frontiers | Frontiers in Marine Science

ORIGINAL RESEARCH
published: 02 June 2022
doi: 10.3389/fmars.2022.873397

Ocean and Marine Stewardship in Africa: The Marine Stewardship Council Certification in Namibia and The Gambia

Richard Achankeng Nyiawung[1]* *and Victoria Ndinelago Erasmus*[2]

[1] Department of Geography, Environment and Geomatics, University of Guelph, Guelph, ON, Canada, [2] Fisheries Observer Agency, Operations Department, Walvis Bay, Namibia

OPEN ACCESS

Edited by:
Jaco Barendse,
Nelson Mandela University,
South Africa

Reviewed by:
Francis Neat,
World Maritime University, Sweden
Salvador E. Lluch-Cota,
Centro de Investigación Biológica del Noroeste (CIBNOR), Mexico

***Correspondence:**
Richard Achankeng Nyiawung
rnyiawun@uoguelph.ca

Specialty section:
This article was submitted to Marine Conservation and Sustainability, a section of the journal Frontiers in Marine Science

Received: 10 February 2022
Accepted: 02 May 2022
Published: 02 June 2022

Citation:
Nyiawung RA and Erasmus VN (2022) Ocean and Marine Stewardship in Africa: The Marine Stewardship Council Certification in Namibia and The Gambia. Front. Mar. Sci. 9:873397. doi: 10.3389/fmars.2022.873397

Ocean and marine stewardship activities across different geographical areas contribute to global sustainability efforts, management, and conservation of ocean resources. The Marine Stewardship Council (MSC), through its sustainability standards and market-based mechanisms, rewards best practices for wild-caught seafood. To date, very few fisheries in Africa have participated in the MSC's full assessment and obtained its certification. This paper explores the MSC certification scheme in the African continent by examining two case studies: the Namibian hake (*Merluccius capensis* and *M. paradoxus*) trawl and longline fishery and The Gambian sole bottom set gillnet fishery (*Cynoglossus senegalenis* and *Synaptura cadenati*). Drawing on document analysis, institutional ethnography, and extensive collaborative research with actors in these fisheries, we utilize three stewardship dimensions, i.e., Care-Knowledge-Agency, to qualitatively analyze how the MSC program provides an opportunity of actors to design ocean stewardship tools and promote fisheries sustainability in Africa. The Namibian fishery demonstrates a large-scale fishery with the adequate agency, technical knowledge, and interest in self-design improvements and stewardship, compared to The Gambian fishery, a small-scale fishery motivated to achieve certification but depends largely on external support to coordinate improvements and stewardship activities. The key motivation for Namibia and The Gambia actors to participate in the MSC's assessment is the interest in increasing their international market access while ensuring ecosystem-based management and sustainability of the fisheries. Successful engagement with MSC requires establishing good governance structures, involvement of local actors, technical knowledge, and sufficient financial resources. The paper demonstrates the need for practitioners, government/market-actors, and academia to encourage sustainable seafood management in Africa by promoting various national and regional sustainability campaigns, environmental awareness programs and ocean stewardship initiatives.

Keywords: stewardship, sustainable fisheries, Namibia, the Gambia, Africa, MSC

INTRODUCTION

Ocean and marine ecosystems face a myriad impact from human anthropogenic activities, resulting in depleting fish stocks, marine pollution, destruction of habitats, and unprecedented changes in the marine environment. These impacts threaten the ocean ecosystem health and its potential to continue to deliver essential resources and services to humans and the environment (Boyd et al., 2018; Fu et al., 2020). The sustainable harvest and management of marine resources remain a significant global concern requiring the participation and involvement of policymakers, scientists, seafood industry, seafood movements, and local actors in the fishing industry (Sutton and Wimpee, 2008; Konefal, 2013; Gutierrez and Morgan, 2015; Barendse et al., 2018; Blasiak et al., 2021). Increasing environmental awareness and stewardship, contributes to the growing demand for seafood from sustainable and well-managed sources (Jacquet et al., 2010; Sampson et al., 2015).

To be considered sustainable, a fishery must meet specific standards and performance measured against different sustainability and ecological indicators (Ponte, 2012). Amongst those commanding such performance and sustainability indicators for wild-caught fisheries is the Marine Stewardship Council (MSC). The MSC is a non-governmental international organization that sets certification standards for wild-caught fisheries and grants successful third-party assessed fisheries the right to use its blue ecolabel to sell in the international market (Gulbrandsen, 2009; Foley, 2012; Foley and McCay, 2014). The MSC standard is designed to reward sustainable and well-managed fisheries with market access and a 'price premium' for best practices (Carlson and Palmer, 2016; van Putten et al., 2020), including various marine and ocean stewardship initiatives. MSC advocates for sustainable management of the ocean ecosystem by ensuring the sustainability of the fish stocks, effective fisheries management, and a healthy ecosystem (Marine Stewardship Council (MSC), 2022a). Through its partners such as supermarkets and restaurants, the MSC program has secured about 38 000 market sites that have voluntarily accepted to buy or sell their seafood using the MSC's unique ecolabel (Marine Stewardship Council (MSC), 2022b). As of 2022, about 12% of global wild-caught marine fisheries have MSC certified, with about 25, 000 seafood products using its label (Marine Stewardship Council (MSC), 2022b).

Like most certification programs, the MSC has faced several criticisms and challenges, especially the issue of accessibility for developing world small-scale fisheries (SSF) who find its certification process onerous and expensive to achieve and maintain (Pérez-Ramírez et al., 2012; Renckens and Auld, 2019; Velázquez Durán and Ortega, 2022). These challenges also include research finding limited benefits for small-scale fisheries and questioning the effectiveness and role of MSC in fisheries management across the globe (e.g., Bernstein and Cashore, 2007; Bailey et al., 2018; Velázquez Durán and Ortega, 2022). In terms of global MSC fisheries certification, more large-scale fisheries have been MSC certified compared to small-scale fisheries, with the MSC being criticized for advertising and promoting certifications for all wild-caught fisheries (Arton et al., 2020; Le Manach et al., 2020). Moreover, small-scale fisheries, especially those from developing countries, are often marginalized, and relatively few have attempted to engage in the MSC process (Wakamatsu and Wakamatsu, 2017; Nyiawung R. A. et al., 2021).

Most developing world fisheries are already challenged with limited resource capacity and enhanced regulatory capacity to support their activities to engage with the MSC program despite the benefits associated with being certified (Wakamatsu and Wakamatsu, 2017). The principal challenge for these fisheries is the cost of the MSC assessments and certification processes through its third-party assessors, getting the fisheries to the MSC certification standards, and maintaining the certification. Notwithstanding these drawbacks, some developing world fisheries engaged in the program are experiencing significant institutional and social changes in their fisheries governance and management (See Nyiawung R. et al., 2021). Some of these changes are supported by the engagement of a plethora of transnational actors, and key stakeholders acting beyond the specified MSC standards and Fishery Improvement Projects (FIPs) processes to support institutional and ecological improvements in these fisheries (Foley, 2012; Foley, 2013; Auld, 2014). However, while the number of certified fisheries from developing countries seems to be growing, only two fisheries in Africa have successfully obtained the MSC label; one attempted and failed, and many other aspirants are engaged in FIPs. To date, there is a paucity of studies on the MSC as a stewardship tool for the ocean and marine sustainability aspects in the African continent.

Specifically, this paper examines the MSC program in Africa as a tool for ocean and marine stewardship. The paper does so by exploring the driving factors and engagement of transnational and local actors to promote ocean stewardship activities and MSC certifications in Africa. The engagement comprises various multi-stakeholder partnerships involving international development agencies, the seafood industry, fishery experts, and NGOs. There has been slow participation in the African continent in the MSC, with just two MSC certified large-scale fisheries (Ponte, 2008; Jones et al., 2020) and no small-scale fisheries (Jeffers et al., 2019). The certified fisheries are the South African Hake trawl fishery and the Namibian Hake (*Merluccius capensis* and *M. paradoxus*) trawl and longline fishery, certified in 2004 and 2020, respectively – close to two decades apart. However, to promote sustainable fisheries and certification activities for developing world fisheries, especially for small-scale fisheries, external donors and local actors have been influential in supporting MSC and FIP-related activities (Fisheryprogress.Org, 2022). The MSC process requires enormous financial commitments and technical capabilities (Stratoudakis et al., 2016), which many small-scale fisheries cannot afford (Wakamatsu and Wakamatsu, 2017). For this reason and to achieve global environmental objectives, the international community has been proactive to help promote MSC and FIP-related activities and help fisheries make substantial improvements to get MSC certified if they decide to (Thomas Travaille et al., 2019).

Analytically, this article draws on the stewardship literature (Barendse et al., 2016; Bennett et al., 2018; Mathevet et al., 2018;

West et al., 2018; Brown et al., 2019), precisely the three stewardship dimensions of Care-Knowledge-Agency to qualitatively analyze ocean stewardship for wild-caught fisheries in Africa through the MSC program (Enqvist et al., 2018). The paper uses two case studies (i) The Gambian sole bottom set gillnet (*Cynoglossus senegalenis* and *Synaptura cadenati*) fishery – a small-scale fishery in West Africa that has failed to obtain the MSC certification after two attempts in 2007 and 2015, and (ii) the Namibian hake trawl and longline fishery, a recently MSC certified commercial fishery in Southern Africa. We use these case studies to contribute to policy and scholarly discussions on ocean stewardship and marine sustainability in Africa. The paper draws on extensive collaborative research of the authors with local and international actors involved in these fisheries since 2016, including institutional ethnography of emerging institutions leading the MSC certification processes, i.e., the Namibian Hake Association in Namibia (NHA) and the National Sole Co-management committee (NASCOM) in The Gambia. The paper also builds on existing document analysis from published peer-reviewed and gray literature, including electronic documents from the MSC website and participating partners' reports. The paper is divided into three sections and a conclusion. The next section provides an insight into the stewardship concept, followed by a background on the MSC in Africa, a discussion on the stewardship dimensions of Care-Knowledge-Agency in relation to MSC certification, and a conclusion.

CONCEPTUALIZATION OF STEWARDSHIP

The term stewardship is a boundary word used by scholars and practitioners to describe humanistic, normative, and ethical approaches to natural resource management and sustainability. This normative perception of stewardship is guided by both intrinsic motivation (ethical considerations, values, and beliefs) and extrinsic motivation (incentives and rewards) (Worrell and Appleby, 2000; Bennett et al., 2018). Welchman (1999) defines stewardship as "a social role individuals adopt toward some other, a role sustained over time." (p. 415). This definition reinvigorates and opens debates on aspects such as indigenous-led stewardship (Reo et al., 2017; Garnett et al., 2018); earth stewardship (Chapin et al., 2011); and environmental stewardship (Bennett et al., 2018). These different dimensions of stewardship are applicable in several contexts across scales and geographies (See for example Barendse et al. (2016) on biodiversity stewardship in South Africa; McConney et al. (2019) on stewardship and sustainable practices for small-scale fisheries; and von der Porten et al. (2019) on the indigenous resurgence in marine conservation; and Reed et al. (2020) on indigenous guardianship). Moreover, scholars have highlighted the importance of virtues (Welchman, 1999; Welchman, 2012; Sandler, 2013), self-determination of actors involved in environmental stewardship and related resource governance mechanisms (Reed, 2008).

To effectively conceptualize stewardship, the term has been categorized into different dimensions and theoretical underpinnings. These include the reformist vs radical, imaginative vs prosaic dimensions of stewardship (Mathevet et al., 2018); relational values – dwelling, sense of place and biocultural diversity (West et al., 2018); aspects of empathy, place, and identity (Brown et al., 2019); and, also in terms of ethics, motivation, action, and outcome (Enqvist et al., 2018). While all these categorizations opine the interconnections and use of the term stewardship as a boundary word, we contextualize our argument regarding ocean stewardship in Africa based on Enqvist et al. (2018) framing. Enqvist et al. (2018) outline aspects of ethics, action, motivation, and outcome to embody the concept of stewardship through three key lenses – Care, Knowledge, and Agency. Care constitutes aspects of ethics and motivation and refers to personal values, identity and emotions towards ocean stewardship; Knowledge (motivation and action) refers to the broader understanding of the existing social-ecological system complexities, species diversity and use of technology to advance stewardship initiatives; and finally, Agency (motivation and outcome) refers to the capacity and capabilities of individuals to design and achieve specific or global ocean stewardship objectives.

Thus, the intertwining aspects of Care-Knowledge-Agency underpinning the concept of stewardship provide a more explicit approach to our understanding of ocean stewardship, including factors that either enhance or constrain the sustainable use and management of marine resources in different geographies. Further, the Care-Knowledge-Agency provides room for practitioners, researchers, and civil society to reflect and reorganize debates in the African continent regarding ocean stewardship, including management and governance approaches. Therefore, conceptualizing this paper within the stewardship literature contributes significantly to the ocean stewardship literature (e.g., Blasiak et al., 2021) and ocean resources management in Africa.

OCEAN STEWARDSHIP IN AFRICA

The African continent has numerous natural resources, including access to the ocean, lakes, and other inland water bodies. Many communities in Sub-Saharan Africa harbour around the coastline with adjacency to the Atlantic and Indian oceans, with access to enormous fisheries and ocean resources. From Senegal, through Namibia, South Africa to Madagascar, Mozambique and Kenya, African maritime countries utilize ocean resources for food and livelihoods (Njock and Westlund, 2010; Sowman and Cardoso, 2010; Nyiawung R. A. et al., 2021). However, aspects of overexploitation (Parker et al., 2020; Erasmus et al., 2021a) and Illegal Unreported and Unregulated (IUU) Fishing (Glaser et al., 2019; Okafor-Yarwood, 2019) continue to handicap sustainable management and utilization of these marine resources. These problems necessitate policies and political interventions to avoid the further decline of fish stocks and ecological degradation. Among the different governance approaches, achieving sustainability standards and acquiring international market access through the MSC's

market-based approach have been efforts to steer ocean stewardship worldwide. Below, we provide a brief background on the status and progress of MSC certification in the African continent as a relevant ocean stewardship tool.

MSC Certification and FIPs in Africa

The MSC is the largest certification scheme for wild-caught fisheries, with approximately 12% of marine wild-caught fisheries certified and participating in its program across different geographies (Marine Stewardship Council (MSC), 2022b). Since its establishment in 1997, few southern fisheries have been engaged in the fisheries compared to those in the global North (Arton et al., 2020). Currently, there are only two MSC-certified large-scale fisheries in Africa, with no small-scale fisheries and others undergoing fishery improvements to meet the MSC standards and possibly certification (**Figure 1**). The two successfully certified fisheries in Africa are the South Africa hake trawl fishery which was the first to be certified in the region in 2004 (Ponte, 2008; Butterworth, 2016), and the most recently certified is the Namibian hake trawl and longline fishery, certified in 2020 (Jones et al., 2020; Iitembu et al., 2021). These two fisheries are similar in that they are both wild-capture fisheries, export-oriented, and large-scale fisheries targeting hake, a transboundary species in South Africa and Namibia, including the hake, species targeted a common shared stock (Henriques et al., 2016).

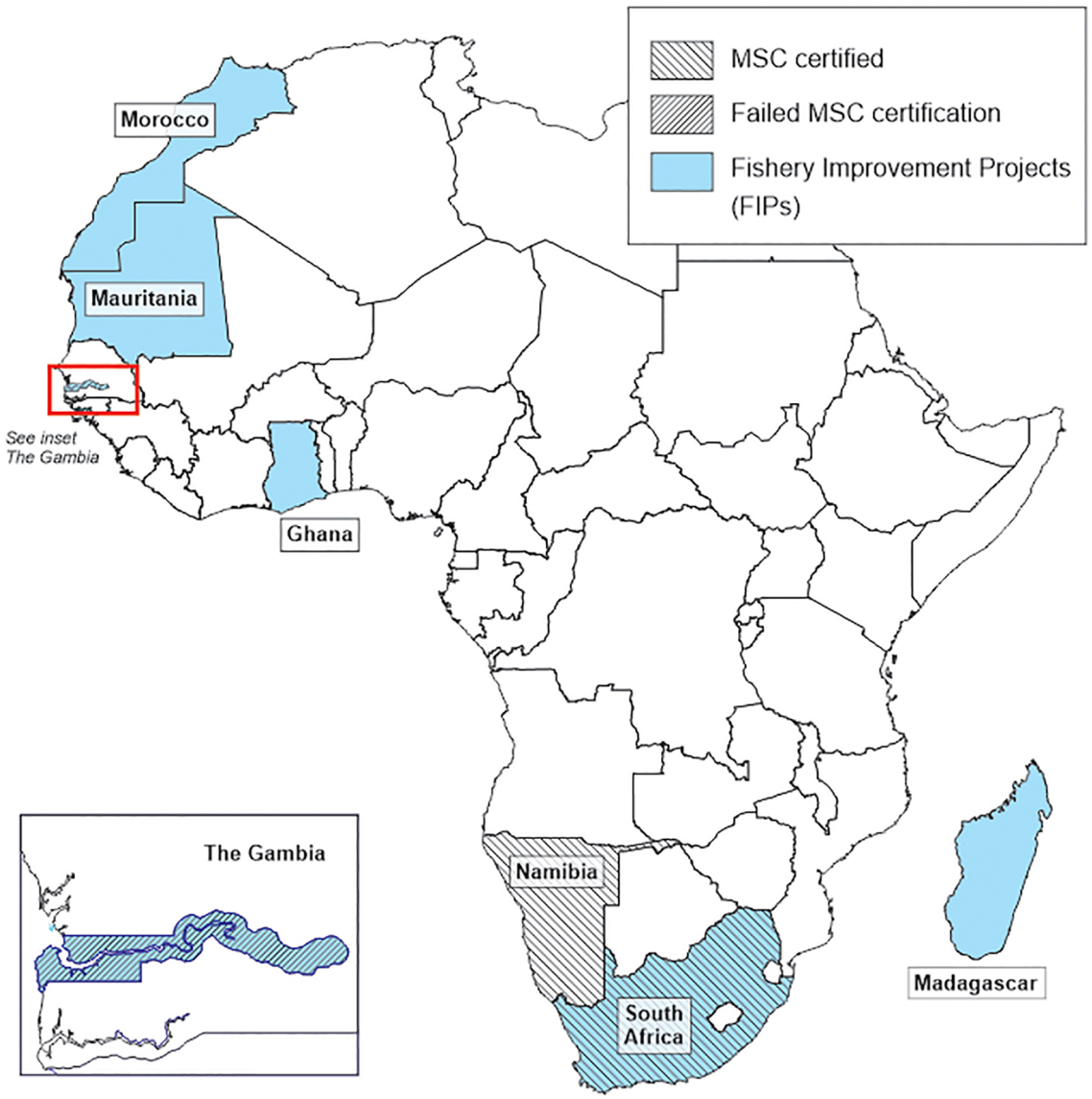

FIGURE 1 | A map showing African countries that are MSC certified, those that have attempted and failed to obtain MSC certification, and those currently under Fishery Improvement Projects (FIPs).

Like most other developing world fisheries, fewer fisheries can afford the cost and onerous nature of the MSC program due to varying challenges such as data-poor systems and lack of management infrastructure (Wakamatsu and Wakamatsu, 2017). The MSC certification can cost between US$15,000 to US$120,000; however, it can be as much as US$500,000 for large complex fisheries (Roheim et al., 2011). Additional costs include annual audits and indirect costs to rightsholders, such as changing or modifying gear. Notwithstanding these challenges, the MSC, through its developing world program, has put in place a risk-based framework (RBF) that can be used to assess these fisheries against the MSC standard, especially for data-poor small-scale fisheries. The use of the RBF has significantly increased the number of developing world fisheries engaged with the MSC (See Marine Stewardship Council (MSC), 2022c).

Further, the MSC, together with other organizations such as WWF are supporting FIPs around the world. FIPs are aimed at creating a collaborative environment between stakeholders within a fishery to make improvements to meet the MSC standard and possibly apply for certification if they choose to (Crona et al., 2019; Thomas Travaille et al., 2019). Some African fisheries are engaged in FIPs (See **Figure 1**), including The Gambia Sole fishery, the only small-scale fishery in the region to have engaged in the MSC certification process but failed to meet the required certification standard (Keus et al., 2015). Overall, engagement either directly in the MSC certification program or through FIPs depends on the motivation of different actors and stakeholders to support such ocean stewardship and sustainability efforts across the globe. The agency to drive such stewardship initiatives builds on the various relational aspects of care and ethics towards natural resources use and management. In what follows, we provide a brief background of two fisheries engaged with the MSC program to explain how the dimension of stewardship - Care, Knowledge, and Agency- is relevant in steering ocean stewardship in Africa.

The Namibian Hake Trawl and Longline Fishery

Industrial fishing in Namibia began in the 1950s, with fishing activities dominated by European fleets, especially for inshore pelagic fishing for the South African sardine (*Sardinops sagax)* and Cape anchovy (*Engraulis encrasicolus*) (Bianchi et al., 1999; Boyer et al., 2001; Kirchner et al., 2010). In 1969, the International Commission for the Southeast Atlantic Fisheries (ICSEAF) was established to control and regulate the harvesting of marine resources off the coasts of Namibia and South Africa, which was at the time open access (Bianchi et al., 1999; van der Westhuizen, 2001; Paterson et al., 2013). Despite the fisheries management measures implemented by ICSEAF, such as legal minimum mesh size and member country quotas, the abundance of marine resources, especially off Namibia, continued to deplete, primarily due to continued overfishing (Roux and Shannon, 2004; Paterson et al., 2013).

In Namibia, the fishing sector is the third-highest contributor to Namibia's Gross Domestic Product (GDP) after mining and agriculture, contributing 3.9% in 2020, and directly employing about 16, 970 people in 2020 (Ministry of Fisheries and Marine Resources (MFMR), 2020). The hake is one of Namibia's most economically valuable fish species (van der Westhuizen, 2001; Ministry of Fisheries and Marine Resources (MFMR), 2018; Kainge et al., 2020). The Namibian fishing sector is well organized, earning Namibia the Food Security Policy Leadership Award in 2010 and the Silver Future Award in 2012 (Paterson et al., 2013). The Namibian Hake Association (NHA), established in 1994, coordinates with all hake (both trawl and longline) rightsholders to manage the fishing activities targeting hake in consultations with MFMR and the Fishery Observer Agency (FOA).

The Namibian hake fishing industry is highly commercialized, owned by major industrial fishing companies that use advanced technologies to harvest fish and other marine resources. Very few people in Namibia fish for subsistence (Erasmus et al., 2021b). Unlike other African countries such as Ghana, Somali and Madagascar, Namibia has no legally recognized artisanal fishery (Sowman and Cardoso, 2010). Similarly, the hake fishing subsector employs the largest number (66.5%) of employees in the Namibian fishing sector (Ministry of Fisheries and Marine Resources (MFMR), 2020).

Namibia supplies fish and other seafood products to more than 80 countries, including Spain, Portugal, and France (Ministry of Fisheries and Marine Resources (MFMR), 2018; MFMR, 2020), exporting about 75% of all fish and seafood (Ministry of Fisheries and Marine Resources (MFMR), 2018), with small quantities consumed locally (Erasmus et al., 2021b). The Namibian hake trawl and longline fishery operate solely in the Namibian Economic Zone (EEZ). The hake fishery which is Namibia's most economically exported fish species, is almost exclusively export-oriented (Kainge et al., 2020). Hake products are exported primarily as fresh, chilled, or frozen raw material. Spain, Italy, and Portugal have been the traditional markets for Namibian hake. Other countries like France, Switzerland, Germany, and Holland have accepted hake as a white fish species in competition with cod and Alaskan pollock). For example, in 2019/2020, Spain imported 49% of the Namibian hake (Ministry of Fisheries and Marine Resources (MFMR), 2020). The Namibian hake industry concentrated on value-added products but was finding that the markets of central and northern Europe, while wanting hake products, remained closed because Namibia could not supply fish from a sustainably certified fishery.

In terms of engagement with the MSC, actors within the Namibian hake fishery see certification as a means to increase international market access while also increasing attention to the fishery's ecosystem management (Iitembu et al., 2021). Obtaining MSC certification was listed as one of the priority actions for the Namibian fishing industry in 2017 (Ministry of Fisheries and Marine Resources (MFMR), 2018). The main stakeholders involved in the Namibian hake fishery certification were the Namibian hake industry represented by

NHA, MFMR, and assistance from the Fisheries Observer Agency (FOA). In terms of non-government organizations, the Albatross Task Force (ATF) has played an essential role in reducing the impact of the fisheries on seabird life (Da Rocha et al., 2021), which helped satisfy the conditions of MSC certifications with regard to ecosystem protection. MFMR provided services in kind, but the cost of the certification assessment and any scientific advice from non-local consultants were fully funded by the NHA from funds collected from the association members. Up to date, the costs are estimated to be around N$1.5 million (US$ 97, 911), with other projects in the pipeline which need to be undertaken during the current period of certification, including the costs of the annual audit review. However, the economic contribution of the MSC certification to the Namibian hake trawl and longline fishery and the Namibian economy is still to be uncovered, and the various improvements to the fishery. The South African MSC certification has increased access to export markets (Lallemand et al., 2016) and a 90% reduction in seabird bycatch (Butterworth, 2016).

The MSC certificate is made out to the Namibian Client Group, represented by NHA and MFMR and valid for five years, with a yearly surveillance audit. The general procedure for MSC certification is that the fishery does a pre-audit examination to determine if it can pass the full audit. Namibia's interest in MSC certification began in 2003 (Standing, 2009). In 2008, the Namibian fishing industry experienced a reduction in the demand for the Namibian hake in Spain, one of the leading importers for this product, which raised discussions about the possibility of MSC certification (Standing, 2009). Namibia did a pre-assessment in 2010, which indicated that the hake fishery stood a good chance of being MSC certified and highlighted some areas for improvements. However, due to a lack of action towards certification from the government, the matter came to rest to be again debated in 2015. In 2017, the NHA and other fishing industry stakeholders prioritized getting the MSC certification through improvements in the fishery. Finally, the Namibian hake trawl and the longline fishery was MSC certified in November 2020. Based on the Public Certification Report for the Namibia hake trawl and longline fishery, positive aspects were identified, such as improvements in stock assessment, ecosystem health, and overall effective management of the fishery required by the MSC to be certified (Jones et al., 2020).

The Gambian Sole Bottom Set Gillnet Fishery

As mentioned earlier, The Gambian sole bottom set gillnet fishery in West Africa is the first small-scale fishery in Africa to have been pre-assessed by the MSC third-party assessors. Sole fishing in The Gambia contributes significantly to local socio-economic development through foreign exports, employment, poverty reduction and food security (USAID, 2013). The Gambia is one of the smallest countries in the continent, surrounded by Senegal, with adjacency to the Atlantic Ocean, and rich in fishery resources (Belhabib et al., 2016). The country has "an Exclusive Economic Zone (EEZ) of 200 nautical miles and a territorial sea extending to 12 nautical miles from the geographical coastal area, with a continental shelf area of about 4000km2" (Ragusa, 2014, p. 1). Primarily, the red sole and black sole are important commercial fish species in The Gambia (Keus et al., 2015). In 2014, the fishery had about 475 sole 'fishermen' and a total catch volume of approximately 1,300 metric tons, with an export value between US$ 300 000 to 500 000 (Coastal Resources Center of the University of Rhode Island (CRC), 2014). For more details on the social, political, ecological, and economic characteristics of the Gambian sole fishery, see Nyiawung R. et al. (2021).

Although described as a small-scale fishery, the bulk of sole fish is commercially exported to foreign markets in Europe with the support of local processing factories in both The Gambia and Senegal. The Atlantic Seafood Company Limited coordinates sole fish processing and export, with headquarters in the Netherlands (Government of The Gambia (GOG), 2012). With growing international market demand for sole fish, commercial actors and local stakeholders are interested in acquiring the MSC blue ecolabel to garner market benefits ascribed to the label and ensure the fishery's sustainability. Despite two failed pre-assessments attempt to obtain the MSC certification through various multi-stakeholder and transnational actors' engagements (Nyiawung R. et al., 2021), our interest in this paper is stakeholder's motivation and participation in ocean stewardship activities.

The interest in MSC certification for the Gambian sole began with an initial invitation for pre-assessment by the Gambian Artisanal Fisheries Development Agency (GAMFIDA) in 2007 (Keus et al., 2015). The fishery was assessed based on MSC-designed sustainability principles and for which the fishery failed to meet the minimum requirement for full assessment (Coastal Resources Center of the University of Rhode Island (CRC), 2014). A total of nine action areas were recommended to address problems summarily around data collection/stock assessment, the fishery's environment/ecosystem, and a management plan for the sole (Keus et al., 2015). With such ambition and motivation for certification for a small-scale fishery, several transnational actors have collaborated and are still collaborating with local stakeholders and fishers to address the MSC recommendations (Coastal Resources Center of the University of Rhode Island (CRC), 2014).

To support ocean stewardship and other sustainability efforts, the Government of Gambia, through DoFish and with support from other external actors, has established a sole management plan and created the National Sole Co-management committee to lead improvements and certification activities for the sole fishery. This progress came in place through revisions and amendments to the country's Fishery Act of 2007, providing exclusive use rights to fishing groups/stakeholders (Government of The Gambia (GOG), 2012). Further actions include capacity building for fisheries officials at the state and local levels and building a flexible information gathering system for the fishery that will guide improvement, stock health, and productivity (Coastal Resources Center of the University of Rhode Island (CRC), 2014). Thus, building local stakeholders' capabilities and capacity through engagement with the MSC program has helped promote local ocean stewardship activities in The Gambia.

THE STEWARDSHIP DIMENSIONS OF CARE-KNOWLEDGE-AGENCY IN AFRICA'S OCEAN AND MARINE RESOURCES MANAGEMENT

Capability and Capacity for Ocean Stewardship

The scales of interactions, place identity, and agency influence the implementation of stewardship actions (Bennett et al., 2018; Cockburn et al., 2019; Quarshie, 2021; Chapin et al., 2022). Here, agency constitutes individuals' capacity and capabilities to design stewardship tools or initiatives that promote the effective management of resources across scales (Enqvist et al., 2018, p. 24). The power with which different actors within a fishery can influence or mobilize effective decisions depends on the existing governance structure, capital, and other aspects of self-determination (Reed et al., 2020). In terms of agency, our case studies provide varying experiences and motivation to engage with the MSC program.

In The Gambia, institutionalizing a co-management system through the Fishery Act of 2007 provided power for local fishing associations to manage ocean and marine resources (Government of The Gambia (GOG), 2012). The policy provided authority for GAMFIDA, a local fishery organization, to invite the MSC for a pre-assessment of The Gambian sole bottom set gillnet fishery with the motivation to achieve its blue ecolabel and expand their international market access. Unfortunately, the fishery failed to meet the MSC certification standard in 2007 and 2015 and is yet to achieve certification. However, through the involvement of diverse transnational actors and external financial support, various improvements have been made to the fishery following recommendations from the MSC's first pre-assessment in 2007. Key improvements include the establishment of the National Sole Co-management (NASCOM) in 2009 and the enhancement of capabilities of officials within The Gambia's fisheries department on fishery management. Also, other local fishing groups have equally benefited from various capacity-building programs and have brought significant changes to the sole fishery from harvest management, processing, data collection, and export. This improvement to the sole fishery has provided a collective sense of action among actors and their power and ability to design and champion stewardship initiatives. Small-scale fisheries with a co-management approach have been proven to engage more in developing stewardship activities (Karr et al., 2017).

Meanwhile, for the Namibian hake trawl and longline fishery, while the MSC program serves as a stewardship tool and rigorous approach to ensure the sustainability of wild-caught fisheries, economic incentives principally drive actors' motivation/engagement. As a large-scale fishery, the hake fishery's activities are coordinated by the NHA, the Ministry of Fisheries and Marine Resources (MFMR), with scientific assistance from the Fisheries Observer Agency (FOA). The harvesting of the Namibian hake is regulated by a hake management plan. The government, through MFMR, determines the yearly total allowable catches (TAC) for each species, including hake, and assigns quotas for each rightsholder. As most large-scale fisheries engaged with the MSC, financial resources are available to coordinate improvements and achieve certification. The NHA, through funds collected from members, covered the cost of the MSC full assessment and the hiring of scientific consultants, which amounted to about N$ 1.5 million (US$ 97,911), including services in kind from the MFMR. The mobilization of resources with NHA and MFMR to achieve the MSC certification is aimed at helping the fishery expand its access to international markets and compete with neighbouring South African hake fishery. Thus, fisheries that constitute actors with the right powers (agency) to design stewardship activities can easily mobilize resources to engage and meet sustainability standards such as those of the MSC and contribute to ocean stewardship (Blasiak et al., 2021).

Understanding/Knowledge of the Fisheries

Achieving sustainability efforts and stewardship requires proper knowledge of the social-ecological system the willingness to learn, and a clear understanding of any existing complexities. While local ecological and scientific knowledge plays a significant role in marine and ocean resources management (Loring et al., 2014; Bennett et al., 2018), there are always emerging threats to the effective management of fish stocks and maintaining ecosystem health. Ecosystem protection and sustainable harvesting of marine resources can only be achieved when local actors understand the fishery (von der Porten et al., 2019).

For The Gambian sole fishery, engagement with the MSC program opened avenues for different transnational and local actors to collaborate and share their knowledge of the fisheries and design a management plan (**Table 1**). This process was possible with the willingness of actors to engage in hands-on training, capacity-building activities, and the institution of a collective learning process across scales (local and national levels). The fishery improvement processes included utilizing traditional and scientific knowledge systems to understand better and improve existing management practices and governance for the sole fishery. Since engaging with the MSC in 2007, The Gambian sole bottom set gillnet fishery has in place a mandatory six-month close season in line with the sole fishery reproductive cycle. Moreover, through support from a USAID BaNaFaa project, staff from the department of the fishery have received training on data collection and stock assessments (Coastal Resources Center of the University of Rhode Island (CRC), 2014). Other activities included the tagging/licensing of boats to ease monitoring and enforcement of regulations regarding fishing gear. However, there are issues with fishery closure as it directly impacts the fisher's livelihood and the lack of alternatives, thus pushing some fishers not to follow the required closed season.

Unlike The Gambian sole fishery, the Namibian hake trawl and longline fishery presents a different characteristic. The Namibian fishery is more commercialized with the use of advanced technology in the industry (**Table 1**). The fishery benefits from expert knowledge and support from local scientists within MFMR and other government agencies such as FOA equipped with fisheries scientists that have a broader understanding of the hake fishery ecosystem and stock health.

TABLE 1 | Stewardship dimensions of the Namibian hake trawl and longline fishery and The Gambia sole fishery.

	The Namibian hake trawl and longline fishery	The Gambia sole fishery
Type of fishery	Large-scale	Small-scale
Market	Export-oriented to markets in Europe and beyond	Export-oriented to markets in Europe and beyond
Ethical consideration	All stakeholders care and see the need to engage in ocean stewardship activities and expanding the fishery's economic potential	Stakeholders are interested in the sustainability of the fishery and are taking the responsibility to manage the fishery and secure their livelihood
Motivation	Solely economic incentive for certification to increase international market access	Economic and fishery sustainability incentives
Action	Local actors led by the Namibian Hake Association (NHA) express interest and funded the certification process with support from the fisheries ministry and local fisheries experts	Initial interest in MSC certification was done by a local fisheries association, but other transnational actors funded improvements, MSC assessments, and design ocean stewardship activities
Outcome	Fishery received MSC certification in 2020	Fishery remain uncertified and current (2022) an inactive comprehensive fishery improvement project (FIP)

These local experts collaborate and help the fishery with support from the MSC to navigate the certification assessment and improvements necessary to achieve the MSC accreditation for the fishery. Thus, although the NHA coordinates and leads the MSC certification process and surveillance auditing, actors in the hake fishery collaborate to identify and set improvement priorities and mobilize experts and resources to meet the requirements of the MSC. Additionally, relevant institutes such as FOA and ATF also ensure success for the Namibian hake trawl and longline fishery.

Sustainable Practices and Care for Ocean Resources

Ocean and marine resources provide not only a sense of place or identity for people in various locales around the world, but it also serves as a source of local subsistence and livelihood. For centuries, the attachment of coastal dwellers and their communities to the ocean creates a linkage between the ocean, culture, people, and their social well-being. Such connection and importance of the ocean and marine resources create a sense of care, empathy and responsibility towards its use and management (Muller, 2014; West et al., 2018; Brown et al., 2019). The aspect of care as a stewardship dimension "has primarily been invoked indirectly compared to the more explicit acknowledgement of knowledge and agency" (Enqvist et al., 2018, p. 24). For any marine social-ecological system, rapid changes from overfishing, for example, or the growing threats of climate change calls for collective actions, empathy, and care (Brown et al., 2019). However, such an approach needs a deep understanding of the impacts/change and to design a just sustainability and transformation plan (See Bennett et al., 2019) and actions across scales (Chapin et al., 2022).

For both the Namibian and Gambian fisheries, voluntary engagement in the MSC program as a stewardship tool is defined by the motivation to ensure market access and the local ethical responsibility toward long-term sustainability outcomes for the fishery resources. However, there is a contrasting motivation for engaging with the MSC between the two fisheries. For the Namibian hake trawl and longline fishery, the interest in the MSC certification is to gain access to international markets while believing it increases attention on ecosystem approaches to fisheries management (Iitembu et al., 2021). Further, the market incentive to comply with regulations to obtain the MSC certification was listed as one of the priority actions for the Namibian hake fishing industry and the need for improvements (Ministry of Fisheries and Marine Resources (MFMR), 2018). Principally, stakeholders within the Namibian fishery see engagement with the MSC to improve their reputation and unlock markets they could not be accessed and to secure economic and business opportunity for actors along the fishery's value chain.

Meanwhile, for The Gambian sole, while access to the international market and the market incentive for certified seafood drives actors' interest in the MSC, local stakeholders are also interested in ensuring the sustainability of the fishery resources. The Atlantic seafood company in the Gambia reported that the sole fish stock had been continuously decreasing to just under 500 tons in 2014 (Coastal Resources Center of the University of Rhode Island (CRC), 2014), thus a need to ensure its sustainability. Stakeholders see engagement with the MSC as a means to improve the fishery's stock health, ensure effective management through boat labelling, recording of catch and ensuring monitoring and control of fishing activities. Moreover, just like the management of fisheries in other areas, actors see engagement in stewardship as an ethical responsibility to ensure sustainability (Loring and Hinzman, 2018). Also, by participating with the MSC, local actors have received training and improved capacity to manage the sole fishery and engaged in stewardship activities (Bennett et al., 2018). Thus, both market access and sustainability objectives are motivations driving the interest and engagement of sole fishery stakeholders in the MSC.

CONCLUSION

While there are debates on aspects of accessibility of large and small-scale fisheries to the MSC program – especially for fisheries in the global south, this paper focuses on the MSC certification scheme as a stewardship tool, contributing to ocean and marine sustainability. We use Enqvist and colleagues' (2018) stewardship dimensions of Care-Knowledge-Agency to discuss engagement and participation in the MSC program. We examined the engagement and experiences of these two fisheries in the African continent with the MSC program, i.e., The Gambian sole bottom set gillnet fishery – a small-scale uncertified fishery and the Namibian hake

trawl and longline fishery – a large scale fishery that recently received its MSC certification in 2020. While the MSC program is presented as a stewardship tool for the sustainable harvest and management of wild-caught fisheries, these two case studies show a broad range of interest, stakeholder motivation to engage in the program, and the capacity/capabilities to become certified.

The Namibian case study presents evidence of a large-scale fishery with actors having adequate capacity and capabilities (agency) to design management/stewardship activities. Comparatively, The Gambian sole fishery presents a small-scale fishery challenged with inadequate resources (both human and financial resources) to effectively engage, attain the MSC expected standards, and achieve certification. The Gambian case, like most other small-scale fisheries, supports scholarly arguments regarding accessibility to the MSC program for some fisheries compared to others (Jacquet et al., 2010; Wakamatsu and Wakamatsu, 2017).

Through the stewardship dimensions of Care-Knowledge-Agency, the MSC program serves as an important stewardship tool for ocean sustainability, although the problem of accessibility for African fisheries to the MSC program remains an issue. However, in the African context, ocean stewardship initiatives are challenged by a lack of regional/national environmental awareness, and sustainability campaigns. There are few programs promoting and ensuring the sustainable consumption of fisheries resources such as the Southern African Sustainable Seafood Initiative (SASSI). If global sustainability of wild-caught fisheries and stewardship initiatives are to be successful, Africans must be willing to buy their fish from a coordinated sustainable with good policy and governance structures and a massive environmental awareness campaign. The local consumption of certified seafood programs must be encouraged and promoted by all stakeholders.

Despite the potential of the MSC program as an ocean stewardship tool, the authors are aware of the challenges embedded within this eco-certification scheme. There are unanswered questions such as how Namibia as a country and the fishery would benefit from being certified and if they can maintain the label over time. Another question is the accessibility of developing world small-scale fisheries to certification programs like the MSC. Overall, the MSC program, as it stands, brings together local actors to care, make improvements, expand local knowledge, and design a management plan for fisheries interested in becoming certified.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material. Further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

RAN and VE conceptualize the study. RAN and VE made contributions to The Gambia and Namibia cases respectively. All authors contributed to the article and approved the submitted version

REFERENCES

Arton, A., Leiman, A., Petrokofsky, G., Toonen, H., and Longo, C. S. (2020). What do We Know About the Impacts of the Marine Stewardship Council Seafood Ecolabelling Program? A Systematic Map. *Environ. Evidence* 9 (1), 1–20. doi: 10.1186/s13750-020-0188-9

Auld, G. (2014). Confronting Trade-Offs and Interactive Effects in the Choice of Policy Focus: Specialized Versus Comprehensive Private Governance. *Regul. Governance* 8 (1), 126–148. doi: 10.1111/rego.12034

Bailey, M., Packer, H., Schiller, L., Tlusty, M., and Swartz, W. (2018). The Role of Corporate Social Responsibility in Creating a Seussian World of Seafood Sustainability. *Fish Fisheries* 19 (5), 782–790. doi: 10.1111/faf.12289

Barendse, J., Basson, J., Petersen, S. L., and Sink, K. J. (2018). The Sustainable Seafood Movement Viewed as a Maturing Social-Ecological Issue Using a South African Case-Study. *Ocean Coastal Manage.* 151, 178–192. doi: 10.1016/j.ocecoaman.2017.08.015

Barendse, J., Roux, D., Currie, B., Wilson, N., and Fabricius, C. (2016). A Broader View of Stewardship to Achieve Conservation and Sustainability Goals in South Africa. *South Afr. J. Sci.* 112 (5-6), 1–15. doi: 10.17159/sajs.2016/20150359

Belhabib, D., Mendy, A., Subah, Y., Broh, N. T., Jueseah, A. S., Nipey, N., et al. (2016). Fisheries Catch Under-Reporting in The Gambia, Liberia and Namibia and the Three Large Marine Ecosystems Which They Represent. *Environ. Dev.* 17, 157–174. doi: 10.1016/j.envdev.2015.08.004

Bennett, N. J., Blythe, J., Cisneros-Montemayor, A. M., Singh, G. G., and Sumaila, U. R. (2019). Just Transformations to Sustainability. *Sustainability* 11 (14), 3881. doi: 10.3390/su11143881

Bennett, N. J., Whitty, T. S., Finkbeiner, E., Pittman, J., Bassett, H., Gelcich, S., et al. (2018). Environmental Stewardship: A Conceptual Review and Analytical Framework. *Environ. Manage.* 61 (4), 597–614. doi: 10.1007/s00267-017-0993-2

Bernstein, S., and Cashore, B. (2007). Can non-State Global Governance be Legitimate? An Analytical Framework. *Regul. Governance* 1 (4), 347–371. doi: 10.1111/j.1748-5991.2007.00021.x

Bianchi, G., Carpenter, K. E., Roux, J.-P., Molloy, F. J. D., and Boyer, H. J. (1999). "FAO Species Identification Field Guide for Fishery Purposes," in *The Living Marine Resources of Namibia*, vol. 265. (Rome: FAO), p. 11. Available at: https://www.fao.org/3/x3478e/x3478e00.htm.

Blasiak, R., Dauriach, A., Jouffray, J. B., Folke, C., Österblom, H., Bebbington, J., et al. (2021). Evolving Perspectives of Stewardship in the Seafood Industry. *Front. Mar. Sci.* 8, 676. doi: 10.3389/fmars.2021.671837

Boyd, P. W., Collins, S., Dupont, S., Fabricius, K., Gattuso, J. P., Havenhand, J., et al. (2018). Experimental Strategies to Assess the Biological Ramifications of Multiple Drivers of Global Ocean Change—A Review. *Global Change Biol.* 24 (6), 2239–2261. doi: 10.1111/gcb.14102

Boyer, D. C., Boyer, H. J., Fossen, I., and Kreiner, A. (2001). Changes in Abundance of the Northern Benguela Sardine Stock During the Decade 1990–2000, With Comments on the Relative Importance of Fishing and the Environment. *Afr. J. Mar. Sci.* 23, 67–84. doi: 10.2989/025776101784528854

Brown, K., Adger, W. N., Devine-Wright, P., Anderies, J. M., Barr, S., Bousquet, F., et al. (2019). Empathy, Place and Identity Interactions for Sustainability. *Global Environ. Change* 56, 11–17. doi: 10.1016/j.gloenvcha.2019.03.003

Butterworth, D. S. (2016). The South African Experience With MSC Certification: A Perspective. *Fisheries Res.* 182, 124–127. doi: 10.1016/j.fishres.2016.02.021

Carlson, A., and Palmer, C. (2016). A Qualitative Meta-Synthesis of the Benefits of Eco-Labeling in Developing Countries. *Ecol. Econ.* 127, 129–145. doi: 10.1016/j.ecolecon.2016.03.020

Chapin, F. S.III, Biggs, R., Sitas, N., Folke, C., and Kofinas, G. P. (2022). Cross-Scale Social-Ecological Stewardship for Navigating Toward More Sustainable and Just Futures. *Appl. Panarchy: Appl. Diffusion Across Disciplines* 275.

Chapin, F. S.III, Power, M. E., Pickett, S. T., Freitag, A., Reynolds, J. A., Jackson, R. B., et al. (2011). Earth Stewardship: Science for Action to Sustain the Human-Earth System. *Ecosphere* 2 (8), 1–20. doi: 10.1890/ES11-00166.1

Coastal Resources Center of the University of Rhode Island (CRC). (2014). *The Gambian Sole Fishery: Towards MSC Certification and Use of an Eco-Label-An-FIP Like Process*. Available at: https://www.crc.uri.edu/download/RKF13_GambiaSoleFisheryMSCCert.pdf.

Cockburn, J., Cundill, G., Shackleton, S., and Rouget, M. (2019). The Meaning and Practice of Stewardship in South Africa. *South Afr. J. Sci.* 115 (5-6), 1–13. doi: 10.17159/sajs.2019/5339

Crona, B., Käll, S., and van Holt, T. (2019). Fishery Improvement Projects as a Governance Tool for Fisheries Sustainability: A Global Comparative Analysis. *PloS One* 14 (10), e0223054. doi: 10.1371/journal.pone.0223054

Da Rocha, N., Oppel, S., Prince, S., Matjila, S., Shaanika, T. M., Naomab, C., et al. (2021). Reduction in Seabird Mortality in Namibian Fisheries Following the Introduction of Bycatch Regulation. *Biol. Conserv.* 253, 108915. doi: 10.1016/j.biocon.2020.108915

Enqvist, J. P., West, S., Masterson, V. A., Haider, L. J., Svedin, U., and Tengö, M. (2018). Stewardship as a Boundary Object for Sustainability Research: Linking Care, Knowledge and Agency. *Landscape and Urban Planning*. 179, 17–37. doi: 10.1016/j.landurbplan.2018.07.005

Erasmus, V. N., Currie, B., Roux, J. P., Elwen, S. H., Kalola, M. S., Tjizoo, B., et al. (2021a). Predatory Species Left Stranded Following the Collapse of the Sardine *Sardinops Sagax* (Pappe 1854) Stock Off the Northern Benguela Upwelling System: A Review. *J. Mar. Syst.* 224, 103623. doi: 10.1016/j.jmarsys.2021.103623

Erasmus, V. N., Kadhila, T., Thyberg, K., Kamara, E. N., and Bauleth-D'Almeida, G. (2021b). Public Perceptions and Factors Affecting Domestic Marine Fish Consumption in Namibia, Southwestern Africa. *Regional Stud. Mar. Sci.* 47, 101921. doi: 10.1016/j.rsma.2021.101921

Fisheryprogress.Org. (2022). *Fishery Improvement Project Progress Tracking Database & Tools*. Available at: https://fisheryprogress.org/directory?title=&field_species_tid=All&field_country_value=All&field_listing_status_value_1%5B%5D=active&field_listing_status_value_1%5B%5D=archived_stalled&field_fip_type_value%5B%5D=basic&field_fip_type_value%5B%5D=comprehensive&field_participant_org_name_value.

Foley, P. (2012). The Political Economy of Marine Stewardship Council Certification: Processors and Access in Newfoundland and Labrador's Inshore Shrimp Industry. *J. Agrarian Change* 12 (2-3), 436–457. doi: 10.1111/j.1471-0366.2011.00344.x

Foley, P. (2013). National Government Responses to Marine Stewardship Council (MSC) Fisheries Certification: Insights From Atlantic Canada. *New Polit. Econ.* 18 (2), 284–307. doi: 10.1080/13563467.2012.684212

Foley, P., and McCay, B. (2014). Certifying the Commons: Eco-Certification, Privatization, and Collective Action. *Ecol. Soc.* 19 (2). doi: 10.5751/ES-06459-190228

Fu, C., Xu, Y., Grüss, A., Bundy, A., Shannon, L., Heymans, J. J., et al. (2020). Responses of Ecological Indicators to Fishing Pressure Under Environmental Change: Exploring non-Linearity and Thresholds. *ICES J. Mar. Sci.* 77 (4), 1516–1531. doi: 10.1093/icesjms/fsz182

Garnett, S. T., Burgess, N. D., Fa, J. E., Fernández-Llamazares, Á., Molnár, Z., Robinson, C. J., et al. (2018). A Spatial Overview of the Global Importance of Indigenous Lands for Conservation. *Nat. Sustain.* 1 (7), 369–374. doi: 10.1038/s41893-018-0100-6

Glaser, S. M., Roberts, P. M., and Hurlburt, K. J. (2019). Foreign Illegal, Unreported, and Unregulated Fishing in Somali Waters Perpetuates Conflict. *Front. Mar. Sci.* 6, 704. doi: 10.3389/fmars.2019.00704

Government of The Gambia (GOG). (2012). *Fishery Co-Management Plan for The Gambia Sole Complex (Focus on Artisanal Fisheries Sub-Sector)*. Available at: https://www.crc.uri.edu/download/Sole_Plan_Jan_2012_508_Signatures1.pdf.

Gulbrandsen, L. H. (2009). The Emergence and Effectiveness of the Marine Stewardship Council. *Mar. Policy* 33 (4), 654–660. doi: 10.1016/j.marpol.2009.01.002

Gutierrez, A. T., and Morgan, S. K. (2015). The Influence of the Sustainable Seafood Movement in the US and UK Capture Fisheries Supply Chain and Fisheries Governance. *Front. Mar. Sci.* 2, 72. doi: 10.3389/fmars.2015.00072

Henriques, R., von der Heyden, S., Lipinski, M. R., du Toit, N., Kainge, P., Bloomer, P., et al. (2016). Spatio-Temporal Genetic Structure and the Effects of Long-Term Fishing in Two Partially Sympatric Offshore Demersal Fishes. *Mol. Ecol.* 25 (23), 5843–5861. doi: 10.1111/mec.13890

Iitembu, J. A., Erasmus, V. N., Uanivi, U., Nakwaya, D., Horaeb, R. R., Nangolo, E., et al. (2021). The Hits and Misses of Namibia's Attempt to Implement the Ecosystem Approach to Fisheries (EAF) Management. *Ecosystem Health Sustain.* 7 (1), 1920340. doi: 10.1080/20964129.2021.1920340

Jacquet, J., Pauly, D., Ainley, D., Holt, S., Dayton, P., and Jackson, J. (2010). Seafood Stewardship in Crisis. *Nature* 467 (7311), 28–29. doi: 10.1038/467028a

Jeffers, V. F., Humber, F., Nohasiarivelo, T., Botosoamananto, R., and Anderson, L. G. (2019). Trialling the Use of Smartphones as a Tool to Address Gaps in Small-Scale Fisheries Catch Data in Southwest Madagascar. *Mar. Policy* 99, 267–274. doi: 10.1016/j.marpol.2018.10.040

Jones, H., Gascoigne, J., Cook, R., Japp, D., and Collinsonet, K. (2020). Marine Stewardship Council (MSC) Public Certification Report Namibia Hale Trawl and Longline Fishery.

Kainge, P., Kirkman, S. P., Estevão, V., van der Lingen, C. D., Uanivi, U., Kathena, J. N., et al. (2020). Fisheries Yields, Climate Change, and Ecosystem-Based Management of the Benguela Current Large Marine Ecosystem. *Environ. Dev.* 36, 100567. doi: 10.1016/j.envdev.2020.100567

Karr, K. A., Fujita, R., Carcamo, R., Epstein, L., Foley, J. R., Fraire-Cervantes, J. A., et al. (2017). Integrating Science-Based Co-Management, Partnerships, Participatory Processes and Stewardship Incentives to Improve the Performance of Small-Scale Fisheries. *Front. Marine Sci.* 4, 345. doi: 10.3389/fmars.2017.00345

Keus, B., Medley, P., and Sieben, C. (2015). Marine Stewardship Council (MSC) Pre-Assessment Report: The Gambian Artisanal Fishery for Senegalese Tonguesole (Cynoglossus Senegalensis) & Guinean Sole (*Dagetichthys Cadenati*).

Kirchner, C., Bauleth-D'Almeida, G., and Wilhelm, M. R. (2010). Assessment and Management of Cape Horse Mackerel *Trachurus Capensis* Off Namibia Based on a Fleet-Disaggregated Age-Structured Production Model. *Afr. J. Mar. Sci.* 32, 525–541. doi: 10.2989/1814232X.2010.538144

Konefal, J. (2013). Environmental Movements, Market-Based Approaches, and Neoliberalization: A Case Study of the Sustainable Seafood Movement. *Organ. Environ.* 26 (3), 336–352. doi: 10.1177/1086026612467982

Lallemand, P., Bergh, M., Hansen, M., and Purves, M. (2016). Estimating the Economic Benefits of MSC Certification for the South African Hake Trawl Fishery. *Fisheries Res.* 182, 98–115. doi: 10.1016/j.fishres.2016.02.003

Le Manach, F., Jacquet, J. L., Bailey, M., Jouanneau, C., and Nouvian, C. (2020). Small Is Beautiful, But Large is Certified: A Comparison Between Fisheries the Marine Stewardship Council (MSC) Features in its Promotional Materials and MSC-Certified Fisheries. *PloS One* 15 (5), e0231073. doi: 10.1371/journal.pone.0231073

Loring, P. A., Harrison, H. L., and Gerlach, S. C. (2014). Local Perceptions of the Sustainability of Alaska's Highly Contested Cook Inlet Salmon Fisheries. *Soc. Natural Resour.* 27 (2), 185–199. doi: 10.1080/08941920.2013.819955

Loring, P. A., and Hinzman, M. S. (2018). "They're All Really Important, But…": Unpacking How People Prioritize Values for the Marine Environment in Haida Gwaii, British Columbia. *Ecol. Econ.* 152, 367–377. doi: 10.1016/j.ecolecon.2018.06.020

Marine Stewardship Council (MSC). (2022a). *The MSC Fisheries Standard*. Available at: https://www.msc.org/standards-and-certification/fisheries-standard.

Marine Stewardship Council (MSC). (2022b). *Why Get Your Fishery MSC Certified?* Available at: https://www.msc.org/en-us/for-business/fisheries/why-get-certified.

Marine Stewardship Council (MSC). (2022c). *Reviewing the Risk Based Framework*. Available at: https://www.msc.org/standards-and-certification/developing-our-standards/the-fisheries-standard-review/projects/risk-based-framework-review.

Mathevet, R., Raymond, C. M., and Bousquet, F. (2018). The Concept of Stewardship in Sustainability Science and Conservation Biology. *Biol. Conserv.* 217, 363–370. doi: 10.1016/j.biocon.2017.10.015

McConney, P., Medeiros, R. P., Pascual-Fernández, J. J., and Pena, M. (2019). *Transdisciplinarity for Small-Scale Fisheries Governance* (Springer, Cham: Springer Nature Switzerland AG 2019).

Ministry of Fisheries and Marine Resources (MFMR). (2018). *Ministry of Fisheries and Marine Resources Annual Report 2017/2018* (The Republic of Namibia, Windhoek: Ministry of Fisheries and Marine Resources). Available at: https://oag.gov.na/ministry-of-fisheries-and-marine-resources/-/document_library/vvySimaCjOYJ/view_file/309191.

Ministry of Fisheries and Marine Resources (MFMR). (2020). Ministry of Fisheries and Marine Resources Employment Verification Report.

Muller, S. (2014). Co-Motion: Making Space to Care for Country. *Geoforum* 54, 132–141. doi: 10.1016/j.geoforum.2014.04.011

Njock, J. C., and Westlund, L. (2010). Migration, Resource Management and Global Change: Experiences From Fishing Communities in West and Central Africa. *Mar. Policy* 34 (4), (2010) 752–760. doi: 10.1016/j.marpol.2010.01.020

Nyiawung, R., Ayilu, R. K., Suh, N. N., Ngwang, N. N., Varnie, F., and Loring, P. A. (2021). *COVID-19 and Small-Scale Fisheries in Africa: Impacts on Livelihoods and the Fish Value Chain in Cameroon and Liberia*. doi: 10.32942/osf.io/5zvx2

Nyiawung, R. A., Raj, A., and Foley, P. (2021). Marine Stewardship Council Sustainability Certification in Developing Countries: Certifiability and Beyond in Kerala, India and The Gambia, West Africa. *Mar. Policy* 129, 104526. doi: 10.1016/j.marpol.2021.104526

Okafor-Yarwood, I. (2019). Illegal, Unreported and Unregulated Fishing, and the Complexities of the Sustainable Development Goals (SDGs) for Countries in the Gulf of Guinea. *Marine Policy* 99, 414–422. doi: 10.1016/j.marpol.2017.09.016

Parker, D., Coetzee, J. C., Winker, H., and van der Lingen, C. D. (2020). Accounting for Linefish Dependency in Management of the South African Small Pelagic Fishery. *Afr. J. Mar. Sci.* 42 (3), 283–294. doi: 10.2989/1814232X.2020.1788160

Paterson, B., Kirchner, C., and Ommer, R. E. (2013). A Short History of the Namibian Hake Fishery - A Social-Ecological Analysis. *Ecol. Soc.* 18 (4), 66. doi: 10.5751/ES-05919-180466

Pérez-Ramírez, M., Ponce-Díaz, G., and Lluch-Cota, S. (2012). The Role of MSC Certification in the Empowerment of Fishing Cooperatives in Mexico: The Case of Red Rock Lobster Co-Managed Fishery. *Ocean Coastal Manage.* 63, 24–29. doi: 10.1016/j.ocecoaman.2012.03.009

Ponte, S. (2008). Greener Than Thou: The Political Economy of Fish Ecolabeling and Its Local Manifestations in South Africa. *World Dev.* 36 (1), 159–175. doi: 10.1016/j.worlddev.2007.02.014

Ponte, S. (2012). The Marine Stewardship Council (MSC) and the Making of a Market for 'Sustainable Fish'. *J. Agrarian Change* 12 (2-3), 300–315. doi: 10.1111/j.1471-0366.2011.00345.x

Quarshie, P. T. (2021). Exploring the Concept of Place in the Literature on Smallholder Farmers and Climate Change Adaptation in Sub-Saharan Africa. *South Afr. Geog J.* 104, 251–269. doi: 10.31235/osf.io/6tvm9

Ragusa, G. (2014). Overview of the Fisheries Sector in the Gambia. *Fisheries Aquacult. J.* 5 (3), 1. doi: 10.4172/2150-3508.1000107

Reed, M. S. (2008). Stakeholder Participation for Environmental Management: A Literature Review. *Biol. Conserv.* 141 (10), 2417–2431. doi: 10.1016/j.biocon.2008.07.014

Reed, G., Brunet, N. D., and Natcher, D. C. (2020). Can Indigenous Community-Based Monitoring Act as a Tool for Sustainable Self-Determination? *Extractive Industries Soc.* 7 (4), 1283–1291. doi: 10.1016/j.exis.2020.04.006

Renckens, S., and Auld, G. (2019). Structure, Path Dependence, and Adaptation: North-South Imbalances in Transnational Private Fisheries Governance. *Ecol. Econ.* 166, 106422. doi: 10.1016/j.ecolecon.2019.106422

Reo, N. J., Whyte, K. P., McGregor, D., Smith, M. A., and Jenkins, J. F. (2017). Factors That Support Indigenous Involvement in Multi-Actor Environmental Stewardship. *AlterNative: Int. J. Indigenous Peoples* 13 (2), 58–68. doi: 10.1177/1177180117701028

Roheim, C. A., Asche, F., and Santos, J. I. (2011). The Elusive Price Premium for Ecolabelled Products: Evidence From Seafood in the UK Market. *J. Agric. Econ.* 62 (3), 655–668. doi: 10.1111/j.1477-9552.2011.00299.x

Roux, J. P., and Shannon, L. J. (2004). Ecosystem Approach to Fisheries Management in the Northern Benguela: The Namibian Experience. *Afr. J. Mar. Sci.* 26, 79–93. doi: 10.2989/18142320409504051

Sampson, G. S., Sanchirico, J. N., Roheim, C. A., Bush, S. R., Taylor, J. E., Allison, E. H., et al. (2015). Secure Sustainable Seafood From Developing Countries. *Science* 348 (6234), 504–506. doi: 10.1126/science.aaa4639

Sandler, R. L. (2013). "Environmental Virtue Ethics," in *International Encyclopedia of Ethics*.

Sowman, M., and Cardoso, P. (2010). Small-Scale Fisheries and Food Security Strategies in Countries in the Benguela Current Large Marine Ecosystem (BCLME) Region: Angola, Namibia and South Africa. *Mar. Policy* 34 (6), 1163–1170. doi: 10.1016/j.marpol.2010.03.016

Standing, A. (2009). *The Growth in Certification of Marine Fisheries in Southern Africa: Potential Benefits and Challenges* (Institute for Security Studies (ISS). Available at: https://media.africaportal.org/documents/ISS_FISHERIES_REPORT-1.pdf.

Stratoudakis, Y., McConney, P., Duncan, J., Ghofar, A., Gitonga, N., Mohamed, K. S., et al. (2016). Fisheries Certification in the Developing World: Locks and Keys or Square Pegs in Round Holes? *Fisheries Res.* 182, 39–49. doi: 10.1016/j.fishres.2015.08.021

Sutton, M., and Wimpee, L. (2008). "Towards Sustainable Seafood: The Evolution of a Conservation Movement," in *Seafood Ecolabelling: Principles Practice*. Eds. T. Ward and B. Phillips, 403–415.

Thomas Travaille, K. L., Crowder, L. B., Kendrick, G. A., and Clifton, J. (2019). Key Attributes Related to Fishery Improvement Project (FIP) Effectiveness in Promoting Improvements Towards Sustainability. *Fish Fisheries* 20 (3), 452–465. doi: 10.1111/faf.12357

USAID. (2013). *Mid-Term Performance Evaluation of the USAID/West Africa Gambia-Senegal Sustainable Fisheries Program*. Available at: https://www.climatelinks.org/resources/mid-term-performance-evaluation-usaidwest-africa-gambia-senegal-sustainable-fisheries.

van der Westhuizen, A. (2001). A Decade of Exploitation and Management of the Namibian Hake Stocks. *Afr. J. Mar. Sci.* 23, 307–315. doi: 10.2989/025776101784529015

van Putten, I., Longo, C., Arton, A., Watson, M., Anderson, C. M., Himes-Cornell, A., et al. (2020). Shifting Focus: The Impacts of Sustainable Seafood Certification. *PloS One* 15 (5), e0233237. doi: 10.1371/journal.pone.0233237

Velázquez Durán, V. M., and Ortega, R. R. (2022). The Challenges of Legitimacy for Southern Environmental Certifications in Small-Scale Fisheries: Evidence From the Chakay Collective Brand in Quintana Roo, Mexico. *Maritime Stud.*, 1–21. doi: 10.1007/s40152-021-00244-z

von der Porten, S., Ota, Y., Cisneros-Montemayor, A., and Pictou, S. (2019). The Role of Indigenous Resurgence in Marine Conservation. *Coastal Manage.* 47 (6), 527–547. doi: 10.1080/08920753.2019.1669099

Wakamatsu, M., and Wakamatsu, H. (2017). The Certification of Small-Scale Fisheries. *Mar. Policy* 77, 97–103. doi: 10.1016/j.marpol.2016.12.016

Welchman, J. (1999). The Virtues of Stewardship. *Environ. Ethics* 21 (4), 411–423. doi: 10.5840/enviroethics19992146

Welchman, J. (2012). A Defence of Environmental Stewardship. *Environ. Values* 21 (3), 297–316. doi: 10.3197/096327112X13400390125975

West, S., Haider, L. J., Masterson, V., Enqvist, J. P., Svedin, U., and Tengö, M. (2018). Stewardship, Care and Relational Values. *Curr. Opin. Environ. Sustain.* 35, 30–38. doi: 10.1016/j.cosust.2018.10.008

Worrell, R., and Appleby, M. C. (2000). Stewardship of Natural Resources: Definition, Ethical and Practical Aspects. *J. Agric. Environ. Ethics* 12 (3), 263–277. doi: 10.1023/A:1009534214698

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.