



The impact of state-led traceability on fisheries sustainability

Alin Kadfak, Tong Thi Hai Hanh & Marie Widengård

To cite this article: Alin Kadfak, Tong Thi Hai Hanh & Marie Widengård (2025) The impact of state-led traceability on fisheries sustainability, Journal of Environmental Policy & Planning, 27:2, 95-107, DOI: [10.1080/1523908X.2024.2422825](https://doi.org/10.1080/1523908X.2024.2422825)

To link to this article: <https://doi.org/10.1080/1523908X.2024.2422825>



© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



[View supplementary material](#)



Published online: 06 Nov 2024.



[Submit your article to this journal](#)



Article views: 550



[View related articles](#)





[View Crossmark data](#)



Citing articles: 1 [View citing articles](#)

The impact of state-led traceability on fisheries sustainability

Alin Kadfak ^a, Tong Thi Hai Hanh ^b and Marie Widengård ^c

^aDepartment of Urban and Rural Development, Swedish University of Agricultural Sciences, Uppsala, Sweden; ^bInstitute of Social Sciences of the Central Region, Da Nang, Viet Nam; ^cSchool of Global Studies, Gothenburg University, Gothenburg, Sweden

ABSTRACT

This article addresses two pivotal questions in the realm of fisheries sustainability: (1) the role of state-led traceability systems and (2) their effectiveness in bolstering sustainability efforts. Our investigation centres on the European Union's Catch Certificate (EU's CC), a traceability system to ensure that all seafood imported into the EU is sustainably harvested. We explore these two key questions through the Vietnamese fisheries reform, whereby the country adjusted its fisheries governance to accommodate the EU's CC as a traceability measure. Employing a mixed-methods approach, we uncover a mismatch between the top-down enforcement of traceability measures and the realities of fishing practices, leading to a range of rule-breaking behaviours. Furthermore, the study identifies significant issues of exclusion, as the infrastructural demands of compliance disproportionately affect smaller operators and marginalized communities within the fisheries sector. The Vietnamese case provides nuanced challenges and opportunities presented by state-led traceability in achieving true sustainability in fisheries. It underscores the necessity of integrating environmental and social considerations into traceability systems, questioning whom these efforts ultimately serve and at what cost. We conclude by advocating for state-led initiatives to go beyond mere compliance and contribute to a more sustainable, equitable, and transparent fisheries sector.

ARTICLE HISTORY

Received 14 April 2024
Accepted 23 October 2024

KEYWORDS


Traceability; Vietnam; fisheries; IUU fishing; sustainability; state-led traceability

Introduction

The emergence of traceability systems marks a significant development in the pursuit of sustainable resource management. This paper delves into two critical aspects of traceability in resource governance. First, it examines the lesser-explored domain of state-led traceability systems. Second, it addresses the pivotal question within sustainability literature: does traceability effectively enhance sustainability efforts? Our investigation centres around the European Union's Catch Certificate (EU's CC), a mandate requiring that all seafood imported into the EU is sustainably harvested. The CC serves as a tool for promoting sustainability as well as an analytical lens through which we can examine the implementation and impact of state-led traceability across supply chains.

Despite the global push for sustainable fisheries, illegal, unreported, and unregulated (IUU) fishing practices continue to undermine these efforts. In response, traceability has emerged as a key governance strategy aimed at combating IUU fishing and fostering sustainability (Alonso & Marschke, 2023; Viridin et al., 2022). Traceability represents a novel form of informational governance, incorporating elements of business management, consumer communication, and governmental regulation (Bailey, Bush, et al., 2016). Previous research has focused

CONTACT Alin Kadfak  alin.kadfak@slu.se,  www.justseafood.org   <https://www.linkedin.com/in/alinkadfak>

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/1523908X.2024.2422825>.

© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

largely on private sector-led traceability initiatives, such as those involving blockchain, third-party audits, and certifications (Borit & Olsen, 2012; Calvão & Archer, 2021; Campling et al., 2012; Viridin et al., 2022).

The concentration of private-led mechanisms in traceability studies is due to the rising promise that private actors might provide ‘new mechanisms of environmental governance’ (Eden, 2009) that are more proactive and less-technocratic. In the case of wild-catch, the Marine Stewardship Council (MSC) – initiated by the global non-governmental organization (NGO) World Wildlife Fund – has been the global dominant certification for the past three decades. MSC introduced a comprehensive and speedy traceability system focused on technical procedures, chain of custody, and certification knowledge to help producers secure market access (Rasal et al., 2024). Critics argue that the MSC narrowly focused on technical compliances for specific species in response to market demands, which thereby diluted the traceability of ‘sustainable fisheries’ to that of ‘sustainable fish’ (Ponte, 2012); in so doing, it potentially hides forced labour and shields public scrutiny under its eco-label (Nakamura, 2024). Moreover, the MSC’s success largely relied on existing states’ infrastructure and regulations in producer countries without fully recognizing the importance of states’ contributions (Ponte, 2012). Looking closely at a state’s traceability and certification systems allows fisheries scholars to investigate actors beyond supply chains and to explore fisheries management beyond specific species.

The EU’s CC is a key example of a legally binding traceability system designed to ensure that seafood entering the EU market is derived from sustainable and legal fishing practices, and it represents a core part of the EU’s strategy to foster ‘good fisheries governance’. By implementing its IUU Regulation (EC No 1005/2008), the EU aims to combat IUU fishing worldwide. Distinguishing itself from private certifications, the CC offers more thorough oversight of the information flow from the point of catch to market entry (Elvestad & Kvalvik, 2015), underscored by the EU’s political influence on its implementation.

This study focuses on how the EU’s IUU regulation and the issuance of a ‘yellow card’ to Vietnam in 2017 prompted significant reforms within Vietnam’s fisheries governance, emphasizing increased control and transparency in fishing practices to meet EU standards. The EU used its market pressure to influence the Vietnamese government to adopt new fisheries management via bilateral dialogue. The EU’s regular evaluation of Vietnamese fisheries reforms during the yellow-card period requires state involvement in pursuing traceability as part of sustainable fisheries practice.

We begin by conceptualizing traceability as a governance mechanism within the realm of resource management, highlighting its significance in the context of fisheries. This is followed by an analysis of the political motivations behind the establishment of traceability systems, and their intended outcomes. We then detail the introduction and implementation of the traceability system within Vietnamese fisheries, exploring the dynamics and challenges various stakeholders encountered. This examination reveals the dual nature of traceability systems: while they facilitate the flow of information crucial for sustainability, they also impose significant burdens on vulnerable fishing communities, thus exposing the complexities and dilemmas inherent in pursuing sustainable fisheries through traceability.

Rethinking traceability: a tool for sustainable governance

Our central thesis pivots on the notion that traceability, traditionally confined to the realms of food safety and quality standards, has evolved to play a crucial role in affirming the sustainability attributes of products, notably in the seafood industry. This evolution is underscored by Bailey, Miller, et al. (2016), who redefine traceability as a form of informational governance that addresses sustainability challenges through a socio-technical framework, moving beyond the basic concept of record-keeping identified by Olsen and Borit (2013). Traceability, in this broader sense, is a market-based form of sustainable governance aimed at enhancing transparency across global supply chains through various means, including regulatory mandates and voluntary actions (Bailey, Miller, et al., 2016; Djelantik & Bush, 2020; Viridin et al., 2022). This comprehensive approach enables the tracking and tracing of a product’s journey from harvest to sale, necessitating a myriad of steps such as establishing protocols, system deployment, and auditing by private entities and non-governmental organizations (NGOs) (Lewis & Boyle, 2017; Thorpe et al., 2022), with key species, such as tuna, often being the focus of such initiatives (Thorpe et al., 2022).

Recent scholarly work has concentrated on the tools and methodologies that make traceability an instrument for managing resources and products (Arts et al., 2021; Calvão & Archer, 2021). These systems serve dual purposes: ensuring transparency and exerting control within production networks (Thorpe et al., 2022). Transparency in traceability systems is aimed at the unfettered sharing of information, striving for accuracy, transmissibility, and retrievability, with digital technology playing a pivotal role in linking tangible materials to digital data (Calvão & Archer, 2021). It is an attempt to create pure information, tailored towards validity, share-ability, and findability (Eden, 2009). This centrality of information flow in traceability systems, as Mol (2006) observes, is instrumental to achieving transparency, facilitating the documentation of a product's journey from origin to consumer, and thereby ensuring the integrity of supply chains. However, the efficacy of these systems hinges on the accountability and willingness of stakeholders to disclose information (Gupta et al., 2020), a notion exemplified by the debate over the credibility of private versus governmental data collection, as seen in Indonesia's tuna industry (Bush et al., 2017).

Conversely, the aspect of control within traceability systems has received less attention, thanks to the many private-led tools and arrangements (Calvão & Archer, 2021; Campling et al., 2012; Viridin et al., 2022). Recently, however, there has been a shift towards more state-led traceability initiatives, aimed at enforcing sustainability practices through regulatory mechanisms. Such systems have been instrumental in the fisheries sector, where major importing countries like the US and EU have imposed responsibilities on importers to vet seafood products for compliance with non-IUU standards, supplemented by sporadic government audits (He, 2018). This increasing emphasis on control has led to significant reforms in countries like Thailand, aimed at establishing traceable seafood supply chains (Kadfak & Widengård, 2022).

Despite the central role of traceability systems in governance, questions linger regarding their effectiveness in promoting sustainability. The literature points to a mismatch between the intended legal frameworks and their practical application, as highlighted by Arts et al. (2021) in their study of Ghanaian timber, where the distinction between legal compliance on paper and in practice revealed a grey area accommodating local challenges and perceptions of fairness. This discrepancy often disadvantages local producers, struggling with systems designed without their input (Arts et al., 2021; Kadfak & Widengård, 2022).

Furthermore, traceability can inadvertently lead to exclusion, especially among small-scale farmers or producers who may not meet the 'good production' standards required for export, due to their different practices and entry barriers to standardization (Serrano & Brooks, 2019). Similarly, blockchain traceability initiatives, despite their potential, have sometimes exacerbated inequalities by fostering new forms of control and exclusion (Calvão & Archer, 2021). This tendency underscores the need for a more inclusive approach that considers the impacts of traceability systems on livelihoods and access to resources. Research on traceability systems has predominantly concentrated on the roles and impacts of downstream actors, such as retailers and consumers, thereby neglecting the crucial involvement of upstream participants. Doing so frequently marginalizes small-scale producers and countries with lower-to-middle income levels. This uneven focus limits an understanding of the full scope of traceability systems and also overlooks the potential contributions and challenges faced by these critical yet underrepresented stakeholders in the supply chain.

Simplified traceability systems also pose challenges, as they require the standardization of local realities, potentially overlooking the nuanced social-ecological dynamics of the contexts they aim to regulate (Djelantik & Bush, 2020). This critical view calls for re-evaluating how traceability systems are designed and implemented and advocating for solutions that are deeply embedded in the local relations and realities they seek to transform, rather than imposing a one-size-fits-all technological fix (Arts et al., 2021).

Thus, this article offers a nuanced understanding of traceability as a governance tool, highlighting both the potential and pitfalls of promoting sustainability within global supply chains. In our discussion, we revisit the critical themes of mismatch, exclusion, and simplification, which emerge as central to our analysis.

Studying Vietnam's traceability processes

In our study, we underscore the criticality of contextualizing the European Union's Catch Certificate (CC) within Vietnam's evolving seafood-governance landscape. This approach aligns with Eden's (2009, p. 1022)

concept of ‘fieldworthiness’, which advocates exploring spaces where theoretical knowledge transitions into practical, locally relevant actions that reflect the dynamics of knowledge production. To navigate the complex ways that Vietnamese stakeholders conceptualize and operationalize CC, we employed a triangulated methodology of semi-structured interviews through snowball sampling (Appendix A), participant observation, and document analysis. This mixed-methods approach allowed us to delve into the nuanced ways in which the processes associated with the CC are ‘embodied and emplaced’ in the Vietnamese context.

Our fieldwork allowed us to capture the intricate interactions among various actors involved in the CC’s verification and implementation processes. We interviewed 25 key informants, including nine government officials, five boat owners, four fish workers, two academics, and five employees from private companies. Additionally, one of our team members had the unique opportunity to accompany the national IUU inspection team on visits to two provinces, offering firsthand insights into the formal and informal dialogues between national and provincial authorities. This experience provided a lens through which to examine the tensions and challenges inherent in localizing traceability systems. However, we also faced limitations with respect to data collection, including (1) challenges in approaching central government officials and seafood enterprises directly, (2) a sensitivity around combating IUU fishing, leading to cautious and incomplete responses from our interviewees, and (3) confidential dialogues between Vietnam and the EU regarding the reform and its implementation, which limited information in national media.

Because the dialogues surrounding the carding system, a pivotal aspect of the EU-Vietnam interactions, remain largely confined to discussions between these two entities (Kadfak & Antonova, 2021; Kadfak & Linke, 2021), we relied on an extensive review of government documents, reports from private and international organizations, and news articles to complement our field observations and interviews, enriching our understanding of the CC’s implementation and its impact on Vietnam’s seafood governance.

Localizing traceability: Vietnamese adjustments

This study unfolds against the backdrop of the yellow card the EU issued to Vietnam in 2017, a critical juncture marking the EU’s concern over Vietnam’s ability to combat IUU fishing, in particular, that of Vietnamese fishing vessels (blue boats) in Asia-Pacific regions (Alonso & Marschke, 2023). The Commission stated that:

Vietnam cannot ensure that fish and fishery products entering its market and processing plants through national ports do not stem from IUU fishing. Vietnamese authorities were not able to demonstrate they have all the necessary information required to certify the legality of imports and processed products destined for the Union and its market (EC 2017, p. 5).

The yellow card was a catalyst prompting the Vietnamese government to impose significant reforms aimed at bolstering control over fishing practices and enhancing the transparency of seafood traceability. These reforms were not just procedural but signalled a shift towards a more sustainable and accountable fisheries governance model.

In response to the EU’s directives and to address the looming threat of losing access to a vital market, Vietnam embarked on a comprehensive overhaul of its fisheries governance, with a particular focus on establishing a robust traceability system designed to validate the legality of the catch certificates, moving beyond mere compliance to embrace a broader socio-technical transformation towards sustainability. A cornerstone of the reform was the implementation of the Monitor, Surveillance, and Control strategy, reflecting broader intensification of state oversight regarding fishing activities in Vietnam. A key EU requirement was the installation of vessel monitoring systems (VMS) on all Vietnamese vessels exceeding 15 metres in length, underscoring the importance of real-time tracking of fishing operations.

Following the reform, the Vietnamese government established several governance mechanisms, seeking to ensure transparency and accountability of the traceability systems, including the introduction of checkpoints for inspecting fishing practices and the use of technologies such as logbooks and VMS signals. For additional information on the authorities, management tools, and materials involved in this process, see Appendix B.

Our subsequent analysis focuses on the specifics of what is being traced and how the revamped system is being applied within Vietnam’s fisheries sector. Moreover, we highlight the challenges and tensions faced by various stakeholders in implementing these new traceability measures. We delve into these issues by focusing

on the catch certificate, highlighting the interplay between technological advancements and regulatory frameworks, on the one hand, and livelihoods struggle of commercial boat owners on the other.

Adjustments in fishing governance

Standardizing measurement: length over power

In the wake of the EU's yellow card in 2017, Vietnam transitioned from managing its fishing fleet based on boats' engine power to adopting boats' length as the primary criterion for regulating fishing effort in specific fishing zones. Fishing zones, which allocated ranges of operation – from nearshore to high seas – had previously been categorized according to engine horsepower. The shift to boat length as a measure aimed to align with international standards, facilitating clearer communication in global forums and satisfying export requirements to critical markets like the EU. Boats less than 12 m are allowed to fish in the nearshore zone; those from 12 to less than 15 m are allowed to fish in the midshore zone; and boats 15 metres and above are allowed to fish in the offshore zone. The fish and fishing activities in the offshore zone are traceable because the majority of fish sold to the EU originate from this zone.

This regulatory change, articulated by fisheries officials in media interviews, emphasized global integration and compliance with international 'rules of the game'. The transition was not only about steering Vietnam's fisheries towards sustainable, responsible practices capable of overcoming the IUU fishing challenges highlighted by the yellow card but was also about meeting external expectations.

This shift posed significant challenges for many boats, especially those traditionally fishing offshore but measuring less than the stipulated 15 metres in length. However, Vietnamese boat owners were inventive in circumventing the length requirement. Following enactment of the new law, many extended their vessels from 14.9 m to over 15 m, though the modification was expensive, costing from USD 5,000–10,000 per vessel. There are ongoing intermittent prohibitions on altering boat lengths – the most recent ban coming into effect on 20 December 2022 – and boat owners reported that it is increasingly challenging to obtain permission for new boat construction.

When the 2017 fisheries law was enacted, I had trouble getting licenses for my boats. Before the government managed fishing boats by engine power. Fishing boats having engine power of more than 90CV were issued offshore fishing licenses. At that time, I built fishing boats having a length of 14.9 m as I believed this number would bring me luck. After 2017, only fishing boats over 15 m were issued offshore fishing licenses. When I couldn't get licenses for my boats, I had to stop offshore fishing and extend my boats to over 15 m. This cost me both time and money. (Interview 2)

In Vietnamese culture, the number 'nine' is considered lucky, hence the preference for boats measuring exactly '9' m. The adaptation strategies among Vietnamese boat owners, including costly modifications to meet the new requirements, highlight the local impacts of global regulatory changes and confront local beliefs on prosperity.

The focus on boat length over engine power sparked debates within the fishing community, with many boat owners arguing that this criterion does not accurately reflect a vessel's fishing capacity or its ability to operate safely in offshore waters. According to a boat owner in Da Nang:

We don't understand why there's a regulation on the allocation of fishing zones based on the vessels' lengths. There are high-engine-power vessels that are shorter by just a few metres and aren't allowed to go offshore, while smaller vessels, albeit slightly longer, can venture far from the coast. Are we supposed to abandon our profession, which we have been dedicated to for decades, just because of this regulation? It's completely illogical and impractical, causing fishermen to suffer losses. (quoted in Khánh 2019)

The shift from managing boats based on engine power to length has not only intensified fishing activities, it also potentially exacerbates the degradation of marine resources in nearshore and midshore zones. Instead of operating across two zones, most midshore fishing boats are now restricted to just one. In addition, boats with high engine power, which would traditionally operate in the offshore, fail to meet the new length requirements and are thus confined to nearshore and midshore. This concentration of high-powered boats increases the exploitation of marine resources, further depleting stocks that are already under severe pressure. While the

length criteria determines who can and cannot access the three fishing zones, it may prove to be an ineffective measure for combating the problem of overfishing.

The resultant regulatory dilemmas underscore the complexities of aligning local practices with international standards, revealing tensions between traditional fishing operations and modern governance imperatives.

Implementing vessel traceability through VMS

Mandatory installation of VMS for larger fishing vessels was a key component of the reform, aimed at ensuring traceability and legal compliance for seafood exports. The national VMS monitoring system, Vnfishbase, enables real-time oversight of fishing activities, ensuring that vessels are in the correct zone, in line with efforts to certify catches for the EU and other demanding markets. As noted, the requirement applies for boats of 15 metres or above. By September 2023, 98% of all fishing boats measuring 15 metres or above had VMS installed (DOFI, 2023). On average, installing VMS equipment costs around USD 1,000, and boat owners are also required to pay an annual fee of USD 200 for VMS connectivity.

The financial burden of installing and maintaining VMS equipment fell heavily on boat owners, contributing to tensions over the perceived fairness and effectiveness of these measures.

I was forced to install VMS equipment. Otherwise, the government would not let my boat depart for fishing. Other fishers encroached on the waters of other countries, which cost us the yellow card. Installation of VMS equipment helps to prevent these boats. It is 'one drop of poison infects the whole tun of wine'. We've all been paying the price for the violations of a few fishing boats. (Interview 1)

The EU has identified the intrusion into international waters by Vietnamese boats as a significant illegal fishing activity. Beyond the three fishing zones, the EEZ line delineates legal and illegal fishing activities. Fish caught beyond the EEZ are automatically deemed illegal according to the new law and are not eligible for the CC. This means that these fish cannot be sold to the EU market.

To ensure compliance, the Port Management Board and Coastal Border Authority's job is to ensure that VMS is installed and remains connected on boats, thus preventing removal of equipment or transferal between vessels. Yet interviews and news articles reveal that captains frequently disable VMS, attributing the disconnection to accidents or technical issues. The Directorate of Fisheries reports that, on average, 286 fishing boats lose their VMS connections daily, indicating that only half the active fishing fleet maintains a continuous link to Vnfishbase (An, 2023).

Fishing boats with lengths over 15 metres are prohibited from fishing in the midshore. However, they often violate this regulation. On the screen, we see that they are in the midshore, but we do not have evidence to impose sanctions. The boat owners' claim that they do not fish there; their boats merely pass by or remain in the midshore area due to engine problems. (Interview 17)

Authorities are obliged to investigate and trace these issues to the VMS provider. If the provider confirms that the issue is not with the equipment, then the boat owners should receive a fine. This is a situation where the ambiguity of the term 'legal' allows for a softer form of 'non-compliance', in which everyday challenges and local perceptions influence traceability practices (Arts et al., 2021). Our interviews show that authorities in each province have interpreted the law differently, resulting in variations in the level of punishments.

Moreover, authorities understand the financial struggles that fishers experience. Two officers reflected on this point and the varied consequences after the infringement:

Provinces handle IUU fishing behaviours in different ways. In other provinces, boat owners claim that they lost their VMS signal due to errors by telecommunications operators or because their equipment had issues. These provinces request confirmation from the operators. If the operators can demonstrate that the equipment functioned properly, those provinces issue sanction decisions. Boat owners in our province have claimed that signal loss was caused by a power outage. In such cases, the operator cannot verify their claim. We must exercise caution when making a sanction decision. If I issue a sanction decision, boat owners will first pay the fine and then hire a lawyer to sue me. (Interview 16)

We see clearly on the screens that those fishing boats are crossing the border. However, we cannot issue sanctions because the maritime boundary is currently unclear. We might make ten sanction decisions but only manage to enforce one or two.

If boat owners who violate the regulations are unable or unwilling to pay the fines—mostly because they are in debt and lack the funds—we cannot force them to pay. (Interview 15)

Regardless of the rules, people will continue to find ways to sustain their livelihoods, and we have noticed several loopholes in the traceability system. For instance, smaller boats continue to challenge the borders because they do not require VMS and can thus move undetected. Those seeking to evade governmental regulatory control can adjust their boat size (by lengthening the boats), speed, and route-planning in conjunction with strategic sea navigation. This evasion is facilitated by the challenges associated with tracking mobile vessels at sea. In Vietnam, the risk of losing one's boat is considered worthwhile due to the potential for catching larger fish stocks outside Vietnam's EEZ.

The challenge of enforcing compliance, exacerbated by technical issues and deliberate non-compliance, underscores the ongoing difficulties in governance, accountability, and the pursuit of sustainable fishing practices. As one monitoring measure fails, another standardization measure is introduced. The EU's requirement for boats to be coloured according to length served as another strategy to ensure easy inspection from a distance by the authorities (see details of materials being traced in Appendix B). Colour-coding became an effective tool for visually identifying boats fishing in incorrect zones, solely by sight. Vietnam's goal is to have 100% of its fishing boats marked by 2025, and as of 2022, 97% had been marked (Liên, 2022).

Furthermore, extending the regulation beyond fishing vessels to include transshipment boats introduced additional complexities. Transshipment boats are also subject to traceability requirements. They are mandated to install VMS and register information in a logbook. These boats are designated for transporting fish and ice to and from fishing vessels at sea but are not permitted to engage in fishing. However, our interviews with boat owners reveal that workers on transshipment boats sometimes engage in fishing during their free time. Since transshipment boats are not allowed to fish, in-port inspections focus only on checking licenses, logbooks, tracking/communication equipment, and crew registration and certificates. Inspectors do not search for fishing gear on board (e.g. electric shock devices or explosives), creating another loophole in the current traceability system.

Even on fishing boats, there is lack of monitoring fishing gear. By law, boat owners are required to register the fishing gear they use. The types of gear permitted are specified in the fishing licenses and are not specific to the fishing zone. However, the law does not detail how many types of fishing gear boat owners can utilize. In practice, captains often use two–three types of gear depending on the fishing season and grounds. Although the law mandates that authorities check fishing gear before departure, we observed that, in practice, these checks on fishing gear and usage during fishing trips is not very thorough. Notably, the practice of using nets smaller than regulated persists, exacerbating marine resource depletion. Besides, mesh size and fish size are not checked for the issuing of the CC. Most boat owners and fish workers we talked to used nets that are smaller than regulated. They take any fish that get caught in their nets to earn as much as possible. This practice circumvents the intention of the EU-imposed regulations, ultimately undermining sustainability efforts.

Docking, landing, and selling of seafood

Traceability continues once the catches are landed. Vietnam boasts 83 fishing ports, yet only 49 are officially recognized as designated ports, equipped with market facilities and inspections for Catch Certificates (VASEP, 2021). Typically, each coastal province features one or two such ports. Offshore fishing boats are mandated to land at designated ports for a comprehensive traceability inspection. Failure to comply means these boats are deemed to have landed illegally under the new law. The requirement to land only at designated fishing ports results in boat owners' higher fuel costs.

Coastal authorities collect logbooks and oversee the fish-landing process, as documented in these logbooks, applying sanctions for discrepancies over 20% compared to the logbook entries (see Appendix B). Upon landing, the Port Management Boards issue receipts to boat owners or middlemen, detailing the species and quantities of fish and aligning those with logbook entries and weighed amounts. These boards issue the Source of Catch (SC) document. The Fisheries Branches then provide the CC. These entities must cross-reference

logbook data with VMS and actual catch data to issue the documents. However, due to limited staffing at ports and a small number of CC requests from the seafood-exporter companies, many logbooks go unchecked. Issuance of these documents also incurs a fee based on the validation of catch amount. To minimize costs, applicants often consolidate catches from several boats into a single SC application. Seafood enterprises or middlemen then submit SC documents to acquire a Catch Certificate, a process that must be completed within two working days of landing.

Despite the rigorous traceability system, only a small fraction of Vietnam's catch is certified. In one coastal province, observed in 2021, from a total catch of over 63,000 mt, only 129 CCs were issued for 1.5 mt. Nationwide, Vietnamese fishers catch over 3 million tons of seafood annually, but only 43,998 tons, which was predominantly for export to the EU, received, in total, 3,300 CCs (Thời et al., 2022). The remainder was consumed domestically or sent to markets without CC requirements, such as China or the Middle East. This indicates a low issuance of CCs, leaving a significant amount of catch unmonitored. The low number of CCs stems primarily from two factors: they are issued upon request by middlemen or seafood enterprises, and only catches destined for either the EU or US typically require a CC. Furthermore, a substantial portion of the catch fails to meet CC criteria due to inconsistencies among logbook entries, actual catch, and VMS data.

Captains are tasked with maintaining accurate logbooks at sea. They must fill in where they fished, which species, and how many kilos of each species was caught, which is challenging given the multi-species nature of their catches and the generally low-level of education among captains. Often, to meet the inspection requirements, logbooks are completed post-landing, leading to further inaccuracies. As one provincial fisheries manager noted:

Captains are not writing their fishing diaries; they're writing their fishing memoirs. They often fill-in the logbook after they arrive. They may not remember exactly where they fished and how many fish they caught. (Interview 19)

Moreover, the difficulty in correlating logbook and VMS data is compounded by frequent VMS disconnections. As a result, many domestic boats are ineligible for CCs, forcing seafood-processing companies to import certified fish for processing and re-export it to the EU.

This shift has significantly altered the domestic to imported ratio, affecting the industry's profitability and leading to increased exports to markets not requiring CCs. This issue is raised by a staff and an owner, respectively, of seafood-processing enterprises:

The ratio of domestic to imported materials is 50:50. Before receiving the yellow card, the share of domestic materials was higher than that of imported, around 60–80%. We have reduced our domestic purchases because, after the yellow card, many domestic fishing vessels failed to meet the requirements of the CC. Due to the strictness in certifying the origin of caught fish, our purchases of domestic fish catches have decreased. We have had to import seafood. This decrease in the purchase of domestic materials and the increase in imports have reduced our profits. (Interview 11)

We buy 600 tons of materials monthly. The ratio of domestic to imported seafood is 30:70. Before the yellow card, we did not import materials. Since then, we haven't been able to buy enough material from domestic fishing vessels. Many fishing vessels failed to obtain CCs because they fished illegally or their VMS equipment was disconnected. Moreover, the total fish catch has progressively decreased. (Interview 13)

Every seafood container from Vietnam destined for the EU market must have a CC, with inspection costs reaching up to USD 708 per container. Non-compliance with certificate rules results in exporters bearing these costs (Phuong & Pomeroy, 2022, p. 16). The higher cost of imported seafood and the strict origin certification have negatively impacted the sale of domestic fish and the profitability of seafood companies.

The traceability system: mismatch, exclusion, and simplification

The initiation of a top-down traceability system in Vietnam, aimed at fostering transparency in seafood production, reveals a stark mismatch between regulatory intentions and on-the-ground realities. This disconnect, epitomized by the gap between 'legality-on-paper' and 'legality-in-practice' (Arts et al., 2021) manifests in the procedural application of the CC. Although CC applications necessitate real-time logbook entries detailing the location, species, and volume of catch, in practice, logbooks are often filled out post-landing, merely to fulfil

EU requirements. This serves to satisfy regulatory checkboxes more than to ensure sustainable practices. This procedural mismatch echoes broader issues seen in fisheries reform efforts elsewhere, such as Thailand, where traceability has transformed into a cumbersome documentation process rather than a means to ensure sustainability (Kadfak & Widengård, 2022).

The crux of the mismatch lies not just in the discrepancy between written and enacted policies but in the fundamental misunderstanding of fishing operations and ecological stewardship. Such regulatory frameworks often overlook the dynamic nature of marine environments and the socio-economic realities of fishing communities, leading to rule-breaking activities as operators navigate these impracticalities. This challenge is further compounded when measures like VMS are deliberately circumvented, showcasing a deliberate disconnect between the system's aims and its practical implications. Mismatches between regulations and fishing practices lead to rule violations, evidenced by instances of captains disabling VMS to fish outside the EEZ or of transshipment vessels engaging in fishing. The mismatches undermine not only the fight against IUU fishing but also the broader goal of fostering truly sustainable fisheries, calling for a more integrated approach that bridges policy intentions with the lived experiences of fishing communities.

Second, the reform's singular focus on environmental sustainability has inadvertently side-lined the social dimensions of sustainability, raising critical issues of exclusion. The question of 'traceability for whom' highlights the system's limitations, as it disproportionately impacts smaller operators who are often from marginalized communities. The added infrastructure for CC places undue burdens on local authorities and producers to adopt new practices and technologies (cf. Djelantik & Bush, 2020). This requirement not only entails financial costs but also necessitates a degree of technical and bureaucratic acumen, excluding those without the means or knowledge to comply.

This exclusion is not merely a by-product of the system's design but a reflection of deeper socio-economic divides within the fishing sector. The emphasis on vessel modifications, VMS, and complex documentation processes privileges larger, more economically robust operators over small-scale fishers, further entrenching existing inequalities. Such an approach to traceability overlooks the diverse realities of fishing practices and community livelihoods, effectively marginalizing those it ostensibly aims to protect and support.

Moreover, the exclusion facilitated by the traceability system extends beyond individual operators to impact community resilience and sustainable development. By narrowing the criteria for participation, the system risks alienating key stakeholders essential for the collective stewardship of fisheries resources, thus jeopardizing the very foundation of sustainable fisheries management. Addressing these issues of exclusion requires a recalibration of the traceability system to embrace inclusivity, consideration of what vessels have historically fished in which zones, and ensuring that sustainability measures enhance rather than undermine community livelihoods and fisheries-management efforts. Inclusivity also includes the understanding of how traceability, as a governing intervention, integrates into existing seafood value chains at the local level. As Doddema et al. (2020) argue, such interventions are not simply taken over but 'they are translated into (new) performances of traceability practice and variously incorporated into locally embedded social practices' (Doddema et al. 2020, p. 8). Their case concludes that new traceability systems (primarily the CC) can be successfully adopted if the key actors can exercise control over supply chains. On the contrary, disruptive responses were observed when the traceability required the re-configuration of practices beyond the actors' control (Doddema et al. 2020). A similar example from Indonesia reveals how a local NGO become a knowledge intermediary by building traceability embeddedness through social interactions and practice (Djelantik & Bush, 2020).

Third, the traceability system's inherent goal of simplification – aimed at underpinning sustainability standards and certifications – reveals significant challenges when applied to the dynamic nature of fishing practices. The process of tracing both mobile entities (boats) and fixed geographical delineations (fishing zones and docking sites) underscores the complexity of enforcing a system designed for simplicity and transparency. This simplification effort, although well-intentioned, often fails to capture the nuanced realities of fishing operations and people's behaviour, leading to gaps in the system's effectiveness.

The traceability system's primary objective is to bolster sustainable fisheries by eliminating IUU fishing. However, the practical difficulties and loopholes encountered in tracing – whether the movement of vessels across designated zones, the accurate reporting from docks, or the proper classification of catches – highlight a disconnection between the system's intended purpose and its operational outcomes. For instance, the reliance on vessel length as a criterion for zone allocation oversimplifies the diversity of fishing capacities and ecological impacts, potentially neglecting other crucial factors such as type of fishing gear, catch method, and fishing time (as evident with the transshipment boats). Real-time tracking via VMS, while a step forward in combating IUU fishing, does not resolve the broader issue of overfishing, as the choice of boat length over engine volume as a regulatory measure falls short. The restriction of larger boats (15m+) to offshore zones aims to protect small-scale nearshore fisheries and deter IUU fishing in international waters. However, this zoning strategy risks overcrowding and potential long-term overexploitation of midshore zones. Moreover, the crowding of certain zones due to restrictive policies not only fails to address the root causes of overfishing but also inadvertently encourages IUU activities by pushing operators to seek less-regulated or monitored areas. The scenario underscores a critical oversight: simplifying sustainability through traceability without adequately accounting for the sector's complexities can inadvertently undermine efforts to combat IUU fishing.

In essence, while the traceability system is pivotal for aligning with global sustainability targets, its current application within Vietnamese fisheries illustrates the tension between simplification for compliance and the multifaceted reality of fishing effort and requirements to ensure sustainable fishing practices. To truly mitigate IUU fishing and advance towards sustainable fisheries, the traceability system must evolve beyond mere simplification, embracing a more holistic understanding of fishing effort and sustainability that encompasses ecological, economic, and social dimensions.

Conclusion: reframing fisheries sustainability through state-led traceability

We have endeavoured to address two pivotal issues regarding fisheries sustainability: the role of state-led traceability systems and their effectiveness in bolstering sustainability efforts. Our paper endeavours to fill a critical gap in the literature on traceability systems, which has predominantly focused on private-led mechanisms. We do so by unpacking the implementation of the CC in Vietnam and the challenges that system has in ensuring transparency and accountability through state intervention. The implementation of VMS and port inspections exemplifies how state infrastructure can enhance the transparency and accountability of traceability processes. Furthermore, the EU's imposition of the yellow card catalyzed significant fisheries reform in Vietnam, showcasing the EU's leading role in compelling trading partners to adopt comprehensive traceability measures for seafood products. Compared to its global counterparts, the EU's efforts stand out, although emerging initiatives like the United States' Seafood Import Monitoring Program and Japan's adoption of Catch Documentation Schemes indicate a shift towards broader international commitment to IUU fishing (He, 2018).

Our study has re-centred the state as a driver of traceability to improve seafood sustainability. Similar to private-led efforts at traceability, like the MSC's, the EU's CC is voluntary and has employed trade barriers to influence seafood producers, processors, and traders to ensure full transparency of information. These two systems drew upon existing international regulations to legitimize traceability interventions among actors. However, as our example shows, the two systems have many differences. The private-led system is based on market-based incentives, which rely on markets' and consumers' willingness to pay for consumer-facing traceability (Bailey, Miller, et al., 2016), while the state-led system is built on the basis of a normative goal of becoming a greener society. Moreover, as our case study highlights, the most important difference in the two systems is the scale of impact that the EU's CC made to fisheries management as a whole, in contrast to the MSC's aim of sustainability of targeted species. In addition, even though the MSC is considered to be the world's dominant wild-catch traceability system, it covers only a small percentage of the global market, specifically markets in Global North. Whereas the EU is able to exercise its market power to strategically pressure transformative change at the state level, as we observe the reterritorialization process of fisheries governance, in order to produce a CC as the end result.

Relying on private actors to ensure sustainability and ethical standards within supply chains has proven insufficient. This study aligns with existing research advocating that state mechanisms play a stronger role in ensuring comprehensive sustainability standards. Private sector efforts, while commendable for focusing on corporate social responsibility and sustainable sourcing, often fall short of addressing underlying issues of fisheries sustainability (Bailey, Miller, et al., 2016). Traceability, in this context, is sometimes leveraged by companies to project an image of innovation and responsibility without adequately addressing fundamental questions of inclusivity and cost.

Addressing the influx of untraceable seafood into markets with less stringent regulations remains a formidable challenge. Vietnam's experience reveals that traceability's efficacy in enhancing sustainability is complex and multifaceted. The reduction of sustainability to merely environmental concerns, particularly the focus on eliminating IUU fishing within the EEZ, underscores the need for a broader conception of sustainability that includes social dimensions. In other words, the meaning of sustainability is being diluted (Widengård et al., 2018) in the way that the value of boat owners' livelihoods is reduced to fit the EU's sculptured traceability system. Despite progress in curtailing IUU fishing, the increased concentration of fishing activities within the Vietnamese zone has had significant ecological impacts, as our findings indicate.

Future research on seafood traceability would benefit from further exploring emerging alternative place-based initiatives, where state and non-state actors drive the rise of territorial eco-certification initiatives, as an alternative to MSC's certificate (Foley & Havice, 2016). These place-based initiatives are based on one country's fishstock within a singular EEZ, which requires direct governing and policy infrastructure and financial support. In addition, one needs to pay attention to the rise of new EU supply-chain regulations (e.g. mandatory due diligence legislation and forced labour regulation) that focus not only on traceability compliance but also on potential punishment of firms. The EU continues to use its market power to create a 'paradigm shift in corporate accountability from voluntary action to a non-negotiable standard' (Gustafsson et al., 2023, as cited in Wilhelm, 2024, p. 2). This aligns with our argument for bringing the state into traceability studies.

In conclusion, our Vietnamese case study highlights the nuanced challenges and opportunities presented by state-led traceability in achieving true sustainability in fisheries. It underscores the necessity of integrating environmental and social considerations into traceability systems, questioning whom these efforts ultimately serve and at what cost. As the global community moves towards more stringent traceability requirements, the lessons from Vietnam offer valuable insights into creating more effective, equitable, and comprehensive approaches to ensuring the sustainability of seafood supply chains. Measures aimed at closing loopholes in traceability and illegal fishing activities remained fraught with challenges. As Vietnam endeavoured to adapt its fishing industry to meet international standards and remove the yellow card imposed by the EU, the experiences of boat owners, government officials, and industry stakeholders reflect the multifaceted and complicated nature of these reforms. Balancing global demands with local realities, Vietnam's journey towards sustainable fisheries governance continues to evolve, marked by ongoing adaptation and circumvention in the pursuit of equitable or functional solutions for all involved.

Acknowledgements

We would like to thank the three anonymous reviewers for their constructive comments. We also like to thank all the informants who took time to respond to our questions.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research received support from the Vetenskapsrådet [grant number 2018-05925 and 2023-05743], and the Svenska Forskningsrådet Formas [grant number 2019-00451 and 2023-00666].

ORCID

Alin Kadfak  <http://orcid.org/0000-0001-5954-6671>

Tong Thi Hai Hanh  <http://orcid.org/0000-0001-8732-8639>

Marie Widengård  <http://orcid.org/0000-0002-2273-6276>

References

- Alonso, G., & Marschke, M. (2023). Blue boats in deep waters: How aspects of IUU policy impact Vietnamese fish workers. *Maritime Studies*, 22(2), 14. <https://doi.org/10.1007/s40152-023-00303-7>
- An, D. (2023). Quản lý chặt việc lắp đặt thiết bị giám sát hành trình tàu cá. *Thủy sản Việt Nam*. <https://thuysanvietnam.com.vn/quan-ly-chat-viec-lap-dat-thiet-bi-giam-sat-hanh-trinh-tau-ca/>
- Arts, B., Heukels, B., & Turnhout, E. (2021). Tracing timber legality in practice: The case of Ghana and the EU. *Forest Policy and Economics*, 130, 102532. <https://doi.org/10.1016/j.forpol.2021.102532>
- Bailey, M., Bush, S. R., Miller, A., & Kochen, M. (2016). The role of traceability in transforming seafood governance in the global South. *Current Opinion in Environmental Sustainability*, 18, 25–32. <https://doi.org/10.1016/j.cosust.2015.06.004>
- Bailey, M., Miller, A. M., Bush, S. R., van Zwieten, P. A., & Wiryawan, B. (2016). Closing the incentive gap: The role of public and private actors in governing Indonesia's tuna fisheries. *Journal of Environmental Policy & Planning*, 18(2), 141–160. <https://doi.org/10.1080/1523908X.2015.1063042>
- Boritt, M., & Olsen, P. (2012). Evaluation framework for regulatory requirements related to data recording and traceability designed to prevent illegal, unreported and unregulated fishing. *Marine Policy*, 36(1), 96–102. <https://doi.org/10.1016/j.marpol.2011.03.012>
- Bush, S. R., Bailey, M., van Zwieten, P., Kochen, M., Wiryawan, B., Doddema, A., & Mangunsong, S. C. (2017). Private provision of public information in tuna fisheries. *Marine Policy*, 77, 130–135. <https://doi.org/10.1016/j.marpol.2016.12.019>
- Calvão, F., & Archer, M. (2021). Digital extraction: Blockchain traceability in mineral supply chains. *Political Geography*, 87, 102381. <https://doi.org/10.1016/j.polgeo.2021.102381>
- Campling, L., Havice, E., & Howard, P. (2012). The political economy and ecology of capture fisheries: Market dynamics, resource access and relations of exploitation and resistance. *Journal of Agrarian Change*, 12(2–3), 177–203. <https://doi.org/10.1111/j.1471-0366.2011.00356.x>
- Djelantik, A. S. K., & Bush, S. (2020). Assembling tuna traceability in Indonesia. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, 116, 172–179.
- Doddema, M., Spaargaren, G., Wiryawan, B., & Bush, S. R. (2020). Responses of Indonesian tuna processing companies to enhanced public and private traceability. *Marine Policy*, 119, 104100. <https://doi.org/10.1016/j.marpol.2020.104100>
- DOFI. (2023). Hiện trạng và giải pháp tháo gỡ khó khăn trong công tác quản lý vận hành Hệ thống Giám sát tàu cá. Website Tổng cục thủy sản (Directorate of Fisheries – DOFI).
- EC. (2017). Commission decision of 23 October 2017 notifying the Socialist Republic of Vietnam of the possibility of being identified as a non-cooperating third country in fighting illegal, unreported and unregulated fishing (2017/C 364/03). Retrieved June 26, 2024, from [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1027\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1027(01))
- Eden, S. (2009). The work of environmental governance networks: Traceability, credibility and certification by the Forest Stewardship Council. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, 40(3), 383–394.
- Elvestad, C., & Kvalvik, I. (2015). Implementing the EU-IUU regulation: Enhancing flag state performance through trade measures. *Ocean Development & International Law*, 46(3), 241–255. <https://doi.org/10.1080/00908320.2015.1054745>
- Foley, P., & Havice, E. (2016). The rise of territorial eco-certifications: New politics of transnational sustainability governance in the fishery sector. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, 69, 24–33.
- Gupta, A., Boas, I., & Oosterveer, P. (2020). Transparency in global sustainability governance: To what effect? *Journal of Environmental Policy & Planning*, 22(1), 84–97. <https://doi.org/10.1080/1523908X.2020.1709281>
- He, J. (2018). From country-of-origin labelling (COOL) to seafood import monitoring program (SIMP): How far can seafood traceability rules go? *Marine Policy*, 96, 163–174. <https://doi.org/10.1016/j.marpol.2018.08.003>
- Kadfak, A., & Antonova, A. (2021). Sustainable networks: Modes of governance in the EU's external fisheries policy relations under the IUU Regulation in Thailand and the SFPA with Senegal. *Marine Policy*, 132, 104656. <https://doi.org/10.1016/j.marpol.2021.104656>
- Kadfak, A., & Linke, S. (2021). More than just a carding system: Labour implications of the EU's illegal, unreported and unregulated (IUU) fishing policy in Thailand. *Marine Policy*, 127, 104445. <https://doi.org/10.1016/j.marpol.2021.104445>
- Kadfak, A., & Widengård, M. (2022). From fish to fishworker traceability in Thai fisheries reform. *Environment and Planning E: Nature and Space*, 6(2), 1322–1342. <https://doi.org/10.1177/25148486221104992>
- Khánh, N. (2019). Hàng nghìn tàu cá không được ra khơi: Cách nào giải cứu? *Tiền phong online*. Retrieved from December 12, 2023, from <https://tienphong.vn/hang-nghin-tau-ca-khong-duoc-ra-khoi-cach-nao-giai-cuu-post1137104.tpo>
- Lewis, S. G., & Boyle, M. (2017). The expanding role of traceability in seafood: Tools and key initiatives. *Journal of Food Science*, 82 (S1). <https://doi.org/10.1111/1750-3841.13743>

- Liên, D. T. B. (2022). Thủy sản Việt Nam và quá trình thực hiện các khuyến nghị của Ủy ban Châu Âu để tháo gỡ thẻ vàng IUU. *Viện nghiên cứu chiến lược và chính sách công thương, Bộ công thương*. Retrieved from December 20, 2023, from <https://vioit.org.vn/vn/chien-luoc-chinh-sach/thuy-san-viet-nam-va-qua-trinh-thuc-hien-cac-khuyen-nghi-cua-uy-ban-chau-au-de-thao-go-the-vang-iuu-4843.4050.html>
- Mol, A. P. (2006). Environmental governance in the Information Age: The emergence of informational governance. *Environment and Planning C: Government and Policy*, 24(4), 497–514. <https://doi.org/10.1068/c0508j>
- Nakamura, K. (2024). Is tuna ecolabeling causing fishers more harm than good? *NPJ Ocean Sustainability*, 3(1), 39. <https://doi.org/10.1038/s44183-024-00074-6>
- Olsen, P., & Borit, M. (2013). How to define traceability. *Trends in Food Science & Technology*, 29(2), 142–150. <https://doi.org/10.1016/j.tifs.2012.10.003>
- Phuong, T. V., & Pomeroy, R. S. (2022). Combating illegal, unreported and unregulated (IUU) fishing and removing yellow card from European commission (EC): Vietnam's determined actions. *Asian Fisheries Science*, 35(2022), 13–25.
- Ponte, S. (2012). The Marine Stewardship Council (MSC) and the making of a market for 'sustainable fish'. *Journal of Agrarian Change*, 12(2-3), 300–315. <https://doi.org/10.1111/j.1471-0366.2011.00345.x>
- Rasal, J., Melnychuk, M. C., Lejbowicz, A., Montero-Castaño, C., Ferber, S., & Longo, C. (2024). Drivers of success, speed and performance in fisheries moving towards Marine Stewardship Council certification. *Fish and Fisheries*, 25(2), 235–250. <https://doi.org/10.1111/faf.12805>
- Serrano, A., & Brooks, A. (2019). Who is left behind in global food systems? Local farmers failed by Colombia's avocado boom. *Environment and Planning E: Nature and Space*, 2(2), 348–367. <https://doi.org/10.1177/2514848619838195>
- Thời, T., Kế, T., & Tùng, H. (2022). Tăng cường hiệu quả giám sát và truy xuất nguồn gốc thủy sản. Nhân dân online. Retrieved June 24, 2024, from https://nhandan.vn/tang-cuong-hieu-qua-giam-sat-va-truy-xuat-nguon-goc-thuy-san-post721153.html?fbclid=IwY2xjawGNhsdleHRuA2FlbQIxMAABHQ2KzeDyREsdYHl838CgYUfx1xIrrR_933FVEpGZCkr20x9jBUPevkVqw_aem_QWL5jpBM0Xl1db6DSuQ_KQ
- Thorpe, A., Hermansen, O., Pollard, I., Isaksen, J., Failler, P., & Touron-Gardic, G. (2022). Unpacking the tuna traceability mosaic – EU SFPAs and the tuna value chain. *Marine Policy*, 139, 105037. <https://doi.org/10.1016/j.marpol.2022.105037>
- VASEP. (2021). Trao đổi, kiến nghị tháo gỡ bất cập trong thực hiện kiểm soát IUU, cấp S/C, C/C tại các địa phương. Công văn số 47/CV-VASEP/2021 gửi Tổng cục thủy sản.
- Viridin, J., Vegh, T., Ratcliff, B., Yozell, S., Havice, E., Daly, J., & Stuart, J. (2022). Combatting illegal fishing through transparency initiatives: Lessons learned from comparative analysis of transparency initiatives in seafood, apparel, extractive, and timber supply chains. *Marine Policy*, 138, 104984. <https://doi.org/10.1016/j.marpol.2022.104984>
- Widengård, M., Nightingale, A., Roberntz, P., Edman, T., & Carlson, A. (2018). Seeing like a standard: EU, sustainable biofuels, and land use change in Africa. *ACME: An International Journal for Critical Geographies*, 17(1), 49–87. <https://doi.org/10.14288/acme.v17i1.1258>
- Wilhelm, M. (2024). Mandatory due diligence legislation: A paradigm shift for the governance of sustainability in global value chains? *Journal of International Business Policy*, 1–7. <https://doi.org/10.1057/s42214-024-00193-4>