

COMMENT OPEN



Local marine stewardship and ocean defenders

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Local marine stewardship initiatives and ocean defenders are at the forefront of ocean sustainability efforts, yet often receive insufficient recognition and support. We make five recommendations to bring greater attention and support to local marine stewardship and ocean defenders in research, policy, practice, and funding.

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INTRODUCTION

“As guardians of our inland and coastal fishing grounds, we are cooling the planet, protecting our ocean and lakes, and maintaining healthy marine ecosystems and biodiversity. Our fishing methods, Indigenous and traditional knowledge, and intergenerational wisdom deeply embedded in our fishing culture is the backbone for sustaining nature and life for generations to come.” - World Forum of Fisher Peoples¹

Recent years have seen growing attention to the role of local environmental stewardship and environmental defenders in protecting nature and safeguarding the basic human right to a healthy environment. Environmental stewardship refers to actions undertaken by various groups and communities to sustainably use, manage, protect or restore species, habitats, or ecosystems². International conservation policy bodies, non-governmental organizations (NGOs), and governments alike are increasingly recognizing the importance of environmental stewardship, conservation, and restoration efforts led by Indigenous Peoples and local communities^{3–5}. Environmental defenders are defined by the United Nations (UN) as “individuals and groups who, in their personal or professional capacity and in a peaceful manner, strive to protect and promote human rights relating to the environment, including water, air, land, flora, and fauna”⁶. Many environmental defenders are representatives of racially, gender, and ethnically diverse groups historically subjected to processes of socio-economic marginalization who seek to protect their lands, resources, and ways of living from exclusionary, extractive, and destructive activities⁷. The plight of environmental defenders is also a matter of international concern, considering their frequent criminalization, and the rising number of threats, violent assaults, and murders^{8,9}.

To date, however, much less attention has been given to local environmental stewardship and environmental defenders in the marine and coastal environment. The idea of ocean stewards or defenders is frequently associated with individuals or organizations far from the ocean, not directly affected by the degradation of marine environments, and peripherally engaged in on-the-sea actions to protect the ocean. Yet, those most actively involved in

and impacted by ocean protection are groups or communities who live near, have rights to, or rely on the ocean for subsistence, livelihoods, and wellbeing. This comment aims to bring greater attention and support to the grassroots marine stewardship initiatives and the local ocean defenders who are at the forefront of ocean sustainability efforts. We do so by exploring types of marine stewardship initiatives, highlighting the challenges being experienced by ocean defenders, and identifying key recommendations for moving forward to better recognize and support local marine stewardship and ocean defenders.

MARINE STEWARDSHIP

Marine stewardship refers to actions to sustainably use, manage, protect, or restore the marine and coastal environment. This might include, for example, management of local fisheries (through establishing gear restrictions, catch limits, or size rules), protection of certain areas or species (through area closures, temporal closures, species restrictions), or restoration of habitats or important ecological areas (such as wetlands, mangroves, coral reefs, spawning areas). Locally driven efforts to manage, protect, or restore coastal and marine resources, biodiversity, and critical habitats have been documented around the world (Table 1; Supplementary Table 1). For example, small-scale fishers have collaboratively implemented gear and harvesting rules to manage their own fisheries¹⁰, coastal communities have created locally managed marine areas to balance sustainable use and marine protection¹¹, and Indigenous Peoples have established complex institutions and management regimes to protect marine resources¹². Women, youth and elders play a central, albeit often unrecognized, role as leaders and managers in marine stewardship efforts¹³.

Local marine stewardship practices are often the continuation or resurgence of long-standing or customary practices, that have developed over time, based on traditional knowledge, religious or cultural beliefs (e.g., taboo areas), and an intimate connection to place^{14,15}. Other local stewardship initiatives – such as the creation of community-based marine protected areas¹⁶, climate change mitigation efforts linked to the protection of mangroves or seagrass to sequester carbon¹⁷, and the restoration of coastal wetlands to provide a buffer against flooding or rising sea levels¹⁸

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Table 1. Examples of local marine stewardship activities (see Supplementary Table 1 for details).

Activity	Details
Locally managed marine areas (LMMAs)	Coastal and marine areas managed by nearby communities to balance the use of marine resources and protection of biodiversity. LMMAs are characterized by local control and autonomy, but may receive support from governments or partner organizations.
Indigenous and community conserved areas (ICCAs)	Territories or areas voluntarily established and managed by Indigenous Peoples or local communities, through customary laws or other means, to protect ecosystems, biodiversity, ecosystem services, and cultural values. ICCAs include tribal parks, territories of life, Indigenous protected and conserved areas, Indigenous protected areas.
Community-based marine protected areas (CBMPAs)	Coastal and marine areas in which harmful activities are restricted and human use is managed for the purposes of biodiversity protection. CBMPAs are implemented and managed by communities, sometimes with support from governments or other organizations.
Community-based fisheries management (CBFM) and natural resource management (CBNRM)	Community-driven and customary approaches to manage fisheries and marine resources by coastal communities and small-scale fishers' organizations. Governance and management activities, including decision-making, negotiating access, enforcing rules, resolving conflicts, and restoration actions, are based on local customs and traditional knowledge. Some management measures, such as area or species taboos, are enacted based on cultural or religious beliefs and practices.
Community-based coastal adaptation and mitigation	Community-driven efforts to adapt to the effects of climate change using nature-based solutions (e.g., saltmarsh restoration as a defence against flooding) or to contribute to mitigation efforts (e.g., locally driven carbon sequestration projects in seagrass or mangrove areas that provide economic and livelihood benefits to communities).
Local coastal ecosystem restoration initiatives	Activities or processes that support degraded or destroyed marine ecosystems (e.g., mangroves, seagrass meadows, coral reefs, beaches) to recover using local knowledge, capacity, and approaches.
Local food cultivation through area or species management	Active management of certain areas, habitats or species by local and Indigenous communities for the purpose of food production and subsistence (e.g., clam gardens in Canada, traditional fishponds in Hawaii).

– have emerged more recently in partnership with networks of communities and organizations, in order to capture the economic benefits from new carbon markets, or in response to emerging climate threats. Despite the contributions of local stewardship initiatives to a sustainable ocean, these efforts are often not formally recognized nor sufficiently supported by national governments.

OCEAN DEFENDERS

Ocean defenders are individuals and groups who defend and protect the marine and coastal environment and the human rights of coastal populations against existential threats. Coastal environments and populations can, for instance, be threatened by the incursion or impacts of ocean-based economic development, the legal or illegal dumping of pollution or hazardous wastes, or the over-harvesting of local marine resources by external actors^{19,20}. Various activities of the ocean economy – including oil development, aquaculture, marine tourism, land reclamation, port development, windfarms, and top-down blue carbon projects – can displace coastal populations from areas that they have historically used or negatively impact marine resources (e.g., mangrove areas, shellfish, water quality) that certain groups (e.g., small-scale fishers, coastal Indigenous populations, women) rely on for food security, livelihoods, health and socio-cultural wellbeing^{19,20}. Some coastal populations, including Indigenous Peoples and Black communities, may be more likely to experience the impacts of marine pollution due to the siting of development projects near their communities or the dumping of waste in certain geographies²¹. Distant-water fleets, industrial fisheries, and the incessant appetite of aquaculture for feed can drive over-fishing or encroachment of illegal fishing into the traditional fishing grounds of small-scale fisheries^{22,23}.

Understandably when these activities threaten human rights to a healthy, productive, and sustainable marine environment²⁴, this can be met with strong and vocal resistance by coastal dwellers, rights-holders, and resource users. Ocean defenders employ various tactics to oppose, resist and defend their marine environment and rights, including mobilizing social networks for collective action, organizing protests and occupations, researching and documenting the issues, communicating with media and raising awareness of the public, advocating for policy change or corporate responsibility, and engaging in legal battles²⁰ (Fig. 1 and Supplementary Information). Where there is insufficient government will or capacity, ocean defenders may take monitoring and the enforcement of laws into their own hands. These resistance strategies can have varying levels of success. For example, among 426 documented 'fisher peoples mobilizations' (which includes both marine and freshwater examples) over the 2005–2020 period in the Environmental Justice Atlas, 61 had outcomes deemed a success for local communities, while 212 failed to achieve the aims of fishers and 152 had unclear outcomes²⁵. Ocean defenders have received violent threats, been physically assaulted, and have even been murdered for taking a stand²⁰. Fisherfolk and human rights activists in the Philippines, for example, have been murdered for resistance to the construction of tourist resorts, associated forced displacement of coastal residents, and opposition to the privatization of communal fishing waters²⁶ (Fig. 1).

RECOMMENDATIONS FOR MOVING FORWARD

In order to bring greater attention to and support for local marine stewardship and ocean defenders, we make five key recommendations: (1) Raise the profile of local marine stewardship and ocean defenders; (2) Recognize and provide support for local marine stewardship efforts; (3) Protect ocean defenders and increase accountability; (4) Employ marine social science to understand marine stewardship and ocean defenders; and (5)

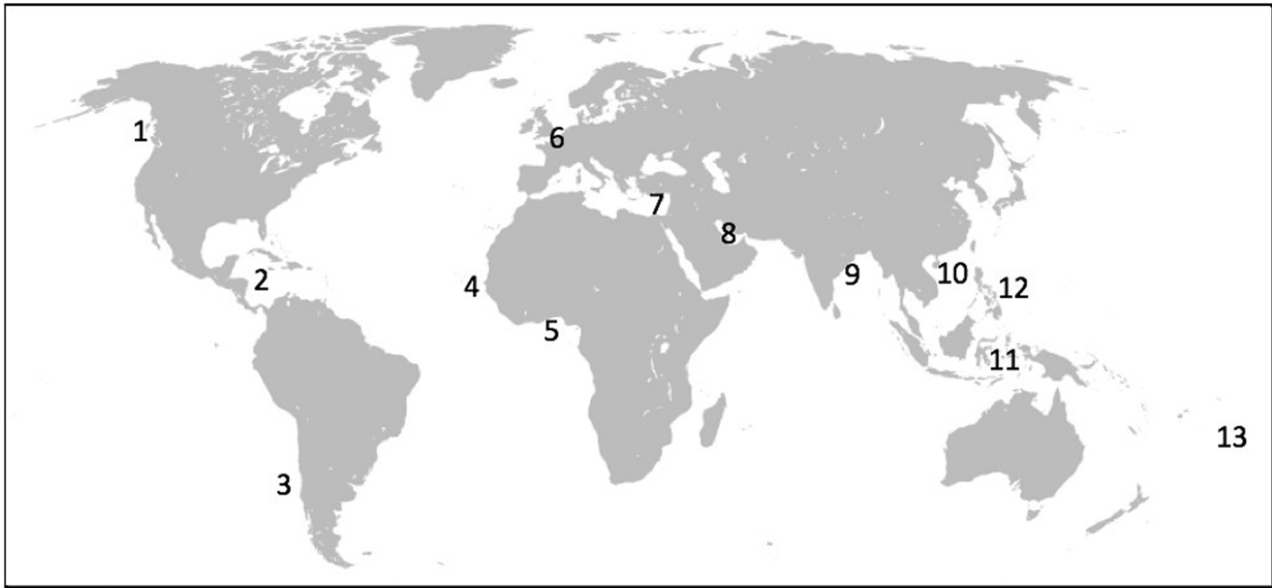


Fig. 1 Global examples of ocean defenders' struggles to protect their environment and rights. 1. Heiltsuk Indigenous First Nation protest and close commercial herring fishery in Canada. 2. Raizal small-scale fisherfolk in Columbia denounce post-hurricane reconstruction undermining their livelihoods and coastal ecosystems. 3. Chilean artisanal fisherfolk protest industrial pollution of coastal waters. 4. Senegalese fisherfolk oppose licenses for Chinese and Turkish vessels to fish overexploited small pelagic fish. 5. Nigerian fisherfolk denounce oil spills and call for clean-ups in the Niger Delta region. 6. French fisherfolk push back against British vessels harvesting scallops during the off-season. 7. Palestinian fisherfolk denounce brutal water access restrictions by Israeli forces leading to overfishing in nearshore areas. 8. Bahraini fisherfolk protest against coastal land reclamation projects. 9. Bangladeshi small-scale fisherfolk and coastal populations oppose shrimp farming. 10. Vietnamese fisherfolk and coastal residents demonstrate to demand an immediate stop of toxic effluents by a Taiwanese steel plant. 11. Indonesian fisherfolk demonstrate against sand mining in South Sulawesi. 12. Filipino fisherfolk associations denounce illegal fishing threatening their livelihoods; secretary of the Saghay Tuna Fishing Association, Gerlie Alpajora, murdered in 2015. 13. Cook Island traditional leaders and fisherfolk push for a moratorium on seabed mining.

Mainstream local marine stewardship in and through international policy. Local marine stewardship efforts can contribute to global ocean sustainability efforts. However, these efforts and individuals are often insufficiently recognized and under supported by governments and the marine conservation community, and even marginalized by mainstream ocean sustainability efforts. At the same time, ocean defenders are under threat for actively opposing activities that are harmful to the marine environment and people's rights. To overcome these challenges, we recommend to:

1. *Raise the profile of local marine stewardship and ocean defenders* – The focus of the marine conservation community is often on promoting government-led or environmental NGO-led efforts to protect the ocean. In general, discussions of environmental defenders fail to adequately consider those who are active in protecting the marine and coastal environment. Therefore, we need to better document local stewardship initiatives and resistance efforts related to the ocean, and amplify the stories and voices of the individuals and communities who are taking action and risking their lives to protect the marine and coastal environment. This work should be done in collaboration and solidarity with individuals, communities, and civil society organizations – to ensure that it is not perpetuating colonial conservation and instead accurately identifying the root causes of the problems and portraying the purpose of and approach to protecting and restoring the ocean²⁷. Including, funding, and foregrounding representatives of local communities and civil society organizations in global policy fora and deliberations will help raise the profile of ocean stewards and defenders and link the struggles of defenders from local to global scales. The plight of ocean defenders should be explicitly highlighted in international discussions of environmental defenders.

2. *Recognize and provide support for local marine stewardship efforts* – Greater recognition and support is needed to enable and promote local marine stewardship efforts. Governments, conservation NGOs, and philanthropic organizations need to place local stewards – including coastal communities, small-scale fishers, Indigenous Peoples, and women – at the forefront of efforts to safeguard the ocean. Governments can bolster local stewardship initiatives through creating enabling policies, which explicitly recognize marine and coastal tenure and rights and back community-led initiatives^{4,28}. Allied organizations should support local leadership and organizational capacities, fund local guardians, and facilitate stewardship networks and learning exchanges. Careful listening to local partners is vital to ensure that the support provided is directed to locally identified needs.
3. *Protect ocean defenders and increase accountability* – Weak state governance and profit-driven coastal development and large-scale marine resource exploitation create a high-risk context for those seeking to protect local ecosystems, traditional livelihoods, and cultural values^{19,20}. Ocean defenders deserve greater protection from dispossession, criminalization, and outright repression. Actions to address legal, governance, and corporate shortcomings include: (1) addressing the root causes of socio-environmental conflicts, including biased investment laws, pervasive corruption, and police repression threatening marine ecosystems and the safety of traditional coastal communities; (2) recognizing and advocating for the rights of ocean defenders, including through free, prior and informed consent processes, grievance mechanisms, and inclusive forms of governance enabling the suspension of harmful projects; (3) providing support to improve the security of ocean defenders and their communities; and, (4) ensuring greater accountability

for abuses against ocean defenders and ocean spaces through systematic monitoring, reporting, and judicial procedures⁹.

4. *Employ marine social science to understand marine stewardship and ocean defenders* – Research can help us to better understand local marine stewardship and ocean defenders and can provide critical insights to help policy-makers, practitioners, and funders effectively support local efforts and actors. The marine social sciences, in particular, can be employed to typify ocean stewardship efforts around the globe, analyze the factors that support or undermine success, characterize ocean stewards and ocean defenders, and document the struggles of ocean defenders. Critical examinations of the economic and political forces driving exclusionary and destructive ocean economy activities and producing human rights abuses and violence can help support necessary policy reforms^{19,20}. Ethical considerations are paramount in these engagements to ensure that research reduces rather than increases risks to ocean defenders²⁹. Research in this area can make an important contribution to the [UN Decade of Ocean Science for Sustainable Development](#).
5. *Mainstream local marine stewardship in and through international policy* – Local marine stewardship efforts can support the achievement of international marine conservation objectives (as established in the [Convention on Biological Diversity](#) or the [UN Sustainable Development Goals](#)), contribute to climate change adaptation and mitigation measures (in support of the [UN Framework Convention on Climate Change](#)), and advance restoration efforts (as part of the [UN Decade on Ecosystem Restoration](#)). While many international policy bodies explicitly recognize the importance of small-scale fishers, Indigenous Peoples, and local communities to the achievement of global goals within policy and programmatic documents^{3,5,30}, institutions such as the International Union for the Conservation of Nature, the Convention on Biological Diversity Secretariat, and the Food and Agriculture Organization of the United Nations could and must go further to promote and advance local stewardship. For example, they should establish coordinating units to document and share localized efforts, facilitate the participation of local actors in global meetings, and produce clear guidance on how countries can recognize and support local management, biodiversity conservation, restoration, and adaptation efforts. These global policy initiatives might also play a central role in setting up financing mechanisms that support the financial independence of grassroots organizations.

FINAL THOUGHTS

While ocean stewards and defenders are diverse, they are united in their care for and protection of the marine environment, the resources that they depend on, their territories, and their way of life for present or future generations. The five specific recommendations identified here are intended to raise the profile of and bring greater support for local marine stewardship and ocean defenders in research, policy, practice, and funding. Through their efforts, local ocean stewards and defenders contribute to the achievement of ocean sustainability. By building solidarity with and supporting local marine stewardship efforts and ocean defenders, the ocean sustainability community can promote and advance a more inclusive, just, and sustainable ocean.

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COMPETING INTERESTS

The authors declare no competing interests.

ADDITIONAL INFORMATION

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