

VALUE CHAINS, ECONOMIC AND ENVIRONMENTAL OUTLOOKS, AND FISHERIES CRIME

DR. MELANIE SOMMERVILLE , NMBU



Norwegian
University of
Life Sciences



Blue Justice
ACADEMY

ABSTRACT

Value chain analysis provides a means of focusing limited investigative and enforcement capacity for addressing transnational organized fisheries crime. This briefing paper examines emerging economic and environmental trends in global fisheries value chains to help practitioners in understanding shifting crime vulnerabilities and pinch points for intervention.

A VALUE CHAIN APPROACH TO FISHERIES CRIME?

Globally a series of rapid and long-term changes are shifting the economic and environmental conditions of fishing, and with this, opportunities for transnational organized fisheries crime. These shifts translate into moving risk profiles, evolving modus operandi, and new enforcement blind spots for practitioners working to address crime at national and international levels. Value chain analysis provides a means for understanding these changes and focusing crime investigation and enforcement efforts to achieve maximum effect. The Copenhagen Declaration on Transnational Organized Crime in the Global Fishing Industry recognizes the importance of addressing crimes across the whole fisheries supply and value chain, as did the Ålesund Declaration before it.^{1,2}

Value chains encompass the full range of economic activities in any given sector. In fisheries, value chains can span up to six stages within a particular country: preparation, fishing, landing, processing, transport,

The Copenhagen Declaration on Transnational Organized Crime in the Global Fishing Industry recognizes the importance of addressing crimes across the whole fisheries supply and value chain, as did the Ålesund Declaration before it.

- 1 *Copenhagen Declaration on Transnational Organized Crime in the Global Fishing industry* (2018) <https://bluejustice.org/copenhagen-declaration/#Declaration>
- 2 *Nordic Minister Statement on Transnational Organized Fisheries Crime* (2017) <https://norden.org/en/declaration/nordic-minister-statement-transnational-organized-fisheries-crime>

and sale.³ Each stage involves distinct actors, as well as specific regulatory requirements, documentation, and compliance controls (Figure 1).⁴ Criminal activity may occur within a single stage or exploit linkages between stages, often crossing jurisdictional boundaries. Fisheries value chains are species-specific, and are characterized by a high degree of complexity, non-linearity, and seasonality, all attributes that may also condition the crimes that occur therein.

The use of value chain analysis for understanding fisheries crime was pioneered by the North Atlantic Fisheries Intelligence Group (NA-FIG), who adopted the approach to enable authorities to undertake targeted risk assessments, identify crime vulnerabilities, and pinpoint regulatory and enforcement interventions.⁵ The approach was later used by the United Nations Office of Drugs and Crime (UNODC) in their 2019 *Rotten Fish* and 2022 *Stretching the Fishnet* reports.^{6,7} For fisheries practitioners, the practical value of this approach lies in prioritization: focusing limited investigative resources where the convergence of value, opacity, and weak oversight creates the greatest criminal opportunity.

Alongside illegal fishing, value-chain analysis can aid investigators in identifying the broader range of transnational crimes that frequently intersect with

For fisheries practitioners, the practical value of this approach lies in prioritization: focusing limited investigative resources where the convergence of value, opacity, and weak oversight creates the greatest criminal opportunity.

- 3 UNODC. 2022. *Stretching the Fishnet: Identifying Crime in the Fisheries Value Chain*. Vienna, UNODC. https://www.unodc.org/res/environment-climate/resources.html/Stretching_the_Fishnet.pdf
- 4 *Blue Justice Dialogue Forum: Value Chain Perspectives and Transnational Organized Crime in Global Fisheries* with Nick Branigan, Chair of the North Atlantic Fisheries Intelligence Group, 11 September 2025.
- 5 *Blue Justice Dialogue Forum: Value Chain Perspectives and Transnational Organized Crime in Global Fisheries* with Nick Branigan, Chair of the North Atlantic Fisheries Intelligence Group, 11 September 2025.
- 6 UNODC. 2019. *Rotten Fish: A Guide on Addressing Corruption in the Fisheries Sector*. Vienna, UNODC. https://www.unodc.org/documents/Rotten_Fish.pdf
- 7 UNODC. 2022. *Stretching the Fishnet: Identifying Crime in the Fisheries Value Chain*. Vienna, UNODC. https://www.unodc.org/res/environment-climate/resources.html/Stretching_the_Fishnet.pdf

fishing operations. These crimes include instances of corruption, tax and customs fraud, money laundering, embezzlement, document fraud, and human trafficking.⁸ Such convergence crimes may occur upstream or downstream from the fishing activity itself, including in ports, logistics hubs, processing facilities, and financial centres. Sanctions for these crimes are often higher than those for illegal fishing, meaning that enforcement has a powerful effect.

The complexity of fisheries value chains underscores the importance of authorities understanding current operations in the sector. There is a need for continuous information gathering from international agencies, trade associations, port authorities and various open-source resources. In the words of Nick Branigan, Chair of NA-FIG, fisheries crime investigators “need to understand the ordinary to identify the extraordinary.”⁹ Mapping even hypothetical or modelled value chains can contribute to understanding normal activity patterns and detecting anomalies that may indicate criminal activity. This baseline knowledge is particularly important for financial investigations, beneficial ownership inquiries, and trade-based money laundering detection.

Today global fisheries are under diverse economic and environmental pressures. Scholarly work in the criminology field highlights the entrepreneurial and adaptive character of transnational organized crime, and criminal operators in the fisheries sector too are constantly evolving their modus operandi.¹⁰ This adaptability reinforces the need for dynamic risk

The complexity of fisheries value chains underscores the importance of authorities understanding current operations in the sector.

8 *Copenhagen Declaration on Transnational Organized Crime in the Global Fishing Industry* (2018) <https://bluejustice.org/copenhagen-declaration/#Declaration>

9 *Blue Justice Dialogue Forum: Value Chain Perspectives and Transnational Organized Crime in Global Fisheries* with Nick Branigan, Chair of the North Atlantic Fisheries Intelligence Group. 11 September 2025.

10 UNODC. n.d. *Fisheries Crime*. Vienna, UNODC. https://www.unodc.org/documents/about-unodc/Campaigns/Fisheries/focus_sheet_PRINT.pdf

assessments rather than static compliance models.

The remainder of this brief therefore provides a summary of emerging economic and environmental trends in global fisheries value chains. The aim is to help fisheries authorities and their law enforcement partners to understand changing vulnerabilities to transnational organized crimes and potential pinch points for enforcement within these chains.

While the Copenhagen Declaration recognizes that transnational organized crime in the global fisheries industry is economically and environmentally harmful, the emphasis here is rather on how economic and environmental factors may act as drivers for crime in the industry. Indeed, the value chains concept may help to clarify that this relationship is bidirectional, where crime both responds to and exacerbates economic and environmental changes, hence supporting a fuller understanding of the problem.


The aim is to help fisheries authorities and their law enforcement partners to understand changing vulnerabilities to transnational organized crimes and potential pinch points for enforcement within these chains.

ECONOMIC TRENDS AND OUTLOOK

Data from the United Nations Food and Agriculture Organization (FAO) indicate that capture fisheries production has fluctuated between 86 and 94 million tonnes per year globally since the late 1980s.¹¹ Among the 41 countries and territories monitored by the Organization for Economic Cooperation and Development (OECD), capture fisheries production is declining in volume but increasing in value, with overall landings worth some USD 103 billion in 2022.¹²

11 FAO. 2024. *The State of World Fisheries and Aquaculture 2024: Blue Transformation in Action*. Rome, FAO. <https://openknowledge.fao.org/items/8ab20ccf-1e9d-4ae6-836c-ca770d16da01>

12 The OECD's outlook report covers 30 OECD Members and 11 non-Members, including the three largest global producers of fish – the People's Republic of China, India, and Indonesia. Together, these countries accounted for 69% of marine capture fisheries production globally. See: OECD. 2025. *Review of Fisheries 2025*. Paris, OECD. <https://www.oecd.org>



Capture fisheries production is expected to remain relatively stable for the next decade globally. Regionally, some productivity improvements will occur where stocks are recovering from overfishing, particularly in Europe and Africa. Stability at the aggregate level, however, may mask increasing volatility at local and species levels, conditions that criminal actors are adept at exploiting.

This divergence between volume and value has important implications for crime incentives, particularly for high-value species.

Globally, an estimated 15.7 million people are employed in marine fisheries, whether on a full-time, part-time, or seasonal basis.¹³ Between 1995 and 2022, the number of people engaged as fishers increased in Africa, Asia, and Latin America and the Caribbean, while it decreased in Europe, North America, and Oceania.¹⁴ Long-running trends including mechanization and increasing vessel size characterize many fishing fleets around the world, making it easier for operators to catch more fish in a shorter period in both coastal and distant waters.¹⁵ These trends may simultaneously reduce labour demand while increasing capital intensity, altering incentives for labour exploitation and debt bondage.

Capture fisheries production is expected to remain relatively stable for the next decade globally. Regionally, some productivity improvements will occur where stocks are recovering from overfishing, particularly in Europe and Africa.¹⁶ Stability at the aggregate level, however, may mask increasing volatility at local and species levels, conditions that criminal actors are adept at exploiting.

When it comes to crime, profitability strongly influ-

[org/en/publications/2025/02/oecd-review-of-fisheries-2025_d308ff48.html](https://openknowledge.fao.org/en/publications/2025/02/oecd-review-of-fisheries-2025_d308ff48.html)

13 FAO. 2024. *The State of World Fisheries and Aquaculture 2024: Blue Transformation in Action*. Rome, FAO. <https://openknowledge.fao.org/items/8ab20ccf-1e9d-4ae6-836c-ca770d16da01>

14 Ibid.

15 Van Anrooy, R., N. Carvalho, A. Kitts, R. Mukherjee, S. Van Eijs, D., Japp, D. & S. Ndao, S. 2021. *Review of the Techno-Economic Performance of the Main Global Fishing Fleets*. FAO Fisheries and Aquaculture Technical Paper, No. 654. Rome, FAO. <https://openknowledge.fao.org/server/api/core/bitstreams/5ca84ab9-ee4c-46e3-b4dd-764b6dd44f17/content>

16 *Blue Justice Dialogue Forum: Shifting Economic and Environmental Outlook for Fisheries* with Dr. Will Symes, Policy Analyst at the Organization for Economic Co-operation and Development, 24 September 2025.

ences the scale and nature of illegal fishing in the sector today. As fish becomes more valuable, the fisheries sector is likely to attract growing attention from international criminal operators and syndicates.¹⁷ Criminal operators assess that there is both a high potential for sizeable financial returns and a low risk of detection and prosecution, whether they are engaging in illegal fishing or the wider range of fisheries crimes noted above. This risk-reward profile remains a core challenge for regulators and enforcement agencies.

Many fisheries value chains today are transnational. Alongside the continuing globalization and lengthening of these chains, the sector is seeing some re-regionalization and modularization.^{18,19} With respect to fisheries crime, this points to the importance of aligned risk assessments and comparable capacities across multiple jurisdictions. Operational cooperation mechanisms – such as joint inspections, intelligence sharing, and coordinated financial investigations – become increasingly important under these conditions.

Alongside these changes, multinational corporations (MNCs) are playing an increasingly important role in the global fisheries sector.²⁰ MNC structures can obscure ownership, enable value manipulation, and

Many fisheries value chains today are transnational... With respect to fisheries crime, this points to the importance of aligned risk assessments and comparable capacities across multiple jurisdictions.

- 17 UNODC. 2011. *Transnational Organized Crime in the Fishing Industry: Focus on: Trafficking in Persons, Smuggling of Migrants, Illicit Drugs Trafficking*. Vienna. UNODC. https://www.unodc.org/documents/human-trafficking/Issue_Paper_-_TOC_in_the_Fishing_Industry.pdf
- 18 Gephart, J., R. Agrawal Bejarano, K. Gorospe, A. Godwin, C. Golden, R.L. Naylor, K. Nash, M. Pace & M. Troell. 2024. Globalization of Wild Capture and Farmed Aquatic Foods. *Nature Communications*. 15(1): 8026. <https://www.nature.com/articles/s41467-024-51965-8>
- 19 Elsler, L., M. Oostdijk, J. Gephart, C. Free, J. Zhao, E. Tekwa, E. Bochniewicz, A. Giron-Nava, & A. Johnson. Global Trade Network Patterns are Coupled to Fisheries Sustainability. *PNAS Nexus*, 2(0): pgad301, <https://doi.org/10.1093/pnasnexus/pgad301>
- 20 Österblom H, J.-B. Jouffray, C. Folke, B. Crona, M. Troell, A. Merrie et al. 2015. Transnational Corporations as 'Keystone Actors' in Marine Ecosystems. *PLoS ONE* 10(5): e0127533. <https://doi.org/10.1371/journal.pone.0127533>

conceal indicators of fisheries crime.²¹ The growing market share controlled by MNCs also raises questions around how fisheries authorities should deal with activities that are legal but that have negative economic, social, and environmental consequences (one example being so-called 'tax planning', which may deprive national governments of valuable tax revenue). This highlights the need for closer collaboration between fisheries authorities, tax authorities, and financial intelligence units.

Fish are one of the most widely traded commodities globally. An emerging question regards how the global fisheries sector will be impacted by the tariff increases and trade interventions that some countries have recently introduced. Geopolitical tensions are increasingly reshaping fisheries value chains globally.²² While the full repercussions are not yet well understood, fisheries crime may be incentivized as profits in the sector become squeezed and operators encounter barriers in accessing valuable markets. Trade disruptions may also increase document fraud, mislabeling, and transshipment risks.

Geopolitical tensions are increasingly reshaping fisheries value chains globally.

GROWING ENVIRONMENTAL UNCERTAINTY

Alongside these economic changes, environmental pressures increasingly condition fishing activities and sector vulnerabilities to transnational organized crime. Globally, the FAO assesses that only 63% of

21 Blue Justice Dialogue Forum: Value Chain Perspectives and Transnational Organized Crime in Global Fisheries with Nick Branigan, Chair of the North Atlantic Fisheries Intelligence Group, 11 September 2025

22 Nikolik, G. 2025. *Caught in the current: Geopolitics threaten the global seafood industry*. Utrecht, Rabobank. <https://www.rabobank.com/knowledge/q011496001-caught-in-the-current-geopolitics-threaten-the-global-seafood-industry>. For a summary of the report, see: <https://www.globalseafood.org/advocate/rabobank-seafood-industry-faces-prolonged-instability-as-tariffs-tensions-reshape-trade/>

fish stocks are currently sustainably managed.²³ Indeed, environmental degradation is structurally entangled with fisheries crime.

Transnational organized crime is well recognized as a contributor to overfishing.²⁴ At the same time, the stock depletion and scarcity that results from overfishing can undermine local livelihoods, motivating fishers to participate in other crimes.²⁵ This feedback loop underscores the importance of integrating crime prevention into fisheries management strategies.

Climate change is adding considerable uncertainty to this picture. Together, warming water temperatures, acidification, changing ocean currents and an increase in the frequency of extreme weather events are expected to decrease fisheries productivity in tropical regions while increasing productivity in temperate zones.^{26,27} Alongside impacts on abundance, climate change will alter the geographic distribution of fish species, shifting where fishing occurs.²⁸ Such shifts may outpace existing regulatory frameworks and enforcement capacity.

Fish stocks may move away from regions with effective management, monitoring, and crime enforce-

Climate change is adding considerable uncertainty to this picture.

23 FAO. 2024. *The State of World Fisheries and Aquaculture 2024: Blue Transformation in Action*. Rome, FAO. <https://openknowledge.fao.org/items/8ab20ccf-1e9d-4ae6-836c-ca770d16da01>


24 Witbooi, E., K.-D. Ali, M.A. Santosa et al. 2020. *Organized Crime in the Fisheries Sector*. Washington, DC, World Resources Institute. <https://oceanpanel.org/wp-content/uploads/2022/05/Organised-Crime-Associated-with-Fisheries.pdf>

25 *Blue Justice Dialogue Forum: Ocean Sustainability, Small-Scale Fishers, and Fisheries Crime* with Dr. Philippe Le Billon, Professor in the Department of Geography, University of British Columbia, 5 December 2025.

26 *Blue Justice Dialogue Forum: Shifting Economic and Environmental Outlook for Fisheries* with Dr. Will Symes, Policy Analyst at the Organization for Economic Co-operation and Development, 24 September 2025.

27 OECD. 2025. *Review of Fisheries 2025*. Paris, OECD. https://www.oecd.org/en/publications/2025/02/oecd-review-of-fisheries-2025_d308ff48.html

28 Ibid.

The background of the slide is a deep blue color filled with numerous out-of-focus, glowing blue circles of various sizes, resembling bubbles or light reflections in water. In the top right corner, there is a white area with several solid blue circles of different diameters, some overlapping the edge of the main blue area. A white rectangular box is centered on the left side of the slide, containing the text.

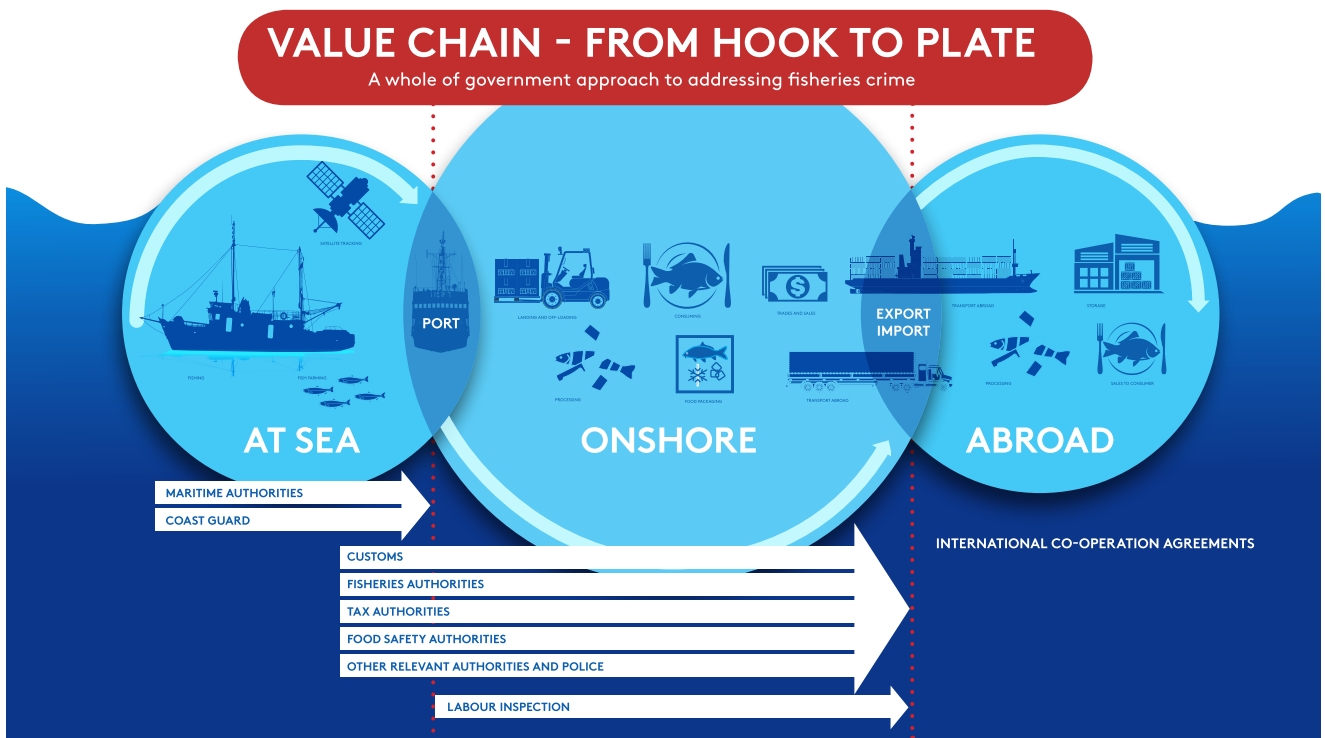
Climate change is adding considerable uncertainty to this picture. Together, warming water temperatures, acidification, changing ocean currents and an increase in the frequency of extreme weather events are expected to decrease fisheries productivity in tropical regions while increasing productivity in temperate zones. Alongside impacts on abundance, climate change will alter the geographic distribution of fish species, shifting where fishing occurs. Such shifts may outpace existing regulatory frameworks and enforcement capacity.

ment mechanisms into regions with more limited capacity. This creates new vulnerability points for transnational organized crime in the global fisheries industry. Again, cross-jurisdictional collaboration will be paramount for authorities involved in addressing crime.

GLOBAL TRENDS, LOCAL REALITIES

The economic and environmental trends described above are global in scale. These trends manifest unevenly in different countries and locales, potentially driving a differential evolution of crime. Practitioners responsible for investigating and enforcing fisheries crime need to work closely with national regulators, regional fisheries management authorities, and scientists to understand how the trends will play out with respect to particular species in their locales.

FIGURE 1: STAGES IN A FISHERIES VALUE CHAIN



Source: North Atlantic Fisheries Intelligence Group (NA-FIG)

Species-specific and place-based analysis remains essential. Only by being proactive will practitioners get out in front of fisheries crime.

THE AUTHOR

Dr. Melanie Sommerville is based in the Department of International Environmental and Development Studies (Noragric) at the Norwegian University of Life Sciences (NMBU). She works mainly on agri-food systems but occasionally (as here) diverts to consider fisheries.

This Blue Justice Insight Brief is a collaborative project between the Norwegian University of Life Sciences, the Norwegian Ministry of Trade, Industry and Fisheries, and the United Nations Development Program.