TRANSFORM BOTTOM TRAWLING

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

Ghana

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

Introduction

Ghana's fisheries sector is central to national food security, with fish providing a primary source of animal protein and essential micronutrients for much of the population (Alder and Sumaila, 2004; Lauria et al., 2018; Sumaila, 2018; Onumah et al., 2020). The small-scale fisheries (SSF) sector, dominated by artisanal canoes, mainly targets small pelagic species such as sardinella and anchovies, which are critical for local diets and coastal livelihoods (Atta-Mills et al., 2004; EJF and Hen Mpoano, 2019; Onumah et al., 2020). However, the expansion of industrial bottom trawling has intensified spatial and resource competition between industrial fleets and small-scale fishers (Seto et al., 2023). Although Ghanaian law prohibits foreign ownership of trawlers, an estimated 90% of the fleet is beneficially owned by Chinese corporations through hire-purchase arrangements (i.e. foreign companies bypass the law) that provide de facto control (Akpalu and Eggert, 2021; EJF, 2021).

These vessels historically engaged in saiko, an illegal practice in which trawlers target small pelagics and transship catches at sea to canoes for sale in local markets. Recent enforcement appears to have reduced saiko transshipments, but the trade has partly reconfigured into direct landings of illegal bycatch plus frequent reporting of trawlers dumping at sea still prevails (EJF 2025, EJF and Hen Mpoano, 2019). Together with spatial overlap and habitat damage, this practice has contributed to declining fish stocks. Resulting scarcity has increased economic insecurity for artisanal fishers and reduced access to affordable, nutritious fish, especially for low-income households (Onumah et al., 2020; EJF, 2021). While trawlers produce volume, they redistribute nutritional value away from those who need it most. Fish processors report that industrial trawlers now supply up to 95% of marketed fish, leaving communities with little control over species, fishing seasons, or prices (Ayilu et al., 2023).

Key Context

- About 10% of Ghana's population depend on fisheries for livelihoods.
- Fish provides 60% of animal protein intake.
- Artisanal fleet: ~12,000+ canoes.
- Bottom trawl fleet: ~75 vessels (each employ about 35 Ghanians).
- ~90% of the trawl fleet is beneficially owned by Chinese companies.
- Small pelagics "The People's Fish" caught by canoes and trawlers.
- Estimated 100,000 tonnes of fish traded illegally as “Saiko” at sea in 2017.
- Inshore Exclusion Zone extended from 6 to 12 nautical miles.

Key Informant Interviews

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

- Interview 1: A representative of the Artisanal Canoe fishing fleet in Ghana.
- Interview 2: A scientist at a Centre of Excellence at a university in Ghana.
- Interview 3: A representative from the Ghana Trawl Industry.

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

Industrial trawlers compete directly with SSF for small pelagics and often catch juvenile fish, preventing stocks from recovering. The illegal "saiko" trade had shifted from a by-catch trade to a targeted one, further undermining artisanal landings. The decline in catch has devastated women processors, a sector which is overwhelmingly women-dominated (Aduomih, A. A. O. 2019). When canoes land less fish, processors must pay for lower-quality trawler by-caught fish, often leading to a debt cycle and weakened financial positions.

In addition, purchased lesser quality trawler by-caught fish is often juvenile and poorly handled compared to freshly caught fish from the artisanal fleet. Traditional systems of sharing catch with extended families and elderly community members are breaking down because there is not enough fish to set aside for others. This forces vulnerable groups to buy expensive fish in the market or replace it with cheaper, less nutritious proteins such as chicken. In addition, seafloor habitat impacts and the destruction of artisanal fishing gear by bottom trawlers have been reported to affect coastal livelihoods.

2. Participating in trawling and food security

Interviews with a trawling industry representative indicate that the trawl sector employs Ghanaians primarily as deckhands and crew supporting local employment which would lead to improved food security. A typical trawler carries approximately 35 Ghanaian and 5 Chinese crew. With 41 vessels currently active, this

corresponds to roughly 1,435 Ghanaians directly employed. The industry argues that it additionally contributes to food security by landing fish for local markets rather than exporting all catches. Except for high-value species such as squid and cuttlefish, which are exported during certain months, most trawl catches—including heads and bones—are consumed locally.

Participation in trawling is often driven by limited local capital, as Ghanaian owners rely on Chinese funding and expertise due to domestic financial institutions viewing trawling as a high-risk activity. While this suggests that bottom trawling does contribute to the Ghanaian economy and food-supply, these dynamics must be assessed beyond food availability alone. Concerns remain regarding poor working conditions for Ghanaian crew, and trade-offs between low-wage employment on board the trawlers versus the loss of small-scale fisheries traditional livelihoods, nutritional quality of catches and environmental impact by trawlers on marine habitats. These factors highlight the importance of food sovereignty and nutrition security, indicating that bottom trawling in Ghana currently undermines the local food system.

3. Nutritional impacts and consumers

Small pelagics (mackerel, sardinella, anchovies, herrings) and demersal species (snappers, groupers, barracudas) are the most important fish for local diets. While the local community traditionally relied on SSF for fish supply, there is an increasing reliance on imported frozen whole fish from other countries due to local scarcity. Trawl-caught fish sold in local markets directly outcompetes artisanal fish, but the overall quantity consumed by locals is reducing as prices rise.

The saiko trade has also created a middleman in the value chain further separating the coastal communities from the fisheries resource. In addition, artisanal catch is fresh and diverse, while trawl catches (Saiko) are often juvenile and may have lower nutrient density due to high spoilage rates.

4. Narratives and policy framing

The trawl industry claims it is unfairly blamed for fish declines. They point to illegal SSF practices (e.g., light fishing), climate change, and the expanding oil and gas industry as the true drivers of stock depletion. In contrast, civil society organisations and NGOs drive a narrative focused on the destabilizing impact of foreign-owned fleets to push for reform. There has been a strong movement for reform, including extending the Inshore Exclusion Zone from 6 to 12 nautical miles to protect SSF grounds. Government commitment is seen in increased monitoring and enforcement, though industry players argue they are being "punished and chased" while other sectors, such as oil and gas, are protected.

Conclusion

The intersection of industrial bottom trawling and the illegal "saiko" trade has profoundly undermined Ghana's food security, food sovereignty, and nutritional security. While transshipment does not occur as frequently anymore, landing of juvenile fish still prevails. Evidence from the literature and interviews suggests that the depletion of small pelagic stocks—the "backbone of local diets"—is driven by industrial fleets that often bypass national ownership laws to target species invaluable for artisanal fishers. This loss of resource control

signifies a decline in food sovereignty, while the resulting scarcity forces low-income households to shift toward less nutritious alternatives or expensive imports, threatening long-term nutritional stability.

A significant legislative shift was approved in 2025 to extend the Inshore Exclusion Zone from 6 to 12 nautical miles. Artisanal representatives believe this "new law" will "bring hope back" by protecting their traditional grounds from industrial encroachment and allowing stocks to recover. Conversely, the industrial trawl sector views the 12nm extension as a "death sentence" that could lead to the industry's collapse. The industry also contends that the causes of resource decline are not fully understood and likely involve climate change, pollution and oil extraction. Nevertheless, giving fish stocks a chance to rebuild is expected to enhance long-term food security and sovereignty, and ultimately benefit the entire fishing sector.

Ultimately, the success of this law in improving food security will depend on strict enforcement and its ability to end the destructive cycle of illegal transshipments. In addition, for the law to be effective the next steps are crucial: the new Act requires ministerial designation and gazetting of the 12 nm exclusion zones provisions before they can take effect.

Priority actions emerging from the evidence include:

1. Gazette and implement the 12-nautical-mile Inshore Exclusion Zone so the 2025 legislation can take effect and protect artisanal fishing grounds from industrial encroachment.
2. Strengthen monitoring and enforcement to eliminate illegal transshipment (“saiko”) and prevent the landing of juvenile fish.
3. Ensure industrial trawlers comply with national ownership and spatial regulations, closing loopholes that allow them to target species vital to small scale fisheries.
4. Prioritise the recovery of small pelagic fish stocks through stricter management measures, recognising their central role in Ghana’s food and nutritional security.
5. Invest in improved fisheries research and governance to better understand drivers of stock decline and support evidence-based policy decisions.

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