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Editorial: African ocean stewardship: navigating ocean conservation and sustainable marine and coastal resource management in Africa

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Editorial on the Research Topic
African ocean stewardship: navigating ocean conservation and sustainable marine and coastal resource management in Africa

1 Introduction

1.1 Africa's image, past and present

With a total coastline of 26,000 nautical miles and combined Exclusive Economic Zone (EEZ) area of 13,000 million km^2 (Surbun, 2021) the oceans surrounding the second largest continent and its adjacent islands are among the most resource rich and biodiverse on Earth. Hosting some of the most productive large marine ecosystems anywhere (Trégarot et al., 2020), Africa's coastal resources still support livelihoods as they have for millennia and continue to attract international interests in harvesting, mining, coastal development, energy, and tourism (Karani and Failler, 2020). Despite this there remain challenges in distributing benefits derived from exploiting and managing its marine resources back to the citizens of the 39 African coastal and island states. This is often attributed to the continent's long colonial history and legacy, but also on ineffective governance, corruption, security, lack of technical or scientific capacity, and limited access to investment and development opportunities (Karani et al., 2022).

Infamously depicted as the 'Dark Continent' by the Victorian explorer Henry Morton Stanley[1], this historic metaphor of Africa as 'the other' or being somehow different or inferior relative to the power-bearing west or global north (Jarosz, 1992) continues in relation to topics such as immigration, global wealth and health inequalities, human rights

abuses; also, conservation (Pimm, 2007). Africa's true significance continues to be underappreciated on multiple levels (Figure 1) and is viewed by many as a continent of much potential but little hope, a place that relies disproportionately on aid and instruction from more developed states due to an inability to sustainably manage its own resources and affairs. But does this image reflect reality or a lack of information?

Certainly, a geographical bias exists in reporting on the successful emergence of African states from the post-colonial era to take up a more prominent position in facing the manifold challenges of the Anthropocene. In this respect, positive outcomes in sustainable marine and coastal resource management from Africa is a particularly neglected area (Failler and Ferraro, 2021). There is a persisting narrative that Africa remains a perpetual victim of neo-colonial influences (Langan, 2018; Okafor-Yarwood and Onuoha, 2023), though not entirely without evidence: e.g., Africa suffers disproportionately from the effects of harmful fishery subsidies originating from Europe and Asia (Skerritt et al., 2023).

But not all negative issues originate from outside the continent. It is widely recognised that systemic challenges such as corruption and lack of transparency and accountability undermine good governance in many African nations, which diminish developmental opportunities and deprive African people of a more sustainable and resilient future[2]. Likewise, the way in which political power is shared (or not shared), for example, through exclusion of traditional authorities (Henn, 2022) or marginalisation of women may have profound effects on how people access and manage marine resources.

This Research Topic aimed to uncover evidence that African coastal nations have moved on from being solely victims or policy-takers, to a new position in the traditional world order, e.g., through their embrace of the 'Blue Economy' narrative (Childs and Hicks, 2019; Failler et al., 2020; Okafor-Yarwood et al., 2020). An indicator of such change might include examples of bottom-up initiatives that allow local communities to take control of the resources available to them, or proof of breaking free from externally imposed governance structures or challenging entrenched patriarchal power arrangements.

1.2 Stewardship as an approach to achieving sustainability outcomes

In step with the rest of the world, the African discourse around resource management and conservation is increasingly being expressed in terms of conceptual frameworks with ambitious headline goals for sustainability such as the United Nations Sustainable Development Goals (SDGs), the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), or the Blue Economy (UNECA, 2016; Failler et al., 2022).

The successful implementation of such global development and resource management frameworks will ultimately depend on the actions taken by local actors (individuals, groups, or networks) at a local level (Andriamahefazafy et al., 2022). Such actions and their motivations are usefully framed by the concept of environmental stewardship which describes the interplay between actors, their actions, and the capacity to drive social-ecological outcomes (Barendse et al., 2016; Bodin, 2017; Bennett et al., 2018). Although it may have multiple meanings (Enqvist et al., 2018) in essence stewardship strives to deliver a sustainable future for species, ecosystems, and society (Chapin et al., 2015).

2 Marine stewardship in Africa

Our aim with this Research Topic was to help address the information gap regarding successful adoption of stewardship principles or implementation of stewardship actions in the marine and coastal environment that can or have contributed to positive outcomes in the conservation and sustainable resource management, specifically around the continent of Africa. Examples of the adoption of non-regulatory stewardship approaches or actions for the conservation of marine and coastal ecosystems and their sustainable management can include, but are not limited to: sustainable resource use and co-management, including traditional and community-based approaches; resource monitoring and knowledge production, including the use of traditional or local ecological knowledge and citizen science; preservation and restoration of habitats and ecosystem services at local or regional scales; market-linked mechanisms; and, benefit sharing arrangements.

3 Themes in this Research Topic

Seventeen articles were published under the Research Topic. These could be broadly assigned to the following three themes.

3.1 The role of women in resource management and governance – a gendered response

Women have always been an integral feature in African fisheries; however, in the male dominated societies common across much of Africa, their role and contribution have seldom been acknowledged in policy and research (Okafor-Yarwood and Bhagwandas, 2021; March and Failler, 2022). This does not mean that they do not play a critical role in resource management, but rather that it has rarely been formally documented. Three of the contributions start to address this gap in our understanding of women's role in fisheries management. Chuku et al. highlighted the enormous scale of female involvement in West African fisheries by their finding that close to 571,000 households benefited from shellfish harvesting, undertaken by over 50,000 harvesters, mainly

1 Stanley, H. M. (1890) Through the Dark Continent. London: Sampson Low. [Pdf] Retrieved from the Library of Congress, https://www.loc.gov/item/2021666780/

2 https://www.imf.org/en/News/Articles/2022/06/13/sp061322-governance-and-accountability-in-africa-progress-and-road-ahead

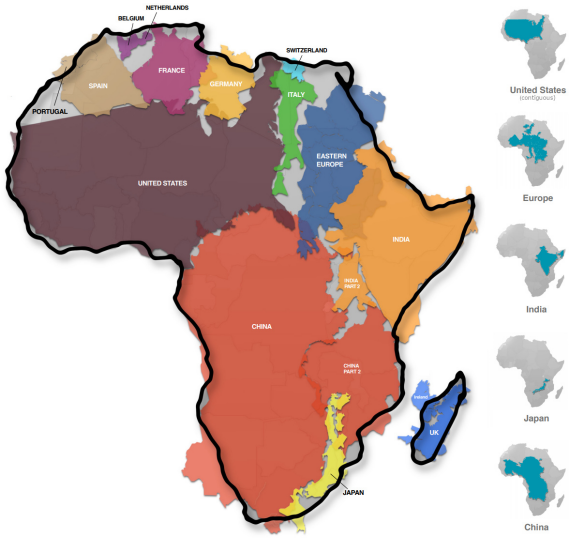

FIGURE 1
Africa's true extent is commonly misjudged due to it not being shown to scale by widely used map projections such as Mercator which may reinforce historical perceptions of its insignificance or inferiority on the global stage (image in the public domain created by Kai Krause).

women. In the Gulf of Guinea, Okafor-Yarwood et al. looked at the contributions of women in fisheries and their resilience in the face of the COVID-19 pandemic while de la Torre-Castro et al. examined the adaptive capacity of women faced with the impacts of climate change in fisheries in Zanzibar. Together these papers not only demonstrate the scale of women's role as critical stewards of marine resources, but also spotlight some of the unique conditions and challenges they face in the highly variable and vulnerable fisheries sector and how to address them.

3.2 Community-based management, and considering local information and knowledge in planning and policy

The importance of integrating local knowledge through participatory processes with community members cannot be overestimated. There is mounting evidence that without effective local community engagement and participation, conservation efforts are unlikely to succeed (Mann-Lang et al., 2021). Strand et al. showed how arts-based participatory research methods were able to co-create knowledge in Algoa Bay, South Africa. They suggested that these methods can help to surface cultural connections to the ocean, and thereby understand ways in which people relate to and care for the ocean and coast, therefore fostering stewardship. In a study in Kenya, Kinyua et al. found that involvement of resource users, in this case artisanal billfish fishers, helped to promote a bottom-up approach to the co-management of billfish which can complement current regional and national efforts which have previously focused primarily on commercial fisheries.

Marine spatial planning, inclusive conservation policy, and evaluation frameworks are crucial for informed decision-making and effective management of marine environments. While acknowledging the contribution of South Africa's Marine Protected Area network in formally protecting marine biodiversity, Peer et al. used case studies to also highlight how the historical approach to protected area management in South Africa has led to the exclusion of coastal communities, and negatively impacted community perceptions of protected areas. They offer several suggestions that could contribute towards a more community-involved approach to the ongoing protection and management of marine ecosystems and biodiversity.

Ogara et al. presented an indicator-based approach for assessing the sustainability of port cities in the Global South, focusing on marine ecosystems and local communities. Smit et al. provided recommendations for overcoming challenges in coastal and marine assessments in developing countries. Thoya et al. examined the concerns of small-scale fishers in Kenya and Tanzania concerning the development of port infrastructure, proposing steps for their meaningful engagement and sustainable fishing practices. The importance of considering demographic and climate change dynamics, such as the scale of migration of artisanal fishers involved in harvesting when designing a management framework for West African small pelagic fisheries, was shown by Dème et al.

3.3 Fisheries management from local to global scale

The use of voluntary certification schemes and market-based mechanisms for fisheries management was the topic of three papers. Oloruntuyi et al. provided a broad overview of all involvement to date of African fisheries with the Marine Stewardship Council (MSC) fishery standard. They show that voluntary environmental standards may be used as a stewardship tool by a wide range of fisheries to achieve improvements, although attaining certification remains an elusive goal for many African fisheries, especially small-scale ones. This is supported by Nyiawung and Erasmus who provided a closer look at two very different fisheries: The Gambian sole and Namibian hake. The former is a small-scale fishery that has been engaged with the MSC standard since 2007 but never achieved certification, while the latter is only the second nearshore fishery to become MSC certified. Both fisheries exhibit the multiple dimensions of stewardship (Care-Knowledge-Agency) through engagement with the MSC. The sole fishery benefited through improved co-management and better cooperation, and thus wider stakeholder involvement in stewardship activities. For Namibian hake, apart from gaining access to premium export markets, certification has improved management of a shared hake stock with neighbouring South Africa and promoted the adoption of an ecosystem approach to fisheries management. While global ecolabels may not have gained a significant foothold in African seafood markets, Glass et al. found that there may be space for designing and implementing locally relevant seafood labelling programmes (e.g., linked to the tourism sector). Provided that

there is broad consultation on economic, social, and cultural aspects and an acknowledgement of location-specific differences (Nthane et al., 2020), market-based approaches and certification may offer a viable way to engage with the Blue Economy and SDGs.

Although there may be doubt about the prominence of Africa on the global stage and its ability to take on established power arrangements, the management of highly migratory fish stocks provides an interesting case study. The importance of tuna resources for African countries is demonstrated by Oloruntuyi et al. who reported that 18 different tuna fisheries have engaged with the MSC, many now certified. These fisheries have complex configurations: many operate across multiple EEZs and the high seas, some include foreign flagged vessels, and they use a wide variety of fishing gears and practises, including fish aggregating devices (FADs). This echoes the complexity of the management systems in place for tuna resources in the form of Regional Fishery Management Organizations (RFMOs). Perhaps nowhere does this play out more strongly than on the management stage of the Indian Ocean Tuna Commission (IOTC) where, as discussed by Sinan et al., a grouping including several African nations have started to stand up against the might of the European Union fishing interests by opposing certain fishing practises[3,4].

4 Conclusion

African coastal nations are beginning to adopt holistic approaches such as the Africa Blue Economy Strategy to set the agenda for its sustainable development over the next decades. This will require the adoption and implementation of diverse stewardship actions by multiple actors at different scales.

Given the extent of environmental degradation and magnitude of challenges associated with global climate change, the analysis by Kimeli et al. on how sea level rise might impact important mangrove forests is a timely reminder that holistic management and quality empirical data are crucial elements for designing lasting adaptation and restoration strategies. A real-world example is provided by Murray et al. who showcased how telemetry data generated by South Africa's Acoustic Tracking Array Platform (ATAP) can promote effective ocean stewardship by allowing engagement with stakeholders and contributing to species and habitat conservation.

Some 'Blue Projects' from Africa have highlighted that positive outcomes can be achieved through local communities' involvement, and by considering sustainability in its broadest sense (ecological, economic, socio-cultural, and institutional) (Okafor-Yarwood et al., 2020). On the other hand, these projects can also have negative impacts on the livelihoods of some communities or pitch different sectors against each other, e.g., industrial vs. artisanal fishers (March and Failler, 2022; Ayilu, 2023; Ayilu et al., 2023).

For some small-scale fishing communities, not enough has been done to integrate traditional management with policy, therefore allowing fisheries to fish down the food web as demonstrated by Gough et al. in western Madagascar. Failure to adapt to change could threaten food security of already struggling communities. This emphasises the need for any sustainability solutions to also be equitable (Folke et al., 2021).

Many of the contributions make a strong case for less reliance on external drivers in favour of home-grown African stewardship solutions to global environmental challenges. More research is required in this area: perhaps recent attempts to quantify and develop indicators for coastal stewardship actions and their motivations (Turnbull et al., 2020a; Turnbull et al., 2020b) may be helpful in framing such analyses in an African context.

Author contributions

JB wrote the first draft of the manuscript. PF, JM-L, and IO-Y wrote sections of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

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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.

Publisher's note

3 https://www.politico.eu/article/environmental-cash-for-fish-eu-flashes-green-money-to-support-indian-ocean-tuna-grab/.

4 https://www.bluemarinefoundation.com/2023/05/10/legal-action-launched-against-the-european-commission-for-its-objection-to-iotc-fads-resolution/.

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