itad

Research and Evaluation of Import Control Rules Designed to Reduce Illegal, Unregulated, and Unreported Fishing

A review of their effectiveness

Authors: Tom Gillhespy (lead author), Karli Thomas, Simon Foster, Kassim Gawusu-Toure with Lalu Hizbolluh and Sari Tolvanen (Indonesia), Alejandra Mendoza Pfennig (Peru) and Kyei Yamoah (Ghana)

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Disclaimer

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Acronyms and Abbreviations

AIS	Automatic Identification System
ATLI	Tuna Longline Association
CAPECAL	Peruvian Chamber of Jumbo Flying Squid
CATCH	European Community catch certification scheme
CDS	Catch documentation schemes
Defra	Department for Environment, Food and Rural Affairs
DG MARE	Directorate-General for Maritime Affairs and Fisheries
DIREPROs	Regional Production Directorates
EJF	Environmental Justice Foundation
EMS	Electronic Monitoring Systems
EU	European Union
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FIP	Fisheries Improvement Program
FONDEPES	National Fisheries Development Fund
GDP	Gross domestic product
ICRs	Import Control Rules
IDR	Indonesian Rupiah
IUU	Illegal, unreported, and unregulated
JFS	Jumbo flying squid
KIIs	Key informant interviews
LRR	Legal, regulated and reported
MoFAD	Ministry of Fisheries and Aquaculture Development
MSC	Marine Stewardship Council
NGO	Non-governmental organization
NOAA	National Oceanic and Atmospheric Administration
PSMA	Port State Measures Agreement
RFMOs	Regional Fisheries Management Organizations
ROP	Fisheries Management Regulation
SIMP	Seafood Import Monitoring Program
SISESAT	Sistema Nacional de Información de Seguridad y Salud en el Trabajo
SNI	Comité de Pesca y Acuicultura de la Sociedad Nacional de Industrias
SONAPESCAL	National Society of Artisanal Fishing of Peru
SPRFMO	South Pacific Regional Fisheries Management Organization
UNODC	United Nations Office on Drugs and Crime
US	United States
USAID	United States Agency for International Development
USD	United States dollar
VMS	Vessel Monitoring System

1
Executive Summary

Background

Illegal, unreported, and unregulated (IUU) fishing poses a significant threat to global fish stocks, marine ecosystems, and the economic well-being of communities dependent on fishing. Import control rules (ICRs) have been established to prevent the entry of illegally sourced fish products into key markets and incentivize legal and regulated fishing.

Research purpose and scope

This research considered three key ICRs: (i) the European Union's (EU's) IUU Regulation; (ii) the United States' Seafood Import Monitoring Program (SIMP); and (iii) Japan's Domestic Trade of Specific Marine Animals and Plants Act. Collectively, the EU, US, and Japanese markets represent 58%[1] of global seafood imports.

The purpose is to help the Walton Family Foundation and its networks to better understand how ICRs can influence IUU fishing, the support they need to be effective and any unintended consequences they may have. This can then inform decision-making that optimizes the strategic value of grant making and other efforts by the Walton Family Foundation and its partners.

Methodology

Our methodology included: (i) systems mapping of the ICRs to understand how they intend to achieve change; (ii) reviewing the available evidence; (iii) outcome-harvesting workshops to identify counter IUU fishing 'milestones' in Ghana, Peru and Indonesia; (iv) conducting interviews to build the evidence around these milestones and the contributions ICRs have made. A series of analysis and reflection workshops were then held internally and with the Walton Family Foundation networks to inform our findings, conclusions, and recommendations.

Key conclusions

C1: ICRs can increase the likelihood that both government and industry interests align, creating important tipping points within exporting countries that lead to meaningful benefits in countering IUU fishing.

Collectively, the three ICRs send a message to exporting countries that IUU fishing is a real concern, and that improved traceability of supply chains is a necessity to access the EU, US, and Japanese markets. The threat of economic reprisals can encourage the alignment of commercial and political interests, bringing a sense of shared urgency and consequence to the issue of IUU fishing, and opening up the political space for allies of better fisheries management to be heard. This has resulted in meaningful changes that shrink the enabling environment in which IUU fishing can take place. In particular, the EU ICR, which combines a catch documentation scheme (CDS) with national-level seafood trade-restrictive measures, is a powerful tool to influence change.

C2: All ICRs have a CDS as a central component of their design, which can kick-start important formalization processes that lay the foundations for more sustainable fisheries management in the future.

The requirement for CDS to report information such as vessel identification and location of catch means that any fishery wanting to export into the EU, US, or Japan needs to have basic regulations and systems in place. These lay the foundations for future expansion and tightening of regulations that are nationally led, giving exporting governments more control and influence over how they manage their fisheries in the future. Often, this goes beyond what is required to satisfy the ICRs, and has spillover effects into other markets that do not have ICRs.

C3: The ICRs have contributed to shifts in cultural and political attitudes toward IUU fishing which, coupled with tightening regulations and enforcement, have helped to shift the political economy of IUU fishing to be less appealing than 10 years ago.

Most governments want to avoid the political and economic consequences of being singled out as high risk by the ICRs. At the same time, there is often domestic discontent with how fisheries are managed and exploited. ICRs can build on this, raising the profile of IUU fishing and encouraging political will for change, while offering a blueprint for progressive action. Once these actions have been adopted, they can normalize the idea of fishing regulations culturally and politically, and embed systems that are recognized as having wider benefits for government, industry and communities, combined with increased regulations and enforcement. While this can shift the political economy of IUU fishing, making it less desirable, economic incentives to engage in illegal fishing remain enabled by weaknesses throughout the supply chain; notably challenges to protect the integrity of the 'first mile' and relatively limited demand for validation at the market end. These challenges are set to increase as exporting governments increasingly move to science-led fisheries management, which points toward regulation of artisanal fleets that until now have typically been outside the purview of ICRs.

C4: For ICRs to be most effective at reducing IUU fishing, they need to take a systemic approach to assessing the proficiency of an exporting country in order to manage its fisheries and provide the necessary support to government and industry to deliver systemic change.

The most effective way for ICRs to protect their supply chains from IUU fishing is to reduce the prevalence of IUU fishing overall, while also trying to filter out the non-IUU from IUU products. The government-to-government approach of the EU ICR, and its assessment of all national and international obligations of an exporting country to tackle IUU fishing, is the most effective approach of the three ICRs, encouraging not just improvements to CDS, but systemic reforms that have benefits beyond fisheries management. ICRs also need to be accompanied by a package of support, recognizing the benefits of integrating the skillsets and resources of governments, civil society, and the private sector. In practice, this support can be patchy and inadequate in meeting the scale of the challenge.

Recommendations

The following are intended to inform the strategic direction of the Walton Family Foundation and the wider funders' network.

R1: Support the expansion of the Seafood Import Monitoring Program (SIMP) to reduce the overall prevalence of IUU fishing as key to protecting US markets from IUU products.

Build on the foundations made by the CDS and engagement with private sector by sharing evidence and expertise with the National Oceanic and Atmospheric Administration (NOAA) and other government agencies, retailers, and suppliers to advocate for policy decisions being evidence-informed and for the revised version of SIMP to: (i) cover all species; (ii) strengthen the political and economic consequences of violations in order to motivate national-level responses to counter IUU within exporting countries; (iii) consider extending sanctions to suppliers and retailers in the US to increase the risk of trading in IUU products across the supply chain; (iv) increase elements of government-to-government engagement to better support the systemic changes required to shrink the enabling environment for IUU fishing; and (v) consider how the US can better integrate responses to human rights with its SIMP systems.

R2: Advocate for the expansion of the Japanese ICR to reduce the overall prevalence of IUU fishing as key to protecting Japanese markets from IUU products, building on its framework as a government-to-government ICR scheme.

As with Recommendation 1, take opportunities to expand and refine the Japanese ICR to: (i) include the species covered, ideally to include all species; (ii) build on the harmonization between the Japanese and EU CDS and follow the EU move to electronic CDS to improve efficiency and transparency, reduce opportunities for fraud and misreporting, and encourage collaboration and data sharing with other countries; (iii) strengthen economic and political consequences of violations that encourage alignment of government and industry interests at a national level; (iv) increase elements of the government-to-government approach to better support systemic changes to shrink the enabling environment for IUU fishing; (v) build on Japan's engagement in regional fisheries management organizations (RFMO) CDS in addition to its own ICR, to increase harmonization and multilateral approaches.

R3: Continue to support the EU ICR and the delivery of fisheries management systems that can reduce the prevalence of IUU fishing.

Continue to share intelligence, evidence, and technical support with the EU, encouraging more capacity building and innovation to protect the integrity of the first mile of supply chains, promote transparency of decisions and audits, and consistent delivery of member state responsibilities to deter those benefiting from infringements. In parallel, use the opportunity that EU-led dialogues under the ICR can provide to encourage exporting countries to adopt good practices for fisheries management.

R3: Develop a global ICR strategy or 'playbook' that sets out how ICRs can work together, recognizing the benefits and complementarities of the different ICR models and how they can be used to different effect in different contexts.

Drawing on the expertise of the IUU coalitions, this should be informed by a horizon scan of future risks and opportunities, and where cross-sectoral interests align. The strategy should consider how different ICR models can engage politically sensitive unregulated markets. The strategy should also provide guidance and encouragement to new ICRs of strategically important countries, in part to counter the increasingly large unregulated markets that can diminish the influence of existing ICRs.

R5: Invest in innovation and uptake of approaches that improve the integrity of supply chains in the first mile, recognizing the advances already made by exporting countries and their international partners.

In particular, support ongoing efforts to pilot digitalized reporting systems and CDS, building the evidence base to encourage uptake globally.

R6: Support governments that have the ambition to extend regulations to artisanal fleets in a durable way, including outreach and awareness raising within fishing communities.

Support should be available to these communities to help them meet new regulations and understand why they are needed, and help governments to integrate any new tools and approaches associated with the ICRs to benefit legal, sustainable, and well-managed fisheries.

R7: Advocate for improved transparency over beneficial ownership of fishing vessels.

Work with government agencies and transparency experts to identify good practice for the fishing industry and encourage strategic countries to adopt these practices.

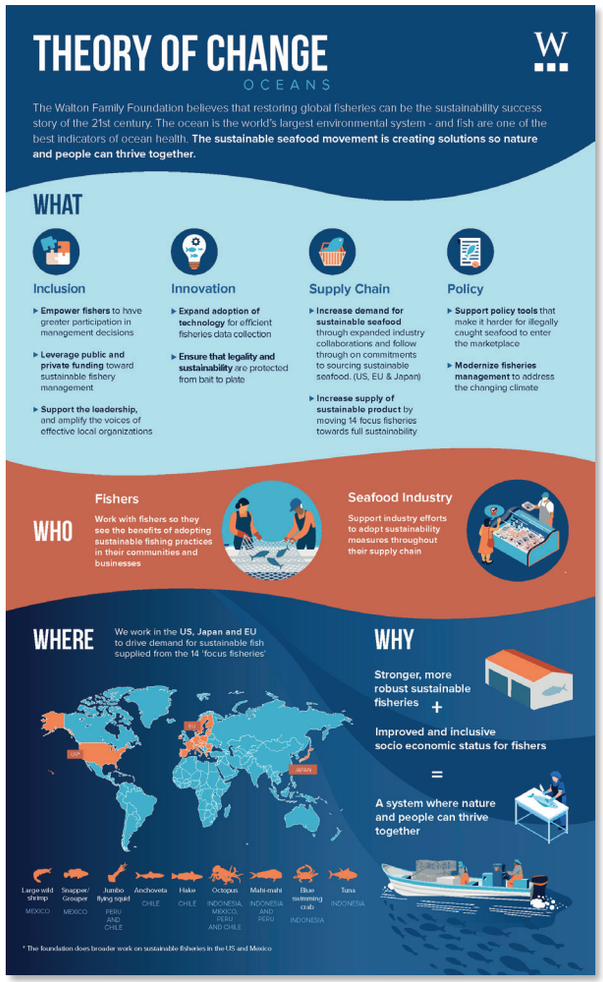
2
Introduction

Illegal, unreported, and unregulated (IUU) fishing is a significant global issue, contributing to major environmental, economic, and social challenges. Although it is intrinsically hard to measure, it has been estimated that IUU fishing accounts for between 11 and 26 million tons per year (over 20% of the global catch), valued at USD 10-23.5 billion annually.[2] IUU leads to biodiversity loss, habitat destruction, and the depletion of fish stocks, impacting marine ecosystems and the livelihoods of legal fishers. Additionally, IUU fishing can undermine food security, particularly in regions dependent on fish as a primary food source. This impacts men and women in different ways, with men typically engaged directly in capture fishing and aquaculture (81% are men), and women accounting for about 50% of secondary trading and processing roles.[3] IUU fishing can also be associated with human rights abuses, including forced labor and poor working conditions.

In response, key seafood markets such as the European Union (EU), the United States (US), and Japan have developed import control rules (ICRs) to try to counter IUU fishing, while incentivizing legal and regulated fishing to support more sustainable fisheries management. The EU IUU Regulation entered into force in 2010,[4] requiring catch certificates for all imports, and utilizing a yellow/red card system to identify and penalize non-compliant countries. The US launched the Seafood Import Monitoring Program (SIMP) in 2018,[5] requiring documentation for certain imported species. Japan introduced the Act on Ensuring the Proper Domestic Distribution and Importation of Specified Aquatic Animals and Plants, which came into force in 2022.[6] Collectively, the EU, US and Japanese markets represent 58%[7] of global seafood imports.

3 Research Purpose and Scope

The Walton Family Foundation and its network of funders have supported a wide range of interventions to counter IUU fishing, including engagement and support to regional IUU coalitions that take particular interest in the development and operationalization of ICRs. This work contributes to the overall strategy that guides the Walton Family Foundation's work, which is illustrated in the Walton Family Foundation theory of change, on the right.



By supporting policies like the ICRs that can prevent the sale of illegally caught seafood, the Walton Family Foundation can encourage sustainable management of fisheries by reducing the economic incentives - and hence prevalence - of IUU fishing.

The purpose of this research assignment, therefore, is to assist the Walton Family Foundation and other funders to understand how best to allocate resources to combat IUU fishing in the future, and the extent to which import control rules (ICRs) may provide a strategic opportunity to maximize the Walton Family Foundation's added value. To achieve this, the objectives of the assignment are to:

1. Contribute to the sector's understanding of how ICRs can influence IUU fishing (positively and negatively).
2. Better understand the support ICRs need to be effective, and any potential gaps.
3. Use this to inform Walton Family Foundation's strategy going forward.

The primary audience for the research is the Walton Family Foundation, other funders combating IUU fishing, and grantees.

4 Methodology

We have taken a collaborative approach to this research, working closely with Walton Family Foundation and partners at the design, data collection, and analysis stages. We have used an evidence review and initial engagements with experts to help tailor our questions to the context and to make sure that we identified the right stakeholders to engage with in the research.

At the core of our methodology has been outcome harvesting, working with context-specific experts in Ghana, Peru, and Indonesia to produce a set of 'milestones' that identified key changes to IUU fishing in each country. We have then built the evidence base around these milestones to better understand the changes that occurred and the contributions made to these by the ICRs to inform our analysis. The key steps taken are outlined below in more detail.

Evidence review and implications for case studies: An initial evidence review of the literature found substantial literature corresponding to the duration of the ICRs' activity, with the EU ICR being the most extensively covered, which is to be expected, as the EUR ICR has been in implementation for a longer period. The existing evidence base primarily focused on the government level, highlighting how ICRs prompt legislative and regulatory changes in third countries, thereby enhancing confidence in the legitimacy of seafood entering regulated markets. There were many helpful country case studies that provided a range of illustrative examples from differing contexts. However, the evidence offered a somewhat superficial understanding of the changes underway, with two key evidence gaps:

Political durability of change

While case studies show which countries have made progress and which have regressed, they lack detailed analysis on why progress is sustained in some cases but not others. This is crucial for the Walton Family Foundation and its partners to decide where to prioritize or reduce funding.

Changes to IUU fishing

The literature often reflects a top-down view, focusing on legal, regulated fish entering regulated markets. There is less information on the reduction of IUU fishing or IUU catch entering less regulated markets. This matters, as the Walton Family Foundation and its partners are ultimately concerned about the sustainability of fisheries, but this cannot be known without better understanding what happens to IUU fishing

In order to begin to address these gaps, we carried out case studies to help us understand how ICRs are perceived from the bottom up - that is, focusing on the supply end of the market chains - and what that can tell us about changes to IUU fishing.

Case study approach: Our case study approach involved qualitative data collection, adapting outcome-harvesting techniques used for evaluations. This approach engaged supply-side perspectives of how IUU fishing may have changed in recent years and what they think is the cause of those changes. This enabled us to identify the role that ICRs played in the changes seen, as well as other factors.

Rationale for case study country selection: The selection of case study countries (Ghana, Indonesia, Peru, and Belize) was informed by two factors. First, it was important to select case study countries that could demonstrate the impact of the three ICRs as much as possible. Second, we selected countries identified as Walton Family Foundation priority countries. We selected Ghana as the EU is one of its key export markets. Ghana had also been carded for the second time, and therefore provided a good example of some of the factors we wanted to understand more about following the evidence review; specifically the question of political durability. We selected Indonesia as both the EU and the US are important export markets, and key fisheries exports are included in the species covered by SIMP. We also selected Peru, as two key fisheries (mahi mahi and jumbo flying squid) were included in the US SIMP and Japanese regulation, respectively. Ghana, Indonesia, and Peru also included sectors with significant small-scale or artisanal fishers, and our evidence review indicated that the impact of ICRs on this sector was not well understood. Both Peru

and Indonesia are also key countries for the Walton Family Foundation. Although Belize was not a Walton Family Foundation priority country, it was selected for analysis due to its red carding for failing to fulfill its obligations as a flag state. This selection aimed to assess how these regulatory changes impacted Belize's management of its coastal and high seas fishing sectors.

Outcome harvesting: We held workshops in each country, with experts from the sector, to identify milestones associated with IUU fishing. We initially explored within the workshop key changes to IUU fishing over the last 10 years, and the role of the ICRs to form draft 'milestone statements.' These statements were complemented by a set of research questions (see Annex A), which explored the relevance of the different ICRs and their relative influence on the milestones and IUU fishing more broadly. We then conducted a system mapping exercise to identify the main stakeholders and to understand the contextual interconnections with ICRs, which also informed our research questions matrix. These research questions guided our key informant interviews (KIIs), surveys, and focus group discussions (FGDs), which built the evidence base around the effectiveness of the ICRs and the narrative developed within the milestone statements. The evidence was used to refine and expand the milestone statements, and build confidence in the role the ICRs had played and the significance of the changes to counter IUU fishing. The milestone statements were written up following the structure outlined in Figure 1.

Figure 1: Guidance to drafting milestone statements[8]

OUTCOME NUMBER	WHEN?	WHERE?	WHO?	WHAT?
	When did this happen? Date Or Month/year Or During hich period? E.g. 'from Nov 2019 to March 2020…'	**Where did this happen?** Place? Province? Country? And, if this is not clear, then: Local? National? Regional?	**Which person or institution is this outcome about?** Include the person's name and position Include the name of the institution with full details If a group: how many, age, from where?	**What did they do differently?** Was it a change in behavior, relationships, actions, activities, agenda, policy or practice? Use the active verb – 'it or they did what'

Focus group discussions (FGDs): FGDs were used to build the evidence base and/or refine the outcome statements. The case study teams collected more information and insights from specific stakeholder groups. These stakeholder-specific FGDs enhanced inclusion and equity, ensuring that important stakeholder groups have been given an opportunity to speak freely.

Key informant interviews: KIIs provided the backbone of our data collection. In total, 53 KIIs were conducted across the three case study countries: 22 in Indonesia, 20 in Ghana, and 11 in Peru. In addition, 4 KIIs were used to consider the applicability of our case study findings with other contexts, interviewing experts with a good understanding of other countries not included in our case study selection.

Analysis: We set up regular analysis workshops, bringing together each country case study team to exchange perspectives and explore the patterns and linkages across countries. The analysis looked at the different elements of the milestone statements to reflect on what change had occurred and the extent to which ICRs played a role.

At each stage of the research, we have brought together the Walton Family Foundation and its funding network to reflect on the existing evidence, guide the next phase of the research, and engage in the analysis that has informed the conclusions and recommendations.

Limitations of the survey. Our online survey was disproportionately representative of respondents from Ghana. This was despite many attempts to encourage more respondents from Peru and Indonesia. We have taken account of this, using the survey results in a limited way to inform our analysis.

Little access to authorities. The research project faced consistent challenges in accessing government authorities. This is understandable, given that IUU fishing is a politically sensitive topic. In Indonesia, Peru, and Ghana, we received permission or were able to confidently conduct the research in line with our understanding of the existing political climate and regulations. However, in Belize, despite a number of meetings with different government officials, we were unable to secure the necessary permission to proceed with Belize as a case study. Government authorities also had other competing priorities, which made organizing interviews and meetings difficult. For example, the Ghana case study research took place at the same time as the finalization of the revised Fisheries Law.

Limited number of case studies. We focused on three country case studies, which presented very different contexts. While this gave us useful insights, it also limits the extent to which we can draw conclusions and lessons that are applicable to other contexts. We mitigated against this by drawing on the wide English-language literature that is publicly available in order to complement and substantiate our own data collection.

Sensitivities of IUU fishing. IUU fishing is an illicit activity, which respondents may therefore not wish to speak openly about, and the available data regarding its prevalence is generally weak. To mitigate against this, we did not ask direct questions relating to IUU or about anyone's involvement in it, but instead focused on more general questions about whether respondents think ICRs have influenced the prevalence and appeal of IUU fishing. This cannot eliminate bias from our data, but we have mitigated this by considering the different roles and interests of respondents, drawing our analysis from a range of insights gathered from our KIIs, FGDs, workshops, and literature review.

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5
Context

Import control rules have been established to prevent the entry of illegally sourced fish products into their markets, to incentivize legal and regulated fishing, and to support more sustainable fishing and management of marine resources. The ICRs (EU, US, and Japan) considered under this research vary in both design and primary motivation, which has implications on both how they are applied in practice and how they will logically effect change. Below, we highlight the key characteristics of each, followed by a comparative table.

EU IUU Regulation Overview:
The EU Regulation (EC No 1005/2008), known as the EU IUU Regulation, establishes a system to combat illegal, unreported, and unregulated (IUU) fishing, aligning with the EU Common Fisheries Policy's objective to ensure sustainable exploitation of marine resources. It incorporates a catch certification scheme, which will transition into an electronic system (CATCH) by 2026, and a trade-restrictive carding framework to address non-compliant countries. The carding system (yellow and red cards) involves government-level dialogue, and promotes legislative reforms in non-EU countries, aiming to resolve IUU issues. Trade impacts from IUU carding are significant, with yellow cards reducing EU imports from affected countries by 22.6%, and red cards by 83.3%, though it is important to note that most yellow and red cards have been issued to countries representing a small part of the EU's overall imports. Beyond trade penalties, the regulation incentivizes responsible fisheries management through mechanisms like the Generalized Scheme of Preferences and trade agreements. While combating illegal fishing is its primary aim, it does not guarantee sustainability, with member states often showing varying levels of implementation. Additionally, the regulation operates alongside existing EU food safety systems, although its electronic integration has faced delays.

Alongside the risk of trade impacts from IUU notification (carding) under the IUU regulation, the EU incentivizes responsible fisheries management, including combating IUU fishing, through trade agreements and tariff reductions, such as the Generalized Scheme of Preferences and multilateral agreements. Indonesia's fisheries reforms, which align with these objectives, prompted discussions about reducing seafood tariffs and potential inclusion in the Generalized Scheme of Preferences. Despite no formal IUU carding, the EU held pre-notification discussions with Indonesia from 2011 to 2016, coinciding with significant reforms. Indonesia has also engaged in an eight-year free trade agreement negotiation with the EU. Before the IUU regulation, the EU enforced stringent food safety protocols for imports, including electronic certifications managed via TRACES. However, IUU regulation development did not initially

align with this system, taking two decades to implement an electronic reporting module within TRACES for seafood imports. Evaluating the impacts of these measures remains complex, as reforms and incentives often overlap and evolve concurrently.

US Seafood Import Monitoring Program (US SIMP):
The US SIMP, implemented in 2018, is a traceability system targeting seafood imports at risk of IUU fishing and fraud. Unlike the EU's government-to-government approach, SIMP places the responsibility on US importers to submit catch data via the International Trade Data System. Initially covering 13 species groups, SIMP has been criticized for its limited scope, reactive data audits, and low enforcement levels, allowing IUU seafood to enter markets undetected. US legislation supporting SIMP includes the Moratorium Protection Act, which imposes port use and seafood import restrictions based on IUU activities. While broader trade restrictions exist, such as those under the Marine Mammal Protection Act, their implementation has been delayed and remains limited in scope.

The US SIMP operates alongside other US legislation addressing fisheries issues including IUU fishing, bycatch, environmental protection, and human rights which have provisions to impose trade restrictions that are somewhat similar to the EU's IUU carding system. For example, the Moratorium Protection Act mandates biennial reports identifying countries engaged in IUU fishing, bycatch of protected species, or unregulated shark catches. These reports initiate a two-year period during which corrective action is required; otherwise, restrictions on port use and seafood imports may be enforced. Unlike the EU's red card system, which results in bans applied to all seafood imports from the country, US restrictions are applied based on flag, gear type, or operation area. The US Marine Mammal Protection Act imposes bycatch prevention standards for imported seafood, comparable to US fisheries. Despite existing for decades, its implementation has faced delays, and is postponed until January 2026.

Japan's Domestic Trade of Specific Marine Animals and Plants Act:
Japan's ICR, enacted in 2022, adopts elements from the EU IUU Regulation, including catch certificates from competent flag states, but is the narrowest in scope, covering only seven species/groups; primarily squid, cuttlefish, Pacific saury, mackerel, and sardine. Complementing the ICR are Japan's existing measures for high-value species like tuna, and international efforts in monitoring, control, and surveillance, capacity building, and promoting catch documentation schemes through regional fisheries management organizations (RFMOs).

The Japanese ICR sits alongside other Japanese regulations, including longstanding legislation relating to tuna, established in 1996, and a subsequent Fisheries Management Directive (19:480), introduced in 2007, which requires imports of high-value tuna, swordfish, and toothfish to meet the CDS requirements and conservation measures of their respective international management bodies. Japan also conducts an ad hoc range of inter-governmental efforts to combat IUU fishing, including capacity building, monitoring, control, and surveillance support and Port State Measures Agreement (PSMA) activities. It also advocates for the adoption of further RFMO catch documentation schemes.

All three frameworks reflect efforts to deter IUU fishing, yet their effectiveness is influenced by scope, enforcement rigor, and integration with broader trade and environmental policies. Each system highlights the ongoing challenges of ensuring both legality and sustainability in global seafood trade.

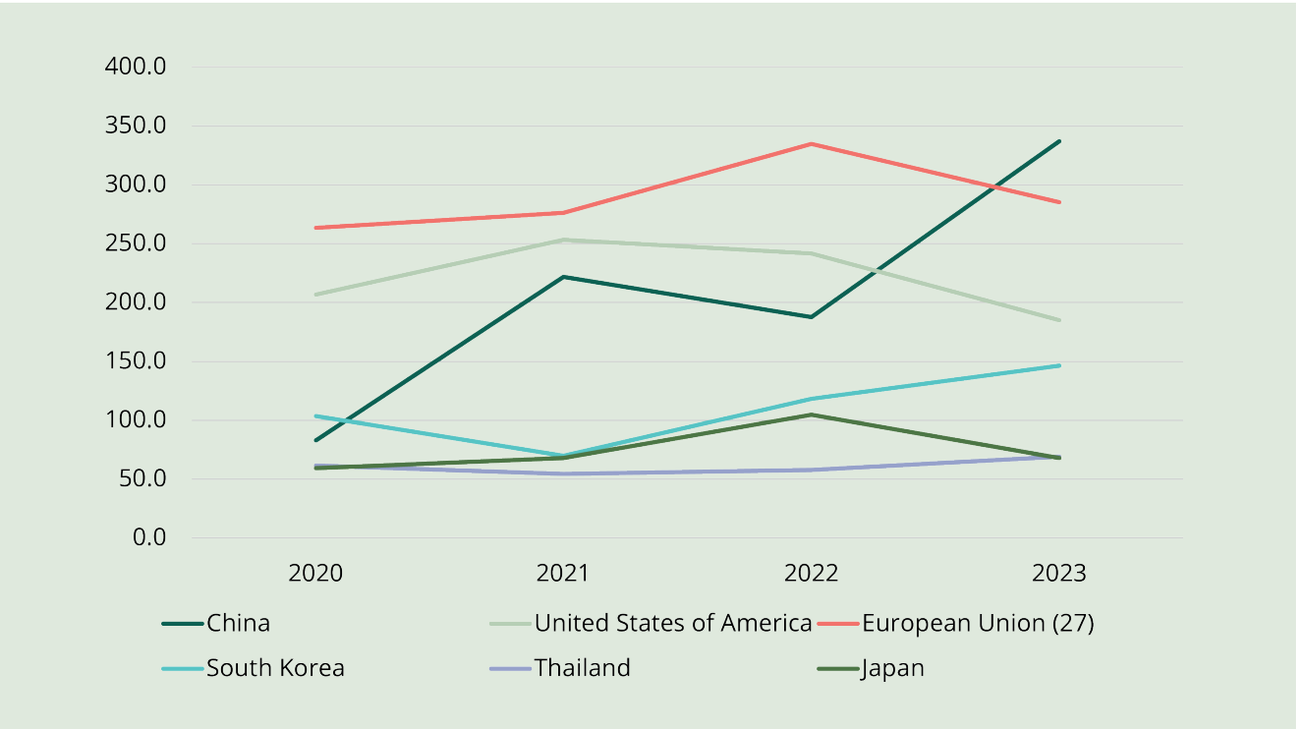
5.1 Case Study Contexts

The below provides key details about the context of each of the case study countries included in the research.

Ghana

Ghana's fisheries contribute 4.5% to annual GDP and support the livelihood of 10% of all people in Ghana.[9] The fishing sector is divided into three main fisheries: (1) tuna (purse seine and longline); (2) demersal (industrial/semi-industrial trawlers); and (3) artisanal canoes fishing for pelagic species.

The European Union (EU) is the main export market for tuna (fresh, frozen, and canned), with total exports of USD 19.6m in 2023. China became the largest export market overall in 2023 (USD 22m).



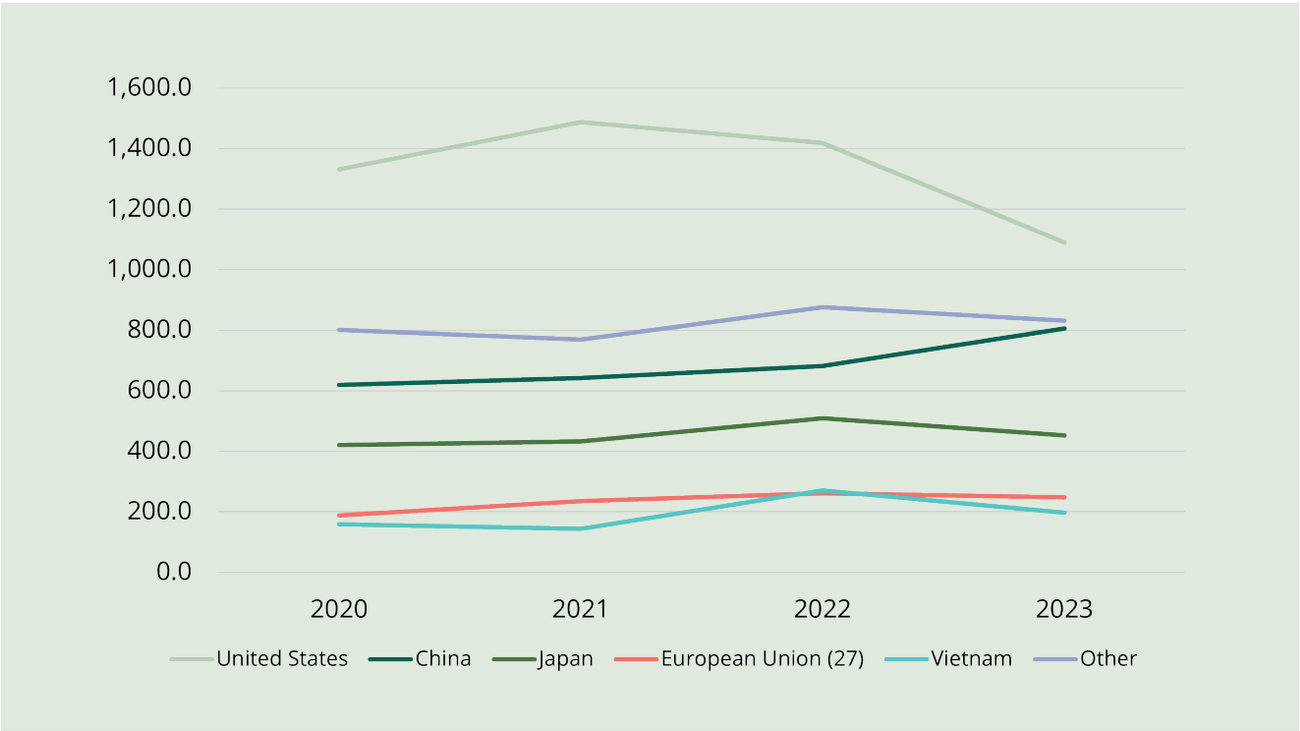
Unit: Million USD Data: ITC TradeMap

Both artisanal and industrial fleets have overexploited fish stocks, particularly small pelagic species, leading to a sharp reduction in fish populations. Illegal fishing practices, including the use of destructive fishing gear, transshipment (locally called 'saiko'), and unregulated foreign vessels, have contributed to the depletion of fish stocks. Enforcement has been weak, exacerbating the problem. Ghana has introduced various fisheries management policies aimed at addressing IUU fishing. This includes the amendments of fisheries regulations, and the introduction of a closed season. These measures have faced resistance from local fishers, and enforcement has been inconsistent.

Indonesia

Indonesia has the sixth largest exclusive economic zone in the world - 6m+ km2. In 2022, Indonesa has the world's third largest fishery and aquaculture animal production (7% of the world's total), after China and India. Around 80% of Indonesia's fish catch comes from small-scale or artisanal fisheries. Indonesia is the world's biggest tuna fishing nation.

In 2023, Indonesia exported USD 3.6 billion of seafood, with the US being the largest market, with China rapidly overtaking Japan as Indonesia's second largest export market, and the EU in fourth place.



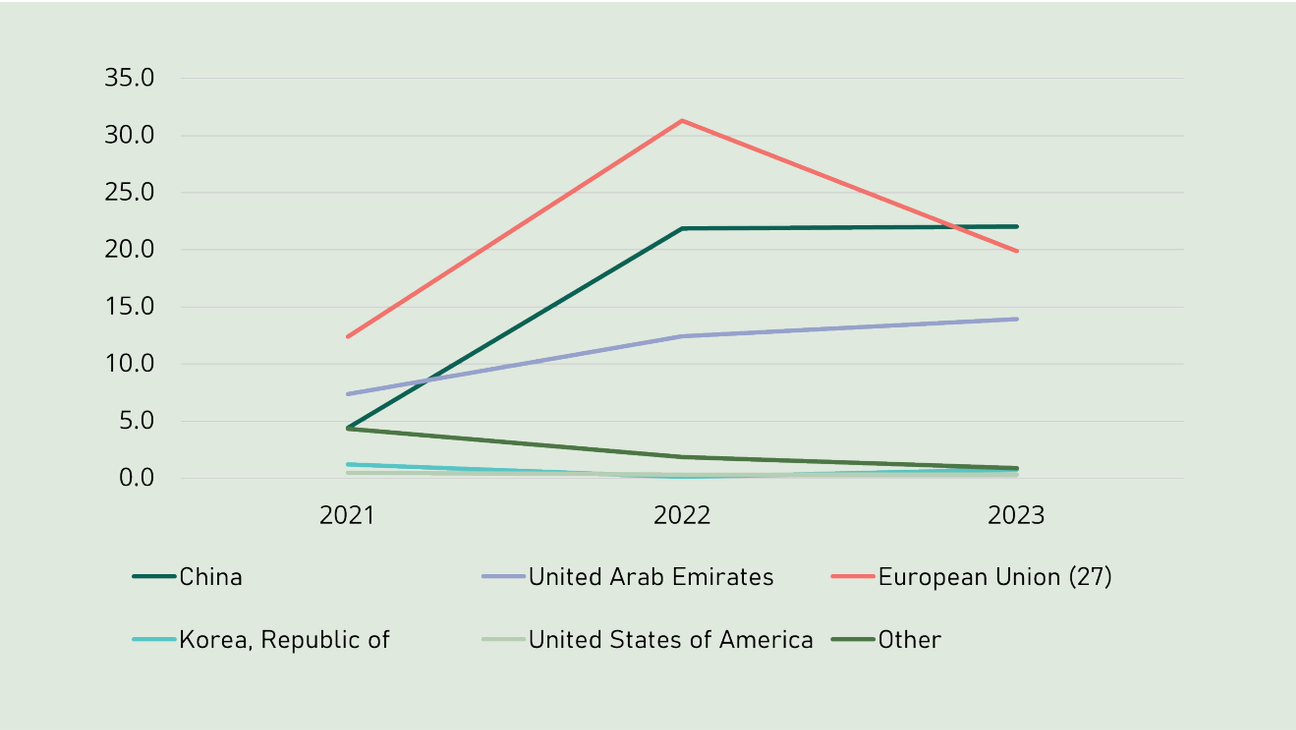
Unit: Million USD Data: ITC TradeMap

The geographical context makes controlling IUU fishing very challenging. Indonesia's proximity to China, Vietnam and Thailand results in significant encroachment of foreign vessels, which often engage in IUU fishing. The Indonesian government has engaged in a concerted effort to curb IUU fishing, declaring an anti-IUU fishing plan in 2014 and banning foreign fishing vessels from its waters. In 2015, the Indonesian government established a taskforce to combat illegal fishing. Over the past decade, the Indonesian government has arrested around 100-150 illegal vessels per year, both foreign and domestic, and the 2014-2019 Minister of Maritime Affairs and Fisheries, Susi Pudjiastuti, oversaw a high-profile crackdown on IUU fishing, including burning foreign vessels caught fishing illegally.

Peru

Peru's fisheries sector contributes approximately 1% of the country's GDP, and is divided between small-scale/artisanal and industrial fishing. Artisanal fisheries, focusing on species like mackerel, jumbo flying squid, and mahi mahi, are crucial for local food security and employ nearly 60,000 people. Industrial fishing is mainly for export.

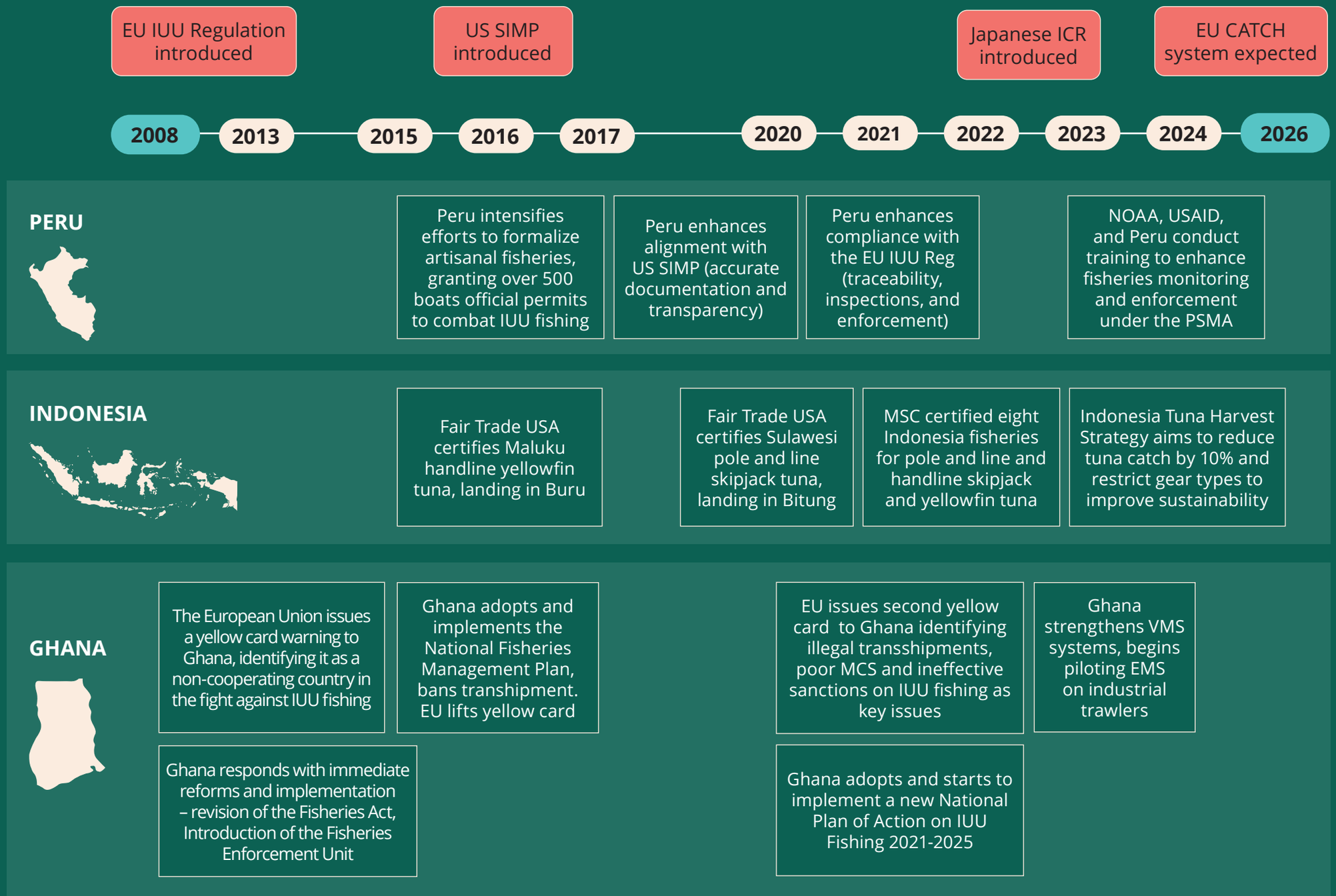
In 2023, the largest export markets were China (USD 337 million) and the US (USD 185 million), with China overtaking the US as the major export market. Key exports are mahi mahi and jumbo flying squid.



Unit: Million USD Data: ITC TradeMap

IUU fishing remains a persistent issue, with historically weak regulatory frameworks and limited enforcement making the controlling of IUU difficult, particularly among artisanal fishers targeting high-value species such as giant squid and mahi mahi. Artisanal fisheries, vital for local food security, still struggle with unregulated operations, while large foreign fleets, notably from China, frequently fish near Peru's exclusive economic zone. These activities undermine local livelihoods, reduce tax revenues, and threaten Peru's reputation in global seafood markets. Recent efforts have focused on strengthening enforcement and international collaboration and Peru continues to enhance compliance with EU, US, and Japanese import regulations.

Figure 2: Timeline showing key events across the three countries



6 Findings

Finding 1

ICRs can encourage the alignment of support from both the government and the private sector, which is essential to meaningful change in fisheries management. In particular, the design of the EU ICR provides a powerful lever for change that can provide a sense of urgency and consequence to address IUU fishing at a national level, which the US and Japanese ICRs would struggle to effect on their own.

The EU ICR is significantly more robust in its design than the US and Japanese ICRs, adopting a systematic approach to how it assesses the proficiency of a government to be able to manage its fishing industry, and a CDS which covers almost all species. Combined with the ability to impose nationwide seafood trade restrictions, the EU ICR is a much more powerful lever for meaningful change than other ICRs as it covers all species and includes trade-restrictive measures within its design. While the US and Japanese ICRs reinforce a global message that IUU fishing is an unacceptable practice and scrutiny is increasing, the reality is that the US and Japanese ICRs have fundamental limitations that, without the EU ICR, are unlikely to meaningfully influence IUU activity.

For effective change to fisheries management there needs to be buy-in from both the government and the fishing industry, which the EU ICR has contributed to in Peru, Ghana, and Indonesia,[10] among other countries. This does not mean that public and civil society pressure is not important (see Finding 5 for why it is), but it recognizes that if either industry or government are resistant to change, then improving fisheries management is particularly difficult. What the ICRs can, in principle, do is increase the likelihood of the alignment of government and industry interests, using the risk-to-market access as a key motivation to both, while providing a blueprint for collective action.

To really shift the political economy of IUU fishing, there needs to be either a plausible political threat or a plausible economic threat (ideally both) and these threats need to be sufficiently concerning to invoke systemic change. While there is evidence that the US and Japanese ICRs have influenced the CDS of exporting countries, there is little evidence that either of them have the clout or the intent to effect systemic changes that can really shift the dial on IUU fishing.

In the case of the EU ICR, there is strong evidence that the significance of its political and economic incentives is sufficient to create tipping points for systemic change, with a number of studies showing how exporting countries have responded to the EU with new legislation (Belize, Guinea,[11] Thailand,[12] South Korea[13,14]), and reforms such as the nationalization of the registry that provided flags to vessels (Belize)[15,16]). This evidence is supported by our own case studies. For example, in Indonesia, the appointment of a tough fisheries minister had the power to mobilize a cross-government response to IUU fishing, which included banning foreign vessels, investigating domestic fleets, enforcement across departments, training and expanding port inspectors, and improving reporting systems, among other changes (see **Finding 2** for more on this).

In contrast, the US and Japanese ICRs do not offer the same kind of economic incentives as they are much narrower in scope and reach, and therefore less capable of motivating the same kind of nationwide, cross-government and commercial response. While we only looked at a small number of case studies, we can see from our systems mapping that there are a number of weaknesses in the theory of the US and Japanese ICRs, which may well be applicable in other contexts. For example, when looking at the US ICR, it is possible to predict a number of shortcomings in its logic:[17]

- Its purpose is primarily to exclude IUU products from entering US markets, focused on only 13 species, which limits its overall systemic impact on the actual occurrence of IUU fishing.
- It invites conflict of interest as primarily an industry-led self-reported system, where it is not in the interests of the businesses concerned to identify problems and refuse a trade, especially as the economic consequences of any sanctions may be limited (see bullet points below).
- There is plausible deniability built into the system, where responsibility for the

quality and validation of the paperwork begins several steps down the supply chain from the importer that the ICR is trying to hold accountable.[18]

- Any economic consequences are after-the-fact, with audits of importers occurring up to six months after the product has entered US commerce,[19] and exclude consignments under USD 800, which represent a significant proportion of imports.[20] This simply does not enable the main purpose of the US ICR, which is to prevent the import of IUU seafood products to the US, and it means that any importer may de-prioritize the consequence of being caught as a future, rather than immediate, risk.
- In the event that sanctions are imposed, it will at best affect a single importer; one who may have diverse supply chains and can adjust to accommodate the narrow limitations that may be created by the US sanctions.
- Importers are not generally public-facing, and compared to others in the supply chain may be less concerned by any reputational damage that may be associated with breaking the rules.

This theory weakness is accompanied by elements of implementation weakness that further limit the US model. For example, there are only 22 National Marine Fisheries Service (NOAA) law enforcement officers monitoring 300 ports, with no advanced schedule for when seafood imports will arrive.[21] Only 1% of imports are audited, with six full-time auditors carrying out 1,131 audits in FY2020. Of the audits, 40% were identified for non-compliance, with the majority failing due to non-substantive paperwork errors rather than intentional violations of the US ICR.[22] While this may suggest that the system is working and that no IUU products are entering the US, this seems unlikely given the opportunities for IUU fishing to enter regulated markets (see Finding 4). Indeed, officials commented how they were disappointed with the robustness of SIMP, and would have preferred that they required government validation of exports, as the EU ICR does.[23] However, some key informants were more favorable, recognizing that Ghana could learn from the NOAA vessel observers who took a softer, learning-focused approach, compared to the policing style of Ghanaian observers, which could create tension.[24] On the political side, there may be some concern at a government level of being named as a high-risk country in the NOAA report to Congress, but we have not found evidence of this, nor any other consequences of being identified as high risk, during the research.

For all of the reasons above, the US ICR is limited in how influential it can be, but that is not to dismiss outright its added value. Indeed, there is strong evidence in countries like Peru that the US ICR has made important changes to specific fisheries, like mahi mahi (see Finding 2). There are also advantages to the US ICR being a government-to-business model, which can limit the potential for diplomatic fallout that may challenge the EU when it cards an entire country. The US government also has the scope to consider labor and human rights issues within seafood supply chains, which the EU ICR does not do. Although this is not part of the SIMP, it has led to an effective ban on certain vessels or businesses exporting seafood to the US.[25]

The EU ICR has a number of key characteristics that set it apart from the Japanese and US models. Of particular importance is its ability to motivate nationwide responses to IUU fishing within exporting countries, galvanizing a collective response from government, civil society, fishing communities and the fishing industry. Some of the key characteristics that enable the EU ICR to be particularly effective are highlighted below:

- It has countering IUU more broadly as a key purpose; not just the exclusion of IUU products from EU markets.
- It has trade-restrictive measures for seafood embedded within it, and has a track record of applying country-level restrictions where an exporting government is deemed not to be cooperating sufficiently with the EU in countering IUU fishing.
- It is a government-to-government initiative, which considers all national and international obligations when assessing the proficiency of a country. For example, if a country has ratified the PSMA, then it is judged against how well it is delivering those obligations.
- Its CDS covers virtually all marine fishery species, and is validated by the exporting authorities rather than the commercial providers themselves.
- If needed, the EU will provide a comprehensive package of capacity development support to assist the exporting authorities to improve their capabilities to counter IUU fishing.

Of course, there are also design and delivery limitations to the EU ICR: very few

consignments are rejected by member states, and the proficiency with which EU member states scrutinize consignments varies;[26] the first mile of the supply chain is the most important, but the hardest to enforce, and reliant on the capability of exporting governments to sufficiently enforce regulations over large maritime territories and numerous formal and informal ports. EU audits are not published, meaning less scrutiny and targeted support from civil society. It is also notable that very few companies are issued with EU export licenses, meaning that, on a day-to-day basis, only a small number of businesses engage with the EU ICR directly. There is also the potential politicization of the EU ICR, whereby observers question the rationale for having not carded certain countries (China, for example),[27] and transparency issues around beneficial ownership of IUU vessels make it difficult for the EU to tackle its own citizens associated with IUU fishing.[28]

Despite these weaknesses, the significance of the EU ICR can be seen in a recent analysis of the trade implications of being carded, finding that fishery exports from yellow- and red-carded countries to the EU fall by an average of 23% and 83%, respectively, concluding that the "IUU regulation, as a trade-restrictive technical measure, is an example of effective, legitimate efforts to combat IUU fishing." [29] It logically follows that there is a relationship with how important the EU market is to a specific country, and how decisively that country will respond to EU requirements. In the case of Cambodia, Comoros, and Trinidad & Tobago, red cards have remained in place for long periods of time,[30] suggesting that the economic and political cost of action can outweigh the consequences of exclusion from the EU market. In some cases, this may be influenced by the accessibility to unregulated markets as a means to divert fish away from the EU, US, and Japan, and hence limit the economic consequences (real or threatened) of the ICRs.

However, to always reduce the influence of the EU ICR to an economic calculation would be misleading. Politically, the threat of EU carding was also found to be a key deterrent, whereby the public statement of government-level inadequacy that this entails can, in some cases, be even more motivating than the economic consequences.[31] For example, in Belize, there was real concern about the political fallout and damage to international reputation,[32] despite limited

Text Box 1: Motivations for counter-IUU policymaking

From 2014 to 2019, the Indonesian President Joko Widodo appointed Susi Pudjiastuti as Minister of Maritime Affairs and Fisheries. Her strong actions to tackle IUU fishing are lauded as having had a real impact on the prevalence of IUU fishing, underpinned by a ban on transshipments and foreign fishing vessels. Her tough action included blowing up hundreds of vessels engaged in IUU fishing, which was part of a strategy to increase fear in lieu of being able to fully monitor the vast maritime domain of Indonesia.

Her appointment coincided with the advent of the EU ICR, which had begun informal dialogues with the Indonesian government, influencing how seriously the Indonesian government took IUU fishing.

Of course, there were other factors at play: fishing was unsustainable, illegally operating Chinese vessels challenged Indonesian sovereignty, and Susi herself was believed to have a personal motivation to address irregularities in the industry that may have benefited her own business interests (see Indonesia milestones in Annex B). On the horizon was also a human slavery scandal which the Environmental Justice Foundation was about to report on, and which may have been on the radar of the government as an additional motivation to be seen to be cleaning up the industry.

As in any context, there will be a number of motivations for government policymaking which need to be backed up by strong political will - a political will that ICRs can help to foster. The decision by the President to appoint Susi shows that tackling IUU fishing was a high priority for the government which, in his own words, required "a crazy person in order to make a breakthrough."

economic consequences of being excluded from EU markets. In Indonesia, to have been carded would have upset politically sensitive trade negotiations with the EU, which were much further reaching than just the fishing industry.[33]

The effectiveness of the EU ICR also has a knock-on effect for the effectiveness of the US and Japanese ICRs. On the one hand, the three ICRs reinforce a message that better regulated markets are increasingly inevitable and collectively cover 58%[34] of global seafood imports. On the other hand, the presence of the EU ICR can further limit the added value of the US and Japanese ICRs, as, where a country has already decisively responded to the EU ICR, the systems developed supersede the US and Japanese requirements and are often able to accommodate them without significant further change.[35] Indeed, the Japanese CDS deliberately mirrors the EU CDS, both of which collect more key data elements than are needed by the US ICR.[36] Therefore, although the US and Japanese ICRs may target different markets, the all-species approach of the EU ICR means that fish being sold into the US and Japan should already benefit from improved traceability systems (see Finding 2).

Nevertheless, the addition of the US and Japanese ICRs adds further value by limiting the ease with which IUU products can reach unregulated markets. By having their own ICRs and CDS requirements, it is more difficult for products that do not make it into the EU market to be sold elsewhere. There are also always going to be limitations on just how far the EU ICR can reach, despite its best intentions. This means that its potency is likely to diminish based on the relative importance of the EU market and the specific species that make up the majority of its imports. In these cases, the Japanese and US ICRs will have more prominence, and their added value will likely increase.

It is also worth noting that all the ICRs have complementary policies and regulations that sit outside this research, and hence the ICRs should not be seen as a nation's sole response to countering IUU fishing. This can also account for the apparent lack of influence of the Japanese and US ICRs. For example, one respondent commented that the US already had longstanding 'dolphin-safe' requirements, meaning that the ICR did not result in any big new steps beyond what was already in place.[37] The US High Seas Driftnet Fisheries Enforcement Act has been around since 1992, large-scale United States Agency for International Development (USAID) programs are designed specifically to counter IUU fishing,[38] and US support for PSMA implementation and to improve the maritime domain awareness of partner countries provides more general maritime security capabilities that benefit counter IUU fishing operations. Where Japan is concerned, the Japanese Tuna Act (1996) and Japan's engagement in RFMOs has contributed to improved regulation and enforcement to counter IUU fishing, and Japan has a history of using trade measures against countries engaged in IUU fishing. Around 20 years ago, Japan was itself exposed for IUU fishing in the southern bluefin tuna fishery, resulting in a reduction in Japan's catch limit under the Commission for the Conservation of Southern Bluefin Tuna.[39] Following that, Japan undertook investigations and implemented trade bans mainly on Mediterranean countries involved in the catch and 'ranching' of Atlantic bluefin tuna. These included EU countries, and pre-date the EU's IUU Regulation.[40]

Finding 2

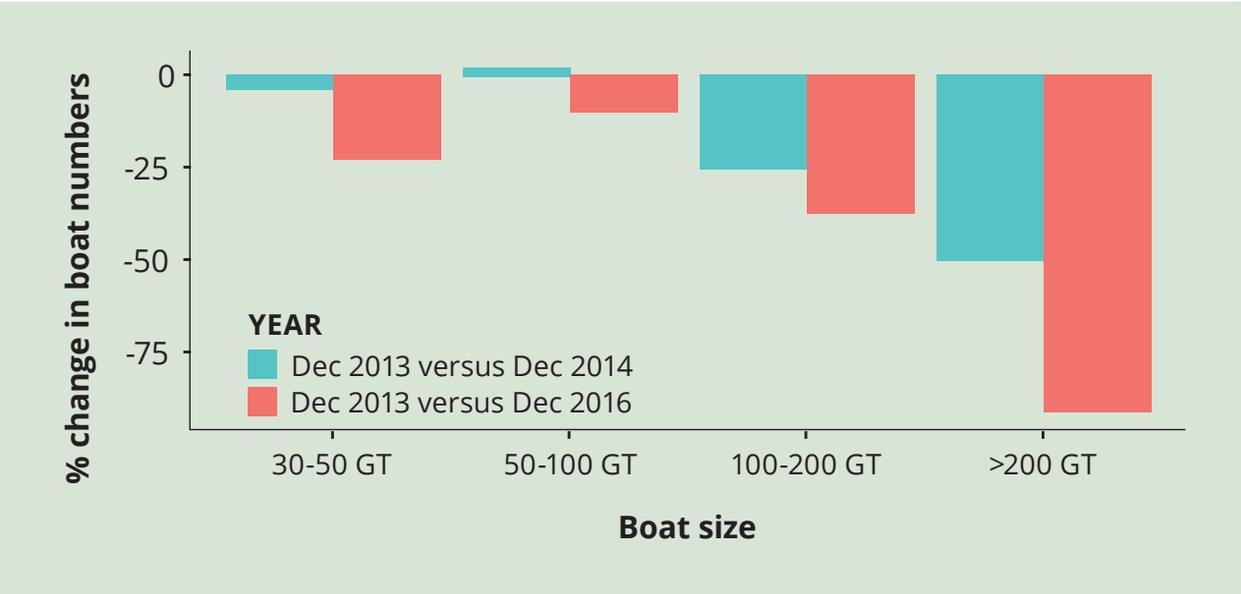
The cross-sector support that the ICRs can generate has contributed to significant improvements in how fisheries are managed in some contexts. These improvements can, at times, go beyond the immediate remit of the ICRs, with the EU ICR being particularly effective.

Across the case studies, there is strong evidence from fishing communities that IUU fishing is still a serious issue, but that it has improved over the last 10 years, with fishers more incentivized to engage in legitimate fishing than in the past.[41] These changes are linked, in part, to the milestones identified within this research, which highlighted particular actions that have influenced IUU activity that, in some cases, have achieved a sustained reduction in illegal, unreported and/or unregulated fishing at scale. In most cases, ICRs have contributed to these milestones in some way, helping to create the enabling environment for more progressive and robust policies to counter IUU fishing. Of course, the ICRs do not operate in isolation, and other political, social, and economic factors are at play (Finding 6), but it is clear that, in certain contexts, the ICRs can and do result in a meaningful reduction in the prevalence of IUU fishing. The milestones identified within the three case studies are discussed below, with the full milestone statements included in Annex B.

In Ghana, the three key milestones identified were: (i) banning transshipments known locally as *saiko*; (ii) improved oversight, especially of industrial trawler fleets; and (iii) raised awareness of why IUU fishing is problematic within Ghanaian fishing communities. These have led to some significant changes to trends in IUU fishing activity as a result. In isolation, each of the milestones are meaningful. In combination, they are more significant still, and many industrial trawlers have decided to leave Ghanaian waters,[42] as witnessed by the reduction of the Ghanaian trawler fleet from 76 vessels to 40,[43] and reductions in illegal transshipments.[44] Given that these trawlers were heavily involved in IUU fishing,[45] and that IUU fishing accounted for an estimated 18% of all catch in the region,[46] there is a clear contribution from this change to reducing the prevalence of IUU fishing. There is also strong evidence that while such measures were focused on the industrial trawler fleet, at the same time, there were more general improvements to fishing practices that can encourage more sustainable management; e.g. mesh sizes, quotas, greater specification of fish sizes, and substantial increases in fines for both industrial and artisanal fishers.[47] The yellow cards issued to Ghana by the EU are obvious timestamps providing evidence that the EU ICR has been influential, such as the amendments to the Fisheries Act in 2015, which responded to the 2013 yellow card.

The milestones that were noted for Indonesia were: (i) a ban on foreign fishing vessels; (ii) a ban on transshipments; and (iii) improved management of artisanal fleets. As the milestone statements in Annex B describe, this can lead to decisive and targeted action with noticeable reductions in the 'I', 'U' and 'U' of IUU fishing. The foreign fishing vessel ban and transshipment ban redefined illegal fishing, and was accompanied by aggressive action, including the sinking of up to 500 vessels by the Indonesian authorities. As such, there was a 90% reduction in the number of fishing hours conducted by foreign vessels, and an estimated 10,000 foreign vessels turned away,[48] leading to a marked drop in the number of large vessels operating in Indonesian waters (see Figure 3). Even after accounting for expected increases in domestic fleets, this was estimated by one report to have resulted in a 25–35% reduction in fishing pressure.[49]

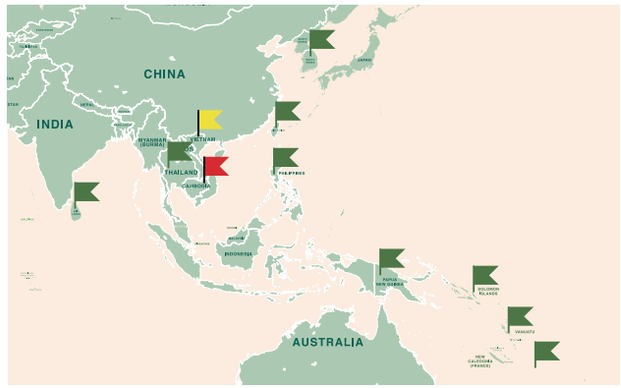
Figure 3: Changes in boat numbers by size operating in Indonesian waters, before and after the foreign fishing vessel ban in 2014.[50]



The improved management of artisanal fleets is also significant, registering over 28,000 vessels under 10GT and extending the reach of the CDS; the combination of which has led to big reductions in unregulated and unreported fishing. In terms of how these milestones in Indonesia have been influenced by ICRs, there has been no EU carding to provide a specific moment in time for change, but interviews with Indonesian authorities highlighted the influence of the EU behind the scenes, with three important observations. (1) When it first came into effect, the EU ICR was noticed in the region, with seven Asian countries issued yellow cards between 2012 and 2015,[51] and Cambodia issued with a red card in 2013. (2) The EU entered into informal dialogues with Indonesia at around this time,[52] which is a precursor to a yellow card, signaling to Indonesia that it needed to cooperate or follow the path of its neighbors. (3) For approximately the last 10 years, Indonesia has been negotiating a free trade agreement with the EU[53] - a significant economic prize that would be placed in jeopardy if the EU were to issue a card to Indonesia for non-cooperation on combating IUU fishing. These factors influenced milestones (i) and (ii), but were not considered to have influenced milestone (iii) - the decision to improve regulation of the artisanal fleet - which is seen to be more influenced by fisheries improvement projects than ICRs (see Finding 3).

In Peru, three milestones were identified as key to countering IUU fishing: (i) vessel formalization and catch certification schemes; (ii) a vessel monitoring system

Figure 4: Map indicating the yellow and red cards issued by the EU in Asia, 2012-2015



(VMS) installation for all vessels that wish to operate within Peruvian waters; and (iii) engagement with a fisheries improvement project associated with mahi mahi fisheries. This has led to 90% of all vessels falling within the regulations being registered, and the rollout of CDS and sanitary controls. On the back of this, a VMS was mandated for all vessels operating in Peruvian waters as part of the government's satellite tracking system, with transmissions needing to be made to a control center for six months prior to accessing Peruvian waters. These measures are of relative significance within a context where enforcement is weak and corruption is commonplace, meaning the impact on IUU fishing prevalence is limited (see Finding 4). Nevertheless, the *potential* importance of CDS and VMS should not be underestimated, as these help form the backbone of a robust fisheries management system. Not only do they provide essential information about what is being caught nationwide, they necessitate the formalization of fishing vessels, which is an essential prerequisite for any future improvements

in fisheries management. In the case of Peru, formalization was accompanied by (ineffective) attempts to limit the size of artisanal fleets, and while the introduction of VMS also had its shortcomings, the foundations that were laid created the enabling environment for further tightening of regulations in the face of domestic pressure (see Text Box 2).

The role of ICRs within these Peruvian milestones is clear within the decrees for CDS, which make specific reference to the US, Japanese, and EU markets, the latter dating back to phytosanitary regulations introduced in 2002–2009.[54] There are also other significant external influences; namely RFMOs and fisheries improvement projects (which are discussed in more detail under Finding 3), and the lived experience of fisheries collapsing in the past.[55]

The milestones show that ICRs have been effective at influencing key changes, with only a small number of respondents[56] believing that ICRs were not influential. Similarly, the online survey showed that ICRs were considered to be of equal or greater importance than other measures (see Figure 5).

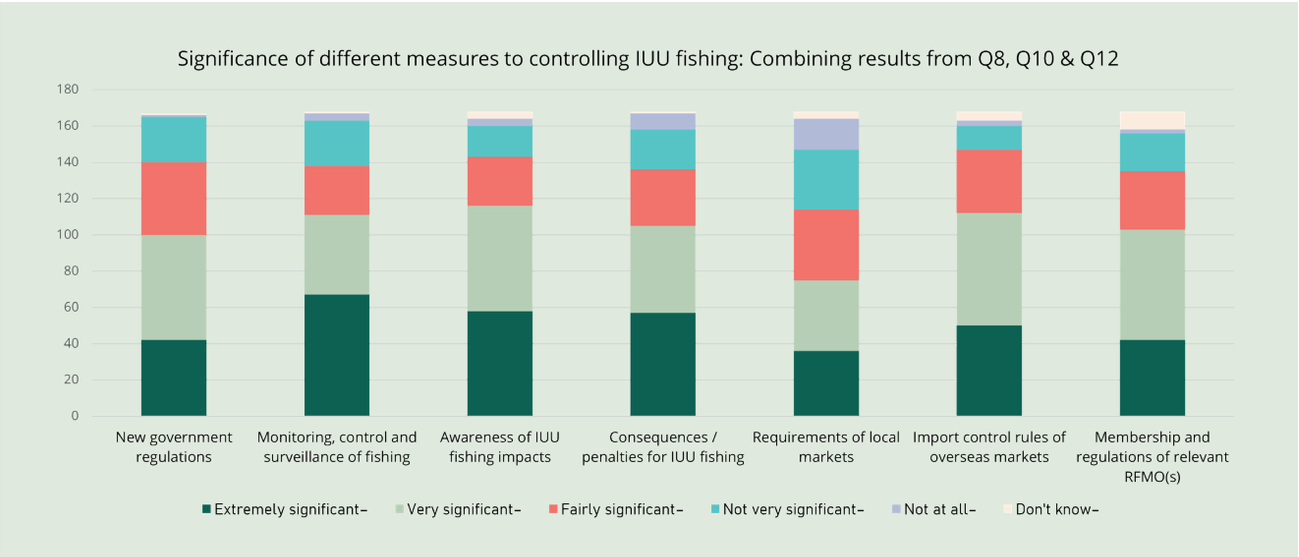
Text Box 2: Civil disobedience in Peru

During this research, fishing communities in Peru were involved in nationwide civil disobedience. The protests were in response to apparent loopholes associated with VMS requirements for vessels operating in Peruvian waters, as described in the milestones in Annex B. This allowed the continued entry of foreign vessels to Peruvian waters without meeting the VMS requirements. Significant numbers of Chinese vessels continued to enter Peruvian waters and land catches at ports in Peru without consequence. A further grievance was the fact that fines for Chinese vessels were set at USD 100 - a fraction of the fines imposed on Peruvian vessels.

In October 2024, domestic fishers took to the streets to force the government to close these loopholes and properly enforce the VMS regulations. The anger from domestic fishers was not just about a sense of injustice, but a real economic fear of jumbo flying squid stocks collapsing, having lived through tumultuous times for the anchovy and sardine industries.

Soon after the protests began, the government capitulated, closing the VMS loopholes. Using the systems and legal frameworks that had been laid by the initial introduction of VMS and broader formalization of the industry, domestic pressure was able to push the government to quickly tighten regulations.

Figure 5: Survey results showing the significance that respondents allocated to different measures for controlling IUU fishing



As discussed above, the kind of systems that the ICRs encourage lay the foundations for fisheries management that exporting governments can build upon. In all three case studies, the formalization process associated with CDS has been extended beyond what might be required to satisfy the ICRs. A common characteristic is the extension of regulations beyond the industrial fleets that are typically prioritized by ICRs (all three ICRs have provisions and exemptions for artisanal fleets). This is seen in Indonesia, where the government has extended the logbook and VMS requirements of vessels beyond the 30GT limit set by the RFMOs, and is increasingly extending it to vessels between 20 and 30GT in 2025, with increasing reporting demands. This means that, regardless of whether fish caught in Indonesia are going to the EU or, for example, the less well-regulated Chinese market, all vessels above 20GT need to be registered, all vessels need to land their catch at the nearest port where there is a network of inspectors, and all vessels need to use e-logbooks to report their activity in return for permission to fish the next day (see the Indonesian milestones in Annex B). Similar observations were made in Ghana, with one academic noting that the reforms resulting from the EU carding impact positively across the whole fisheries sector, even if they do not aim to reach the EU markets,[57] and dedicated fisheries courts with specialized judges to try IUU fishing cases regardless of whether the sanctioned individuals, vessels, or companies were seeking to export to the EU.[58]

There are a number of motivations for this extension beyond what might be essential to satisfy the ICRs, such as an opportunity for the government to increase its tax revenues (see Finding 6), and a growing awareness that science-led fisheries management is needed,[59] which means also regulating small vessels that account for up to 80% of the catch in some countries.[60] In Ghana, a general fear of the EU ICR is also evident, with Ghanaian authorities concerned that IUU fish from artisanal fleets can make their way into EU supply chains, creating risks of further EU scrutiny.[61]

The buy-in that governments need to successfully extend regulations to artisanal fleets should benefit to some extent from the increased awareness of IUU fishing and the damage it can cause, as described in the Ghana milestone,[62] and also seen in Indonesia and Peru. However, it remains to be seen whether this is sufficient to gain support for change within the artisanal fleets, although it is clear that many fishing communities already see fishing as an increasingly unattractive livelihood in its current form, with one researcher claiming that only 18% of Ghanaian fishers want their children to follow them into the trade.[63] In both Ghana and Indonesia, the initial targeting of vessels with foreign beneficial ownership may also help here, as it goes some way to assuring a domestic audience that they have not been unfairly singled out. Certainly, in Peru, where such assurances have not been demonstrated, there has been significant domestic backlash, as outlined in Text Box 2. As the artisanal sector is increasingly regulated, it is also essential that the impact this will have on vulnerable groups is understood, and that policymaking is sensitive to gender, social inclusion and conflict dynamics that may be exacerbated by poor policies. Without this, there is a real risk that marginalized groups are made more vulnerable and feel more pressured to engage in illicit activity, including IUU fishing. See Text Box 3 and Text Box 7.

Text Box 3: Gender dimensions of IUU fishing: The Gulf of Guinea

The role of women within industrial fishing supply chains is not well documented, but there is substantial literature on the role of women within the artisanal sector and, linked to that, a growing amount of literature that specifically considers the gender dynamics of IUU fishing. This has implications for policymakers within the fisheries sector.

First, women and men play different roles within the fishing industry and therefore experience changes within the industry differently. Both men and women are affected by IUU fishing, as the depletion of fish for local communities affects all livelihoods across the industry. This can add pressure on women who are primarily responsible for the food security of their families, which is often reliant on fish. Women also constitute the majority of the labor force within the fisheries value chain, when considering both primary and secondary activities.[64] The combination of loss of revenue and food security stress can heighten the vulnerability of women in these circumstances, such as exposing them to sexual exploitation with 'sex-for-fish' considered to be an ingrained transactional sex economy within artisanal fisheries in West Africa.[65] Men also feel the pressure of providing for their families and bringing fish home to support the household, finding that depleted fish stocks mean their catch can be smaller and less reliable. This can heighten risks as they are forced to fish further and further out to sea for longer periods of time. It can also heighten risks as they are forced to engage in IUU fishing which is associated with poor labor conditions and subject to legal punishment should they be caught.

Second, women and men play different roles in enabling IUU fishing. Typically, women play the role of broker, processor and/or trader at landing sites, while men are directly involved in IUU fishing at sea. Therefore, within the artisanal sector at least, men may be responsible for what happens at sea while women are some of the first people to handle IUU products as they enter the supply chain. Women also often own fishing boats and finance fishing expeditions, which may then engage in IUU fishing.[66] As one report commented, "though often invisible to the casual observer … women have historically been the power behind fishing enterprises."[67]

This means that men and women have different roles to play in the fight against IUU fishing which need to be considered by policymakers. However, despite women taking prominent roles within ministries, fisheries policymaking is often not as gender-sensitive as it needs to be.[68] This means that opportunities to protect the most vulnerable across society are being missed, while overlooking potential allies in the fight against IUU fishing.

The evidence found within the case studies is supported by the literature review conducted as part of this research. For example, Thailand has been proactive in showing leadership, going beyond what might be strictly necessary to maintain access to EU markets, participating in international agreements with the support of industry and NGOs.[69] In Belize, the government renationalized its vessel registry to have better control over all fishing fleets no matter where they operated or which markets they sold to, and updated its High Seas Fisheries Act in 2013, providing "a dramatic overhaul of the regulatory framework, extending and strengthening its scope," and substantially reducing its high seas fleet from 443 to 44 vessels.[70] In Guinea, patrols at sea increased to 123 days in 2018, which was closer to the 220 patrol days recommended to deter IUU fishing.[71] These changes can even influence third party countries, with EU and US ICRs expected to "prompt improved traceability overall for China's seafood supply chain and provide best practices China can adopt domestically."[72]

The changes described under this Finding show that ICRs have influenced some significant and sustained reductions in IUU fishing. They can kick-start a process of systemic change that goes beyond the remit of the ICRs, which suggests a broader political and cultural shift that is further explored in Finding 6. However, these changes also come with a significant caveat: in every country, IUU fishing is still taking place, which is discussed under Finding 3 below.

Finding 3

In addition to ICRs, RFMO regulations and fisheries improvement programs (FIPs) are also of notable importance, providing alternative and complementary levers to influence systemic change.

During this research into the three ICRs, there were two additional approaches to influencing IUU fishing that were identified as being particularly effective. RFMOs and FIPs, albeit two quite different mechanisms, were considered to have had a positive influence on countering IUU fishing. In many cases, they share some characteristics of ICRs. RFMOs provide a forum for agreeing multilateral regulations that can include CDS and other common elements to ICRs, with the added benefit that these are then applied by all members of the RFMO. On a smaller scale, individual fishery improvement projects such as the Fairtrade program and Marine Stewardship Council (MSC) FIPs may also act as complementary levers to influence systemic change. These illustrate that alternative approaches to ICRs exist, which can be complementary and, in certain contexts, more influential.

In Peru, mahi mahi and jumbo flying squid are important exports, with the former primarily sold into US markets and covered under the US SIMP. This has influenced the CDS mandated by the government, which bears the influence of the US ICR, Japanese ICR, and EU markets (see Finding 2). However, of particular interest to these fisheries is the MSC certification, and new fisheries management regulations are being developed by the government to accommodate MSC requirements.[73] An example of the changes being ushered in is to do with sea turtle bycatch and release, with the National Fisheries Development Fund working with NGOs to train artisanal crews in how to safely release turtles. This is alongside other measures, such as mandatory VMS, which is a requirement of the South Pacific Regional Fisheries Management Organization, and essential for access to a key fishery for jumbo flying squid, which Peruvian vessels are keen to access.[74]

In Indonesia, improvements to small-scale/artisanal fishing regulations (see Text Box 4) were primarily a response to Fairtrade and MSC/FIP requirements, which were focused on specific tuna fisheries and methods.[75] However, the regulations were applied nationwide to include all vessels between 5GT and 30GT, regardless of their association with Fairtrade or MSC fisheries. This extension is a welcome step to improve the management of artisanal fleets, which are responsible for up to 80% of fish caught in Indonesia, but has led to two different approaches to capacity building: small-scale/artisanal fishers operating in areas of interest to Fairtrade and MSC have been supported through FIPs; and in other areas, capacity building is delivered by the government. This has led to a patchy delivery of capacity building, with tuna fishers in eastern Indonesia currently better able to meet the new regulations than other parts of the country.[76] In Ghana, RFMOs and FIPs were also important mechanisms.[77] Having been in place for longer than the ICRs, they can help create a cultural acceptance of regulation, putting in systems that were often more stringent than those of the ICRs.[78]

In these cases, the fishing industry was often driving the government to bring in changes for them to secure the commercial benefits that RFMO and FIP compliance provides. In Indonesia, while the government is interested in improving the management of the artisanal sector, it is the industry itself that is concerned with meeting Fairtrade, MSC or other requirements, and has been proactive in driving these changes forward.[79] In Peru, the Peruvian Chamber of Jumbo Flying Squid (CAPECAL) and the National Society of Artisanal Fishing of Peru (SONAPESCAL) are closely engaged with the authorities to develop the fisheries management regulation (ROP).[80]

While the RFMOs and FIPs may be quite different mechanisms, they can reinforce the criticality of systems and mechanisms that can manage and regulate fisheries, the absence of which puts the fishing industry at a disadvantage. In reality, like the ICRs, there are weaknesses with the RFMOs and FIPs which undermine their effectiveness in reducing the prevalence of IUU fishing, but nevertheless offer additional points of leverage and collaboration for fishery policymakers who are hoping to see more sustainable fisheries management.

Text Box 4: Nationwide influence of fishery improvement projects in Indonesia

MSC and Fairtrade certification has influenced wider changes to small-scale/artisanal vessel regulations, reducing the prevalence of unregulated and unreported fishing. The key changes are as follows:

i. Vessel re-measurement policy: This followed on from the Indonesian Corruption Eradication Commission (2014), which found that many fishing vessels intentionally marked down their size to avoid complex registration and higher taxes. By May 2017, more than 50% of 15,800 fishing vessels were re-measured and moved up to a different vessel licensing category.

ii. Fishing license exemption and simplified vessel registration: Previously exempt from licensing and reporting requirements, simplified regulations were brought in for vessels up to 10GT.

iii. Improved logbook and catch reporting requirements: Vessels between 5GT and 30GT, as of 2021, are required to submit logbooks. The regulation also introduced e-logbooks, to begin a transfer of reporting to a digitalized system.

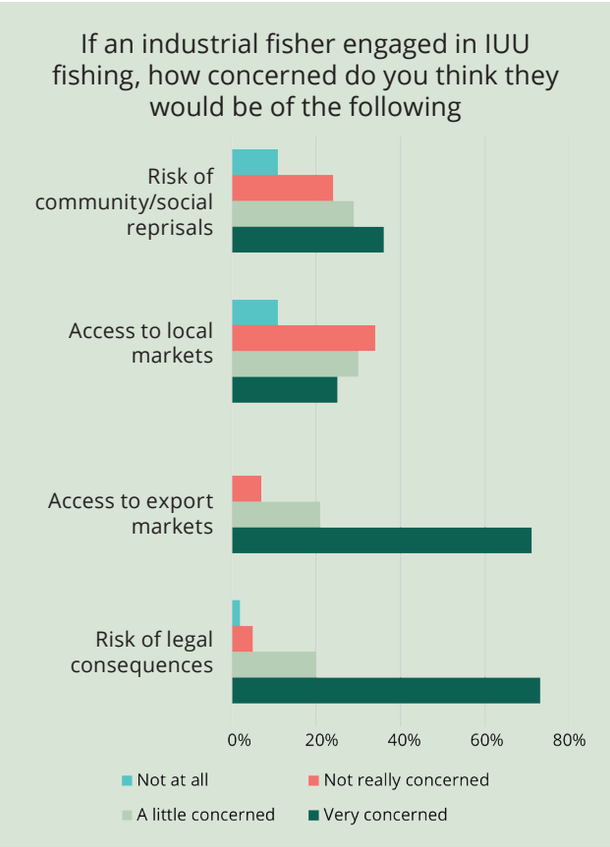
Finding 4

The improvements encouraged by ICRs have shrunk the enabling environment for IUU fishing, but loopholes and weaknesses remain, meaning that engaging in IUU fishing is still possible, if not always desirable.

There is strong evidence that industrial fleets operating in the case study countries are concerned about being associated with IUU fishing. At the national level, industrial fleets fear trade-based reprisals, such as the EU carding system, and as individual businesses there is real concern that licenses to fish and export will be revoked if caught engaging in IUU practices.[81] However, there are two important caveats: (i) a fear of engaging in IUU practices does not mean that IUU fishing is not committed; and (ii) the widespread concern seen by industrial fleets does not extend to artisanal fleets. In short, IUU fishing can and does happen, despite the measures taken and the increased risk of consequences.

Overall, there is a widespread belief that IUU fishing is now less desirable than 10 years ago,[82] with similar responses that the industry is more incentivized to engage in legitimate fishing. The reporting requirements are stricter, there is improved monitoring, control, and surveillance, fines have increased, and there is a fear of exclusionary penalties (e.g. export licenses revoked, fishing permits denied, RFMO access refused, trade restrictions imposed). As one KII from Indonesia described, fishers have to be more organized—the trip has to be approved before they leave, they have to estimate their catch and then have it verified, there is clarity over legal and illegal gear and which locations are permissible—all of this motivates the industry to be more compliant.[83] The use of designated ports and increased inspections, the rollout of VMS, and increases of patrols at sea, all help to shift the dial on enforcement. As such, there is strong evidence that *industrial* fleets fear consequences if they engage in IUU practices, as illustrated by the online survey results presented in Figure 6.

Figure 6: Survey results indicating how concerned industrial fleets are about engaging in IUU fishing



However, fearing consequences of IUU fishing does not mean that IUU fishing is not practiced, and while there is a sense that scrutiny of the fishing industry has increased, enforcement still has weaknesses right across the supply chain and across all fleets. Where IUU activity is caught, penalties may not be applied, or are too insubstantial to be a deterrent.[84] Only a small number of KII respondents could recall an example of a catch or consignment being rejected, and some of those were due to sanitation and not IUU fishing. On the import side there are similar trends, whereby very few consignments are rejected, either in the US or the EU (see Finding 2). As such, selling IUU fish is often considered to be easy—for both industrial and artisanal fleets—and once a catch is landed there may be no way to distinguish IUU catch from fish caught legally and responsibly.[85] The challenges of enforcement mentioned in the KIIs are wide-ranging, including the number and skill of inspectors, the sheer volume of paperwork, challenges of species verification, poorly maintained or utilized VMS systems, and corruption. Indeed, CDS in Peru were seen by some to have increased corruption, where more paperwork and bureaucracy increased opportunities for officials to receive pay-offs.[86]

Likewise in Ghana, there are concerns that impartiality undermines the otherwise well-established inspection system, where Fisheries Commission officers conduct inspections on every industrial trawler and tuna vessel and supervise transshipment in Takoradi port. However, many of those authorized inspectors are believed to collect fish from the vessels for their own use, which

potentially compromises their objectivity, and there are reports of Ghanaian vessel observers also being compromised.[87] In Peru, it is believed that there is widespread corruption within the regulators and police; for example, the 'cloning' of vessels[88] has forced the government to start bringing in digital chips for vessel identification (see Peru milestones in Annex B).

While this corruption allows fishers to circumnavigate the rules, IUU fishing does come at a cost. Apart from actual financial payouts to corrupt officials, there are psychological costs associated with fear and taking risks,[89] and informal ports and unregulated markets may be less convenient and reliable than formal ports and regulated markets.[90] As such, when IUU fish is landed, it often goes to local markets which are considered to have less scrutiny, with fewer steps in the supply chain where inspections may take place[91] (see also Text Box 5). For example, in Peru, there is a reluctance to move seafood by road without the proper paperwork, as this increases the chances of it being checked. Certainly, for industrial fishers, the primary interest is to access export markets which are scrutinized more closely but still present opportunities for IUU products to infiltrate regulated markets. In Ghana, trawlers may lower their gear on the way to designated fishing grounds and report that IUU catch as bycatch of their legitimate fishing,[92] and in Indonesia, once quotas of bluefin tuna are reached, they may misreport their catch as big-eye tuna.[93]

These opportunities to work around the rules compound the kind of theory and implementation weaknesses associated with the ICRs, described under Finding 1. This undermines confidence in the system, which is not helped by a lack of transparency. For example, port officials may verify catch reports, but there is often no transparency for that verification to be checked by others (e.g. other officials or civil society).[94] The lack of transparency of the EU audits adds to this challenge. As one importing authority noted, even when infractions are identified, the costs of dealing with those are a headache for the importing authorities: to reject a consignment once it reaches port can incur storage and disposal costs, and to prosecute can incur legal costs that may be up against private companies with much bigger legal budgets. This means that it is preferable for the authorities to reject a consignment before it reaches port. While the latter is an inconvenience, with associated costs for the exporter, it provides an opportunity for them to find another port where they may still be able to trade their shipment, and exonerates them from any legal reprisals.[95]

In response to these weaknesses, there is increasing focus on the digitalization of CDS, which is hoped to significantly reduce the opportunity for corruption and fraud. The EU is moving to a fully electronic system in 2025, the Indonesian authorities are introducing e-logbooks, and a number of pilot projects are trialing electronic reporting as part of FIPs.

A further weakness associated with the ICRs is how they treat artisanal or 'small-scale' fleets. All of the ICRs make accommodations for smaller vessels, but 'small' for the ICRs can be quite generous. The EU ICR primarily targets vessels over 30GT, which have stricter rules applied to them. Yet 80% of the fish caught in countries like Indonesia and Ghana are by artisanal fleets, which tend to be less than 30GT (the equivalent of many trawler vessels), which is why the authorities are tending to go further, as discussed in Finding 2. Where the US SIMP is concerned, it allows for catch from different vessels to be consigned together. This potentially enables artisanal fishers to bulk-trade their catches without knowing which vessels have landed that catch. Regardless of their association with export markets, there is clearly an association of IUU fishing with artisanal fleets, yet the majority of KIIs stated that the current regulations to date largely leave artisanal fleets able to engage in IUU fishing.

Text Box 5: Rejecting IUU fish at local markets

In Ghana, training had been provided to fishing communities to identify IUU fish, with the intention that it would be rejected at local markets. As one market vendor noted, she was able to identify fish caught through dynamite or chemical fishing, and refused to take them. However, it seems that the fish was taken to a different local market and sold anyway. While this shows that raising awareness can influence behaviors at the artisanal level, the scale of the challenge is significant in a country where demand for fish is high (~50% of fish is imported), and local vendors will often be unable to identify IUU fish unless there are obvious physical signs associated with only certain illicit fishing methods.

Ultimately, the most critical link in the supply chain is within the first mile, which is not only the most challenging to maintain, but also sits within exporting countries, which may be the least well-resourced to manage. Nevertheless, it is clear from the milestones identified in this research that decisive and meaningful action can be taken, and there are other examples where countries have significantly increased the scrutiny of the first mile.[96] Combined with advances in monitoring and surveillance technology, expanding VMS requirements to ever more vessels, data-sharing agreements, and the introduction of digitalized CDS, the ability of the authorities to oversee their maritime domains and to manage fisheries is improving all the time. The digitalization process should also improve how well the first and last mile can communicate with each other; i.e. the quality and accessibility of information that the importing authorities can use will improve, leading to better-informed risk assessments, and increasing the scrutiny at the demand as well as supply ends of the chain. There is a positive trend, therefore, to improve the capability of the export and import authorities to oversee the complex and often vast maritime domains under their jurisdiction, and hopefully the risk to benefit ratio will continue to shift to make IUU fishing less and less attractive.

Finding 5

The way ICRs are designed can influence the extent to which they encourage collaboration between key stakeholders, recognizing that the most effective responses to countering IUU fishing require intra-government operability, constructive inter-government partnerships, and close collaboration with the private sector and civil society.

For the ICRs to influence systemic changes to counter IUU fishing to protect supply chains requires considerable collaboration and support from a range of local, national, and international stakeholders. From designing the ICR, to negotiating its operationalization, to monitoring and refining the rules that are applied, there is a real need for integration of government, private, and civil society skills and resources. The kinds of support that these different stakeholders can provide to encourage the successful implementation of the ICRs are outlined below.

Civil society: The ICRs provide opportunities for collaboration with civil society throughout their design and delivery, with strong evidence that both NOAA and the EU ICR team appreciate close working relationships with civil society stakeholders. Some of the key roles that civil society can play are outlined here.

- The ICRs have given an opportunity for civil society to inform their design. A recent review of the US ICR, led by the Stimson Center, invited civil society to help refine SIMP 2.0,[97] and the EU sees its close relationship with civil society as a key strength.[98]
- It is important that the ICRs are accompanied by training and awareness raising within the fishing industry to better understand what regulations are being applied, how to meet those, and the rationale behind them. Often, civil society support is used to provide this, especially to artisanal fishing fleets. Without this support, fishing fleets can struggle to meet the demands of regulated markets.
- Civil society plays a vital role in monitoring, control, and surveillance, providing intelligence about IUU activity that can be shared with the teams behind the ICRs to inform their decisions about risks associated with certain countries, vessels or species. They bring with them digital platforms that make real-time analysis much easier and can provide technology and training to government stakeholders to improve their ability to use the available data and share that data across jurisdictions. Technological innovations have made important steps to improve monitoring and surveillance; for example, using artificial intelligence and satellite imagery to track vessels when they turn off their Automatic Identification System (AIS)/ VMS. Global Fishing Watch and the Joint Analytical Cell,[99] in particular, have played a vital role, setting up information-sharing arrangements with a range of stakeholders, including the authorities in Peru and Indonesia (although Indonesia ended this agreement in 2020).
- Civil society are vocal advocates for improvements to fishing, communicating with importing and exporting governments, coordinating their activities across regions, and engaging with the private sector and consumers to raise awareness. This kind of advocacy is not only from environmental organizations: in the US, labor unions have played a major role in influencing a range of ICRs that have led to the inclusion of rules regarding human rights and labor conditions.[100]

Intra-government partnerships: At a national and sub-national level there are many agencies that need to work together, whether it is an importing or exporting country, which goes beyond basic coordination. For example, in Peru, government agencies needed to work together to provide cheap finance to registered fishing vessels that had been mandated to install VMS. In Ghana, it was a combination of the Amended Fisheries Act 880, Amended Regulations L I2217, Fisheries Co-management Policy of 2020, Fisheries Management Plan 2022, and the 'pre-mix fuel' law that have, over the last 10 years, worked together to address IUU fishing.[101] It is clear that, for governments to respond to ICRs, they need a whole-government approach, where several different agencies work together to enhance their effectiveness and are often required to create new capabilities that did not exist before. This is not easy to achieve, and can lead to tensions between departments.[102]

Nevertheless, in all of the case studies, there have been significant reforms, improvements to inter-agency operability,

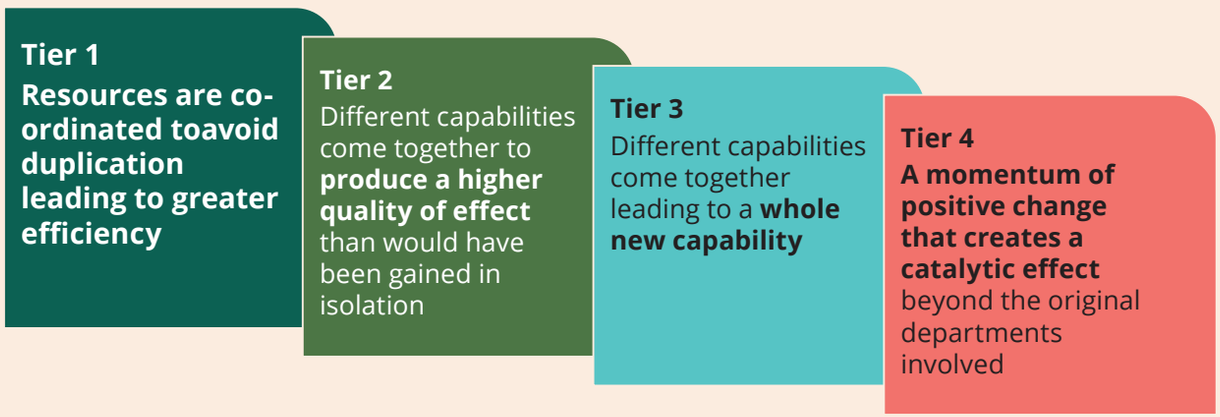
and new capabilities developed. See Text Box 6[103] for more insights on integrated delivery. Support from international partners and civil society can help the process, but ultimately these changes require the political will and leadership of the governments themselves

Inter-government partnerships: ICRs are intended to create a shared interest between the export and import countries to improve traceability and management of supply chains. Good relations are important between the countries seeking to trade with each other, and typically the importing country offers capacity-building support and technical advice to help exporters meet the requirements.[104] The EU government-to-government approach seems to be particularly effective, and provides frequent opportunities for formal and informal capacity building over the long term.[105] The EU does this informally as part of its assessment visits, formal and informal dialogues, and day-to-day engagement over validating catch certificates.[106] When a more formal package of support is deemed necessary, and which is unlikely to be met by the relatively small EU team, then assistance will be provided by the Food and Agriculture Organization (FAO). Typically, this will not be funded as a discrete EU program, but be part of the bilateral funding that the EU gives to the FAO annually. The support provided by NOAA appears to be less intensive, although workshops are provided to interested stakeholders to educate them about the rules and how to comply.[107] However, the government-to-business approach of the US means that there is less opportunity to engage with the importing governments and provide support. Research by the Stimson Center found that while the Indonesian authorities were in daily contact with EU colleagues to discuss compliance issues, they were completely unaware of the progress or challenges that Indonesian stakeholders may be facing with the US system.[108] As noted under Finding 1, the US does provide other types of support that are often at a scale that surpass any other international partner, supporting maritime domain awareness capabilities and offering large-scale multi-year USAID programs that specifically support countering IUU fishing.

Text Box 6: Integrated delivery

Integrated delivery is key to the success of the ICRs, both at the import and export end of the supply chains. Below is a summary of what good integrated delivery looks like and what it can achieve.

- **Integrated delivery is where joint analysis and strategy development across departments is the norm not the exception;** where collaboration is not just joint-implementation, but begins with the integration of knowledge and analytical capabilities.
- **It is outward facing** where key boundary partners—the host government, private sector, other donors, civil society, local communities—are included in the process and have shared ownership of the outcomes.
- **It is where senior leadership across all of the integrated stakeholders actively encourages different ways of working** with clear governance and shared accountability mechanisms.
- **It is a cultural shift and an enabling environment for innovation**, where collective strategies are deeply rooted in the local context and do not shy away from complexity.
- **At its most basic it enables partners to produce results that are greater than the sum of its parts, and, at its most aspirational, new capabilities that generate a catalytic effect**. These outcomes can be considered as four tiers:



Multilateral agencies: Multilateral agencies like FAO, the World Bank and the United Nations Office on Drugs and Crime (UNODC) also play a role in supporting the ICRs, directly and indirectly. As mentioned above, the FAO is often leaned on by the EU to provide capacity building where the needs exceed what the Directorate-General for Maritime Affairs and Fisheries (DG MARE) team can reasonably deliver themselves. This support is wide-ranging and tailored to the context and existing capacities of the government being supported.[109] The World Bank has also provided financing with specific counter IUU fishing objectives. The West Africa Regional Fisheries Program is one example, recognizing that fisheries and IUU vessels cross borders, and hence there is a need to build the capability of governments regionally. The program provided a range of activities: data management, fisheries governance, monitoring, control, and surveillance capabilities, strategy development, alternative livelihood programs, and initiatives designed to reduce the economic benefits of fishing being lost to stakeholders outside the region.[110]

Private sector: The private sector has a role to play in helping to design fishing policy, and it is important they are consulted, recognizing that these groups may prioritize short-term profitability over long-term sustainability. The private sector also plays a role in training staff and crew to meet regulations, and to make their staff and crew available to externally lead outreach and training programs. Fishing associations can help to deliver FIPs, as is the case in Peru, where the mahi mahi and jumbo flying squid FIPs are managed by industry representatives in close collaboration with civil society. In the UK, the government has looked beyond the fishing operators to insurance brokers to help close the enabling environment for vessels engaged in IUU fishing,[111] and efforts are being made to work with the financial sector to improve the transparency of beneficial ownership and curb illicit financial flows associated with IUU fishing.[112]

Finding 6

Finding 6: ICRs have influenced political and cultural attitudes toward fishing regulations, which help pave the way for the further tightening of rules that can counter IUU fishing.

The ICRs send a message to the fishing industry and to governments that IUU fishing should not be tolerated, and that increased scrutiny and traceability of supply chains are a necessity. These changes are often combined with other contextual factors that can inform and shape the cultural and political landscape of the fishing industry, which is important for the durability of the changes that the ICRs hope to influence. This means that the ICRs have contributed to progressive measures that are likely to endure in the long term. Indeed, as Finding 2 discusses, the foundations that the ICRs help to lay can lead to nationally led rather than externally imposed regulations that go beyond the expectations of the ICRs. This kind of momentum is important, but also not guaranteed. There is evidence in all case studies of backsliding, most obviously in Ghana, where a second yellow card was issued by the EU, and big challenges lie ahead as governments move to increasingly regulate the numerous and often politically vocal artisanal sector.

As discussed under Finding 1, ICRs can encourage the alignment of commercial and political interests, bringing a sense of shared urgency and consequence to the issue of IUU fishing. This can open up the political space to discuss actions that may otherwise have not been a priority, or would be countered by vested interests, allowing allies of better fisheries management to be heard and listened to. The responses to the ICRs that follow can help normalize regulations, ushering in changes that may have met initial resistance but later are realized to be tolerable.

Often the ICRs are entering a context with a level of public discontent regarding fisheries management, fueled by a sense of injustice that some people are allowed to exploit natural resources at the expense of others, and a real fear that livelihoods will suffer, as they often have done already, if better management is not forthcoming. This provides a social backdrop where the public and civil society already have an appetite for change, which helps to open up the political space for government action.

The kind of widespread reforms and changes to regulation at the scale seen in some of the case studies is not easy to achieve, but in all cases the systems put in place have been seen positively by many stakeholders, which is encouraging for their durability. Below we highlight some of these examples where CDS and associated formalization of fishing fleets has brought benefits to both the regulator and the regulated:

- In Ghana and Indonesia, there was evidence of the government recognizing the benefits of the CDS for tax revenues. It was thought that this had started to go too far and that the government was no longer primarily interested in the ICRs, but rather in the opportunity to impose higher and higher levies.[113]
- The control over foreign vessels was often seen as advantageous by government, commercial and community groups, and the improved systems of the government to be able to regulate, monitor and enforce fishing was largely seen as positive.[114]
- The extension of VMS to ever-increasing numbers of vessels has benefits for a government's maritime domain awareness and security (see Text Box 7).
- Vessel owners in Peru appreciated the use of VMS for being able to monitor their own captains out at sea and check that they were not conducting activity that was not in the vessel owners' interests.[115]

All of this helps to shift the Overton Window[116] within industry and fishing communities, making regulations more palatable for the regulated, and encouraging policymakers to make the necessary reforms and budget allocations needed to enforce them.

Political will can also be seen in how governments collaborate with others, and the literature shows how governments that have been carded by the EU have rationalized their involvement in RFMOs, signed up to new obligations, notably the PSMA,[117] and shared data with other stakeholders.[118] All of this indicates better leadership and a genuine desire to collaborate with others internationally for more effective collective impact.

Text Box 7: Convergence of environmental and security concerns

IUU fishing is increasingly recognized as a global security concern, getting specific mention in the latest US National Security Strategy, and a focus of the UK's Integrated Security Fund. This is partly because organized criminal gangs are increasingly engaging in environmental crime, which sees activity like IUU fishing converging with other serious organized crimes, such as human trafficking and drug smuggling. It is also because there is increasing awareness that the climate and biodiversity crises are 'threat multipliers' of existing security and conflict dynamics, while also creating new tensions and new opportunities for criminality.

The climate change and biodiversity crises are likely to make this situation worse as environmental crimes become more lucrative, trading in rarer and rarer commodities and exploiting vulnerabilities associated with more marginalized communities and climate-induced migrants. It can also be expected that disruption of fish migration patterns will benefit some communities while making others more vulnerable, and potentially increasing tensions associated with foreign fishing vessels encroaching on another nation's territorial waters. Within this context is the Women, Peace and Security agenda that increasingly guides many decisions around security, and has relevance for the gendered dynamics of IUU fishing outlined in Text Box 3. These issues mean that there is a growing opportunity and need for policies to counter IUU fishing-traditionally the concern of the environmental sector-to intersect with other policy agendas that can lead to more effective coherent policy and operational responses.

For example, the UK government's Integrated Security Fund has funded a project in South East Asia to address IUU fishing, which is considered to be a risk to stability in the region. The fund has paid for the secondment of a civil servant from the UK's Department for Environment, Food and Rural Affairs (Defra) to Global Fishing Watch, which in turn is part of the Joint Analytical Cell. This cell, which brings together skillsets from five international non-governmental organizations, is providing support to the Filipino port authorities to use available AIS and VMS data to improve their implementation of the PSMA. In doing so, the project integrates policymakers, data technicians and trainers to support the development of a whole new capability for the Filipino government that did not exist before. Subsequently, the Royal Navy has agreed to work with and has signed an information-sharing agreement with Global Fishing Watch to improve their collective understanding, assessment of risk, and pre-emptive action to avert maritime incidents.

This example shows the cross-sectoral concerns of IUU fishing, and how this can lead to integrated delivery, combining civil society and government resources, skills, and networks to provide policy and operational support to meet environmental and security interests.

The CDS and the sanctions both play important, complementary and distinct roles in these cultural and political shifts. The incentive for change where it is needed is the threat of, or actual, seafood trade restrictions or the revoking of an export license or similar. This does sharpen the minds of those who would potentially be affected, and the impact of nationwide consequences can be particularly effective at generating an alignment of political and commercial support, as discussed under Finding 1. The implementation of the CDS then plays an important role, providing the foundations of a system from which a government can further refine how it manages fisheries going forward, recognizing the benefits of improved regulation to promote nationally led changes, and not simply responding to external forces.

There are, of course, competing pressures that governments and societies need to manage, which can challenge the durability of reforms made and the commitment to improve fisheries management for the long term. These pressures come in the form of macro- and micro-economics and shifting political priorities. At a macro-economic level, governments are often under pressure to maximize revenues, and commitments to fisheries regulations that may result in short-term economic losses in return for long-term economic gains may be sidelined or watered down. At the micro-level, individual fishing vessels can see their profit margins undermined by a shortage of fish,[119] while regulations can add costs, especially new technology like VMS, which tends to be paid for by the vessel owners. While some of the costs of regulation borne by the government

can be recouped through tax revenue, the costs for individual vessels need to be covered by fishing, with IUU fishing as one option (see Text Box 8).

Text Box 8: The cost of doing business in Ghana

In Ghana, research shows that profits from fishing in the artisanal sector have reportedly dropped by around 40% between 2012 and 2016, and artisanal fishers are believed to be losing about USD 100 million per year due to overcapitalization across a fleet of 12,000 'canoes', which in reality are sizable vessels costing up to USD 60,000. The cost of a trawler going out to sea for 30 days (a recently introduced time limit to disincentivize transshipments) is USD 120,000, and for a tuna vessel it is USD 160,000. The shortage of fish due to overexploitation means that returns on these investments are harder to make, and can add pressure to engage in IUU fishing.

These economic pressures have an impact on political priorities, influencing domestic concerns for and against regulations. For example, in Ghana, the political will of the initial yellow carding faded, prompting a second yellow card that may have been avoided had the country delivered on commitments made following the first yellow card. Governments also need to take geopolitical considerations into account, not least as China is growing as an import market, but without the regulations that might be found elsewhere. The rise of China and other unregulated markets can undermine rules-based systems and, over time, may diminish the appeal of the ICRs as the importance of the EU, US, and Japanese markets shrink in relative terms.

There is evidence that the authorities understand this and have a desire to move to science-led management, extending CDS and VMS to fleets not readily associated with export markets, and enforcing practices like seasonal closures, quotas, and mesh size limits. In Peru, the government is trying to control the size of industrial and artisanal fleets-something that would not be possible without the kind of formalization that has accompanied CDS.[120] However, efforts to control the artisanal fleets are a different order of magnitude compared to industrial fleets, which to date have been the focus of the ICRs. Nevertheless, political and cultural acceptance of the need to regulate fisheries is stronger than in the past, and advancements in technology help make regulation more feasible to policymakers. ICRs have contributed to this, and it is important that they continue to do so, supporting governments to respond to the scientific realities of their maritime resources.

7 Conclusions

Conclusion 1

ICRs can increase the likelihood that both government and industry interests align, creating important tipping points within exporting countries that lead to meaningful benefits to counter IUU fishing.

Collectively, the three ICRs send a message that IUU fishing is an issue of real concern, and that increased traceability of supply chains into three of the world's largest seafood markets is an inevitability. This can encourage the alignment of commercial and political interests, bringing a sense of shared urgency and consequence to the issue of IUU fishing. In turn, this can open up the political space for allies of better fisheries management to be heard, and give an opportunity for civil society to provide evidence-informed policy suggestions, proven technical solutions, and capacity building to key stakeholders. It is the EU ICR, in particular, with its embedded trade-restrictive measures that can be applied to all seafood exports - and a history of doing so - that can really shift the dial and motivate nationwide responses. By contrast, the US and Japanese ICRs are more limited in scope, and lack the economic clout to motivate systemic change at the national level. For example, the government-to-business model of SIMP limits its engagement with exporting governments and reduces economic consequences down to individual business interests. While this can and does influence national CDS, it is not enough for the kind of systemic change that countering IUU fishing requires. The US and Japanese ICRs, therefore, are not likely to reduce the prevalence of IUU in any given country, arguably the best approach to protecting supply chains from IUU products. Nevertheless, there are complementarities between the three approaches that could be better exploited through improved collaboration and coherence across the sector, coordinating capacity building, sharing information and data to better target IUU risks, and working together to find the best way of engaging politically sensitive challenges.

Conclusion 2

All ICRs have CDS as a central component of their design, which can kick-start important formalization processes that lay the foundations for more sustainable fisheries management in the future.

The need to report against a range of key data elements, in particular vessel identification, requires a formalization process of entire fleets which may not have existed before. This is a prerequisite for any future fisheries management, providing the exporting country with a much better understanding of who and what is out on its waters, and providing a system from which the government can engage and influence fishing operators. The more accurate reporting also provides important information about what is being caught, when and where, potentially informing fisheries management decisions and providing insights into the economic importance of the fishing industry. Without this, policymakers would be blind to the scientific and economic realities of a key natural resource. These foundations are necessary to meet the externally driven requirements of the ICRs, but they also provide significant opportunities for exporting governments and the fishing industry to pursue their own interests. In all case studies, the formalization process has enabled further regulations to be imposed or expanded, giving exporting governments more control and influence over how they manage domestic and international fleets. Indeed, the formalization process and CDS typically becomes a nationwide endeavor, and is increasingly encroaching on smaller and smaller vessels. What this means is that the initial process to satisfy specific regulated markets now reaches into other markets that do not have ICRs, creating a momentum for fisheries regulation that has the potential to endure in the long term. This is an important understanding of how change can happen in these contexts, and the long-term added value of CDS that sit at the core of all three ICRs.

Conclusion 3

The ICRs have contributed to shifts in cultural and political attitudes toward IUU fishing which, coupled with tightening regulations and enforcement, have helped to shift the political economy of IUU fishing to be less appealing than 10 years ago.

While there are countries that remain resistant to ICR influence, most governments want to avoid the public statement of inadequacy associated with being carded by the EU or singled out in NOAA reports to Congress. Government and industry alike want to avoid the economic consequences of market exclusion, whether it be at a national level or an individual commercial license. At the same time, the high-profile nature of ICRs - especially EU carding decisions - can raise awareness within fishing communities and businesses of the risks that IUU fishing pose to the long-term economic viability of their industry. Often this builds on existing domestic concerns about how fisheries are managed and a sense of injustice that some people are allowed to overexploit natural resources at the expense of others. As the reality of dwindling stocks is felt by both artisanal and industrial fleets, the Overton Window for fishing regulations shifts, potentially making further regulations more palatable for policymakers. At the same time, improvements to legislation and monitoring, control, and surveillance have helped close the enabling environment for IUU fishing, adding to a growing sense that to engage in IUU fishing is increasingly undesirable. Civil society has played a key role within these changes, providing persuasive research, advocacy, and intelligence that improves the collective fight against IUU fishing. While these factors combine to shift the political economy of IUU fishing, economic incentives remain. These incentives are facilitated by weaknesses throughout the supply chain, most notably limited resources for monitoring, control, and surveillance at the harvest end (further undermined by corruption in some contexts), paper-based CDS, and relatively limited demands for validation at the market end. These challenges are set to become much greater as governments will be increasingly required to extend regulatory reach to artisanal vessels if they are to achieve sustainable fisheries management, often without the threat of market exclusion that the ICRs are able to bring to bear on industrial, export-focused, fleets.

Conclusion 4

Conclusion 4: For ICRs to be most effective at reducing IUU fishing, they need to take a systemic approach to assessing the proficiency of an exporting country to manage its fisheries and provide the necessary support to government and industry to deliver systemic change.

The most effective way for ICRs to protect their supply chains from IUU fishing is to reduce the prevalence of IUU fishing overall, while also trying to filter out the licit from the illicit products. This is best done through a government-to-government approach, which can encourage not just improvements to CDS but reforms that have wider benefits for fisheries management. This means not just considering specific supply chains, but also the quality of domestic legislation, international obligations, enforcement capabilities, cross-government coherence, and integrated delivery. This can lead to a more robust approach to tackling IUU fishing, with the potential to spill over into other markets, but also other concerns, whether they be human rights, organized crime, or challenges to a nation's sovereignty. As such, the package of support that may be needed to respond to ICRs in order to be effective can be wide-ranging, from peer-to-peer support at a government level to cheap finance for commercial stakeholders. Civil society has a major role to play, providing much-needed advocacy to government, commercial and consumer stakeholders; piloting and scaling up important technological innovations that improve the efficiency and effectiveness of monitoring, control, and surveillance; providing technical insights to policymakers to improve the robustness of their policies; and providing capacity-building support to encourage uptake of good practice and ensure that vulnerable groups are not left behind. In practice, support may be patchy, with limited dedicated resources from importing countries and a reluctance for exporting countries to admit that they need help - all of which can influence the effectiveness of ICRs to improve the integrity of supply chains and counter the prevalence of IUU fishing. The scale of the challenge cannot be underestimated, and the prevalence of weaknesses within current systems leaves opportunities for IUU fishing to take place - often routinely. More needs to be done to

improve the regulation of the first mile of the supply chain, as the most complex and most critical part, and all stakeholders need to follow through on opportunities to deliver deterrence, targeting those that benefit most and making sure that any punishment is of relative significance to their personal circumstances. There is hope on the horizon - technological improvements like digital CDS make the enforcement of regulations more feasible, governments and industry are aware of the criticality of not acting, international collaboration is happening, and there is domestic pressure at the supply and demand ends for change. ICRs have an important role to play, having already contributed to some of this hope, helping to build the policy and operational toolkits that can shift the balance of the risk to benefit equation of engaging in IUU fishing.

8 Recommendations

The recommendations below are intended for the Walton Family Foundation and its funding partners.

Recommendation 1

Support the expansion of SIMP to reduce the overall prevalence of IUU fishing as key to protecting US markets from IUU products.

In particular, support NOAA to make evidence-informed policy decisions by sharing the evidence and expertise that the Walton Family Foundation network has at its disposal and advocate to NOAA and other government agencies, retailers, and suppliers to build on the positive inroads made by the CDS and the constructive engagement of businesses within the US and exporting countries. To do this, the US ICR should be encouraged to expand from the foundations it has put in place to date to:

i. cover all species

ii. digitalize the CDS to improve efficiency and transparency, reduce opportunities for fraud and misreporting, and encourage collaboration and data sharing with other countries

iii. strengthen economic and political consequences of violations that encourage alignment of government and industry interests at a national level

iv. consider moving or increasing the sanction from the importing companies to importing companies and their downstream suppliers in the US - e.g. retailers and restaurants - to increase risk share across the supply chain (through greater supply chain visibility, data sharing, standardized compliance and shared penalties/sanctions)

v. increase elements of a government-to-government approach to better support systemic changes required to shrink the enabling environment for IUU fishing

vi. consider how the US can continue to champion labor and human rights, either by bringing these issues more firmly into the SIMP or by strengthening its coherence and collaboration with other US import rules and other countries' ICRs.

Recommendation 2

Advocate for the expansion of the Japanese ICR to reduce the overall prevalence of IUU fishing as key to protecting Japanese markets from IUU products, building on its framework as a government-to-government ICR scheme.

As the newest ICR, and currently the most limited in scope, there will be opportunities to review and expand the Japanese ICR in future, as is currently taking place with the SIMP. The Act itself indicates a five-year review which should be imminent. As with Recommendation 1, expansion and refinements should be evidence informed and intended to influence systemic change that can reduce the prevalence of IUU fishing overall, as well as its prevalence in the Japanese market. The anti-IUU coalition in Japan can take examples from the EU ICR and collaborate with both EU and US coalitions (including recent engagement on the SIMP expansion) to seek to optimize and harmonize its approach as follows:

i. expand the species covered, ideally to include all species

ii. build on the harmonization between the Japanese and EU CDS and follow the EU move to electronic CDS to improve efficiency and transparency, reduce opportunities for fraud and misreporting, and encourage collaboration and data sharing with other countries

iii. strengthen economic and political consequences of violations that encourage alignment of government and industry interests at a national level

iv. increase elements of the government-to-government approach to better support systemic changes required to shrink the enabling environment for IUU fishing

v. build on Japan's engagement in RFMO CDS in addition to its own ICR, to increase harmonization and multilateral approaches.

Recommendation 3

Recommendation 3: Continue to support the EU ICR and the delivery of fisheries management systems that can reduce the prevalence of IUU fishing.

The close relationship between civil society and the EU ICR teams should continue, focused on sharing intelligence and evidence regarding IUU fishing risks and use the window of opportunity associated with formal and informal dialogues to support uptake of good practice by exporting countries. In parallel, the Walton Family Foundation and its partners should highlight any inconsistencies and improvements in design and delivery of the ICR - in particular, capacity building and innovation that can improve the integrity of the first mile, greater transparency of decision-making and audits, and more robust and consistent enforcement of the ICRs across member states that results in meaningful penalties for those benefiting from IUU or ICR infringements.

Recommendation 4

Develop a global ICR strategy or 'playbook' that sets out how ICRs can best work together and what future changes may help improve their coherence, recognizing the benefits and complementarities of the different ICR models and how they can be used to different effect in different contexts.

This should be informed by a horizon scan of future risks and opportunities associated with countering IUU, including where cross-sectoral interests align (e.g. maritime security). The purpose would be to encourage policymakers to look beyond their own ICRs to maximize collective impact, for example, through improved harmonization of systems and data sharing. At the same time, the strategy should consider how the different ICR modalities can engage unregulated markets that are politically sensitive. The IUU coalitions and Walton Family Foundation networks should work together to develop this strategy and use that as a key advocacy tool for greater coherence between the EU, US, and Japanese ICRs and better integration of their delivery. The strategy should also provide guidance and encouragement to new ICRs of strategically important countries, in part to counter the increasingly large unregulated markets and offset any diminished influence of the US, EU, and Japanese ICRs as their market share of global imports shrinks relatively.

Recommendation 5

Invest in innovation and uptake of approaches that can improve the integrity of supply chains within the first mile, recognizing the advancements that have already been made by exporting countries and their international partners.

In particular, support the emerging efforts to digitalize reporting systems through funding pilot projects and building the evidence base to demonstrate the benefits for industry and authorities. Use the advent of digitalization to help promote coherence across existing ICRs that streamlines reporting systems and key data elements with the intention to reduce the complexity for suppliers while aggregating data that can be shared within and between import and export authorities. This will make systems more efficient and improve the evidence-informed decision-making for policymakers and operational teams across the supply chain.

Recommendation 6

Support governments which have the ambition to extend regulations to artisanal fleets through outreach and awareness raising within fishing communities.

This can be through measures and resources to support and comply with new regulations and help the government to integrate any new tools and approaches associated with the ICRs to benefit legal, sustainable and well-managed fisheries.

Recommendation 7

Advocate for improved transparency over beneficial ownership of fishing vessels.

This can be through working with government agencies, like Defra in the UK, to identify good practice and encourage uptake of that practice by other strategic countries. The purpose would be to make ICRs more robust and well-informed, ensure trade-restrictive measures are well-targeted to impact those that benefit from IUU fishing, reducing unintended consequences on those that do not, and enable penalties to be applied to companies and individuals from ICR markets that may engage in or support IUU elsewhere. Greater transparency should also be used to inform retailers about their own supply chains.

Endnotes

1 FAO 2022.

2 Agnew DJ, Pearce J, Pramod G, Peatman T, Watson R, Beddington JR, et al. (2009) Estimating the Worldwide Extent of Illegal Fishing. PLoS ONE 4(2): e4570

3 FAO (2016) The State of World Fisheries and Aquaculture: Contributing to food security and nutrition for all

4 EU IUU Regulation refers to Council Regulation (EC) No 1005/2008 of September 29, 2008, establishing a community system to prevent, deter and eliminate illegal, unreported and unregulated fishing. Entered into force January 1, 2010.

5 US Seafood Import Monitoring Program, established pursuant to the Magnuson-Stevens Fishery Conservation and Management Act on December 9, 2016. Entered into force December 31, 2018.

6 The Act on Ensuring the Proper Domestic Distribution and Importation of Specified Aquatic Animals and Plants, December 11, 2020. Entered into force December 1, 2022.

7 FAO 2022.

8 The table is taken from guidance provided by Women in Informal Employment: Globalizing and Organizing (WIEGO), 2022, Tool 1: How to write an outcome statement

9 FAO.

10 KII IDN002; KII IDN003; KII IDN006.

11 EU IUU Coalition (2022) Driving Improvements in Fisheries Governance Globally: Impact of the EU IUU Carding Scheme on Belize, Guinea, Solomon Islands and Thailand.

12 Wongrak, G. et al (2021) The Impact of the EU IUU Regulation on the Sustainability of the Thai Fishing Industry. Sustainability 2021. 13(12), 6814; https://doi.org/10.3390/su13126814

13 Amaj Rahimi Midani and Sang Go Lee (2016) Confronting Illegal, Unreported and Unregulated (IUU) Fishing with Proper Port and Flagged States Policies: The Case of South Korea and European Union. Journal of Fisheries Sciences com 10(3):43-51.

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17 At the time of writing, a review of the US ICR had just been completed and identified similar shortcomings: S. Yozell et al. (2024) Workshop Summary Report: Reimagining the Seafood Import Monitoring Program, Session I; Stimson Center.

18 The milestone workshop in Peru and KIIs across the case studies supported the view that the US ICR was particularly weak, with little validation.

19 S. Yozell et al. (2024) Workshop Summary Report: Reimagining the Seafood Import Monitoring Program, Session I; Stimson Center.

20 Gruber, C., Schlieman, L., Fritzhand, N. and Yozell, S. Traceability, Targeting, and Transparency in US Seafood Trade Programming (December 2023).

21 Ibid.

22 S. Yozell et al. (2024) Workshop Summary Report: Reimagining the Seafood Import Monitoring Program, Session I; Stimson Center.

23 KII IDN 003; KII IDN 006.

24 KII GHA005.

25 In 2020, the US interagency working group on illegal, unreported and unregulated fishing published a report to Congress detailing 29 countries with fisheries considered to be at greatest risk - both Ghana and Indonesia were included on that list. Currently, there are Withhold Release Orders over four fishing vessels and one Chinese fishing company (operating around 150 vessels), effectively banning them from exporting seafood to the US. In 2021, a sub-group was established specifically to tackle forced labour in seafood supply chains. It should also be noted that SIMP is undergoing a significant expansion, which will potentially address some of the limitations outlined in this report

26 Driving Improvements in Fisheries Governance Globally: Impact of the EU IUU Carding Scheme on Belize, Guinea, Solomon Islands, and Thailand. EU IUU Coalition (2022).; KII INT004; KII INT003.

27 In a number of workshops and KIIs, the fact that China has not been carded was raised as an indication of politicization. This research has not been able to verify or refute these claims.

28 This issue was raised in particular during KIIs and the workshop in Ghana; see also IUU Watch (2024) Identifying EU nationals who profit from foreign illegal fishing activities: the importance of beneficial ownership transparency.

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30 Cambodia is currently red-carded and has been since 2013; Trinidad & Tobago has been red-carded since 2016; Comoros has been red-carded since 2017. Source: IUUWatch.

31 KII IND008; also see article from Amandala quoting concerns by President Barrow.

32 Driving Improvements in Fisheries Governance Globally: Impact of the EU IUU Carding Scheme on Belize, Guinea, Solomon Islands and Thailand (March 2022).

33 KII IDN023.

34 FAO

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36 IUU Watch (2020) A comparative study of key data elements in import control schemes aimed at tackling illegal, unreported and unregulated fishing in the top three seafood markets: the European Union, the United States and Japan.

37 KII IDN002.

38 For example, the US has recently funded a USD 12.5 million program to counter IUU fishing in Vietnam.

39 Tom Polacheck (2012) Assessment of IUU fishing for Southern Bluefin Tuna, Marine Policy Vol. 36 (5).

40 European Parliament (2013) Fisheries in Japan. Directorate General for Internal Policies. Policy Department B: Structural and Cohesion Policies.

41 The majority of KIIs across the case studies stated that IUU fishing was still a problem, although had improved over the last 10 years. Similar results were found through the online survey.

42 KII PER013.

43 KII GHA001.

44 KII GHA019; KII PER013; KII IDN001.

45 The EU yellow cards highlighted transshipment and trawler fishing as key issues in 2013 and 2021, respectively.

46 The EU yellow cards highlighted transshipment and trawler fishing as key issues in 2013 and 2021, respectively.

47 KII GHA005.

48 Global Fishing Watch press release (2019) Sharp decline in foreign fishing boats in Indonesian waters.

49 Cabrial et al. (2018) Rapid and lasting gains from solving illegal fishing, Nature, Ecology & Evolution; v2 650-658.

50 Ibid

51 The map used here is adapted from the IUU Fishing Watch map found on their website.

52 Karmenu Vella (2016) EU Traffic light system to fight Illegal fishing gives Indonesia Green Light. EU Monitor, May 17 2016.

53 KII IDN003.

54 Eur-Lex: Access to European Law

55 Ferguson-Cradler, G. (2024) Coping with crisis: The Peruvian state-owned fishing enterprise Pesca Perú, 1973–1998, Business History, 1–24.

56 21 of the KIIs were identified as giving clear answers on whether or not ICRs were effective; where answers were not given or were not clear, they were not included in the analysis. Of those 21, only 3 said that ICRs were not effective.

57 KII GHA010.

58 KII GHA001.

59 KII IDN001; KII IDN003; KII GHA011.

60 KII GHA001.

61 KII GHA008.

62 KII GHA005; KII GHA006; KII GHA0101; KII GHA011; KII GHA001.

63 KII GHA010.

64 Edu-Afful (2022) Examining the Gendered Dynamics of Maritime Insecurity in the Gulf of Guinea.

65 Okafor-Yarwood & van den Berg (2023) Gender Dimensions and Dynamics of Maritime Criminality, Response and Capacity in West Africa; UNODC

66 This is also the case in Indonesia. See Fitrianggraeni (2019) Building business, enriching lives: an Indonesian initiative to empower women in the fishing communities; World Maritime University Journal of Maritime Affairs.

67 This is also the case in Indonesia. See Fitrianggraeni (2019) Building business, enriching lives: an Indonesian initiative to empower women in the fishing communities; World Maritime University Journal of Maritime Affairs.

68 Ibid.

69 Wongrak, G. et al. (2021) The Impact of the EU IUU Regulation on the Sustainability of the Thai Fishing Industry. Sustainability 2021, 13(12), 6814.

70 Driving Improvements in Fisheries Governance Globally: Impact of the EU IUU Carding Scheme on Belize, Guinea, Solomon Islands and Thailand (March 2022).

71 Ibid.

72 Tabitha, G.M., Hao, C., & Danyan, L. (n.d.) Supply Chain Investigation of Illegal, Unreported and Unregulated (IUU) Fishery and Aquaculture Exports from China.

73 KII IDN008; KII PER006; KII PER004.

74 See milestone report in Annex.

75 KIIs IDN002.

76 See milestones in Annex B.

77 KII GHA010; KII IDN001; KII IDN008.

78 KII GHA010; KII IDN001.

79 KII IDN001; KII IDN002.

80 Ministerial Resolution No. 415 2024 PRODUCE

81 KII IDN012; KII GHA010; KII PER007; the online survey also found concerns regarding industrial fleets and export access

82 See for example GHA013, GHA004, IDN001, online survey responses.

83 KII IDN006.

84 KII GHA018; KII INT002.

85 The majority of respondents across the case studies commented that IUU fishing is still possible and continues to happen.

86 KII PER002; KII PER010.

87 KII GHA014; also see the BBC article (2023) Ghana fishing: Abuse, corruption and death on Chinese vessels.

88 KII PER008.

89 KII IDN012.

90 KII INT002.

91 KII IDN003.

92 This is seen by the higher-than-normal volumes of bycatch, which is hard to prosecute as some bycatch is expected; GHA010.

93 KII IDN003.

94 KII IDN004; KII GHA014.

95 KII INT004; KII INT001; KII GHA014.

96 For example, the Solomon Islands more than doubled the number of fisheries officers and required 100% inspection of tuna vessels at landing, and Thailand introduced a range of measures such as 'port in-port out' systems and facilities, establishing a national observer program, training observers, and improving resources for monitoring, control, and surveillance through employment of 4,000 officers. Source: Driving Improvements in Fisheries Governance Globally: Impact of the EU IUU Carding Scheme on Belize, Guinea, Solomon Islands and Thailand. EU IUU Coalition (2022).

97 S. Yozell et al. (2024) Workshop Summary Report: Reimagining the Seafood Import Monitoring Program, Session I; Stimson Center.

98 KII INT003.

99 The Joint Analytical Cell consists of Global Fishing Watch, TM-tracking, international monitoring, control and surveillance network, Skylight, C4ADS.

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101 KII INT004.

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113 KII INT004.

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115 KII IDN022; KII IDN005.

116 Outcome Harvest Workshop Peru., KII GHA004.

117 Outcome Harvesting Workshop Peru.

118 The Overton Window - Mackinac Center.

119 The US National Security Strategy 2022.

120 KII GHA010.

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c/o Open Gov Hub
1100 13th St NW, Suite 800
Washington, DC, 20005
United States

Itad Kenya
1870/610 The Westwood Building
Vale Close
Westlands, Nairobi
Kenya

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mail@itad.com