TRANSFORM BOTTOM TRAWLING

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

Scotland, West Coast - Nephrops Fishery

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

This brief examines how bottom trawling for Nephrops norvegicus – the species sold widely as "scampi"– affects food security on Scotland's West Coast. The fishery is mixed-gear: demersal trawlers tow on muddy grounds to catch burrow-dwelling Nephrops, while small-scale vessels deploy creels (pots) across many of the same inshore areas. Competition for space is a defining feature; official analyses suggest access to fishing grounds, rather than quota, often binds outcomes, with mobile gears able to displace static gears and static gears sometimes set on "traditional trawl tows" (Marine Directorate 2020).

Ecologically, a recent UK assessment of Nephrops fisheries indicates that on common Nephrops habitats, trawl impacts are high but recovery may be relatively rapid at the broad habitat scale; however, trawl risk to Vulnerable Marine Ecosystem features (e.g., sea-pen and burrowing megafauna communities) can be significant under some effort scenarios (Whitton and Hiddink 2023). In contrast, creel fishing shows extremely low swept-area ratios and near-pristine relative benthic status on the same habitats (Whitton and Hiddink 2023). Additional work highlights that West Coast sediments store reactive organic carbon that can be mobilised by bottom-contact gears (Black et al. 2022).

Although trawlers land over twice the volume of Nephrops compared to creelers, creeling generates more total local economic activity per tonne and per pound landed, and supports stronger secondary economic multipliers in coastal communities (Flounders 2026). A socioeconomic analysis finds that prioritising creels over trawling in inshore waters would improve overall value, support local jobs and revenue, and reduce environmental impacts (Williams and Carpenter 2016).

Key context

- Trawl and creel fisheries compete for the same muddy grounds, driving spatial conflict.

- Nephrops bottom trawling has high benthic impact, while static gear causes far less habitat damage.
- Nephrops are high-value but mainly serve UK/EU markets, with limited local nutritional benefit.
- Ongoing gear conflict, losses, and weak enforcement undermine small-scale fishery participation.
- Policy options include gear separation, targeted spatial limits, stronger compliance, and co-management.

Key Informant Interviews

To deepen the understanding of these impacts, one interview was conducted with an active fisherman representing the Scottish Creel Fishermen's Federation (SCFF).

The interview 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

The interviewee described recurrent displacement of creels from traditional grounds, frequent gear loss, and a lack of effective mechanisms for redress. The absence of successful prosecutions and a perceived sense of trawler "impunity" were reported to erode small-scale fishers' rights, incomes, and participation, undermining elements of food sovereignty and local access. High trawling pressure on muddy substrates and sensitive seabed features can also degrade benthic habitats that support wider ecosystem productivity, while bycatch and discards represent foregone food and hinder demersal fish recovery (Bergmann et al. 2002; Whitton and Hiddink 2023; Decker Sparks et al. 2025). The interview also pointed to long-term declines in inshore demersal finfish for local consumption and growing reliance on imported fish, as Nephrops are directed almost entirely to external markets.

2. Participating in trawling and food security

Nephrops trawl catches contribute to national seafood supply—primarily as scampi and peeled tails—and provide modest dietary diversity for consumers accessing UK and European retail and foodservice markets. Trawling supports employment in both the catching and processing sectors, which may translate into food access through income. However, evidence indicates that working conditions on many UK industrial fishing vessels are poor, limiting these potential benefits (Decker Sparks 2022). Scampi is mainly sold in processed forms (e.g. breaded products). The stability of this provisioning depends on effective bycatch control, habitat protection, and reduced gear conflict; as habitat degradation and destructive practices can undermine supply chains (Stratoudakis et al. 2001; Bergmann et al. 2002; Whitton and Hiddink 2023). Overall, there is no evidence that Nephrops bottom trawling contributes to local food security, nutrition security, or food sovereignty.

3. Nutritional impacts and consumers

Historically, demersal finfish played a larger role in local diets; however, today both industrial and small-scale fleets largely target shellfish following demersal stock declines. Nephrops contribute little to household consumption on Scotland's west coast, with benefits accruing mainly to consumers with purchasing power in national and European markets. While Nephrops provide a source of lean protein and micronutrients, nutritional differences between gears are negligible; processing methods and freshness have a greater influence on health outcomes.

4. Narratives and policy framing

Industry narratives emphasise employment, export value, and the necessity of mobile gear to efficiently exploit muddy Nephrops grounds, framing trawling as a regulated and evidence-led component of a balanced fisheries system. Industry representatives argue that additional inshore restrictions or blanket gear bans are unjustified without clear scientific evidence and would undermine jobs and economic contributions, with some framing environmental impacts as a policy trade-off in securing national seafood supply.

Community organisations and NGOs, by contrast, stress seabed degradation, gear conflict, seabed carbon disturbance, and the exclusion of small-scale, static-gear fleets from inshore grounds. They call for clearer spatial separation between gear types, the reinstatement of inshore trawl or dredge limits, and stronger habitat protection measures. Policy reviews and the interview also highlighted gaps in discard compliance, conflict resolution, and spatial management relative to "good environmental status" objectives. The interviewee questioned the effectiveness of enforcement and the absence of legally binding mechanisms to incentivise low-impact gears and align access to fishing grounds with social and environmental outcomes.

Conclusion

On Scotland's West Coast Nephrops grounds, bottom trawling delivers seafood at a national scale and supports employment, but it also generates significant local externalities—including habitat degradation, the risk of seabed carbon disturbance, and persistent conflict with static-gear fleets—that weaken the contribution of small-scale fisheries to local food systems. In this context, food-system outcomes improve when management reduces gear conflict, safeguards sensitive habitats, and aligns access to fishing grounds with social and environmental objectives

Neither creel nor trawl fisheries directly support local food or nutrition security, as Nephrops are primarily produced for national and international export. However, creel fisheries align more closely with food sovereignty principles through greater local ownership, decision-making autonomy, and stronger integration within coastal economies, whereas trawl fisheries tend to concentrate control and economic benefits outside local communities.

Priority actions emerging from the evidence include:

1. Establishing clearer spatial separation between gear types and, where appropriate, reinstating or piloting inshore trawl and dredge limits to reduce conflict and protect vulnerable marine ecosystems.
2. Improving gear selectivity and strengthening compliance with discard and bycatch rules through effective monitoring, while prioritising lower-impact gears where appropriate.
3. Incorporating social criteria into access allocations—including employment quality, local processing, and meaningful participation—and strengthening co-management to resolve conflicts.
4. Accounting for seabed carbon disturbance in spatial planning to better align fisheries management with climate objectives.
5. Framing policy debates around social and economic outcomes alongside environmental sustainability, avoiding false binaries between conservation and fisheries, and clearly distinguishing between support for fishers and the need to address unsustainable fishing practices.

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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

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