisheries management tools: using experience to catalyse greater success, Fish Fish 18 (2017) 543–570.
[30] A. Di Franco, et al., Five key attributes can increase marine protected areas performance for small-scale fisheries management, Sci. Rep. 6 (2016) 1–9.
[31] E. Hoffmann, A. Pérez-Ruzafa, Marine protected areas as a tool for fishery management and ecosystem conservation: an Introduction, ICES J. Mar. Sci. 66 (2008) 1–5.
[32] MFF, SEI & SEAFDEC. Gender Analysis Toolkit for Coastal Management Practitioners. 50 (2018).
[33] S. Harper, C. Grubb, M. Stiles, U.R. Sumaila, Contributions by women to fisheries economies: insights from five maritime countries, Coast. Manag. 45 (2017) 91–106.
[34] Harper, S., Adshade, M., Lam, V.W.Y., Pauly, D. & Sumaila, U.R. Valuing invisible catches: Estimating the global contribution by women to small-scale marine capture fisheries production. 1–16 (2020) doi:10.1371/journal.pone.0228912.
[35] World Bank. Hidden harvest: The global contribution of capture fisheries. www.worldbank.org (2012).
[36] F. Santos-Martín, et al., Unraveling the relationships between ecosystems and human wellbeing in Spain, PLoS One 8 (2013).
[37] P. Dasgupta, Introduction: Means and Ends. Human Well-Being and the Natural Environment, Oxford University Press, 2001, pp. 13–23.
[38] A.C.E. Dias, D. Armitage, A.J. Trant, Uncovering well-being ecosystem services bundles (WEBs) under conditions of social-ecological change in Brazil, Ecol. Soc. 27 (2022).
[39] E.H. Allison, F. Ellis, The livelihoods approach and management of small scale fisheries, Mar. Policy 25 (2001) 377–388.
[40] R. Chambers, G.R. Conway, Sustainable rural livelihoods: practical concepts for the 21st century, IDS Discuss. Pap. 296 (1992).
[41] F. Ellis, Rural livelihoods and diversity in developing countries, Oxford University Press, 2000.
[42] I. Scoones, Sustainable Rural Livelihoods: A Framework for Analysis, IDS Working Paper 72 (1998), https://doi.org/10.1057/palgrave.development.1110037.
[43] D. Kleiber, et al., Promoting gender equity and equality through the small-scale fisheries guidelines: experiences from multiple case studies, The small-scale fisheries guidelines: global implementation (2017) 737–759.
[44] N. Matsue, T. Daw, L. Garrett, Women fish traders on the Kenyan coast: livelihoods, bargaining power, and participation in management, Coast. Manag. 42 (2014) 531–554.
[45] S. Fröcklin, M. De La Torre-Castro, L. Lindström, N.S. Jiddawi, Fish traders as key actors in fisheries: Gender and adaptive management, Ambio 42 (2013) 951–962.
[46] A.N. Santos, Fisheries as a way of life: Gendered livelihoods, identities and perspectives of artisanal fisheries in eastern Brazil, Mar. Policy 62 (2015) 279–288.
[47] M. Leach, Earth Mother Myths and Other Ecofeminist Fables: How a Strategic Notion Rose and Fell, Gend. Myth. Fem. Fables Struggl. Interpret. Power Gend. Dev. 38 (2007) 67–84.
[48] Shiva, V. Women in Nature. in *Development, poverty and the growth of the green movement in India* 37–52 (1989).
[49] C. Jackson, Doing what comes naturally? Women and environment in development, World Dev. 21 (1993) 1947–1963.
[50] B. Agarwal, The gender and environment debate: lessons from India, Fem. Stud. 18 (1992) 119–158.
[51] D.E. Rocheleau, B. Thomas-Slayter, E. Wangari, Feminist Political Ecology: Global issues and local experiences, Routledge International Studies of Women and Place, 1996.
[52] W. Harcourt, I. Nelson, Practising Feminist Political Ecologies Moving Beyond The Green Economy (2015).
[53] V. Shiva, Development, Ecology and Women Development, Development, poverty and the growth of the green movement in India (1989) 658–666, https://doi.org/10.4324/9780429499142-99.
[54] G. Gaard, Toward a queer ecofeminism, Hypatia 12 (1997) 114–137.
[55] G. Gaard, Ecofeminism revisited: rejecting essentialism and re-placing species in a material feminist environmentalism, Fem. Form. 23 (2011) 26–53.
[56] B.P. Resurrección, Gender and environment in the global south: from 'women, environment, and development' to feminist political ecology, Routledge Handbook of Gender and Environment (2017) 71–85, https://doi.org/10.4324/9781315886572.
[57] R. Elmhirst, Ecologías políticas feministas: perspectivas situadas y abordajes emergentes. Ecol. Pol. 50 (2017) 57.
[58] A. Nightingale, The nature of gender: work, gender, and environment, Environ. Plan. D. Soc. Sp. 24 (2006) 165–185.
[59] H. Ahlborg, A.J. Nightingale, Theorizing power in political ecology: the where of power in resource governance projects, J. Polit. Ecol. 25 (2018) 381–401.
[60] R. Elmhirst, Introducing new feminist political ecologies, Geoforum 42 (2011) 129–132.
[61] A.J. Nightingale, The socioenvironmental state: political authority, subjects, and transformative socionatural change in an uncertain world, Environ. Plan. E Nat. Sp. 1 (2018) 688–711.
[62] M.S. Jones, J. Solomon, Challenges and supports for women conservation leaders, Conserv. Sci. Pract. 1 (2019) e36.
[63] B. Agarwal, Participatory exclusions, community forestry, and gender: an analysis for South Asia and a conceptual framework, World Dev. 29 (2001) 1623–1648.
[64] M. Riviwanto, A. Basuki, The role of gender as a model of climate change adaptation in fisherman settlement communities, IOP Conf. Ser. Earth Environ. Sci. 314 (2019).
[65] D. Singh, Gender relations, urban flooding, and the lived experiences of women in informal urban spaces, Asian J. Women's Stud. 26 (2020) 326–346.
[66] W. Harcourt, A. Agostino, R. Elmhirst, M. Gómez, P. Kotsila, Countours of Feminist Political Ecology (2023), https://doi.org/10.1007/978-3-031-20928-4_7.
[67] S. Arora-Jonsson, Forty years of gender research and environmental policy: Where do we stand? Womens, Stud. Int. Forum 47 (2014) 295–308.
[68] D. Kleiber, L.M. Harris, A.C.J. Vincent, Gender and small-scale fisheries: A case for counting women and beyond, Fish Fish 16 (2015) 547–562.
[69] M. de la Torre-Castro, Inclusive management through gender consideration in small-scale fisheries: the why and the how, Front. Mar. Sci. 6 (2019).
[70] A.B. Ameyaw, A. Breckwoldt, H. Reuter, D.W. Aheto, From fish to cash: analyzing the role of women in fisheries in the western region of Ghana, Mar. Policy 113 (2020) 103790.
[71] J. Siles, M. Prebble, J. Wen, C. Hart, H. Schuttenberg, Advancing Gender in the Environment: Gender in Fisheries—a Sea of Opportunities (2019). ⟨www.estudiorelativo.com⟩.
[72] K. Bradford, R.E. Katikiro, Fighting the tides: a review of gender and fisheries in Tanzania, Fish. Res. 216 (2019) 79–88.
[73] P.J. Cohen, et al., Understanding adaptive capacity and capacity to innovate in social–ecological systems: applying a gender lens, Ambio 45 (2016) 309–321.
[74] S. Lawless, et al., Gender norms and relations: implications for agency in coastal livelihoods, Marit. Stud. 18 (2019) 347–358.
[75] J.D. Lau, D. Kleiber, S. Lawless, P.J. Cohen, Gender equality in climate policy and practice hindered by assumptions, Nat. Clim. Change 11 (2021) 186–192.
[76] L. Bunce, P. Townsley, R. Pomeroy, R. Pollnac, Socioeconomic Manual for Coral Reef Manageme (2000).
[77] L. Bunce, B. Pomeroy, E. Ferrer, B. Pestano-smith, Socioeconomic monitoring guidelines for coastal managers in Southeast Asia: SOCMON SEA, Communication 85 (2003).
[78] A. Sanders, S. Bonilla SocMon On Line Course: Material used for the on line course held in first trimester of 2009. (2009).
[79] S.W.J. Canty, R.F. Preziosi, J.K. Rowntree, Dichotomy of mangrove management: a review of research and policy in the Mesoamerican reef region, Ocean Coast. Manag. 157 (2018) 40–49.
[80] E. Hillenbrand, N. Karim, P. Mohanraj, D. Wu, Measuring gender-transformative change: A review of literature and promising practices, Work. Pap. 1 (2015) 52.
[81] E. Torell, et al., Assessing the Impacts of gender integration in Ghana's fisheries sector, Coast. Manag. 47 (2019) 507–526.
[82] World Health Organization, *Gender analysis in health. Framework*, 2003.
[83] W.E.C.F.I. The Gender impact assessment and monitoring tool. https://www.women2030.org/wp-content/uploads/2019/01/FINAL-GIM-Tool-Jan-19.pdf (2018).
[84] E. Mkandawire, S.L. Hendriks, L. Mkandawire-Vahlmu, A gender assessment of Malawi's National Nutrition Policy and Strategic Plan 2007–2012, Dev. Policy Rev. 36 (2018) O634–O656.
[85] World Health Organization, WHO Gender Assessment Tool (GAT), WHO Gender Assessment Tool (2011) 1–4.
[86] V. Taylor, Gender Mainstreaming in Development Planning (1999).
[87] World Vision. A Toolkit for Integrating Gender Equality and Social Inclusion in Design, Monitoring, and Evaluation. (2020).
[88] Y. Avakyan, et al., Minimum standards for mainstreaming gender equality (2017). ⟨http://dldocs.mercycorps.org/MinimumStandardsMainstreamingGenderEquality.pdf⟩.
[89] ADB & Australian Aid, Tool kit on gender equality results and indicators, 2013.
[90] C. Manfre, D. Rubin, Integrating gender into forestry research: A guide for CIFOR scientists and programme administrators (2012).
[91] R.C. Di Ciommo, A. Schiavetti, Women participation in the management of a Marine Protected Area in Brazil, Ocean Coast. Manag. 62 (2012) 15–23.
[92] E. Gissi, M.E. Portman, A.K. Hornidge, Un-gendering the ocean: why women matter in ocean governance for sustainability, Mar. Policy 94 (2018) 215–219.