

The Impact of Bottom Trawling on Food Security, Sovereignty and Nutrition

West Bengal, India

Authored by Anna Schuhbauer and U. Rashid Sumaila

This case-study is part of the wider Transform Bottom Trawling Coalition research highlighting the global impact of bottom trawling on food security.

Introduction

West Bengal's coastal fishery system spans the East Midnapore coast, the Hooghly estuary, and the Sundarbans, with small-scale fisheries (SSF) using fixed bag nets (behundi), gillnets, and shore-based drying systems. Marine species such as Bombay duck, golden anchovies, hilsa, mullets, perches and prawns are important to coastal livelihoods and dried-fish supply chains, yet much household consumption in West Bengal relies on freshwater fish from ponds and aquaculture. Interviewees describe a growing dependence on freshwater aquaculture as marine catches decline, particularly in East Medinipur where freshwater systems partially buffer food access for land-owning households. Tensions between SSF and mechanised fleets are longstanding. Trawlers navigate to and from port through SSF reserved fishing grounds and are legally obligated to stick to previously agreed navigation routes to avoid damaging fixed bag nets and gillnets. Interviewees, however, report frequent violation of these rules by trawlers, leading to broken nets.

Policy and civil-society sources frame bottom trawling as a destructive practice that depletes stocks, undermines traditional access, and accelerates a shift toward export-oriented supply chains and fishmeal production (Dilip 2019; NPSSF 2021; NPSSF 2024). National and regional assessments of hilsa conservation further identify mechanised fishing and trawling as key pressures on marine biodiversity and hilsa stocks in the northern Bay of Bengal, with recommendations emphasizing stricter regulation and enforcement (Hilsa Conservation Study, West Bengal).

Key context

- West Bengal's coastal food systems rely on marine SSF species such as Bombay duck, anchovies, hilsa, mullets, and prawns alongside freshwater fish.
- Declining nearshore fish availability, loss of key species, and diversion of catches toward trawlers and export markets, weakening SSF market power.

- Gear conflict is widespread, with trawlers operating in restricted zones and damaging SSF gear compensation.
- Women, youth, and marginalised fishers are most affected, facing reduced processing work and erosion of fishing-related cultural practices.

Key Informant Interviews

To deepen understanding of these impacts, three interviews were conducted with key stakeholders:

- Interview 1: Representative Purba Medinipur Matsyajibi Forum and Dakshinbanga Matsyajibi Forum (Purba Medinipur Fishworkers Forum and South Bengal Fishworkers Forum)
- Interview 2: Representative West Bengal Small Scale Responsible Fisheries Union
- Interview 3: National Council member of the National Federation of Small Scale Fishworkers

The interviews focused on research questions regarding (1) negative competition; (2) participation in trawling; (3) nutritional impacts; and (4) prevailing narratives.

Results Based on Interviews

1. Negative competition and impact on small-scale fisheries

Spatial conflict between trawlers and SSF is pervasive. Interviewees report frequent incursions by trawlers into restricted nearshore waters (within 12 nautical miles), resulting in damage to bag nets (behundi), gillnets, and SSF boats, often during night-time operations. Compensation is rare and enforcement perceived as weak. Conflict dynamics differ by gear: bag-net fishers depend on fixed, demarcated grounds and seasonal arrangements, while gillnetters experience repeated net entanglement and loss when trawlers pass through fishing areas. Interviewees report that women and other marginalized fishers in drying and processing lose work and income as trawler encroachment and declining SSF catches reduce landings, deepening debt and insecurity.

Interviewees link bottom trawling and broader mechanised overfishing to sharp declines in nearshore fish availability and the disappearance of culturally important species, including hilsa, chandani, vola, ruti, and specific prawns. Civil-society analyses similarly identify mechanised fishing, alongside mesh-size violations and juvenile capture, as a major driver of hilsa decline in the northern Bay of Bengal (Hilsa Conservation Study, West Bengal). Encroachment, gear damage, and the lack of compensation directly reduce small-scale fishers' catches, incomes, and access to food.

2. Participating in trawling and food security

Interviewees describe very limited direct food-security benefits from bottom trawling in West Bengal. Although trawl crews include many Bengali workers (including Bengali migrants who work on mechanised vessels in other states), these positions are wage-based and provide minimal nutritional or local provisioning benefits. Trawler catches are frequently directed toward export markets or fishmeal and "trash fish" chains

rather than local consumption. Where trawling generates employment, interviewees view these gains as uneven and insufficient to offset the erosion of SSF livelihoods, cultural practices, and food access. Interviewees consistently report that ownership and profits in the trawl sector are concentrated, crews have limited agency, and little catch enters local diets. While wages flow to some local and migrant workers, these are not seen as compensating for declining SSF incomes, reduced household fish access, and loss of food sovereignty.

3. Nutritional impacts and consumers

While West Bengal's diet is strongly oriented toward freshwater fish, marine fisheries also play an important role in the coastal districts and near-coastal households, where marine fish provide a primary source of nutrition. Many marine species are dried and traded across states, with a small share consumed locally. Interviewees report that declining marine catches and rising competition from trawlers reduce local availability, while aquaculture expansion shifts consumption toward cultured species such as, rohu and tilapia. This partially offsets protein access for land-owning households but leaves poorer and landless families, which overwhelmingly involve SSF, vulnerable to shortages, face more food insecurity and loss of important nutrients.

Market shifts include price volatility, differentiation of "quality" categories linked to trawler bycatch, and declining bargaining power for SSF in dried-fish trade networks. National bycatch studies show shrimp trawling generates high volumes of non-target fish (80–95% of catch by volume in some East Coast fisheries), much of it discarded or channelled into low-value uses, reinforcing perceptions that trawling diverts food fish away from local food systems and into industrial supply chains (Bay of Bengal Programme 1991; NPSSFW 2024).

4. Narratives and policy framing

Interviewees argue that fisheries policy prioritizes income generation and export growth over food security and SSF rights, which remain weakly recognized in practice. National policy critiques similarly call for bans or strict limits on bottom trawling and purse seining, penalties for the use of LED lights in fishing, and reductions in mechanised fleet capacity to restore equity and sustainability (NPSSFW 2021).

Local narratives emphasize decades of protest against trawlers, persistent enforcement gaps, and livelihood decline, with some coastal households exiting fishing for farming or wage labour as marine stocks fall. Interviewees further highlighted that the years of vulnerability induced by the trawling industry has now been compounded by the climate crisis and increased coastal development, leading to an accelerated loss of livelihoods. Hilsa Conservation analyses stress the need to curb mechanised impacts, enforce mesh-size regulations, and prohibit bottom trawling in shallow shelf zones (Hilsa Conservation Study, West Bengal). Overall, SSF narratives frame trawling as illegal, ecologically damaging, and detrimental to food-sovereignty, while policy frameworks emphasize production and exports with limited enforcement of regulations to protect marine ecosystems and SSF rights.

Conclusion

In West Bengal, bottom trawling affects food security primarily through spatial conflict, gear destruction, and market displacement, and to a lesser extent through direct local provisioning. Interview evidence and background studies consistently attribute declining nearshore stocks, reduced SSF livelihoods, and the loss of culturally important species to mechanised and trawl fishing, compounded by weak enforcement, aquaculture expansion, and export-oriented policy priorities. While freshwater fisheries and aquaculture buffer protein access for some households, poorer and landless families remain increasingly vulnerable as SSF catches decline.

Priority actions emerging from the evidence include:

1. Stricter enforcement of nearshore exclusions and gear regulations, including penalties for trawler encroachment and mesh-size violations
2. Preferential access for SSF and protection of SSF fishing grounds and customary institutions such as bag-net areas and drying sites
3. Curtailing government subsidies for trawlers
4. Spatial and temporal closures for trawlers, and an eventual phase out of trawlers with capacity and benefits redistributed to SSF
5. Policy integration that explicitly links fisheries management to food security and equity rather than export growth alone
6. Targeted support for women and marginalized fishers in processing and market chains who face disproportionate losses (Dilip 2019; NPSSFW 2021).

Acknowledgements

We thank all participants, especially everybody who volunteered their time to be interviewed by us and provided background material including Nana Kweigyah (Canoe & Gear Owners Association of Ghana), Jerome Deamesi (Ghana Trawl Industry), Isaac Okyere (Africa Centre of Excellence in Coastal Resilience and University of Cape Coast), Linus Owino (Mariners for Action), Sebastian Rodrigues (All Goa Small Scale Responsible Fisheries Union), Siddharth Chakravarty (National Federation of Small-Scale Fish workers (NFSF), Debasis Shyamal (Purba Medinipur Matsyajibi Forum and Dakshinbanga Matsyajibi Forum), Amitrajit Chakraborty ((National Federation of Small-Scale Fish workers and DISHA), Bally Philp (Scottish Creel Fishermen's Federation), Miftahul Khausar (Kesatuan Nelayan Tradisional Indonesia), Safira Ryanatami and Marthin Hadiwinata (Ekologi Maritim Indonesia), Martin Dias (Oceana Brazil), Guilherme Suzano Coqueiro (The University of British Columbia), Juan Parada (Greenpeace), Linda Behnken (Alaska Longline Fishermen's Association), Megan Williams (Ocean Conservancy).

A huge thank you to the partner organizations for their valuable contributions to this co-development process, specifically the TBT Coalition Research Coordination Group who steered this research from the beginning, including representatives from Blue Ventures, Open Seas, Oceana, Kesatuan Nelayan Tradisional Indonesia (KNTI), Ulinzi Africa Foundation (UAF), Project Seahorse, Alaska Longline Fishermen's Association (ALFA), Fauna and Flora, Dakshin Foundation, Pan African Vision for the Environment (PAVE), National Federation of Small Scale Fishworkers (NFSF), African Fish and Wildlife Conservancy (AFWC), Canoe & Gear Owners Association of Ghana (CaFGOAG), Community Action for Nature Conservation (CANCO Kenya), Oceans Alive Foundation, EDER (Environnement, Développement et Énergies Renouvelables), Fédération libre de la pêche artisanale, ONG Mauritanie 2000, Conseil National Interprofessionnel de la Pêche Artisanal au Sénégal (CONIPAS), Tom Collinson (People and Fish).

Anna Schuhbauer
Scientific Consulting
acschuhbauer@gmail.com



U. Rashid Sumaila
Fisheries Economic Research Unit
School of Public Policy and Global Affairs
The University of British Columbia
r.sumaila@oceans.ubc.ca



References

Dilip Show. 2019. Report on understanding Khoti as a coping mechanism for small fishermen from their livelihood threats (Purba Medinipur, West Bengal).

Hilsa Conservation in West Bengal: A Brief Study. Draft report (author Santanu Chakraverti; date not specified in extract).

NPSSFW. 2021. Comments on Draft National Fisheries Policy 2020.

NPSSFW. 2024. Memorandum: Concerns and suggestions on Fisheries Export Promotion (6 Sep 2024).

Bay of Bengal Programme. 1991. The by-catch from Indian shrimp trawlers in the Bay of Bengal: The potential for its improved utilization.