

Increasing social and ecological resilience of coastal fisheries



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More than 775 million people have high dependence on marine ecosystems for nutritional, economic and coastal protection benefits,¹ including via small-scale fisheries. Small-scale fisheries, of which around two thirds are marine, produce almost half the fish consumed in low- and middle-income countries and directly employ 60 million people, with a further 53 million fishing for subsistence purposes.² With appropriate governance, coastal fisheries contribute to and can improve the well-being, food and nutrition security, and livelihoods of millions of people. However, the resilience of coastal fisheries and well-being of coastal communities is undermined by distal (e.g. climate change, geopolitics) and proximate (e.g. unsustainable fishing, land use changes) drivers. Research that develops technical, social and institutional innovations within specific contexts can help build adaptive capacity and enhance sustainability when also accompanied by improved regional, national and local governance.

The CGIAR Research Program on Fish Agri-Food Systems (FISH) aimed to increase resilience in (i) the reef-dominated fisheries of **small island, large ocean, Pacific nations**, (ii) the nearshore pelagic and reef fisheries of **island Asia, particularly Timor-Leste**, and (iii) the transnational river-coastal **hilsa fisheries of Bangladesh and Myanmar**.³ Across these distinct fisheries systems, FISH aimed to

1. improve comanagement models for equity, nutrition and social-ecological resilience;
2. develop and scale livelihood improvement strategies;
3. understand and manage distal drivers and trade-offs along coasts alongside new knowledge on values of small-scale fisheries.

Tailored comanagement innovations for enhanced equity, nutrition and social-ecological resilience

Comanagement is a human-rights based approach to govern resources that ensures formal government is involved in inclusive and transparent decision-making processes with resource users.

Key messages

- Small-scale coastal capture fisheries produce almost half the fish consumed in low- and middle- income countries and employ more people than all other ocean economic sectors combined, but their resilience is undermined by distal and proximate drivers.
- Comanagement of small-scale coastal and inland fisheries contributes to social, economic and environmental objectives, but evidence and outcomes for gender equity, nutrition and social-ecological gains are lacking. Methodological, technical and governance innovations (e.g. handbooks for gender equity and social inclusion, fish aggregating devices, compensation schemes for fishery closures) can help progress these outcomes.
- Participatory diagnostic tools that harness voices from local organizations, coastal communities and women's groups can guide sustainable and appropriate improvements to fish-based livelihoods.
- Increasingly on coasts, the scale of changes or shocks exceed the reach or impact of comanagement or local livelihood interventions. Structural adjustments or responses must be well informed to navigate trade-offs in response.

Comanagement is a mainstream approach to govern small-scale fisheries and is supported by multiple global, regional and national voluntary and binding policies. The [Illuminating Hidden Harvest Initiative](#), of which FISH is a partner, found that more than one-third of small-scale fisheries are governed with provisions for comanagement.² Comanagement contributes positively to a range of social, economic and environmental objectives, yet evidence and outcomes toward gender equity, food and nutrition security, and medium-term ecological or productivity gains [have been lacking](#). FISH focused on addressing these weaknesses by developing a bundle of innovations for more inclusive



FISH research reiterated three pathways for improving livelihoods: (i) revitalize Indigenous knowledge and stewardship, (ii) foster comanagement and (iii) empower women.¹¹ These lessons reinforce the concept that livelihood improvements can be addressed by technical and financial improvements only when delivered with attention to individual and societal [barriers and aspirations](#).

New knowledge to navigate opportunities and trade-offs in response to global change

To be resilient, management, livelihoods and food systems must anticipate and adapt to risks and opportunities that emerge, even at a distance. FISH examined global and structural drivers and shocks, the nature and limits of adaptive capacity, and equitable governance responses, particularly under climate change and COVID-19. FISH identified the [social determinants of adaptive and transformative responses](#) to climate change and exposed the [assumptions that perpetuate gender inequities](#) in climate responses. FISH developed a novel approach to understand and build adaptive capacity in [coastal systems](#) and [other fisheries settings](#). Yet FISH investment in climate change adaptation in coastal settings was modest relative to the scale and scope of impact, and it requires greater, urgent attention in future programming. The onset of COVID-19 tested the flexibility of the adaptive capacity framework, which was applied during the COVID-19 pandemic using [responsible, remote, qualitative research methods](#) to illuminate the lived experiences of coastal communities and fish supply chain actors in [Ghana, Kenya](#), Papua New Guinea, [Solomon Islands](#) and across [sub-Saharan Africa](#), complementing the [insights on fish production volumes and price](#).

In Bangladesh, [84 percent of fisheries landings](#) come from small-scale, artisanal fisheries, but industrial and illegal fishing increasingly encroach on small-scale fishing grounds and resources. An influx of 1.1 million refugees in the Bay of Bengal presents a humanitarian crisis in and of itself, but it has also intensified pressures on coastal fisheries resources and competition for livelihoods. Here, FISH plays a brokering role, bringing fisher groups together with government actors to raise concerns and identify required actions, including strengthening enforcement of new regulations dividing small-scale and industrial fisheries zones at the 40 m depth contour. The geopolitical, demographic and economic shifts in the Bay of Bengal are increasingly pertinent to other coastal areas and demonstrate the need to build governance capacity across levels and sectors to effectively navigate instability and change.

The [power and pace of interests in conservation or economic development of coastal areas](#) intensify risks and trade-offs between the conservation, economic gains, food and nutrition security and well-being of coastal communities. FISH examined these [trade-offs and synergies](#) and identified, for example, where economic gains from international fish trade were prioritized at the cost of [nutritional needs of coastal communities](#). From empirical [perspectives of communities](#) confronting change, FISH also developed new insights on environmental justice in coastal systems. This was reflected in FISH contributions to the [High Level Panel for a Sustainable Ocean Economy](#), arguing that *“a sustainable ocean economy should protect human rights, improve human well-being, stimulate inclusion and gender equity, and prioritise recognition, diversity and equal access to resources...”*

Powerful marine actors signal increased sensitivity to human rights, food and nutrition security, and gender equity, yet [concerns about the integrity and impact of their approaches](#) remain—particularly among civil society groups and social movements representing fishers and fish workers. With SwedBio, the Food and Agriculture Organization, and the Small-Scale Fisheries Global Strategic Framework Advisory Group, FISH hosted a [series of webinars](#) to increase capacity and mutual understanding among environmental nongovernmental organizations, marine funders and civil society in relation to the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication, human rights-based approaches, gender equality, and climate change and disasters. Exchanges on similar topics have been facilitated in many FISH focal countries, and global dialogues will continue throughout the International Year of Artisanal Fisheries.

Future directions

Policy and investment

FISH delivered a range of findings and innovations that promote more effective fisheries management and more inclusive governance of coasts in transition. The translation to more enabling policy environments is emerging,¹² but requires sustained attention and longer evaluation timeframes.

Preserving the social, ecological and economic values of rural and coastal social-ecological systems necessitates better and more equitable access to information and services for women and men, improving peer-to-peer learning to foster innovation, and building cross-level accountability and response by public and private sectors.

Mounting pressure on coastal systems necessitates continued commitment to (i) sustaining the resource base upon which these livelihood and food values are built, (ii) enabling coastal actors to continue their roles in ensuring fish agri-food systems deliver positive outcomes, and (iii) ensuring the broader well-being, food and nutrition security, livelihood aspirations, and tenure rights for coastal communities. Policy and investments that also commit, and genuinely adhere, to principles of upward and downward accountability, knowledge co-production, inclusive and equitable governance, and open dialogue to navigate trade-offs transparently are all critical.

Future research

Both legacy strengths and funding restrictions led FISH to focus efforts on coastal fishery systems of Asia and the Pacific. For these regions and coral coasts of Africa, we propose a series of research priorities for sustainable tropical seascapes through co-produced research and learning.¹³ However, many other regions, including West Africa, depend heavily on marine systems and experience intense inequities within coastal fishery systems. FISH contributed

important, modest knowledge gains on COVID-19 impacts on small-scale fisheries in [Ghana](#) and small-scale fishery values in Nigeria, as well as fish trade adjustments to address nutrient deficiencies in [West African coastal populations](#). Research on and embedded into the policy processes in which insights can be enacted will likely stimulate improved management, food and nutrition security, and livelihood outcomes from and for coastal social-ecological systems. This research agenda should include increased attention to scaling processes and outcomes, building on the novel scaling framework FISH developed to understand the diffusion of [rights, equity and justice](#). Further research on the values and limits of local coastal economies and food systems in the face of the emerging Blue Economy and the impacts of climate change would support equitable and inclusive governance oriented toward attainment of the Sustainable Development Goals.

Notes

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