

Headline:

More sustainable small-scale fisheries can help people and the planet

Subheadline

Artisanal fishing can improve livelihoods, boost nutrition, and strengthen food systems, but fishers' input is needed locally, nationally, and globally

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NB: There is no reference 4, but I haven't renumbered because I think they might move around

Globally, one in ten people relies on fisheries or aquaculture for their living; 97 percent of them in the developing world [1]. For some 17 percent of the world's population, fisheries and aquaculture provide the main source of animal protein. For low-income food-deficit countries and developing -island states it's almost 25 percent [1].

As the population rises, the demand for seafood is expected to rise too. Already, areas such as Africa and Asia have seen fish production double over the past few decades. Globally, fish consumption is set to rise some 15% by 2030 [2].

And while ocean ecosystems are strained by climate change, over-fishing, and more, studies nevertheless suggest seafood can be expanded sustainably to meet future food demands [3]. Last year, international efforts promoting this included the Blue Foods Assessment (a joint initiative of 25 research institutions) and the United Nations Food Systems Summit.

Success will depend on small-scale fisheries. Small operations tend to deliver both food and income directly to the people who need them most, and locals have a strong incentive to make their practices sustainable. What's more, these fisheries can be remarkably efficient. 80% of industrial fleets' fish catches are wasted, mainly because of unwanted bycatch [4]. Almost everything hand-to-mouth fisheries catch is consumed. So, while, large-scale operators land more fish, small-scale fisheries provide a larger share of the fish actually consumed.

But small fishers rarely have the right resources to expand, or even to survive. Also, if small fishers ramp up, they might lose some of their current advantages or engage in the same harmful practices of large commercial fisheries. Managed with care, though, small fisheries could provide win-wins for livelihoods and the environment.

As someone who has studied food security and policy-making for decades, here is how best to support and strengthen artisanal fishing operations.

Small reforms OR Reform small

In recent years, the potential and importance of small-scale fisheries has been increasingly recognized. In 2015, the UN's Food and Agriculture Organization (FAO) provided voluntary guidelines to support sustainable small-scale fisheries aimed at improving food security and eradicating poverty. A forthcoming report by FAO, Duke University, and nonprofit WorldFish

concludes a remarkable initiative to collate case studies, questionnaires and datasets to help get fishers a seat at policy tables. The United Nations General Assembly has declared this the International Year of Artisanal Fisheries and Aquaculture.

Most nations already have management policies for marine ecosystems that provide for small-scale fisheries. In India, Indonesia, Malaysia, and Sri Lanka, for example, there is a ban on trawling within five miles of the coastline to prevent industrial fishers from scooping up large catches, protecting those regions for local fishers. Countries such as Costa Rica exempt small-scale fisheries from licenses to ease access; Angola exempts subsistence and artisanal fishers from paying licensing fees [5].

But this is not enough. Small fishers' rights to access are often poorly defined, ineffectively enforced, or unfairly distributed [4]. The boundaries of Exclusive Economic Zones—the part of the coast belonging to a given nation—are often poorly policed, and large-scale vessels commonly swoop in and take sea life through bottom trawling, something small fishers' seldom practice. Large-scale bottom-trawlers account for 26% of the global fisheries catch, with 99% in the exclusive economic zones of coastal countries [6]. These zones are often poorly enforced. Even when there are well-meaning policies to protect local fishers, foreign vessels take advantage. A 2018 investigation by the Environmental Justice Foundation found that around 90% of Ghana's industrial fishing fleet was linked to Chinese ownership, despite laws expressly forbidding foreign ownership or control. More recently, a Spanish trawler operating in South African waters and registered to a local company that also served as a front for multiple international vessels. Clear definitions of 'fisher,' 'fishing,' and 'fishing vessel' that make provisions for small fishers' could help (a bit) to avoid such abuse.

Government subsidies also require reform. One estimate found that large-scale fishers receive about 3.5 [see <https://www.frontiersin.org/articles/10.3389/fmars.2020.539214/full>] times more subsidies than small-scale fishers [7], widening advantages of vessels, infrastructure (including cold storage), gear, processing capacity and access to cheap fuel. By giving large operations the capacity to catch even more, these often have the perverse effects of encouraging overfishing [8]. Instead, subsidies and other funds should be directed toward small-scale fishers to let them expand their access to markets while keeping them from adopting negative practices of large-scale operations.

More for consumption

The total global loss from fisheries is estimated between 30 percent and 35 percent annually [1]. This could get worse as smaller operations broaden their markets. A 2015 estimate of the Volta Basin coast in West Africa attributed 65% of post-loss markets to lack of technology, good manufacturing practices, and lack of infrastructure such as good roads and cold storage [9]. The fish was rarely lost to physical damage. It mainly spoiled [9]. This limits sale of fish locally and to more distant markets.

Public and private investment in cold storage facilities and processing equipment (such as drying, fermentation, pickling or smoking) could help. But while development partners, regional banks, the World Bank, private foundations and other agencies fund fishery conservation

projects and even provide microloans to small-scale fisheries, efforts are uncoordinated and inadequate.

One promising strategy is to pair international or national funding with direct contracts for feeding programs linked to schools, hospitals, and similar entities. Such arrangements provide small fisheries with both large, consistent markets and storage infrastructure that boosts local consumption and does not incentivize overfishing.

Other strategies pair local fisherfolk with conservation efforts. As operations scale up, fish entrails and other waste cannot simply be thrown into the sea to be absorbed by the local ecosystem. Care must be taken not to contaminate the environment. One option is to fund projects designed to restore ecosystems with side-benefits for local fisheries, such as establishing ecologically-sensitive processing facilities. For example, the Mikoko Pamoja (Mangroves together) project in Gazi Bay, Kenya, restores and conserves degraded mangroves in order to earn saleable carbon credits, while also enhancing the fishery grounds for the local community.

Consumers could support small fisheries by buying local. Shorter supply chains mean more income for small fisheries. Ecolabelling could encourage consumer support for small fisheries. However, certification is costly to obtain and maintain through compliance with certification requirements and monitoring and reporting. Certification can distort market opportunities, effectively excluding small enterprises from entering international markets. These programs can also have unintended consequences. Most certification programs focus on environmental sustainability and pay less attention to social responsibility elements such as fairness in access to resources, markets and wages.

Simple incentive programmes could be implemented by funders, managers and local governments trying to promote more sustainable fisheries. For example, local markets could be encouraged to display a rating system for individual fishers or small entrepreneurs. This rating could include various elements of sustainability, for example, the type of gear, location of the catch and freshness. Socialisation of the rating would inform consumers of the need to support sustainable fisheries. The rating could be carried out by members of the community trained in inspection and enforcement of the system.

Local control

Diverse efforts are needed protect small fisheries' access, boost local consumption, and reduce waste, and they must all be tailored to local community conditions. The United National Food Systems Summit of 2021 was a "peoples' summit" that elevated roles for Indigenous peoples and civil society groups; however, the voice of fishing communities specifically was missing.

Due to the sectorial organization of most governments, very few take an integrated approach to policy development, implementation and enforcement. For example, policies governing urban development tend not to consider their implications on the ocean, fish and fishers. For example, traditional public fishing zones along the beachfront in the city of Durban, South Africa were banned from fishing in the port and from beach piers following upgrading of the port and port infrastructure and the development of a private yacht marina and hotel.

Cooperatives can help on several fronts: coordinating fishing activities, sharing information (about weather, sea conditions or fish movement), and effectively advocating for human and social rights. In Costa Rica, CoopeSolidar, a small-scale fisheries management cooperative, has helped strengthen collective action to sustainably use mollusks, alleviate poverty, and strengthen representation of women and youth. Governments can help by creating a legal framework to establish cooperatives and include them in decisions to manage marine resources.

Local communities can also stand up for themselves. Class action by a group of 5,000 artisanal fishers in South Africa argued against a policy they claimed did not give them the recognition or the access to food and fishing rights as established in the country's constitution. The court ruled in their favor and the framework granted small-scale fishers collective community fishing rights, recognizing members of SSF communities as *bona fide* fishers [10].

Integrated inputs

Of course, smaller fisheries do not operate in isolation. Unlike terrestrial resources, the ocean is an extensive, global commons without clear territorial boundaries. Fish do not require visas to cross borders. Issues as diverse as climate change, ocean acidification, overfishing, plastics, and chemical and nutrient pollution all impact local fishers. But system interactions get scant attention as fishery policies focus on single seafood stock or fishing areas. Policies governing urban sprawl, for example—as has happened in East and West Africa—tend not to consider their implications on the ocean and fish.

While the concept of integrated land management has been part of the development agenda for a few decades, integrated marine management is only now emerging. To work, it must include all relevant stakeholders, including small-scale fishers. The context-specific adaptation strategy is seen in the Seychelles is a leading example of such integration. Communities, financing partners and the government worked together to create the Seychelles Marine Spatial Plan, which protects 30% of the archipelago nation's waters and boost climate resilience. Seychelles faces significant threats from rising sea levels and higher air and water temperatures that put fisheries, infrastructure, tourism and her rich biodiversity at risk. In the Coral Triangle region (Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands and East Timor), local communities' input into a marine protection plan led to a greater understanding of how practices like overfishing and catching undersized stock sustained marine and coastal resources and also incorporated food security, climate change and threats to marine biodiversity. For example, the cooperation of fishing communities and the governments in the management of marine protected areas is essential to the preservation of fish stocks for future [11].

Fishers should be actively engaged in UN, national and local councils, and any other meetings to weigh in on anything that affects access to their fishing sites, livelihoods, and environmental concerns. Both fishers and organizers must help build empowerment mechanisms to make sure their voice is heard, such as providing translation services and scheduling meetings at convenient sites when the boats are in and women do not have child care responsibilities. This is important not just for the fishers' human rights but also because much can be learnt from artisanal fishers' local knowledge.

Moves that would, say restrict fishing season or areas so that stocks or biodiversity can recover, should routinely include compensation mechanisms that will secure fishers' cooperation and livelihoods. Social protection measures such as food and income assistance can also help tide fishers over.

When fish swim in schools, they move more efficiently, forage better, and are protected from predators. The same might be said for small-scale fishers, but those networks should extend to the local and international communities too. Collaborative problem solving and an integrated food system can deliver seafood protein, sustainably, to a world that will need it more and more.

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