

A systematic review of socioeconomic outcomes of the European Union's trade-based
measure for seafood sustainability

By

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Positionality Statement

Marine Courtois is a French early career marine biologist manager with a wide variety of academic and professional experiences. Her Master of Science in Marine Biological Resources studied the intensity and potential impacts of killer whales' depredation on longline fisheries in southeastern Australia. This project allowed her to work for the first time at the interface between science and policy to support informed decisions in fisheries management. Additional professional experiences combined with her enrollment in the Masters of Marine Management at Dalhousie University allowed her to expand her interdisciplinary competencies to proficiently merge her background in marine science with policy and decision-making. Even if the approach used in this graduate project intends to produce unbiased results, Marine's European perspective was significantly helpful and helped guide the research.

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Abstract

Seafood is one of the most internationally-traded food commodities, creating opportunities for importing countries to exert influences on exporting countries via the control of market access. Over the past decade, global seafood market states have implemented a series of trade-based measures to improve transparency throughout international supply chains and, where possible, leverage market access to demand certain standards on the fishing practices and management in exporting states. The European Union's IUU Regulation (EC No 1005/2008) is the most prominent and well-established of these trade-based measures, and is aimed at closing the European market to seafood harvested through Illegal, Unreported, and Unregulated (IUU) fishing. Through a two stage process of warnings (yellow card) and import restrictions (red card), the EU-IUU Regulation has been applied to 27 countries, including Belize and Sri Lanka, which resulted in a ban on imports. It is now increasingly viewed as a model for other key seafood market states in promoting sustainable fisheries globally.

This study is a systematic literature review, based on 53 research peer-reviewed research articles from 2010-2022, to assess the observed outcomes of the EU-IUU Regulation in terms of improvements in fisheries management and of the socioeconomic impacts on the affected fishing communities. Despite its presented initial goal of monitoring IUU fishing practices internationally, the regulation presents significant transparency and harmonization gaps, limiting its overall effectiveness. The unilaterality of the regulation and subsequent perceived unbalanced dynamics may represent one of its key weaknesses.

Keywords : EU-IUU Regulation; policy; IUU fishing; trade-based measures; carding system; socio-economic impacts; management; power dynamics.

Chapter 1 - Introduction

In 2020, the Food and Agriculture Organization of the United Nations (FAO) estimated that the fishing sector engaged more than 38 million people, predominantly in Asia and Africa (FAO, 2022). More broadly, fishing represents one of the world's largest single industries, providing billions of people with a vital source of food and revenue (Wongrak, 2021). Over the past years, the consumption of aquatic foods grew significantly with a global diversification of the species fished. Despite the recent evidence of an increase in the number of landings issued from biologically sustainable fish stocks (FAO, 2022), fishery resources are still on the decline, mainly due to overfishing and poor management strategies. Such practices represent a major threat to the integrity of marine ecosystems, with correlated negative social and economic consequences reducing the overall fisheries production and threatening the food security and well-being of coastal communities.

With approximately 15% of the international catch illegally landed (*i.e.*, 11 to 26 million tons), illegal, unregulated and unreported (IUU) fishing is a global phenomenon, often but not exclusively occurring in regions with poor or corrupt governance, which constitutes a substantial cause of overfishing (André, 2018; Song et al., 2020; Temple et al., 2022). Aside from inducing additional stress on marine ecosystems and interfering with the global recovery of fish stocks, IUU fishing also cause an average loss of \$10 to \$23.5 billion to the industry annually, undermining the policies in force (Agnew et al., 2008; Liddick, 2014). Therefore, preventing and deterring IUU fishing has increasingly been included as an essential part of fisheries management strategies, defined by some as the only way to guarantee and promote sustainable seafood resources in the future (Cabral et al., 2018).

Be that as it may, estimating the level of IUU fishing and monitoring such practices on a global scale remains particularly complex (Agnew et al., 2008). The overarching lack of

adequate management strategies in coastal states to monitor fishing activities and the negligence of flag states to meet their stipulated responsibility under international law constitute prominent issues, hindering the efficient monitoring of IUU fishing (Elvestad and Kvalvik, 2015). Over the past years, additional port and market state control measures have been implemented by coastal states to prevent the landings of IUU-sourced fish and fish products. The first objective of these measures is to address any shortcomings in traditional at-sea monitoring measures by either regulating the access of vessels to ports or denying the market access to IUU-derived products.

Concurrently, global seafood market states have implemented a series of trade-based measures to improve transparency throughout the international supply chains and, where possible, leverage access to their market to demand explicit standards on fishing practices and management in exporting states (André, 2018; Liu, 2017). The European Union (EU)'s IUU Regulation (EC No 1005/2008; "EU-IUU Regulation," hereafter) is the most prominent of these trade-based measures, closing the European market to seafood harvested through IUU fishing. Since its implementation in 2010, the EU-IUU Regulation has been increasingly viewed as a model for other key seafood market states in promoting sustainable fisheries globally. Yet, the sustainability outcomes and effectiveness of the regulation on monitoring IUU fishing practices have scarcely been assessed nor are their implications on communities and people who are reliant on fishing and trades of their catch. Thus, the objective of this research is to examine the observed socioeconomic impacts and unintended outcomes of the EU-IUU Regulation on fishing communities of the exporting countries that were issued a card. The focal study questions include 1) How does the EU-IUU Regulation work in practice? 2) What are the key positive outcomes and primary throwbacks of the regulation; is there evidence of its effectiveness in limiting IUU-fishing activity in exporting countries? 3) How do power dynamics and broader considerations affect the implementation and perception of the regulation?

Answering these questions will help identify the data available to assess the observed socioeconomic impacts of the EU-IUU Regulation. It will conduct a systematic review of primary academic literature published since the implementation of the regulation in 2010. The study will identify and record all observed socioeconomic impacts of the EU's policy as well as its role in reducing the IUU fishing practices. Overall, the project will assemble pieces of evidence, both positive and negative, necessary for a comprehensive review of the EU-IUU Regulation a decade after its implementation.

Chapter 2 – Important concepts

1. Illegal, Unreported, and Unregulated (IUU) fishing and fisheries sustainability

The most widely used definitions of IUU fishing are those provided by the United Nations FAO, an international organization tasked with global efforts in addressing food insecurity, including sustainable fisheries, thanks to its International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported, and Unregulated Fishing (IPOA-IUU) (FAO, 2001). In it, illegal fishing is defined as all activities performed by a vessel in waters under national jurisdiction violating the laws in force or without prior consent from the sovereign states. It also describes all fishing activities conducted on the high seas in contradiction to the regulations and measurements established by the relevant regional fisheries management organization (RFMO) operating there (FAO 2021; Tanaka 2015). Illegal fishing activities include, for instance, fishing in closed areas or during closed seasons, but also with prohibited fishing gear or without a valid licence (FAO, 2001).

IPOA-IUU defines unreported fishing as all marine landings not reported or misreported to the appropriate authorities in contravention of national laws and regulations or reporting procedures of relevant RFMOs. It includes all fishing activities that failed to report catches or purposely created false reports. Unreported landings are usually comprised of by-catch species and do not appear in landings records of the area of jurisdiction (Agnew et al., 2009; Leroy et al., 2016). In fisheries management, managers often use various methods to determine the maximum fishing limits for a fish stock during a specific period and for a distinct area to ensure its sustainable harvest (Davel, 2020). These methods often are based on previous catches and are subsequently used to recommend a total allowable catch or TAC. Unreported catches do not appear in the data used for assessments and setting limits, thus restricting their accuracy and contributing to overfishing in the long term.

Lastly, IPOA-IUU defines unregulated fishing as all fishing practices conducted in waters under or beyond national jurisdiction by vessels registered and operating under the laws of a State (*i.e.*, flagged) not a member of the relevant RFMO or flying no flag at all. Unregulated fishing activities are usually inconsistent with the States' responsibilities to conserve living marine resources established under the 1982 United Nations Convention on the Law of the Sea (UNCLOS). The Convention also highlights the flag state obligations to control the activity of all vessels registered under its jurisdiction: a requirement missing in most unregulated fishing practices (Flothmann et al., 2010).

Following the ongoing concerns of the international community regarding the implication of transshipment activities in facilitating the introduction of IUU fishing-derived products into the seafood supply chain, the FAO performed an in-depth study to define additional international guidelines on such practices in the IPOA-IUU (Mosteiro Cabanelas et al., 2020). Transshipment describes the process during which vessels unload their catches at sea onto other ships, limiting the cost of back-and-forth transportation between the onshore landing and the fishing grounds. Be that as it may, transshipment allows fishing vessels to avoid restrictions and port controls and disguise illegal, unreported, or unregulated fisheries activities. Such practices are now strictly regulated internationally and require increased vigilance from all fishing states. Article 49 of the FAO's IPOA-IUU (2001) assesses that:

“Flag States should ensure that, to the greatest extent possible, all of their fishing, transport and support vessels involved in transshipment at sea have a prior authorization to transship issued by the flag State, and report to the national fisheries administration or other designated institution.”

Each of these reports shall include the date and location of these activities, details about the catch and the vessels involved. In case of clear evidence that a fishing vessel has engaged in

IUU fishing activity and illegal transshipping, access to the landing port should be restricted (FAO, 2001).

2. International tools and management challenges

Considerations of IUU fishing in international law evolved as new tools emerged. The 1982 UNCLOS represents the first body of codified customary rules defining the spatial division of the ocean and the corresponding distribution of the states' jurisdictions (Tanaka, 2015). Despite requiring that all States guarantee the conservation of vital marine living resources, UNCLOS remains limited in addressing IUU fishing activities. Indeed, it relies on zonal management and divides the ocean into multiple jurisdictional zones (*i.e.*, internal waters, territorial seas, contiguous zone, exclusive economic zone, high seas, etc.) where each state possesses specific defined rights and obligations. Nevertheless, fish stocks themselves are often independent of zonal management, especially highly migratory species, which cross supposed borders multiple times over their lifespan. Managing such species at the international scale requires collaboration among States. Nevertheless, even though the duty to cooperate is fundamental to fisheries management, the UNCLOS does not provide clear indications of what to do in case of cooperation fails, limiting the overall reach of the legal text in this matter.

The formalization of inter-governmental organizations, RFMOs, through the United Nations Fish Stocks Agreement (UNFSA) (1995) enhanced the role of the UNCLOS in regulating fishing activities on the high seas. RFMOs rely on memberships of coastal, land-locked, but also distant-fishing states with legitimate fishing interests and are competent under international law to adopt legally binding conservation and management measures. Over the past years, RFMOs progressively included IUU fishing as one of their priorities by strengthening requirements regarding monitoring, control and Surveillance measures (Haas et al., 2019; Song et al., 2020). Be that as it may, the power of RFMOs in the international fight against IUU

fishing remains limited since not all IUU activities occur on the high seas. Similarly, their control only applies to member state fleets, which do not always translate the organizations' new policies into their national laws, limiting the overall potential for coherent and effective legal enforcement (Flothmann et al., 2010).

The increasing awareness of the scale and impacts of IUU fishing on fisheries sustainability led to the adoption of the previously described IPOA-IUU. The 2001 plan recognized IUU fishing as one of the first issues to address in fisheries management. It sets out what states can do under international law, drawing on custom, the UNCLOS, the UNFSA, and the FAO 1995 Code of Conduct for Responsible, among others (Tanaka, 2015). The IPOA-IUU includes measures to prevent, deter, and eliminate IUU fishing by reassuring the prevalence of all international instruments in force and encouraging all States to ratify and implement them fully in their national plan. Overall, the IPOA-IUU underlines the importance of cooperation among countries and provides details on the responsibilities of the flag, coastal, and market states (IPOA-IUU, 2001; Borit and Olsen, 2012). Flag states are required to ensure that vessels flying their flag do not engage in IUU fishing. That mainly includes the performance of at-sea monitoring and controls combined with a strict registration of fishing vessels to keep track of their activities at all times, particularly in waters under the national jurisdiction of the coastal state. The implantation of the UN Port States Measures Agreement (PSMA) (FAO, 2009) expanded the role and capacity of Port States hardly described in the IPOA-IUU. It sets out minimum requirements for port states to take action to improve controls of all vessels entering or using their ports, including the potential denial of access for ships presumably involved in IUU fishing. The RFMOs broadly ratified the PSMA and adopted conservation and management measures in adequation with the agreement (André, 2018).

Despite the international tools in force, the management and control of IUU fishing face multiple challenges. The definition provided by the IPOA-IUU (FAO, 2001) remains contradictory when distinguishing illegal forms of fishing from the other two categories. Indeed, at the international level, the distinction and specificity of each term remain limited, and most reported IUU fishing activities end up falling under the broad “illegal” category without further segregation (Churchill, 2019). Similarly, unreported catches in artisanal, subsistence or recreational fisheries are usually not recorded. For instance, in fisheries that do not possess adequate infrastructures or stringent rules to report catches, unreported bycatch and species caught in closed areas or by using prohibited gear are rarely reported and often deliberately disregarded by the authorities (Leroy et al., 2016). Following the definition of IUU provided by the IPOA-IUU (FAO, 2001), and because these catches are generally conducted in contravention of the restrictions in place, they will initially be considered illegal. Nevertheless, if they are not reported to the relevant authorities, they will also portray the attributes of “unreported” landings. The overlap between definitions combined with the challenges of estimating the extent or impacts of IUU fishing can again impede the proper estimation of TACs, threatening the global sustainability of fish stocks (OECD, 2021). Moreover, despite mentioning the roles of the flag, coastal and port states in controlling IUU fishing activities, the IPOA-IUU definition does not explain their specific duties, directly referring to the UNCLOS for such matters. However, the Convention only provides a general overview of States’ obligations in terms of conservation and IUU fishing while leaving the further implementation of regulations and management processes to the discretion of each state. Consequently, the scope of the international definition tends to differ between countries like the United States (US), where IUU fishing includes activities violating the conservation and management measures requires under an international fishery management agreement to which the United

States is party, limiting the scope to activities that directly infringe upon US fisheries interests (Honniball, 2019).

The enactment of additional restrictions on legal fishing activities (*e.g.*, quotas, gear regulations, stock sizes management, etc.) exponentially increased the motivation to fish illegally (Flothmann et al., 2010; Telesetsky, 2014). Such practices are increasingly fostered by weak governance systems and the overarching lack of stringent sanctions to deprive offenders of the benefits accrued from potential illegal activities (Cabral et al., 2018).

3. Emergence of Trade-Based Measures as a Tool in Controlling IUU Internationally

As one of the most traded food commodities (André, 2018; Asche and Smith, 2010), fish and seafood products change hands several times, often through transshipment at sea or through import, processing and re-exporting arrangements. Trade and supply chain activities thus represent an easy entry point to the international markets for IUU-derived products (Hosch, 2016). In theory, trade-based measures can regulate, limit or completely prohibit the commerce of specific goods and allow for controlled access of products to international markets thanks to improved border controls (André, 2018). Such regulations exist in various sectors involving the trade of living and non-living goods and include import tariffs or restrictions on exports, together with provisions to abide by international standards for the production and processing of products. For instance, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973) monitors the trade-in of endangered wild animals and plants through a licensing system. It employs trade-related measures to set the legal framework for international trade and achieve specific conservation goals. Regarding fisheries, CITES is widely used by RFMOs to manage migratory and straddling fish stocks. However, the reach of its legal prerequisites remains limited in controlling the traceability of seafood in the supply chain, requiring more specific controls and restrictions.

As such, the process of reducing economic incentives for IUU-derived products while rewarding collaborative and complying states represented a potential new tool to limit their circulation on international markets. Over the past decade, leading seafood markets - namely the EU and the United States (US) - implemented unilateral and multilateral trade-restrictive measures to strengthen the transparency of their supply chain and expand their sustainability standards outside their borders (Song et al., 2020). By importing more than 60% of its domestic seafood consumed, the EU is the world's largest trader in terms of seafood products imports issued from wild fisheries and aquaculture, largely overpassing the United States (US), China, and Japan (*Table 1*) (Davel, 2020). Most of the products traded on the European market arrived

Table 1: Imports of fisheries and aquaculture products of main world traders (*Vol:* volume in million tonnes; *Val:* nominal value in EUR billion) and % of imports originating from the EU on total in 2019. (EUMOFA, 2020).

Country	2015		2016		2017		2018		2019	
	Vol	Val	Vol	Val	Vol	Val	Vol	Val	Vol	Val
EU-28	5,94	22,80	6,10	24,85	6,07	25,98	6,32	26,55	6,34	27,21
US	2,64	17,03	2,72	17,77	2,80	19,22	2,88	19,26	2,81 (3% from the EU)	19,34 (3% from the EU)
China	4,04	7,84	3,98	8,15	4,84	9,70	5,16	12,45	6,20 (2% from the EU)	16,36 (2% from the EU)
Japan	2,47	12,28	2,36	12,73	2,46	13,52	2,36	13,12	2,44 (2% from the EU)	13,60 (4% from the EU)
Thailand	1,60	2,33	1,85	2,85	1,92	3,24	2,13	3,39	1,98 (1% from the EU)	3,35 (1% from the EU)
Norway	0,63	1,12	0,63	1,15	0,66	1,08	0,61	1,08	0,61 (43% from the EU)	1,19 (39% from the EU)

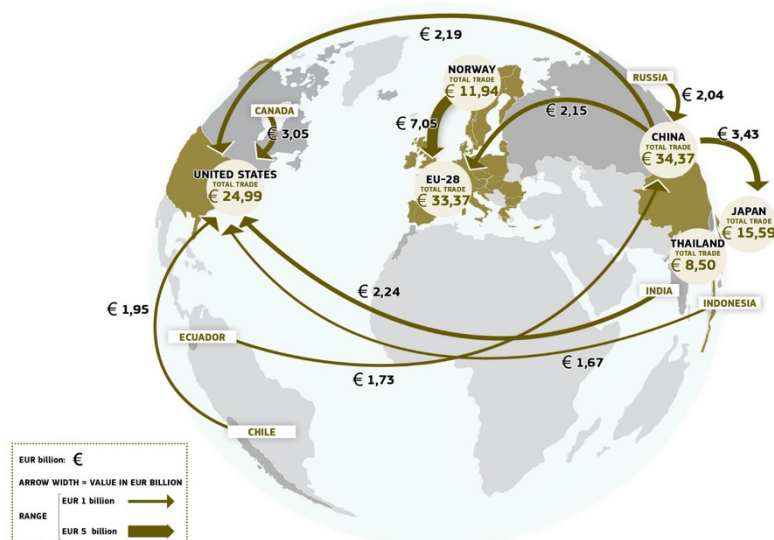


Figure 1: Main trade flows of fishery and aquaculture products in the world in 2019. (EUFMOFA, 2020)

from other EU-member and non-member states, especially Norway, or from the Asian continent (Figure 1).

Following the IPOA-IUU, the EU introduced their IUU fishing regulation in 2010 (Council Regulation No. 1005/2008), highlighting its importance and prevalence in its national policies (Barnes et al., 2020). The unilateral rule seeks to thwart the access of all marine IUU-derived products into the European market while expanding the regulatory capacity of the organization to all fishing activities carried out on the high seas and in water under the jurisdiction of a Member State (Auehavornpipat, 2021; EC, 2010). The EU-IUU Regulation relies on tools from the IPOA-IUU and the PSMA to define the role and responsibilities of the flag, coastal, and port states in the issue (FAO, 2022; He, 2017). Additionally, it reinforces the role of market states in controlling all marine wild-caught goods along the supply chain and hindering access to IUU-derived products. Over the last decade, the EU-IUU Regulation has been applied to 27 exporting countries worldwide (Table 1) (European Commission, 2021), and in doing so, has resulted in country-level exclusion as a result of non-compliance. The EU-IUU Regulation remains considered the most influential piece of legislation in fisheries management and

governance (Miller et al., 2014) while being applauded as a major success in helping to control IUU fishing activities.

The United States and Japan also import much of the fish and seafood found on store shelves and in restaurants, the two major markets. In the US, it had been estimated that about 25% of imported seafood could be sourced from IUU fishing (Pramod et al., 2014). In 2016, the National Oceanic and Atmospheric Administration (NOAA) created a Task Force to develop national standards seeking to improve the transparency of the local supply chains. The government-to-business US Seafood Import Monitoring Program (SIMP) became fully implemented in 2018 and requires fishing companies to keep records of the origin of all wild-caught and farmed seafood products entering the US market (He, 2018). The regulation principally focuses on 13 species highly vulnerable to IUU fishing, albeit it does not cover domestic landings (Willette et al., 2018). In December 2020, Japan, the third most lucrative international seafood market, established a strategy to introduce a catch documentation requirement scheme for IUU fishing vulnerable seafood. The plan is scheduled to enter into force in December 2022 (SEAFDEC, 2022).

4. EU-IUU Regulation

The EU-IUU Regulation 1005/2008 and EU Control Regulation 12224/2009 were both adopted in 2008 and entered force on January 1st, 2010, with a common objective to “ensure the exploitation of living aquatic resources that provides sustainable economic, environmental and social conditions” (EC 1005/2008). The EU-IUU Regulation applies to all landings and transshipments performed by EU vessels or third-country vessels entering a port in the EU. It regulates the circulation of IUU-derived seafood fishing products on the EU market by providing market restrictions to countries that do not comply with the set standards and requirements (Churchill, 2019; EC, 2010; Lutchman et al., 2012). As presented in paragraph 38

(EC 1005/2008), the regulation relies on the cooperation between Member States through dialogue with all third countries involved in the processes:

“38) Cooperation between Member States, the Commission, and with third countries is essential to ensure that IUU fishing is properly investigated and sanctioned and that the measures (...) can be applied. A system for mutual assistance should be established to enhance such cooperation.”

As of 2022, 93 countries have notified the EC that they are in full compliance with the EU’s legal and procedural requirements to have their products certified for trade. This regulation allowed the EU to position itself as the leading body in the global “fight” against IUU fishing (Aldereguia Prado, 2020; Auethavornpipat, 2021).

The EU-IUU Regulation relies on the cost-benefit balance for exporting countries of trade interaction on the European market (Miller et al., 2014). Given the substantial cost associated with restricted access to the European market, the law is designed to create economic incentives in exporting countries to encourage strengthening their domestic laws and investments in monitoring and enforcement capacity. The EU-IUU Regulation consists of three components: a stringent catch documentation scheme (CDS), a list of all "black-listed" vessels that are prohibited from entering the EU market, and another list identifying exporting states deemed to be non-compliant states. This latter list includes all countries that received a “yellow card” constituting a warning about their non-compliance, and those that were sanctioned with an import ban, *i.e.* “red card” (Auethavornpipat, 2021; Leroy et al., 2016).

Article 12 of the EC1005/2008 (EC, 2010, Chapter III) defines the CDS and its implication in detail. It requires to be validated by the flag state or the fishing vessels and aims to certify that the catches “have been made in accordance with applicable laws, regulations and international conservation and management measures” (EC1005/2008, Article 12, paragraph 3). It allows traceability of a fish from its capture to its unloading and seeks to provide improved transparency throughout the supply chain while ensuring that all landings come from harvesting

methods in compliance with all international and national conservation measures in force (André, 2018; Auethavornpipat, 2021). The document must be signed by the fishing operators and verified by local authorities before being directly forwarded to the European Commission's Directorate-General for Maritime Affairs and Fisheries for final confirmation. Nevertheless, the responsibility to validate the CDS occurs when the fishing operators land the product, thereby putting the responsibility of the certification predominantly on the flag state (Mfodwo et al., 2010).

The EU-IUU Regulation carding system relies on a three-step process, summarized in *Figure 2*. When the European Commission (EC) gathers sufficient evidence to demonstrate that the concerned country is not fully cooperating in its management of IUU fishing, it will pre-identify the concerned state and issue a warning or yellow card. It represents the first step and notifies the exporting nation of the potential cost to its export fisheries if no further measure is taken to strengthen control of IUU fishing. After issuing a yellow card, the EC starts a formal dialogue with the identified country seeking operative resolutions to remove the yellow card.

In cases where the exporting state is deemed to lack willingness to reform as requested, the EC will issue a red card which results in a formal recognition of the exporting state as non-cooperating. A red card yields a complete ban of all the states' seafood exports into the EU market until its revocation. The latter can occur at any step if the carded country can prove that measures have been implemented to rectify the situation.

Since the first pre-identification in 2012, the EC has started a formal dialogue with more than 60 countries worldwide, enticing them to take more stringent action against IUU fishing. Of the 60 countries, 27 received a yellow card and subsequently engaged in formal dialogue with the EC to improve their domestic policies pertaining to IUU fishing (*Table 2*). Among these 27 yellow cards, only six states (approximately 22%) received a following red card and a consequent listing as non-cooperating states due to their perceived lack of willingness to engage

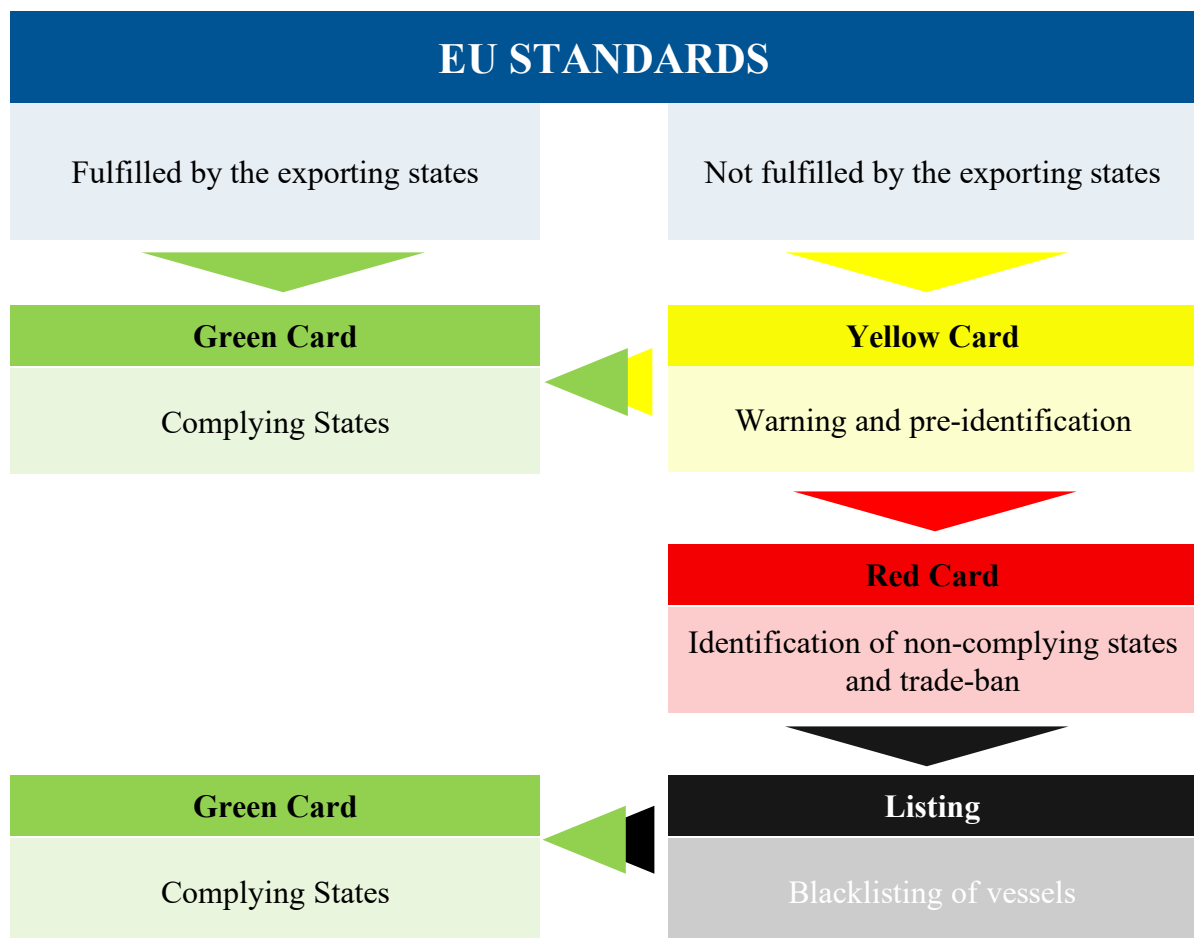


Figure 2: EU-IUU Regulation carding system process.

in further steps to control IUU fishing (*e.g.* Belize, Cambodia, Comoros, Republic of Guinea, Sri Lanka, and St Vincent and Grenadines) (EC, 2012; 2014a; 2015). Belize, the Republic of Guinea and Sri Lanka were quickly de-listed after implementing the required reforms to their legislative and administrative plans, enhancing their monitoring capacity. Currently, Cambodia, Comoros, Saint Vincent and Grenadines are still prohibited from exporting their seafood products to the EU (EC, 2013; 2017a; and 2017b).

Overall, the EU-IUU Regulation assumed that impeding EU market access for IUU products alters the economics of IUU fishing and incentivizes responses from exporting countries; yet, this approach is contingent upon whether the countries export their products to the EU market (Petrossian and Pezzella, 2018). Similarly, the measure relies on the assumption that the benefits of trading fishing products on the EU market broadly outrank the costs of being excluded from it (Doddema et al., 2020b). Despite the approval of the regulation by the entire Commission, the EU-IUU Regulation does not provide any direction on the level of control required by each member state (Elvestad and Kvalvik, 2015).

Table 2: Listing of all carding procedures from the European Commission (EC, n.d.).

Exporting country/territory	Pre-identification (yellow card)	Pre-identification revoked	Identification (red card)	Listing	Delisting
Belize	November 2012		November 2013	March 2014	December 2014
Cambodia	November 2012		November 2013	March 2014	
Cameroon	February 2021				
Comoros	October 2015		May 2017	July 2017	
Curacao	November 2013	February 2017			
Ecuador	October 2019				
Fiji	November 2012	October 2014			
Ghana	November 2013	October 2015			
	June 2021				
Kiribati	April 2016	December 2020			
Korea	November 2013	April 2015			
Liberia	May 2017				
Panama	November 2012	October 2014			
	December 2019				
Papua New Guinea	June 2014	October 2015			
Philippines	June 2014	April 2015			
Republic of Guinea	November 2012		November 2013	March 2014	October 2016
Sierra Leone	April 2016				
Solomon Islands	December 2014	February 2017			
Sri Lanka	November 2012		October 2014	February 2015	June 2016
St Kitts and Nevis	December 2014				
St Vincent and Grenadines	December 2014		May 2017	July 2017	
Taiwan	October 2015	June 2019			
Thailand	April 2015	January 2019			
Togo	November 2012	October 2014			
Trinidad and Tobago	April 2016				
Tuvalu	December 2014	July 2018			
Vanuatu	November 2012	October 2014			
Vietnam	October 2017				

Chapter 3 – Methodology

This study applies a systematic literature review (SLR) of peer-reviewed academic publications with the goal of identifying observed impacts and implications of the EU-IUU Regulation on the legal, social, economic, and environmental conditions in exporting countries.

1. Systematic Literature Review (SLR)

a) *Literature selection*

In order to limit the introduction of personal bias in the study, the SLR focuses on peer-reviewed articles and governmental grey literature only. The selection solely includes papers issued between 2010, when the EU-IUU Regulation entered into force, and 2022. Prioritizing a dataset compared to another can advantage some published material compared to others based on the type of indexing used (Martín-Martín et al., 2019). For instance, Google Scholar includes all publications, whereas Scopus produces a curated collection of manuscripts initially selected by experts, limiting the global availability of grey literature. This project used both datasets simultaneously to avoid introducing such bias in the initial selection of papers (Martín-Martín et al., 2019). Using quotation marks allowed for retrieval of documents that included the expression "EU-IUU Regulation." All initial references were exported and sorted out in Covidence (Veritas Health Innovation, Australia) based on the type of data and its relevancy for the study. Out of 201 articles imported in the platform, 18 duplicates were instantly removed before starting the selection process. The following flow diagram presents the selective process and criteria.

b) *Relevancy selection in Covidence*

As noted above, the initial selection yielded 183 references, which were then screened for general relevancy based on the information provided in the title and abstract. To limit the

influence of personal bias, two researchers performed this screening process, following the same rules for consistency and discussed all discordant choices. Relevant papers included each document referencing the EU-IUU Regulation, the EU law and legislation, trade based-measures, or the notion of seafood traceability in its title or summary. These initial selective criteria reduced the number of pertinent articles to 75. A final investigation regarding the accessibility language, or type of references excluded another 22 documents, leaving a final 53 peer-reviewed academic articles to be reviewed.

c) SLR

The review of all 53 articles depends on the same template, including the title, authors and date. It records details about the study, namely the location, methodology used and key findings/results regarding the impacts and effectiveness of the EU-IUU Regulation. The notes incorporate an open section (*i.e.*, “other details”) for any supplemental information gathered from the paper that could be relevant to the research. This first step of the review paved the way toward creating the final matrix used to answer the research question.

d) Matrix

The construction of the matrix was an iterative process starting with the record of details about each article. This first step allowed to extract different criteria recurrently presented in the academic papers to build the table. As a result, the matrix includes general information about the research (*e.g.*, title, level, region and methodology) and covers broad categories of outcomes: economic, governance, and social. Economic outcomes include the impacts of an identification (*i.e.*, issuing a yellow or red card) on the local economy (*e.g.*, trading flows shift) (*Appendix 3*). The second theme refers to all legal changes adopted by third countries after

receiving a card. The last section presents the impacts of the EU-IUU Regulation carding system on third countries' populations (*e.g.*, employment, livelihood, etc.).

The other sections of the matrix include information regarding the effectiveness of the Regulation in deterring IUU fishing practices in the exporting countries. The review looked for qualitative and quantitative data showing clear evidence of a reduction in IUU-derived landings or highlighting how the EU-IUU Regulation requirements allowed for the implementation of stringent sanctions showing clear efficiency in depriving offenders of the benefits accrued by such activities and resulting in their cessation. The category also encompasses the perceived transparency of the ways in which the EU-IUU Regulation was applied in each case. The power dynamic category refers to the global political and diplomatic relationship between the EC and the carded countries. An open section was included for any additional detail found during the SLR regarding other specific impacts of the EU-IUU Regulation (*e.g.*, reputational damage, environmental impacts, security improvement, etc.). *Appendix 1* defines each category and criterion used in the matrix presented in *Appendix 2*.

2. Review of carding decisions

The second step of this research project involved the creation of a database recording each carding event since 2010. The table includes all rationales used by the EC to justify their decision for each concerned country at each stage of the carding process. The latter includes specific infringements of different sections of Article 31 of the EU-IUU Regulation, presented in the statement of carding decisions published by the EC on a case-by-case basis. Each public notification refers to general infringements of Article 31 section 4(a), which highlights that:

“the Commission shall primarily rely on the examination of measures taken by the third country concerned in respect of recurrent IUU fishing suitably documented as carried out or supported by fishing vessels flying its flag or by its nationals, or by fishing vessels operating in its maritime waters or using its ports;”

Violations of section 5 of the same article represent the second key justification used by the EC to explain its decision. The section highlights the importance of taking into account:

- “(b) whether the third country concerned has taken effective enforcement measures in respect of the operators responsible for IUU fishing, and in particular whether sanctions of sufficient severity to deprive the offenders of the benefits accruing from IUU fishing have been applied;*
- (c) the history, nature, circumstances, extent and gravity of the manifestations of IUU fishing considered;*
- (d) for developing countries, the existing capacity of their competent authorities.”*

The last detailed section of the index includes failures to implement international rules specified as a requirement in section 6 of Article 31:

“6. For the purposes of paragraph 3, the Commission shall also consider the following elements:

- (a) the ratification of, or accession of the third countries concerned to, international fisheries instruments, and in particular the UNCLOS the UN Fish Stocks Agreement and the FAO Compliance Agreement;*
- (b) the status of the third country concerned as a contracting party to regional fisheries management organisations, or its agreement to apply the conservation and management measures adopted by them;*
- (c) any act or omission by the third country concerned that may have diminished the effectiveness of applicable laws, regulations or international conservation and management measures.”*

Additionally, the database records the justification of an eventual revocation of the yellow card or the issue of a subsequent red card after a certain period of unsuccessful dialogues between the EC and the exporting country. A second part of the index lists all these identified countries, gathering the continuing infringements of the previously mentioned sections of Article 31 of the EU-IUU Regulation recorded by the EC to justify their decision. When applicable, the index recorded the date and EC’s rationale explaining the de-listing and revocation of the trading ban.

The final step of the research tends to link the database issued from the SLR with the EU-IUU list of carding decisions to assess what proportions of the citations have been independently reviewed through academic research. Preliminary observations emphasized the overall impacts of the EU-IUU Regulation on each country that received a card since 2010 and the effectiveness of the regulation in mitigating IUU fishing.

Chapter 4 – Results

The study reviewed 53 academic research articles (*Appendix 2*) for information on a broad scale of positive and negative quantifiable short-term effects (*i.e.*, outcomes) and broader, more subjective long-term effects (*i.e.*, impacts) of the EU-IUU Regulation on exporting countries' fisheries and coastal communities (*Appendix 3*). The latter included predicted and unpredicted socioeconomic results and a presented overall limited influence on controlling IUU fishing activities, fundamentally due to the lack of data available on the matter. *Figure 3* shows that most documents enclosed in the review discussed the impacts of the EU-IUU Regulation on an international scale and used an overarching policy analysis supported by multiple case studies as part of their research (*e.g.*, Bush et al., 2017; He, 2017; Honniball, 2020; Hosch, 2016). Out of the 23 documents focusing on a specific region, approximately 70% were located in Asia, one of the principal seafood exporting region trading with the EU (*Figure 1*).

Most of these papers described the impacts of the EU-IUU Regulation in Thailand (André, 2018; Kadfak and Linke, 2021; Tavornmas and Cheeppensook, 2020; Wongrak et al., 2021), Indonesia (Doddema et al., 2020a; Doddema et al., 2020b; Henharto, 2020; Nam and Le, 2021), Taiwan (Wu, 2020), and Cambodia (Rosello, 2017). The methodology and research questions

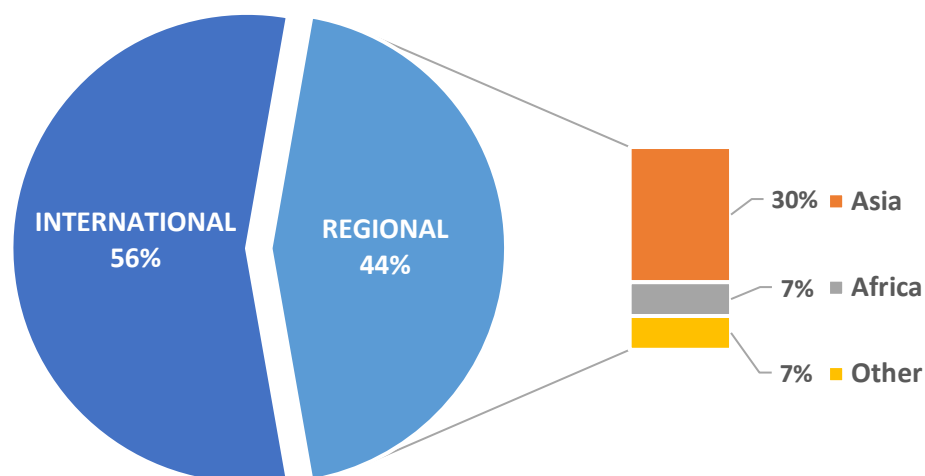


Figure 3: Repartition of the different levels of study among the 53 articles selected for the SLR.

varied between each document. In the case of Thailand, both Tavornmas and Cheeppensook (2020) and Wongrak et al. (2021) investigated the impacts on fisheries and the influence of the EU-IUU Regulation on the Thai authorities to change their fisheries management procedures and legislation. These authors adopted a general overview of the socioeconomic impacts of the carding system in Thailand and relied on policy analysis and interviews of stakeholders to gather qualitative data. However, Kadfak and Linke (2021) focused on the integration level of labour issues in the dialogues between Thailand and the EC after carding. The study relies on document analysis, fieldwork, and interviews to provide first insights on specific criteria not usually emphasized by other authors. These differences were observed between multiple papers, increasing the variability within the results (*Appendix 3*).

1. Positive outcomes

As previously mentioned, the effectiveness of the EU-IUU Regulation is a function of how much the exporting country is dependent on the EU market for trade (Petrossian and Pezzella, 2018). In all cases described in the literature, exporting countries appear to have been heavily dependent on the EU as their trade partner. In most cases, the review highlighted several benefits for the countries that received a yellow card. The threat of a subsequent trade ban stimulated the implementation of quick reforms and updates of the governance system in several exporting states to enhance traceability in their seafood supply chain. Additionally, the pre-identification (yellow card) allowed for the opening of a formal dialogue between the EC and the exporting country. Such partnerships represented an opportunity for the exporting states to collaborate with the EU to build their IUU monitoring, control and surveillance capacity and comply with the imposed European requirements and standards in their fisheries industry. In total, almost one of five studies reviewed (17%) mentioned the opportunity of building management capacity for the exporting states.

In the case of Taiwan (Wu, 2020) and Thailand (Honniball, 2020; Nam and Le, 2021; Song et al., 2021; Sumaila, 2019), the local authorities took part in intense formal dialogues with the Commission to align with the UNCLOS and deterrent sanctions scheme and strengthen the MCS process of its distant-water fleet. As a result, both countries incorporated EU standards into their domestic legal framework, paving the way for other nations to do the same. In the case of Thailand, specifically, the EC's investigation and formal dialogue with local authorities allowed to point out issues in labour conditions in the fishing industry (Kadfak and Antonova, 2021; Tavornmas and Cheeppensook, 2020; Wongrak et al., 2021). In practice, the EU-IUU Regulation does not mention human rights as part of its text, which resulted in a lack of recommendations regarding labour conditions for Thailand's fleet. Nevertheless, the yellow card allowed the Thai government to improve human labour in fisheries and tackle human trafficking activities. Generally speaking, the EU-IUU-Regulation allowed the States to shift to more sustainable and socially ethical policies.

Similarly, as presented by André (2018) and Song et al. (2020), the Philippines comprehensively updated its traceability system following the yellow card received in 2014. The amendment of the national fisheries code permitted the country to impose more severe penalties for fishing vessels violating the legal system. It also ensured the improvement of data collection and monitoring systems within the State's exclusive economic zone by rendering national vessel monitoring systems (VMS) mandatory for its operating fleet. Additionally, the Philippines implemented the PSMA in their national framework, allowing the local government to regulate port entry and use while providing more comprehensive and transparent information about fish landings. Likewise, the issue of a yellow and following red card to the Republic of Guinea motivated the government to include IUU fishing as part of its domestic legal system. The country adopted various reformed legislation to regulate fishing activities in its waters under national jurisdiction and on the high seas (Honniball, 2021).

Although the EU-IUU Regulation urged most countries to take immediate measures to improve and amend their outdated fisheries laws, the EC rarely provided enough time for most administrative processes to be adequately implemented and enforced in the long term. Such delays put the effectiveness of each of these amendments into perspective. It is the case for the Solomon Islands, which received a warning from the EC in 2014. A series of quick reforms to provide adequate equipment to the country to tackle illegal fisheries permitted the revocation of the card in February 2017. Nevertheless, as highlighted by Honniball (2020), the evidence regarding the actual effectiveness of the reforms in controlling IUU fishing activities is yet to be provided.

2. Negative outcomes

Amongst the 19 papers directly mentioning the economic impacts of the EU-IUU Regulation in exporting states, only one presented potential positive outcomes. The rest (approximately 34% of the whole SLR) documented severe detrimental economic losses correlated to the trade restrictions imposed by the EU-IUU Regulation (*Figure 4*). The data available included specific case studies of Indonesia (Doddema et al., 2020a; Doddema et al., 2020b), Sri Lanka (Honniball, 2020), and Thailand (Kadfak and Linke, 2021; Wongrak et al., 2021), for instance. Moreover, the diligence to comply with European standards, which go beyond what international law requires, increased the overall administrative burden in most countries, with often a limited capacity to deal with all requirements to ensure compliance with the policy (Doddema et al., 2020a; Hadjijyianni, 2021; He, 2016; Hosch, 2016; Lutchman et al., 2012; Scanlon, 2019; Wyman, 2018). In most cases, the EC requires states to review their licensing processes to balance the local authorities' monitoring, control, and surveillance abilities. The latter often results in increased unemployment rates in carded states, particularly after receiving a red card (Elvestad and Kvalvik, 2015; Sobrino Heredia and Oanta, 2019; Soyer et al., 2018). All

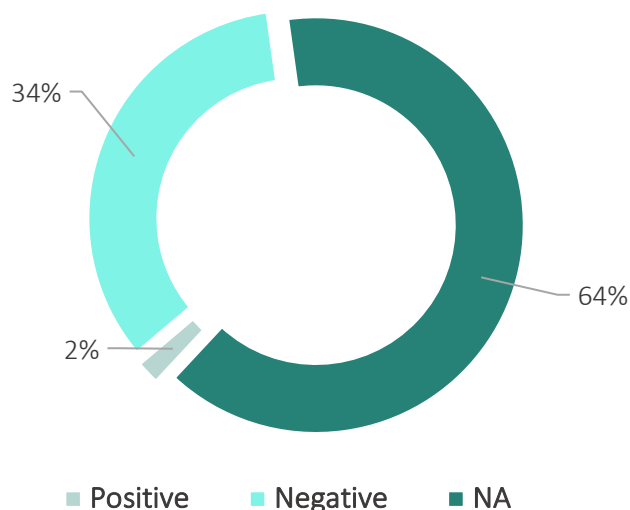


Figure 4: Economic impacts of the EU-IUU Regulation on exporting documented in all 53 peer-reviewed articles (**Positive:** increase in trading activities and positive influence of the regulation on the economy of the exporting states, including the creation of new markets; **Negative:** recorded severe economic losses threatening the local economy and livelihood of communities; **NA:** no data available).

recorded negative socioeconomic impacts appeared to be disproportionate for small-scale fisheries (SSF) in carded countries (Bush et al., 2017; Soyer et al., 2018; Swan, 2019). The compliance capacity with the EU-IUU Regulation requirements often remains limited for SSF compared to commercial businesses, automatically restricting their access to the European market (Doddema et al., 2020b). The latter created unfair competition for small-scale fishermen, undermining their viability while favouring commercial fishing industries (Auethavornpipat, 2021; Song et al., 2020). Lastly, the issue of a red card and the associated trade ban created parallel markets outside of Europe with different, and often less stringent, importing standards, such as China, South Korea, the Russian Union, and the United States. Even though it enabled exporting countries to diversify their trading flows, it further restrained the EU-IUU Regulation capacity to control and deter IUU fishing practices internationally (Nam and Le, 2021).

A recent study by Okafor-Yarwood and Belhabib (2020) described a noticeable reduction in the number of annual fishing licenses granted by the Guinean government after being identified as a non-cooperating state by the EC. Although this decision allowed the Republic of Guinea

to improve its capacity to monitor every vessel flying its flag and operating within areas under and beyond national jurisdiction, it also limited employment in the fishing sector and the related revenues for the local communities.

Similarly, the red card issued to Sri Lanka in 2014 noticeably impacted the livelihood of more than 2.6 million people predominantly involved in offshore commercial fisheries (Honniball, 2020). Complying with the requirements imposed by the EU-IUU Regulation generated additional operational costs for local boat owners resulting in global jobs and pay cuts in the sector. The European trade ban resulted in a severe decline in active fishing boats and fishermen, generating increased competition among the remaining vessels. A similar study by Sandaruwan and Weerasooriya (2019) reveals a clear correlation between the trade ban and the recorded increase in the frequency of by-catch from Sri Lankan fisheries. The latter appeared to be an unexpected collateral damage mainly explained by a shift in the fishing gear used to reduce the overall costs of operations, initially exacerbated by the red card.

The disproportionate negative socioeconomic impacts of the EU-IUU Regulation on SSF were witnessed in Thailand by Kadfak and Linke (2021). The decrease in Thai seafood export volume following the issue of the yellow card in 2015 considerably limited the jobs available in the fishing sector, primarily affecting the livelihood and revenues of artisanal fisherfolks. Likewise, the yellow card issued to Ghana in November 2013 urged the local government to act to mitigate IUU fishing, which predominantly and disproportionately impacted the SSF (Song et al., 2020). Indeed, due to the limited time available to prove its willingness to take action, the Ghanaian authorities opted for measures targeting convenient sectors - in this case, SSF – while omitting to monitor other activities with a more significantly impacting IUU activities such as transshipment. The latter allows local fishing companies to disguise landings derived from IUU fishing and facilitates the introduction and ongoing circulation of such products into the local and eventually international seafood supply. Transshipment in Ghana

was recorded as primarily performed by domestically registered but largely Chinese-owned and operated fishing industrial fleets (Auethavornpipat, 2021). Still and all, the amended fisheries laws proposed by the government only focused on SSF landings, disproportionately affecting the artisanal sector.

The EC presented the EU-IUU Regulation as a novel solution to enhance traceability in the seafood supply chain while actively supervising IUU fishing activities in exporting countries. Consequently, controlling the frequency and extent of IUU fishing is one of the first goals of the regulation. Be that as it may, evidence regarding the effectiveness of the carding system in controlling IUU fishing activities in exporting countries remains limited, as presented in *Figure 5*. Out of the 53 papers, only 7% provided exhaustive quantification of the recorded variation in the extent of IUU fishing in exporting countries following the issue of a card. And even in these cases, the EU-IUU Regulation effectiveness was globally limited. In almost 90% of the cases, the data available was insufficient to properly quantify these variations in IUU fishing practices to assess the actual effects of the European regulation and was described as uncertain and “to be determined.”

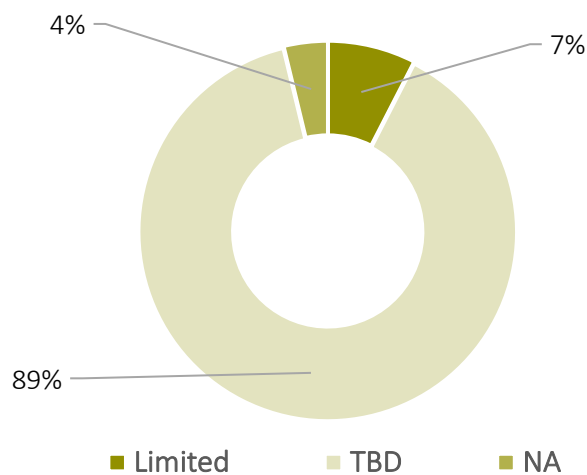


Figure 5: Quantified effectiveness of the EU-IUU Regulation in preventing IUU fishing practices in exporting states (Limited: limited effect of the regulation recorded after the clear quantification of the variation in the extent of IUU fishing activities performed in exporting country during and after the issue of a card; TBD: insufficient data available to conclude regarding the effectiveness of the EU-IUU Regulation; NA: no mention of the effectiveness of the EU-IUU Regulation in the matter).

The overall efficiency of the EU-IUU Regulation in controlling illicit fishing practices appears hard to adequately measure and quantify, especially when the delisting has only occurred recently, as is the case for the Republic of Guinea and Sri Lanka. Both countries received a green card in 2016, leaving the authorities only a few years to collect, analyze, and share data about the eventual variations in the level of IUU fishing activities performed within their fleet. Besides, during the trade ban, Sri Lanka diverted its excess seafood production, including potential IUU-sourced fish and fish products, to parallel international markets with lower standards, mainly within the Russian Union and other non-complying EU-member states (Honniball, 2020; Sandaruwan and Weerasooriva, 2019). Doddema et al. (2020a; 2020b) recorded similar observations in several islands of Indonesia, describing how the IUU-derived or not, the products were sold for the same price to different companies or markets that did not ask for any specific compliance with the CDS, for instance. As presented previously, the effectiveness of the European trade-based measure is contingent upon whether the exporting state is involved in trading with the EU market. Consequently, these secondary markets globally allowed for a persistent circulation of IUU-derived goods, impeding the incentives and reach of the sole EU-IUU Regulation in depriving offenders of the benefits accrued by IUU fishing activities.

3. Transparency, fairness and perceived power dynamics

The study of different criteria regarding the perception of the EU-IUU Regulation by the exporting countries reveals a general perception of a lack of transparency and fairness in the carding system (*Figure 6*). Thirty-one papers raised additional concerns regarding the perceived unbalanced political and diplomatic relationship between the EC and exporting countries when collaborating on a formal dialogue after the initiation of the carding system. Among them,

approximately 94% record unbalanced dynamics with little to no say granted to the exporting country when engaging with the EC.

Kadfak and Antonova (2021) presented the regulation as lacking some uniform and consistent standards used to evaluate whether an exporting state has done enough to achieve the objectives set by the EU-IUU Regulation. The paper focuses on the case study of Thailand, which received a warning in 2015. This article presents the European carding system as “opaque” and deeply flawed since it does not provide specific guidance to the sanctioned countries regarding what they should do to earn back their status of complying states. The authors also highlighted the overall lack of sincerity from the EC perceived by Thai populations during their four years of close and formal collaboration. They depicted the role of stakeholders in the decision-making process as restrained, with people seemingly invited at the discussion table to “listen not to speak.”

These doubts about the overall transparency, rigour, and fairness in the carding process appeared recurrently in several articles highlighting the need for the EC to clarify the setup standards and ensure their consistency with international laws and regulations (Kadfak and

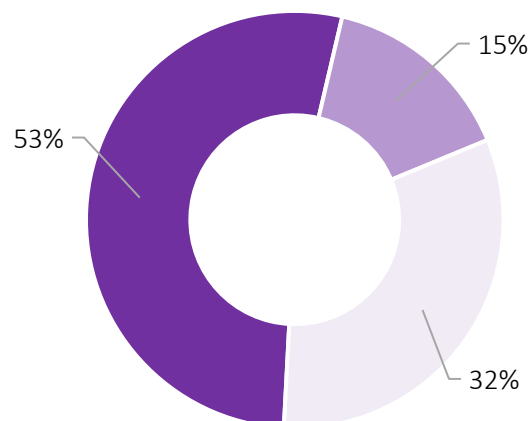


Figure 6: General perceived transparency and fairness of the EU-IUU Regulation and its carding systems by exporting states (**Lack:** overall perceived lack of transparency rigour and fairness in the distribution of the cards; **Fair:** limited concern over the transparency and fairness of the carding system; **NA:** not data available).

Linke, 2021; Rosello, 2017; Scanlon, 2019). Leroy et al. (2016) presented additional concerns in terms of the social impacts of the EU-IUU Regulation. The authors described how the previously mentioned disproportionate effects of the EU-IUU Regulation on SSF introduced new tensions within fishing communities in several exporting states. Indeed, the difference in capacity between artisanal and commercial fisheries, for instance, often conceded commercial fisheries with more power and influence to act in the local seafood trading system, creating substantial unbalanced power dynamics inter-communities. Likewise, both Rosello (2021) and Serdy (2017) defined how, in every carding case, albeit the seemingly objective and neutral dialogue engaged with the exporting countries, all started negotiations seemed to end up favouring and empowering the EC. As such, diplomatic and political power dynamics, as well as the varied nature of foundational partnerships initially established with exporting states, seem to significantly influence when and to whom the EC will issue a card.

4. Record of EU-IUU carding decisions

The index gathering the list of all carded countries and details regarding the reasons for their identification raises multiple questions regarding the standards used and applied by the Commission during the carding process to decide when and to whom to issue a card (*Appendix 4*). Only eight recorded carding events were the object of academic research and specific case study between the implementation of the EU-IUU Regulation in 2010 and 2022 (*Table 2*). A regional study by Miller et al. (2014) on Pacific Islands gathered generic data about six additional states that received a card within this period, including Kiribati, Solomon Islands, Tuvalu, Vanuatu, and Papua New Guinea. Likewise, André (2018) provides valuable information about the past and the present situation in the Philippines, an exporting state pre-identified from June 2014 to April 2015.

The EC mainly supports its carding decision with specific infringements of sections 4(a), 5, and 6 of Article 31 recorded for each pre-identified and identified exporting country (*Appendix 4*). It includes the recurrent perceived “lack of dialogue or lack of actions to address deficiencies in monitoring, controlling, and surveillance of fisheries” (*Appendix 4*). The ratification of international instruments regulating IUU fishing on a global scale and compliance with their established restrictions appears to be one of the most common requirements of the EU-IUU Regulation. Indeed, states that fail to ratify international treaties such as the UNFSA or PSMA received a warning. It is the case for Cameroon, Comoros, Ecuador, Liberia, Panama, Sierra Leone, Thailand, and Vietnam (EC, 2012; 2013; 2015; 2016; 2017a; 2017c; 2017d; 2019). In the case of Comoros, for instance, the EC suggested endorsing these agreements as the first mandatory step to revoke the yellow card received in 2015 (Honniball, 2020). Similarly, the lack of ratification of the FAO PSMA in Vietnam was documented as an infringement of Article 31, section 6 of the EU-IUU Regulation and used by the EC to support the pre-identification of the country in 2017 (EC, 2017d; Nam and Le, 2021).

Similarly, many states received a warning due to the recorded recurrence of IUU vessels and IUU trade flows and the lack of adequate measures and sanctions to deter these activities. For example, the EC recorded repetitive infringements of fishing restrictions by Ghanaian flagged vessels, as well as an evident lack of monitoring within the countries’ supply chain, allowing, among others, for unreported transshipment activities. This case study was further studied by Auethavornpipat (2021), highlighting the effect of the European yellow card on persuading Ghana to fulfill its commitments based on the influence of the potential benefits.

The willingness to cooperate and lack of transparency within the supply chain of the exporting countries constituted another justification used by the EC to issue a yellow card. The Republic of Guinea was one of the first countries to be pre-identified in 2012 and a following red card in 2014 after failing to “show real commitment to tackling” IUU fishing (EC, 2014).

Improvements in transparency and the amendment of the Guinean fisheries act enabled the delisting of the country in 2016 (Okafor-Yarwood and Belhabib, 2020).

Lastly, most of the carding decisions appear to rely on the fishing nations' involvement and compliance with the restrictions of RFMOs. However, the criteria used to quantify the level of implication of each state in IUU fishing practices is not provided in the EC's rationale. The rationale usually solely describes the failure of the exporting state to be a member of a relevant RFMO or to comply with its obligation if it is already a member of such organizations. Belize received a following red card a year later due to a noticeable increase in the proportion of the national fleet listed by the relevant RFMO and a lack of compliance with the organization (EC, 2013). The increase in the number of Belize-flagged vessels recorded in the RFMOs IUU list and the lack of implementation of new adequate measures to show the country's willingness to address structural problems to tackle IUU fishing resulted in the issue of a red card in 2013 and the blacklisting of Belize vessels in March 2014. The introduction of adequate and efficient monitoring control and inspection scheme to ensure the proper implementation of CDS, required by the RFMOs, enabled the country to be delisted in December 2014 (Song et al., 2020). Likewise, Cambodia received a yellow card due to the repeated record of its vessels on the local RFMO's IUU fishing list and its failure to share its fisheries data with the International Commission for the Conservation of Atlantic Tunas (ICCAT) (EC, 2012; Honniball, 2021; Rosello, 2017).

Chapter 5 – Discussion

Overall, the literature review provided information regarding both expected and unexpected socio-economic outcomes of the EU-IUU Regulation. The study found that most literature documented negative outcomes and impacts linked to the trade restriction inherent to the issue of a red card to non-cooperating exporting countries. The SLR highlighted several significant shortcomings concerning the design and implementation of the policy itself, potentially hindering its perceived legitimacy. For instance, the study recorded the limited effectiveness of the Regulation in controlling IUU fishing activities combined with significant inconsistencies in the standards used by the EC to determine when and to whom to issue a card. These gaps, combined with the variability of the States' governance and monitoring capacity, resulted in the global perception that the EU highly politicized the issue of IUU fishing by using market access as a diplomatic tool to expand its standards outside its border (Borit and Olsen, 2016). Such observations increasingly raised concerns about the intrinsic power dynamics at play behind this trade-based measure, a unilateral approach to fisheries management.

1. Policy gaps

a) *IUU fishing control and monitoring*

While IUU fishing is a global phenomenon, it remains complex to comprehensively quantify, both internationally and locally. The lack of quantitative data available renders the assessment of the effectiveness of the EU-IUU Regulation on monitoring these practices subsequently complex. It is in part due to the overarching ambiguity over the definition of IUU, leaving each state the discretion to determine what is or is not IUU. Indeed, even if the IPOA-IUU (FAO, 2001) tends to provide an universally defined terminology of IUU fishing, it remains challenging to define and delineate the limit between each term. Additionally, the definition provided by the EU-IUU Regulation is not as comprehensive since it only encompasses

commercial fishing with no mention of small-scale and artisanal fisheries in such practices (Hendharto, 2018). Similarly, even though unreported catches represent a substantial value of all IUU-derived products, the EU-IUU Regulation does not include a straightforward distinction between unreported and illegal fishing. Products caught illegally are rarely reported to the relevant authorities and are usually issued from fishing activities performed in areas of weak fisheries governance with limited rules and regulations, typically located outside the relevant RFMOs jurisdiction. In this case, IUU-derived seafood products may qualify for each one of the categories described by the terminology, hindering the precise assessment of IUU fishing practices within and across national boundaries. The unregulated part of IUU-derived products seems to be the most ambiguous because it first and foremost relies on the exporting state's compliance with the highly variable local regulatory system in force (Song et al., 2020). As such, fishing companies should be aware of all regulations relevant to a specific before engaging in fishing activities, increasing the potential confusion among fisherfolks and the underlying administrative burden.

b) Gaps in capacity and enforcement

Despite the impacts of the EU-IUU Regulation on promoting new legal reforms for fisheries management in exporting countries, the degree of enforcement of these newly established measures remains unclear, questioning their overall efficiency. The pressure created by the potential issue of a trade ban on the pre-identified country has mixed impacts in terms of governance, with an overall lack of robust control of compliance with the European set standards (*e.g.*, CDS). Indeed, the diligence to conform with these norms increases the local administrative and social burdens, rendering their observance almost impossible for exporting countries with limited control and monitoring capacity (Erceg, 2004). This hinders the ability

and sometimes willingness of fisherfolks to incorporate the regulation as a daily practice, resulting in common falsifications of the required documents (Scanlon, 2019).

Moreover, the uncertainties created by the EU IUU carding process restrain local fishers from entering trades for fresh fish and other high-value seafood, with buyers leveraging for reductions in market price (Doddema et al., 2020a; Doddema et al., 2020b; Hosch, 2016). Overall, the trade standards imposed by the EC are highly dependent on the capability of exporting countries more than on their willingness to do so. As such, the economic over-dependency of exporting states on the European market dictates the necessity for them to abide by the European rules at all costs, often resulting in the general avoidance of well-controlled ports by vessels involved in IUU fishing activities. These avoidance practices generate loopholes securing the local trade flow with the EU while broadening the circulation of IUU-derived products to second-choice country ports and secondary parallel markets (Lutchman et al., 2012). These practices greatly undermine the legitimacy and effectiveness of the EU-IUU Regulation in deterring IUU practices.

The controversial issues raised by the policy gaps observed within the EU-IUU Regulation in terms of enforcement also include considerations related to the liability and responsibilities regarding IUU fishing activities. The EU-IUU Regulation does not provide details regarding the different commitments of the flag, coastal, port or market state (Honniball, 2021). Yet, its overall efficiency in controlling IUU fishing activities relies on strict at-sea and in-port monitoring and surveillance before trading seafood products with the European market. Such controls are costly and complex to harmonize at a global scale without defining and differentiating the roles of the state of nationality (*i.e.*, the state that owns the fishing vessels) from the flag state in controlling the fleet compliance with the rules imposed by the EU-IUU Regulation. Nowadays, despite the required meaningful link between a vessel and its country of registration (*i.e.*, flag state), most ships still fly a flag of convenience after registering in a

state where they have no attachment, predominantly for tax benefits, while being owned by European companies. In that sense, the ability of the flag states to control and monitor the activities of this fleet is incrementally complex and controversial, impeding the ability of trade-based measures to find who to consider accountable for recorded IUU fishing activities.

Similarly, based on the current European system, all IUU-derived products landed by a vessel flying a flag of convenience of an exporting developing country will be recorded as part of the involvement of this specific country in IUU fishing. In that case, developing countries could be convicted by the EC for being involved in illegal fishing activities because of the violation of legal requirements actually performed by European-owned fishing fleets. Accordingly, questions regarding the ability of the EC to prevent its own fleet from carrying IUU fishing activities in foreign states' EEZ remain. This issue appeared in Liberia (Okafor-Yarwood and Belhabib, 2020), where, the EC did not issue a card despite the evidence supporting the pervasiveness of IUU fishing. The presence of numerous European ships fishing in the country's EEZ and actively contributing to the local records of IUU-issued products appeared to have substantially influenced the EC's decision. Likewise, many Italian-flagged vessels were recorded fishing legally and illegally in the Sierra Leone EEZ (Okafor-Yarwood and Belhabib, 2020). Due to the correlated implication of the flag country in IUU fishing, the EC issued a warning in April 2016, threatening the reputational status of the state, mainly because of suspicious activities performed by European member states. Overall, the involvement of the European fleet in IUU fishing activities undermines the moral superiority claimed by the organization over the exporting countries targeted by the regulation (Miller et al., 2014).

c) Transparency gap

The EU traceability model depends on proficient cooperation and collaboration between exporting states and the Commission. As stated in Article 51 of the regulation (EC, 2010), the communication shall be a two-way process in which the EC engages in dialogues with the carded states to deliver capacity-building assistance to SSF potentially less capable and somehow more prone to negative impacts from the trade restrictions imposed.

“Article 51 – Mutual assistance

- 1. The administrative authorities responsible for the implementation of this Regulation in the Member States shall cooperate with each other, with administrative authorities of third countries and with the Commission in order to ensure compliance with this Regulation.*

- 2. For the purposes of paragraph 1, a system for mutual assistance shall be established, which shall include an automated information system, the ‘IUU fishing information system’, which shall be managed by the Commission or a body designated by it, to assist competent authorities in preventing, investigating and prosecuting IUU fishing.”*

Nevertheless, the dialogues are not public, exacerbating the perceived lack of transparency and discrimination within the carding system (Honniball, 2019; Hosch, 2016). In some cases, informal dialogues between the EC and exporting states have been ongoing for many years before the pre-identification. The Vietnamese authorities, for instance, have been discussing the local IUU fishing activities with the EC for five years before the warning (EC, 2017). The EC did not explain its decision to grant the state a unique grace period before entering the carding process, while other countries do not benefit from this.

Similarly, despite the reiterated involvement of the Chinese fleet in IUU fishing activities and supposedly increased vigilance of the EC regarding the provenance of Chinese seafood products, the state does not appear on the index of sanctioned countries (*Table 2*) since the implementation of the EU-IUU Regulation in 2010 (He, 2016; Honniball, 2019). However, the EC never mentioned its engagement in informal dialogues or particular trading partnerships

with the country, questioning the reason for such permissiveness towards Chinese fishing activities.

The carding system presents multiple inconsistencies in terms of standards used by the EC to decide when and to whom to issue a warning or identify an exporting country as non-cooperating. Despite the definition of basic standards in Article 31, the EU-IUU Regulation does not specify any criteria to quantify the exhaustive level of compliance required. *Ergo* the EC seems to distribute yellow cards for poorly defined reasons, varying between exporting states. The lack of implication of exporting countries in non-binding international instruments regulating IUU fishing represents one of the predominant rationales used by the EC to justify a warning. Indeed, all states that did not ratify either the UNCLOS (1982) or the PSMA (2009) and include them in their legal framework received a warning.

As a matter of international law, flag states fishing on the high seas must either become a member of a RFMO or otherwise comply with the conservation and management measures of an RFMO after ratification of the UNFSA (UNCLOS, 1982). Indeed, non-UNFSA parties are not mandated to comply with the RFMOs' policies from a legal point of view. In that case, the organizations cannot legally sanction the fishing vessels for violating their regulatory system. Be that as it may, the lack of involvement of exporting states with the relevant local RFMOs also seems to justify the EC's yellow card allocations. Indeed, the data gathered by a RFMO, which includes a list of vessels involved in IUU fishing activities, is usually shared with the EC and used as a baseline to investigate the compliance of listed states with the EU-IUU Regulation (He, 2017). For instance, in the case of Belize, the EC based its initial warning issued in 2012 on a thorough analysis of the provided RFMO list of national vessels involved in IUU fishing (EC, 2012; *Appendix 4*). Belize received a following red card a year later due to a noticeable increase in the proportion of the national fleet listed by the relevant RFMO and a lack of

compliance with the organization (EC, 2013). A similar process happened to Cambodia, which received a yellow card due to the extended appearance of its fleet on the IUU fishing list issued by the local RFMO (EC, 2012). The omnipresence of the European fishing fleet in every region of the world's ocean allows the EU to be a signatory party and active member of every RFMO, contributing to the establishment and enforcement of the RFMOs regulatory systems in their areas of jurisdiction. It provides the EC with an additional opportunity to expand its standards outside of its border. In all cases, the legitimacy of cooperation and data sharing between RFMOs and the EU can appear as lacking fairness since the initial non-binding instruments put additional pressure on the exporting state to abide by European-imposed standards.

d) Harmonization gaps

The specific considerations given to IUU fishing activities in the EU-IUU Regulation allowed the EU to be considered a global leader in fisheries governance. It paved the way for other major seafood markets – namely the US and, more recently, Japan - to include elements from the FAO's IPOA-IUU (FAO, 2009) as part of their national strategy to control illegal fishing activities and improve the global traceability in their supply chain. Despite their implications in such considerations regarding IUU fishing, none of the newly implemented trade-based measures developed by seafood-importing states provides the same incentives and standards as the EU-IUU Regulation. Indeed, each regulation springs from a state's national interests specified by the local government and authorities. For instance, although the US Seafood Importing Program (SIMP) possesses similarities with the EU-IUU Regulation, it applies to different contexts and species. Indeed, the SIMP targets thirteen species groups identified as particularly vulnerable to IUU fishing and applies to wild-caught and farmed seafood products (NOAA, 2020). Additionally, it operated using a business-to-business model, where importing businesses are responsible for ensuring the conduct of their exporting

counterpart upstream. The EU-IUU Regulation, however, does not segregate species but only incorporates standards for wild fisheries and work using, a country-to-country model. The national plan implemented by Japan is still yet to be implemented and to be studied in terms of specific requirements for the fishing industries. Overall, these unilateral measures lack global harmonization, generating confusion and incremental costs for all actors in the seafood supply chain (Hosch, 2016).

The EU-IUU Regulation was designated and approved by the EC but still requires an improved harmonization at a local level to avoid additional issues in terms of the interpretation of regulatory requirements. Indeed, despite the prerequisite to possess competent authorities to ensure the verification of catch certificates at the importation of seafood products, the text does not provide any direction regarding the extent of MCS required for each EU-member state importing seafood products from foreign countries (Elvestad and Kvalvik, 2015). Therefore, local monitoring practices are left to the discretion of each importing state, rarely processed upon the same criteria, generating substantial variations from one nation to another – an unfair process for all exporting states trading their products on the European market (He, 2017). The lack of consistency creates confusion among fishing vessels while generating additional costs for the companies and fishing communities. Implementing pre-defined required levels of port control and improving the digitalization of recorded data would render the EU-IUU Regulation more equitable and comprehensive in its application.

2. Political issues

After issuing a pre-identification, the EC thoroughly investigates all national legal frameworks and practices on a case-by-case basis. The process provides the warned state with an average of six months to reform its legal system and improve its monitoring of IUU fishing activities occurring within its local fleet to comply with the EU-IUU Regulation conditions. In

many cases, though, several states remained pre-identified, with no further trade restrictions, for a long time compared to others with no information about an upgrade into a red card during and after the investigation process. It is the case of Ghana, which received two consecutive yellow cards in 2013 and 2021 (EC, 2013b; and 2021), which never converted into an official identification and its subsequent trade restrictions. As such, for the duration of the carding, the state was allowed to retain its trading relationship with the EU market, albeit with the repeated documented involvement of Ghanaian vessels in IUU fishing activities. In 2008, the EU established a commercial partnership with Ghana, all locally exported products to be duty and quota-free when accessing the European market, providing both parties with economic benefits (Hosch, 2016). This partnership was established before the implementation of the EU-IUU Regulation and remains valid today. In that specific case, and based on the observations underlined during this study, the individual pre-existing inter-national relationships connecting exporting nations with the EU likely explain the observed reluctance of the EC to more strictly sanction warned countries with imposed trade restrictions.

Similarly, additional favouring trade agreements established as partnerships with diverse nations (*e.g.*, duty-free access to products on the European market) allow the EU to enforce conditionality in their trade and institute their standards. Indeed, the more lucrative it is for an exporting country to trade seafood products on the European market, the more dependent the state will be on such trade and, eventually, the more economic losses it will experience after receiving a trade ban. In that case, the EU possesses extra leverage to constrain the states to do everything they can to comply with the regulation (Liu, 2017; Miller et al., 2014).

In any case, the EU-IUU Regulation does not appear as a solely supposedly altruistic process implemented by the EC to contribute to the international mitigation of IUU fishing. It is, however, a comprehensive way to protect the EU's economic interests and the local European market from being too severely impacted by the consequences of IUU fishing. The latter include,

for instance, unbalanced competition in terms of price and type of products landed by EU member states or any foreign exporting states (Honniball, 2019). Overall, the evaluation of IUU infractions by the EC and the responses it requires from identified countries may surpass the prerequisites set by international law (van der Marel, 2017).

3. Implications of power dynamics

a) *Intra-governmental power dynamics*

The EU-IUU Regulation provides its very own, unilateral definition of what is considered IUU fishing and what is not, with additional variations recorded between EU member and non-member states in terms of interpretation and prerequisites to comply with the norm. As such, the implementation and enforcement of the EU-IUU Regulation are more likely to reflect the economic interests of each country involved and underlying power dynamics (Leroy et al., 2016). Multiple power asymmetries can affect the discussion between stakeholders and actors in the fishing industry within a country. Indeed, in that case, the social group possessing the most power based on its hierarchical place in the community and supposedly its economic dominance will have a prominent role in the dialogue regarding the EU-IUU Regulation. Moreover, the final decision regarding the specificities of the local regulatory system will more likely favour the most vocal groups in the discussion. For instance, in most fishing states, the hegemony of commercial fishing industries compared to the SSF often results in power asymmetries, granting supremacy to the first sector during the decision-making process. The requirements set by the EU-IUU Regulation enabled a shift of the stakes in IUU fishing control from the public to the private sector (Wongrak et al., 2021). To that end, using economic incentives positively or negatively targeting companies directly influenced their fishing behaviour, promoting compliance with EC's standards to keep exporting their product to the European market. The threat of cutting the economic benefits of a country affected the fishing

companies, exacerbating their desire to be involved in the decision-making process and local enforcement of the European regulation and eventually resulting in an increase in unbalanced power dynamics within a state.

b) European Market and Normative power

By definition, the EU consists of an association of States that conceded and transferred part of their sovereignty to the supranational level (Savorskaya, 2015). The EU plays a peculiar role in the international regulatory system and possesses both market and normative power, allowing it to influence domestic policies outside its borders (Damro, 2012; Miller et al., 2014; Wu, 2020). The European market power is defined as the capacity of the EU to internationally extend its market-related policies by leveraging the market access of foreign trading states. The concept of normative power defines the ability of the EU to influence international governance by generating overarching norms and standards (Tavornmas and Cheepensook, 2020).

Our study focuses on fisheries governance and provides insights into the perceived power dynamics and relationships between the exported countries and the EC before, during, and after formal dialogues. This study recorded a general perception of unbalanced power dynamics within these so-called partnerships, not always reflecting the reality of how the negotiations took place (Guggisberg, 2019; Kadfak and Antonova, 2021). The EU-IUU Regulation is a unilateral policy applied on a country-by-country basis; in most situations, the implementation and enforcement of the regulatory system show partiality toward the EC, prioritizing and favouring all European member-states while leaving the exporting states with little to no say in the decision-making process regarding their legal system and practices. For instance, in some cases, even if adequate measures regulating IUU fishing are already in force in the exporting state's area of jurisdiction, the EC still encourages it to implement its regulation and comply with European standards to secure the local trading system. Miller et al. (2014) recorded such

events in the Pacific, questioning the genuine motivations of the EC behind the EU-IUU Regulation besides the control of IUU fishing activities. As shown in this study, the implementation of the regulation affects exporting states in different ways, with disproportionate impacts recorded for developing countries often lacking stringent regulatory and monitoring capacity to implement the European standards within their legal framework. In that case, the EU fully uses its current dominance in the sector of seafood trade to assess its market power outside of its border, leaving the exporting countries no choice but to conform to its rules. Should such hegemony disappear or be in unfavourable competition with other seafood market states, the EU's global influence on exporting states will considerably dilute. Therefore, power dynamics among countries retain a substantial role in the outcomes of all open talks engaged within the carding system of the EU-IUU Regulation.

Furthermore, the previously described ubiquitous influence of the EU in every established RFMO is an evident example of the overarching European normative power. Indeed, it offers the EU a primary way to intensively promote its regulatory agenda to engage and influence every international decision regarding fisheries sustainability worldwide (Miller et al., 2014). In that way, being a RFMO member provides the EC with a unique opportunity to influence the international regulatory system in developing the norms for fisheries management while also serving its own economic and political interests to consolidate its regulatory presence.

c) Colonial power dynamics

The current inconsistencies and perceived unbalanced power dynamics within the carding system remain especially controversial as they recall the historical colonial relationships hierarchically distinguishing the European nations from the South. Indeed, throughout the carding process, the EC evaluates the ability of each exporting state involved in a trading relationship with the European market to comply with their duties as flag, coastal, but also port

states (He, 2017). Be that as it may, the inconsistencies within the policy and its applications to the EU-member states cast doubts on the EC's capability to assert impartial judgment. Although the exporting countries are not, *per se*, obliged to comply with the EU-IUU Regulation, their economic dependency on the European market is sufficient for the EC to maintain an incredible amount of power over them. It is a kind of carrot-and-stick approach to teaching exporting countries to change their behaviour to do better, whatever their strategy was before the implementation of the EU-IUU Regulation. In every situation involving an exporting state, the EU is and remains the higher power-owning entity, assessing, once again, its regulatory superiority in fisheries governance on a broad scale. Be that as it may, exporting countries are not passive recipients of the EU-IUU Regulation: they actively partake in the interpretation and implementation processes and play a crucial role in control, monitoring and surveillance. As such, a more inclusive process involving local communities in the decision process and dialogue may be beneficial to limit power asymmetries and support the potential effectiveness of the regulation in deterring IUU fishing at a larger scale. In that case, the unilaterality of the EU-IUU Regulation may inevitably represent one of its substantial weaknesses (He, 2017).

Chapter 6 – Conclusions and Recommendations

This project investigated the socioeconomic outcomes of the EU-IUU Regulation as a contemporary tool to prevent IUU fishing, pointing out some apparent accomplishments and shortcomings recorded since its implementation in 2010. The first objective of the EU-IUU Regulation is to close the European market to imports of IUU-sourced fish and fish products thanks to stringent MCS measures, the correlated identification and ban of non-cooperating countries from the trading system and the black-listing of all their vessels involved in IUU practices. The European prevalence in international seafood trade gives the EU sufficient market and normative power to play a significant role in fisheries management and governance by externalizing its norms outside its borders. Nevertheless, this study revealed several unexpected negative impacts of the regulation on exporting countries and fishing communities amalgamated with limited effectiveness in deterring IUU fishing, its supposed leading objective. The numerous gaps regarding the design and implementation of the regulation itself further restrain its legitimacy and question its indispensability.

To improve its efficiency, the EU-IUU Regulation requires advancements in terms of implementation, control, and harmonization at a global scale. The recorded variations in interpretation of what is considered IUU fishing and what is not, combined with the lack of clear delineation between each category, hinder the potential of setting intelligibly defined monitoring standards. This lack of transparency, combined with the non-adequation of the EU-IUU Regulation with some of the criteria set by international tools, renders the carding decisions inconsistent, creating confusion and a sense of lack of transparency and fairness (Fajardo, 2022; He, 2017). *Ergo*, to improve the harmonization of all measures and enhance the effectiveness of the regulation at a larger scale, the EC would need to align with the international

legal framework allowing to create fair and substantive benefits for all actors and parties involved in the seafood supply chain.

The monitoring capacity of countries also remains one of the most challenging obstacles restraining fisheries management and the overarching proficiency of trade-based measures within the fishing industries (Asche and Smith, 2010; Willette and Cheng, 2018). Improving the seafood traceability along supply chains relies on exporting states' ability to detect violations of their legal system and enforce following new measures. Most European imports come from developing countries with weak governance systems and limited funding resources, restraining their MCS capacity. Therefore, building capacity within an exporting nation is imperative to ensure the effectiveness of any trade-based policy in deterring IUU fishing.

Overall, the FAO developed the IPOA-IUU specifically to prompt states to take actions to tackle the substantial consequences of IUU fishing activities. Admittedly, unilateral trade-based measures are relevant to enhance seafood traceability. For instance, the EU-IUU Regulation allows the EU to use its role as a prime international seafood market to promote sustainable fisheries. Be that as it may, the unilateralism of the regulation appears to be one of its main weaknesses, predominantly used by the EU to exert its own standards outside its border, form political alliances and consolidate its overarching regulatory power in fisheries governance (Kadfak and Antonova, 2021; Tavornmas and Cheeppensook, 2020). By definition, the unilateralism of the EU-IUU Regulation allows the EU to bring only its specific objective in terms of fisheries management and secure its own economic interests with little to no consideration provided to the exporting states involved in the trade. These observations partake in the analogous perceived lack of fairness and unbalanced power dynamics. It is vital for fisheries management strategies to initially focus on improving the MCS systems of the flag and coastal states, the first official authority and control point in the fish and fish products supply chain. The strengthening of their role and capacity in monitoring the traceability of all

seafood products would allow them to limit the circulation of IUU-harvested products at the source before their exportation (Young, 2016). Such a system requires enhanced cooperation and collaboration between all fishing nations, including more comprehensive exchanges of data and information to describe the actual coverage of IUU fishing activities in all fishing grounds (Latun et al., 2016). Albeit the global nature of the issue of IUU fishing, the EU appears to be recurrently trying to compete with other actors to claim its market and normative power and consolidate its position as the pioneer and regulatory leader in sustainable fisheries governance. Be that as it may, preventing, deterring, and eliminating IUU fishing practices requires enhanced harmonization between flag, coastal, port and market states, asking for strengthening all existing arrangements and partnerships to promote a multilateral approach to the problem.

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Appendix 1 – Criteria used in the SLR Matrix

Level

International, regional or national.

International: when the article does not focus on a specific case study but involves a general analysis of the regulation or provides several different examples,

Regional: when the article focuses on a specific location of the world (*e.g.*, Asia, Indonesia, etc.) or gathers results from multiple countries in a common area.

National: when the paper focuses on one or several specific countries located in separated regions (*e.g.* Thailand and Senegal).

Region

Refers to the country(ies) or area(s) (*e.g.*, Asia) the author(s) focus on in the study. In the case of an international level recorded for the specific paper, the cell will contain only "NA".

Methodology

This section involves several methodologies used by the author(s) to study the impacts of EU IUU regulation. Most articles relied on a combination of policy analysis of the regulation and cases study, usually including interviews with local fisherfolks or a review of socio-economic changes – positive or negative – observed in the specific countries.

The defined "policy analysis" refers to a review of the policy in force and the different influences on changes observed at the national levels.

On several occasions, the author(s) performed a literature review of the EU IUU Regulation and the studied fishing industry (*e.g.*, the Thai industry) to help analyze the impacts of the yellow or red card issued by the EU. Such analyses often provided information on the measures taken by the local government after the sanction to realign with the European sustainability objectives (Wongrak et al., 2021).

Economic impacts

1. Trade restriction or shift

This column includes all variations and changes in trade between the studied country or area and the European Union (EU). It refers to potential impacts on the volume, value and frequency of seafood exports between fishing states and the European market and focuses on variations in terms of the type of traded goods (*i.e.*, trade shift).

In most cases, the EU IUU Regulation implied restrictions in exports and a subsequent decrease in trade with the EU, but also some noticeable shift toward new local or international markets.

2. Economic losses/gain

This criterion qualifies the economic changes for the countries affected by the Regulation. In most cases, changes in trade involved losses for the local fishing industries but also for the carded countries as a whole.

3. Parallel markets

The carding system affected the trade between countries and the EU. Consequently, sanctioned states had to diversify their trading system to find new markets to export their goods. The following are categorized as “parallel markets” in the table, developed either locally or internationally.

4. Small-Scale Fisheries (SSF)

These criteria record all the potential economic impacts of the EU IUU Regulation on local small-scale fisheries. They gather substantial additional operational costs but also a fleet reduction with consequent jobs and pay cuts increasing the unemployment in the most sanctioned states.

Governance impacts

1. Reform legal system

This criterion records the legal and administrative changes proposed and implemented by local authorities after receiving a card (yellow or red) (*i.e.*, "yes" in the column). "No" was recorded in case of an absence of noticeable measures to align with the European requirements. The term "limited" describes all cases where the available data on the issue was limited. This column did not record information on the efficiency of the measures taken,

2. Implementation and enforcement

This column completes the previous one by recording data on the enforcement and potential efficiency of the proposed legal and administrative reforms. However, such information was not available for every studied country.

Social impacts

1. Capacity

The following criteria recorded the influence of carding on the social and administrative capacity of the carded country. In most cases, the start of a dialogue with the European Commission (EC) regarding the cards enabled capacity building in the concerned states, including monitoring, control and surveillance training sessions to involve a broader working force in the sector.

2. Administrative cost

The criteria refer to additional costs on the administration perspective. Implementing more severe monitoring and control systems often implies increased paperwork in the concerned states to comply with the EU IUU Regulation.

3. Labour

This category refers to shifts and variations observed in the labour sector. The latter records the variations in number of jobs available and changes in labour conditions after the card issuing.

4. Small-Scale Fisheries (SSF)

The latter refers to social impacts recorded on SSF and their proportion compared to commercial fishing industries, for instance. In many states, the SSF sector was disproportionately affected by trade-based measures and restrictions (*i.e.* recorded as “negative” impacts in the matrix).

Harmonization and transparency

1. Transparency

The criteria refer to the transparency surrounding the regulation and standards used to issue the card for the specific country in the case studies and on a global scale.

2. Fairness

The fairness of the regulation refers to the equity found between nations during the carding and investigating process established by the EC. In most cases, the studies recorded discrepancies and double standards in the carding process, presented as a “lack” of fairness in the matrix.

3. Rigour

The rigour criteria completes the transparency and fairness of the regulation. Generally, a lack of the first two criteria also implied an overall lack of rigour from the Commission.

4. Definition IUU

The following gathers information regarding the importance and use of the currently accepted description of IUU fishing. When the reviewed article mentioned a lack of clear definition and comprehensiveness, the criterion recorded was “unclear” in the matrix.

5. Harmonization

The harmonization criteria refer to the uniformization of regulations between market states. In most cases, the fact that the EU IUU Regulation is, by definition, a unilateral trade-based measure rule in a general “lack” of harmonization on a global scale. The predominant issue concerned the lack of generalization among large market nations, especially between the EU IUU Regulation and the Seafood Import Monitoring Program (SIMP) established in 2016 by the United States of America (USA).

Power dynamics

1. EU Normative Power

As mentioned in the previous criteria, the EU IUU Regulation aims at establishing a general rule for all exporting fishing countries to limit and eventually ban the circulation of seafood issued from IUU fishing. As such, the EU provides the rest of the world with standards that the exporting states must abide by to keep trading their product on the European market. The latter, defined as normative power, aims to globally implement a specific “norm” outside of the European borders. In that case, for each paper mentioning the spread of EU normative power, the “EU standards” were recorded in the column of the matrix.

2. Power dynamics

This column reports the power dynamics perception by local governments and stakeholders before and during the dialogues with the EC. In most cases, the author(s) recorded some power asymmetries between all parties involved (*i.e.*, “unbalanced” power dynamics in the table).

3. Port State, Flag State, Market State, Coastal State responsibilities and potential shift

In several cases, the carding process obligated the fishing state to strengthen and clarify its responsibilities as a flag, coastal or market state by implementing international tools and new measures to ensure control and monitoring of the seafood provenance. The matrix records all changes observed for each case study.

Effectiveness

1. IUU Fishing

In most cases, the data did not provide sufficient information on the efficiency of the carding process in mitigating IUU fishing in the states that received a card. When the article mentioned the effects of IUU fishing with no more details, a “TBD” (*i.e.*, to be determined) was recorded in the matrix. When the regulation did not prove entirely efficient in limiting the IUU fishing, a “limited” was recorded. Finally, when the paper did not mention the impacts of the regulation on the IUU fishing activities in the countries, it was recorded as “NA”.

2. Influence of carding

This column refers to the card's proficiency in instigating change and potential improvements in the sanctioned country. The criteria do not imply any details regarding the efficiency of the carding, only if the latter affected - positively or not - the concerned country from a neutral point of view.

Reputational damage

The following refers to the potential consequences for the carded country in acquiring a bad reputation that could threaten its opportunity for trade with other countries and markets.

Environmental impacts

In several cases, the EU IUU regulation, because it influenced the legal system, instigated changes and improvements in sustainability in the fishing industry. It was mostly the case for areas where the carding process allowed for mitigation of the IUU fishing activities and better management of the fish stocks.

Other

This section refers to all other impacts recorded by the author(s) in different countries (*e.g.*, influence on technological development, broader participation in international treaties, the implication of tools in the national plans, etc.).

Appendix 2 – List of reviewed articles

Reference Matrix	Title	Author(s)	Date	Level and Region of study
Article 1	Good practice guidelines (GPG) on national seafood traceability systems	André	2018	national - Thailand, Indonesia, Philippines
Article 2	Translating sustainable fishing norms: the EU's external relations with Ghana	Auethavornpipat	2021	national - Ghana
Article 3	Seafood traceability systems: gap analysis of inconsistencies in standards and norms	Borit & Olsen	2016	international - NA
Article 4	Evaluation framework for regulatory requirements related to data recording and traceability designed to prevent illegal, unreported and unregulated fishing	Borit & Olsen	2012	international - NA
Article 5	The leadership of the EU in shaping the international ocean governance: fighting against IUU fishing	Aldereguiá Prado	2020	international - NA
Article 6	Private provision of public information in tuna fisheries	Bush et al.	2017	international - NA
Article 7	International trade law aspects of measures to combat IUU and unsustainable fishing	Churchill	2019	international - NA
Article 8	EU LAW: Illegal fishing and its influence on world affairs	Davel	2020	international - NA
Article 9	Responses of Indonesian tuna processing companies to enhanced public and private traceability	Doddema et al.	2020	national - Indonesia
Article 10	Fisher and trader responses to traceability interventions in Indonesia	Doddema et al.	2020	national - Indonesia
Article 11	Implementing the EU-IUU regulation: enhancing flag state performance through trade measures	Elvestad & Kvalvik	2015	international - NA
Article 12	Regional issues and ocean law: the African region	Franckx et al.	2013	international - NA
Article 13	Traceability systems: potential tools to deter illegality and corruption in the timber and fish sectors	Grant et al.	2021	international - NA
Article 14	The EU's Regulation on the sustainable management of external fishing fleets: international and European law perspectives	Guggisberg	2019	international - NA
Article 15	Verifying and improving state's compliance with their international fisheries law obligations	Guggisberg	2019	international - NA
Article 16	The EU as a global regulator for environmental protection	Hadjiyianni	2021	international - NA
Article 17	The EU illegal, unreported, and unregulated fishing regulation based on trade and market-related measures: unilateralism or a model law?	He	2017	international - NA
Article 18	From country-of-origin labelling (COOL) to seafood import monitoring program (SIMP): how far can seafood traceability rules go?	He	2018	national - USA
Article 19	Enhancing Chinese law and practice to combat illegal, unreported and unregulated fishing and trade	He	2016	national - China
Article 20	Do unilateral trade measures really catalyze multilateral environmental agreements?	He	2019	international - NA
Article 21	Understanding IUU fishing as transnational organized crime with special example of Benjina case	Hendharto	2020	regional - Indonesia
Article 22	The legal impact of the common fisheries policy on the Galician fisheries sector	Sobrino Heredia & Oanta	2019	regional - Spain
Article 23	Engaging Asian states on combating IUU fishing: the curious case of the state of nationality in EU regulation and practice	Honniball	2021	regional - Asia
Article 24	Unilateral Trade Measures and the importance of defining IUU fishing: lessons from the 2019 USA concerns with china as a fishing flag state	Honniball	2019	national - China, USA

Article 25	What's in a Duty? EU identification of non-cooperating port states and their prescriptive responses	Honniball	2020	international - NA
Article 26	Trade measures to combat IUU fishing: comparative analysis of unilateral and multilateral approaches	Hosch	2016	international - NA
Article 27	Sustainable Networks: Modes of governance in the EU's external fisheries policy relations under the IUU Regulation in Thailand and the SFPA with Senegal	Kadfak and Antonova	2021	national – Thailand, Senegal
Article 28	More than just a carding system: Labour implications of the EU's illegal, unreported and unregulated (IUU) fishing policy in Thailand	Kadfak and Linke	2021	national - Thailand
Article 29	The EU restrictive trade measures against IUU fishing	Leroy et al.	2016	international - NA
Article 30	The European Union's potential contribution to the governance of high sea fisheries in the central Arctic Ocean	Liu	2017	regional - Arctic
Article 31	An independent review of the EU illegal, unreported and unregulated regulations	Lutchman et al.	2012	international - NA
Article 32	Power Europe: EU and the illegal, unreported and unregulated tuna fisheries regulation in the West and Central Pacific Ocean	Miller et al.	2014	regional - Pacific Islands
Article 33	A trade-based analysis of the economic impact of non-compliance with illegal unreported and unregulated fishing: the case of Vietnam	Nam and Le	2021	regional - Vietnam
Article 34	The duplicity of the European Union Common Fisheries Policy in third countries: evidence form the Gulf of Guinea	Okafor-Yarwood et al.	2020	regional - Gulf of Guinea
Article 35	Status of Monitoring, control and surveillance systems in East Africa: strengthening national and regional capacities for combating illegal, unreported and unregulated fishing	Palma-Robles et al.	2015	regional - East Africa
Article 36	Fisheries enforcement on the high seas of the Arctic Ocean: gaps, solutions and the potential contribution of the European Union and its member states	Papastavridis	2018	regional - Arctic
Article 37	IUU fishing and seafood fraud: using crime script analysis to inform intervention	Petrossian & Pezzella	2018	international - NA
Article 38	IUU fishing and state accountability	Rosello	2021	international - NA
Article 39	Cooperation and unregulated fishing: interactions between customary international law, and the European Union IUU fishing regulation	Rosello	2017	national - Cambodia
Article 40	Non-tariff measures and sustainable development: the case of the European Union import ban on seafood from Sri Lanka	Sandaruwan and Weerasooriya	2019	national - Sri Lanka
Article 41	Safeguarding the legitimacy of illegal, unreported and unregulated fishing vessel listings	Scanlon	2019	international - NA
Article 42	The shaky foundations of the FAO PSMA: how watertight is the legal seal against access for foreign fishing vessels	Serdy	2016	international - NA
Article 43	Pacta Tertiiis and regional fisheries management mechanisms: the IUU fishing concept as an illegitimate short-cut to a legitimate goal	Serdy	2017	international - NA
Article 44	Collateral damage? SSF in the global fight against IUU fishing	Song et al.	2020	international - NA
Article 45	Tackling IUU fishing: developing a holistic legal response	Soyer et al.	2018	international - NA
Article 46	A carding system as an approach to increasing the economic risk of engaging in IUU fishing	Sumaila	2019	international - NA
Article 47	IUU fishing and measures to improve enforcement and compliance	Swan	2019	international - NA
Article 48	Shaping ocean governance: a study of EU normative power on Thailand's sustainable fisheries	Tavormmas & Cheeppensook	2020	national - Thailand
Article 49	Scuttling IUU fishing and rewarding sustainable fishing: enhancing the effectiveness of the PSMA with trade-related measures	Telesetsky	2014	international - NA

Article 50	The European Council regulation on illegal, unreported and unregulated fishing: and international fisheries law perspective	Tsamenyia et al	2010	international - NA
Article 51	The impact of the EU IUU Regulation on the Sustainability of the Thai Fishing Industry	Wongrak et al.	2021	regional - Thailand
Article 52	Territorial extension of the EU environmental law and its impact on emerging industrial economies: a Taiwan case	Wu	2020	regional - Taiwan
Article 53	Unilateral steps to end high seas fishing	Wyman	2018	international - NA

Appendix 3 - Matrix

Article	Methodology	Economic impacts				Governance impacts			Social impacts				Harmonization and transparency					Power dynamics			Effectiveness		Reputational damage	Environmental impacts	Other
		Trade restriction, shift	Economic losses/gain	Parallel markets	SSF	Reform legal system	Implementation and enforcement	Capacity	Administrative cost	Labour	SSF	Transparency	Fairness	Rigour	Definition IUU	Harmonization	EU normative power	Power dynamics	PS, FS, MS, CS	IUU fishing	Influence of carding				
Article 1	case study	NA	TBD	NA	NA	yes	NA	building	NA	NA	NA	lack	NA	NA	unclear	lack	EU standards	NA	NA	TBD	yes	NA	improved traceability	NA	
Article 2	NA	NA	NA	NA	NA	yes	NA	no influence	NA	NA	NA	lack	lack	lack	unclear	lack	EU standards	unbalanced	NA	TBD	yes	NA	NA	NA	
Article 3	policy analysis	NA	NA	NA	NA	yes	limited	no influence	NA	NA	NA	NA	NA	NA	unclear	NA	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA	
Article 4	case study	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	good	lack	lack	NA	lack	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA	
Article 5	NA	NA	NA	NA	NA	yes	NA	NA	NA	NA	NA	good	lack (China)	NA	unclear	lack	EU standards	NA	NA	TBD	NA	NA	NA	NA	
Article 6	policy analysis, case study	NA	NA	yes	increased losses	limited	NA	building	NA	NA	negative	good	NA	NA	NA	NA	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA	
Article 7	policy analysis	NA	NA	yes	NA	yes	NA	NA	NA	NA	NA	lack	NA	NA	unclear	NA	EU standards	NA	NA	TBD	NA	NA	NA	NA	
Article 8	policy analysis	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	lack	NA	NA	unclear	lack (EU USA)	NA	NA	NA	TBD	NA	NA	NA	NA	
Article 9	policy analysis, semi-interview	decrease exports, imports EU	loss	yes	NA	NA	NA	NA	high	NA	negative	NA	NA	lack	NA	NA	NA	NA	NA	TBD	NA	NA	NA	NA	
Article 10	semi-interview	NA	loss	yes	NA	yes	private influence	limited	high	shift responsibilities	negative	good	NA	NA	unclear	NA	EU standards	balanced	NA	TBD	NA	NA	NA	NA	
Article 11	literature review, policy analysis	decrease imports, increased competition	loss	NA	reduction fleet	NA	NA	building	NA	unemployment	NA	lack	NA	NA	unclear	lack	NA	unbalanced	NA	TBD	NA	NA	NA	NA	
Article 12	impact assessment	NA	NA	yes	reduction fleet, increased operational cost	yes	NA	building	NA	unemployment	negative	NA	NA	NA	NA	NA	EU standards	unbalanced	NA	TBD	NA	NA	higher by-catch	risk limitation	
Article 13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	EU standards	NA	NA	TBD	NA	NA	NA	NA	
Article 14	literature review, policy analysis, semi-interviews	NA	NA	NA	NA	yes	limited (bribery)	NA	NA	NA	NA	lack	NA	NA	unclear	NA	NA	NA	NA	TBD	NA	NA	NA	NA	
Article 15	policy analysis	NA	NA	NA	NA	yes	NA	NA	NA	NA	NA	NA	NA	NA	unclear	NA	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA	
Article 16	policy analysis	NA	NA	NA	NA	yes	NA	NA	NA	NA	NA	lack	lack	NA	unclear	lack (unilateralism)	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA	
Article 17	policy analysis	decrease exports, imports EU	loss	yes	NA	yes	NA	NA	high	NA	NA	lack	lack	lack	unclear	lack (unilateralism)	EU standards	NA	NA	TBD	NA	NA	NA	NA	
Article 18	literature review, policy analysis, case study	NA	loss	NA	NA	NA	NA	NA	NA	NA	NA	lack	lack	NA	unclear	lack (unilateralism)	NA	unbalanced	NA	TBD	NA	NA	NA	NA	
Article 19	literature review, policy analysis	NA	TBD	NA	NA	yes	NA	building	NA	NA	positive	good	NA	lack	unclear	lack (unilateralism)	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA	
Article 20	policy analysis	NA	loss	NA	increased operational cost	no	NA	NA	high	NA	NA	lack	lack	lack	NA	lack (unilateralism)	no influence	unbalanced	strengthen FS	TBD	NA	NA	NA	NA	
Article 21	policy analysis	NA	NA	NA	NA	yes	NA	building	NA	NA	NA	good	NA	NA	NA	NA	EU standards	NA	NA	TBD	NA	NA	NA	NA	
Article 22	policy analysis, case study	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	unclear	NA	NA	NA	NA	TBD	NA	NA	NA	NA	
Article 23	policy analysis, case study	decrease international trade	loss	NA	reduction fleet	yes	NA	NA	NA	increased unemployment	NA	NA	NA	NA	unclear	NA	EU standards	NA	NA	TBD	NA	yes	NA	NA	
Article 24	literature review, policy analysis, case study	NA	TBD	NA	NA	yes	NA	building	NA	NA	NA	lack	NA	lack	unclear	lack	EU standards	unbalanced	strengthen FS	TBD	yes	NA	NA	NA	

	Methodology	Economic impacts				Governance impacts		Social impacts				Harmonization and transparency					Power dynamics			Effectiveness		Reputational damage	Environmental impacts	Other
		Trade restriction, shift	Economic losses/gain	Parallel markets	SSF	Reform legal system	Implementation and enforcement	Capacity	Administrative cost	Labour	SSF	Transparency	Fairness	Rigour	Definition IUU	Harmonization	EU normative power	Power dynamics	PS, FS, MS, CS	IUU fishing	Influence of carding			
Article 25	policy analysis, case study	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	lack	lack (China)	lack	unclear	lack	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA
Article 26	policy analysis, case study	NA	loss (Sri Lanka)	yes	NA	yes	NA	building	NA	NA	negative	good	NA	NA	unclear	NA	EU standards	unbalanced	NA	TBD	yes	yes	NA	NA
Article 27	policy analysis, case study	decrease international trade	gain (domestic)	yes (domestic)	increased operational cost	yes	NA	building	high	NA	negative	lack	NA	NA	unclear	lack	EU standards	unbalanced	strengthen FS	limited	NA	NA	NA	NA
Article 28	literature review, policy analysis, case study	decrease exports EU	loss	NA	increased operational cost	yes	NA	building	NA	NA	negative	lack	lack	lack	unclear	lack	EU standards	unbalanced	strengthen FS	TBD	yes	NA	NA	NA
Article 29	policy analysis, interviews	NA	loss	NA	increased operational cost	yes	limited (too quick)	building	NA	new standards	negative	lack	NA	NA	NA	NA	EU standards	unbalanced	NA	limited	NA	NA	NA	NA
Article 30	literature review, policy analysis	NA	loss	yes	NA	yes	NA	no influence	high	NA	NA	lack	lack (China)	lack	unclear	lack	EU standards	unbalanced (locally)	NA	TBD	NA	NA	NA	NA
Article 31	NA	NA	Na	NA	NA	yes	NA	NA	NA	NA	NA	lack	NA	NA	NA	NA	EU standards	unbalanced	strengthen FS and PS	TBD	NA	NA	NA	NA
Article 32	policy analysis, interviews	trade shift	loss	yes	NA	no	NA	NA	high	NA	NA	lack	NA	NA	NA	NA	EU standards	unbalanced	ineffective enforcement	TBD	NA	NA	NA	NA
Article 33	case study	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Article 34	case study, modelling	decrease exports, imports (Thailand, Vietnam, Sri Lanka)	loss (Thailand, Vietnam, Sri Lanka)	yes	NA	yes (Thailand, Vietnam)	NA	building	NA	decreased unemployment	negative	good	NA	NA	NA	NA	EU standards	unbalanced	NA	TBD	yes	yes	NA	NA
Article 35	literature review, policy analysis	NA	NA	NA	NA	yes	improvement	building	NA	NA	NA	lack (discrimination)	lack	unclear	lack	NA	EU standards	unbalanced	NA	TBD	yes	NA	NA	NA
Article 36	NA	NA	NA	NA	NA	yes (Kenya, Madagascar)	improvement	building	NA	NA	NA	NA	NA	NA	NA	NA	EU standards	NA	strengthen PS	TBD	NA	NA	NA	NA
Article 37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	EU standards	NA	NA	NA	NA	NA	NA	NA
Article 38	NA	NA	loss	NA	NA	yes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	EU standards	NA	NA	TBD	NA	NA	NA	NA
Article 39	NA	NA	loss	NA	NA	yes	NA	NA	NA	NA	NA	lack	NA	NA	NA	NA	NA	NA	NA	TBD	NA	yes	NA	NA
Article 40	policy analysis	NA	NA	NA	NA	yes	NA	building	NA	NA	NA	lack	NA	NA	unclear	NA	EU standards	unbalanced	strengthen FS	TBD	NA	NA	NA	NA
Article 41	policy analysis	restrictions	loss	NA	NA	limited	NA	NA	high	NA	negative	lack	lack (discrimination SDS, SSF)	lack	NA	lack	EU standards	unbalanced	strengthen FS	TBD	NA	NA	NA	NA
Article 42	policy analysis	NA	NA	NA	NA	yes	NA	NA	NA	NA	NA	lack	lack	lack	NA	lack	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA
Article 43	policy analysis	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	lack	lack	lack	unclear	lack	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA
Article 44	policy analysis	NA	loss	NA	increased losses	yes	NA	limited	NA	NA	negative (disproportionate)	lack	lack (discrimination SSF)	NA	unclear	NA	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA
Article 45	NA	NA	NA	NA	NA	NA	NA	NA	NA	increased unemployment	negative (disproportionate)	NA	NA	NA	NA	NA	NA	NA	NA	TBD	NA	yes	NA	NA
Article 46	NA	NA	NA	yes	NA	yes	NA	NA	NA	NA	NA	NA	lack (discrimination)	lack	NA	NA	EU standards	unbalanced	NA	TBD	NA	NA	NA	NA

	Methodology	Economic impacts				Governance impacts		Social impacts				Harmonization and transparency					Power dynamics			Effectiveness		Reputational damage	Environmental impacts	Other
		Trade restriction, shift	Economic losses/gain	Parallel markets	SSF	Reform legal system	Implementation and enforcement	Capacity	Administrative cost	Labour	SSF	Transparency	Fairness	Rigour	Definition IUU	Harmonization	EU normative power	Power dynamics	PS, FS, MS, CS	IUU fishing	Influence of carding			
Article 47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	negative (disproportionate)	lack	lack	lack	unclear	lack	NA	NA	NA	TBD	NA	NA	NA	NA
Article 48	policy analysis, case study	NA	NA	NA	NA	yes	improvement	building	NA	NA	NA	NA	NA	NA	NA	NA	EU standards	balanced	NA	TBD	NA	NA	improved sustainability of stocks	international treaties
Article 49	policy analysis	NA	NA	NA	NA	NA	NA	NA	NA	new standards	NA	NA	NA	NA	NA	NA	EU standards	NA	NA	limited	NA	NA	NA	NA
Article 50	policy analysis	NA	NA	NA	NA	no	NA	NA	NA	NA	NA	lack	lack	lack	NA	lack	EU standards	unbalanced	requires FS improvements	limited	NA	NA	NA	NA
Article 51	literature review, case study	decreased competitiveness	loss	NA	unemployment	yes	NA	building	NA	increased unemployment, new standards	negative	lack	NA	NA	NA	NA	EU standards	NA	NA	TBD	NA	NA	NA	NA
Article 52	policy analysis, case study	NA	NA	NA	NA	yes	NA	building	NA	NA	NA	NA	NA	NA	NA	NA	EU standards	NA	NA	TBD	NA	NA	improved sustainability of stocks	NA
Article 53	policy analysis, case study	NA	NA	yes	NA	yes	NA	NA	high	NA	NA	NA	NA	NA	NA	NA	EU standards	NA	NA	TBD	NA	NA	NA	NA

Appendix 4 – Table of all carding events and their justification provided by the EC

Country	Pre-identification	Rationale Summary	Recurrence of IUU vessels and IUU trade flows (Article 31(4)(a) of the EU-IUU Regulation)	Failure to cooperate and to enforce (Article 31(5)(b),(c), and (d) of the EU-IUU Regulation)	Failure to implement international rules (Article 31(6) of the EU-IUU Regulation)	Pre-identification revoked	Rationale	Identification
Belize	Nov 2012 (2012/C354/01)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	<ol style="list-style-type: none"> 1) Belize-flagged vessels in RFMO IUU vessel lists 2) Lack of adequate sanctions against such vessels 3) Authorized observers were found to be acting as representatives of beneficial owners of vessels 	Recurrence of IUU vessels and lack of effective enforcement	<ol style="list-style-type: none"> 1) Failure to fully and effectively fulfil its statistical reporting obligations (ICCAT) 2) Overharvesting of its quota of northern albacore 3) Absence or interruption of VMS signal during fishing campaigns detected 4) Failure to provide adequate logbook/VMS information and identified as "non-compliant" with regard to the catch and effort reporting (WCPFC) 5) Non-compliance with CMMs (e.g. transshipment, IOTC) 6) Failure to report (NEAFC) 7) Identified as a flag of convenience (ITF) 			Nov 2012 (2013/C346/02)
Cambodia	Nov 2012 (2012/C354/01)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	<ol style="list-style-type: none"> 1) Cambodia-flagged or Cambodian licenced vessels on RFMO IUU list 2) Repeated infringement of ICCAT CMMs by Cambodian vessels, including transshipment 3) Violation of CCAMRL CMMs by Cambodian flagged vessels 	<ol style="list-style-type: none"> 1) Recurrence of IUU vessels and lack of effective enforcement 2) Lack of specific legislation to address IUU fishing 	<ol style="list-style-type: none"> 1) Failure to reply to repeated warnings and requests for information (ICCAT) 2) Identified as a flag of convenience (ITF) 			Nov 2012 (2013/C346/02)
Cameroon	Feb 2021 (2021/C591/01)	The warning identified "shortcomings in Cameroon's ability to comply with agreed standards under international law of the sea as flag, port, and market state." The country lacks a robust registration policy and adequate control for fishing vessels flying its flag.	<ol style="list-style-type: none"> 1) Cameroon-flagged vessels on RFMO IUU list (IOTC) 2) Registration of many vessels questioning the ability of the state to control and monitor the activities of its fleet, particularly outside its EEZ. 	<ol style="list-style-type: none"> 1) Lack of cooperation with other States and relevant RFMOs 2) Outdated legal framework, not align with international law 3) Lack of sufficient sanctions to prevent IUU fishing activities and deprive offenders of the benefits from such fishing. 	<ol style="list-style-type: none"> 1) Not ratified the UNFSA or PSMA 2) Not a contracting party of a cooperating non-contracting party to any RFMOs 3) Lack of alignment with international rules and regulations 			

Comoros	Oct 2015 (2015/C324/07)	The Comoros have partly delegated the management of their fleet register to a private company located offshore. This fishing fleet operates in breach of Comorian law and is not monitored by the Comorian authorities. Further shortcomings exist in the country's legal framework, their system of sanctions, the management of fisheries resources, and in monitoring, controlling and surveillance. (IP/15/5736)	<ol style="list-style-type: none"> 1) Evidence of around 20 Comorian vessels involved in IUU fishing from 2010-2015 2) 20 Comorian vessels operating outside the Comorian EEZ without an authorization 3) Reports of transshipment at sea without authorization 4) Failure to monitor its vessels outside its EEZ 5) Vessels operating within its EEZ without VMS or having on-board observers 6) Traceability of seafood products is hindered by the lack of monitoring, control and surveillance 	<ol style="list-style-type: none"> 1) While the Comoros is cooperating with the countries of the Indian Ocean region, it does not cooperate with third countries outside the region where Comorian vessels operate 2) The Comorian authorities had not reported taking any actions with respect to the vessels that have conducted operations including an at-sea transshipment off the West African coast in 2014 3) Most of the Comorian fleet is not transmitting VMS information to the Comorian authorities 4) Insufficient sanctions for infractions 	<ol style="list-style-type: none"> 1) Failure to fulfil its reporting obligations, including catch (IOTC) 2) Failure to ratify international treaties with the exception of UNCLOS and participate in RFMOs with the exception of IOTC and SWIOFC 			May 2017 (2017/889)
Curacao	Nov 2013 (2013/C 346/03)	..."they fail to keep up with international obligations to fight illegal fishing. The Commission has identified concrete shortcomings, such as a lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/13/1162)	<ol style="list-style-type: none"> 1) No Curacao-flagged vessels on RFMO IUU lists, however, several incidents of alleged IUU activities by two vessels flagged in the country (SPRFMO) 	<ol style="list-style-type: none"> 1) Insufficient system of sanctions against IUU activities. 2) Absence of traceability schemes, control over its long-distance fleets, VMS and reporting by its vessels 3) No register of infringement and sanctions, therefore, not possible to issue fines or apply enforcement measures 	<ol style="list-style-type: none"> 1) Failure to comply with its reporting obligations (ICCAT) 2) Limited capacity to identify foreign owners of its vessels 	Feb 2017	..."has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing"	
Ecuador	Oct 2019	..."they fail to keep up with international obligations to fight illegal fishing. The Commission has identified concrete shortcomings, such as a lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/13/1162)	<ol style="list-style-type: none"> 1) Vessels reported illegally fishing in regulated areas (IATTC, SPRFMO) 2) Record of Ecuadorian vessels fishing in waters under jurisdiction of third countries with no authorization. Lack of cooperation with third countries. 3) Registration of vessels previously involved in IUU fishing activities 	<ol style="list-style-type: none"> 1) Limited follow-up and explanations of recorded discrepancies between fish landed and reported to IATTC 2) Lack of continuity and consistence in monitoring and control 3) Weak legal framework with lack of definition of IUU fishing and inadequate sanctions 4) Vessels acting in violation of IATTC resolutions 	<ol style="list-style-type: none"> 1) Lack of a comprehensive implementation of the PSMA and of control of transshipments in ports 2) Lack of registration of vessels with the relevant RFMOs 			

			4) Lack of control and report of fishing activities					
Fiji	Nov 2012 (2012/C 354/01)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	NA	1) Lack of specific measures for managing and controlling Fiji flagged vessels beyond its EEZ	1) Failure to comply with the catch and effort data reporting requirements (WCPFC) 2) Failure to comply with the requirement on non-national observers (WCPFC)	Oct 2014 (2014/C 364/02)	..."has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing"	
Ghana	Nov 2013 (2013/C 346/03)	..."they fail to keep up with international obligations to fight illegal fishing." The Commission has identified concrete shortcomings, such as a lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them."(IP/13/1162)	1) One vessel on RFMO IUU list flagged by Ghana 2) Repetitive infringement by Ghanaian flagged vessels in ICCAT regions 3) Ghana-flagged purse seiners involved in illegal transshipment Ghanaian vessels operating without fishing authorisations in waters of neighbouring countries IUU activities within Ghanaian EEZ 4) No monitoring throughout the supply chains	1) Repeatedly failed to provide any response to requests of assistance from neighbouring countries regarding its IUU activities 2) Ghana has no information on where its vessels operate 3) Ghana validate catch certificates without real verifications 4) Almost no sanctions were applied (significant implementation issues) 5) Ineffective VMS within its EEZ, insufficient enforcement capacity	1) No concrete actions on implementing regional plan of action (FCWC) 2) Failure to fulfil its reporting requirements (ICCAT) 3) Overharvesting of bigeye tuna (ICCAT) 4) Absence of an operational VMS and persistence of illegal transshipments (ICCAT) 5) Non-compliance with the observer scheme (ICCAT)	Oct 2015 (2015/C 324/08)	..."has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing"	
Kiribati	Apr 2016 (2016/C 144/05)	Concerns about the country's capacity to control fishing activities by foreign fleets. There are serious risks that illegally caught fish could be laundered through the ports of Kiribati, as they do not have robust traceability systems in place for fisheries products. Kiribati's unwillingness to share important information on third country vessels operating in their	1) Account taken of the apparent lack of traceability and lack of information available to Kiribati authorities on the fish landed or transhipped in its ports. 2) It is unlikely that the country can ensure that trade of fishery products conducted in this country do not stem from IUU fishing.	1) Reluctant to improve the transparency of the VDS 2) Legal framework is incomplete, in particular with regards to the sanctioning system.	Shortcomings in application of CMMs include: control over fishing effort under VDS, and access of foreign fishing vessels.	Dec 2020 (2020/C 424/04)	..."has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries	

		waters undermines the EC's work to improve transparency and sustainability of tuna resources in the Western and Central Pacific. (IP/16/1457)					in fighting IUU fishing”	
Korea	Nov 2013 (2013/C 346/03)	...“they fail to keep up with international obligations to fight illegal fishing. The Commission has identified concrete shortcomings, such as a lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them.” (IP/13/1162)	1) 19 Korean-flagged vessels cited for serious IUU infringements (fishing without licence, in closed areas/seasons, use of falsified documents for catch certification, etc.) 2) Non-compliance with the legal requirements of coastal States 3) Engaged in illegal transshipment at sea	1) Failure to cooperate and coordinate activities with the EU and other States (ensuring its vessels have valid authorization to fish) 2) No detailed and clear national plan of action against IUU fishing 3) No Fishing Monitoring Centre to control the Korean long-distance fishing fleets (the authorities have no capability to validate info provided by its long-distant fleets), no info on transshipment activities 4) No legal requirement for vessels to carry VMS if fishing in the high seas but outside RFMOs scope or in waters of coastal States 5) Inadequate sanctions (e.g. USD 1000 maximum fine) 6) Illegal operation of Korean-flagged vessels in CCAMLR region cited	1) Concerns over Korea's level of sanctions (CCAMLR) 2) Identified as non-compliant with mandatory statistical requirement (IOTC), gear use and MS record (IOTC) 3) Failure to fulfil its reporting requirement (ICCAT) 4) Prohibited transshipment in the Gulf of Guinea (ICCAT)	Apr 2015 (2015/C 142/04)	The Republic of Korea has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing.	
Liberia	May 2017 (2017/C 169/12)	Liberia has the second biggest shipping registry in the world with over 100 fishing transport vessels registered under this flag. The national fisheries authorities do not have the information or means to control this fleet. This lack of control has been confirmed by the listing of a Liberian vessel on the international "black list" last October. Liberia has taken reform measures including the revision of its fisheries laws, but no tangible progress has followed.	1) The national fisheries authority does not have any information on Liberian fishing vessels operating beyond the Liberian EEZ 2) Over 100 Liberian flagged fishing vessels operating beyond Liberia's EEZ without authorisation from the relevant Liberian fisheries authorities, not subject to monitoring, control and surveillance nor reporting of catch data, landings or transshipments	1) Liberian fisheries authorities do not appear to cooperate or to be in a position to cooperate with third countries in all regions where Liberian fishing vessels operate except in the east Atlantic 2) Outdated Fisheries Regulations (2010), with no specific definition of IUU activities 3) Only vessels licensed to operate in the national EEZ are monitored by the FMC; Liberian flagged vessels operating in the high seas or in the waters of third	1) Decision to join RFMOs (with exception of ICCAT) by the Liberian Maritime Authority, not by its national fisheries authorities 2) Yet to ratify FAO Compliance Agreement and PSMA 3) No national plan of action against IUU 4) International registry of vessels carried out by a private company located outside of Liberia.			

				countries are not monitored by the FMC.				
Panama	Nov 2012 (2012/C354 /01)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	1) Number of Panamanian-flagged IUU vessels in the relevant IUU lists 2) Other incidents of non-authorized transshipment and IUU activities 3) Reported violations of IATTC CMMs and sightings of Panamanian-flagged vessels on CCAMLR area	1) Limited sanctions on reported IUU vessels 2) Lack of control/knowledge of the reported transshipment activities by the relevant authorities	1) Failure to fulfil its reporting obligations (ICCAT) 2) Absence of VMS operational abilities 3) Failure to report (WCPFC) 4) Breaches of CMMs by Panamanian-flagged vessels (IATTC) 5) Identified as a flag of convenience (ITF)	Oct 2014 (2014/C 364/02)	...”have introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing”	
	Dec 2019 (2020/C 13/06)	The second warning identifies “various shortcomings that constitute significant backtracking compared to improvements observed from 2012 to 2014.” The EC encourages Panama to ensure an effective monitoring of the activities of its fishing vessels and implementation of the enforcement and sanctioning system.	1) Issues within the registration system and lack of adequate control over the state’s vessels 2) Vessels involved in transshipment activities with no reporting 3) Additional vessels involved in IUU fishing 4) Inconsistencies in information presented by the processing plant of fishing products 5) Validation of catch certificates with no verification	1) Lack of effective, adequate and deterrent sanctions 2) Delays in opening of procedures against vessels involved in IUU fishing activities and in imposition of sanctions	1) Still in the process of revision of the Fisheries Law even if has been requested to update it before 2) Lack of adequate implementation of the PSMA to prevent IUU vessels from receiving port service in Panama 3) Lack of in -port inspections			
Papua New Guinea	Jun 2014 (2014/C 185/02)	The EC considers that the Philippines and Papua New Guinea do not fulfil their duties as flag, coastal, port or market State in line with international law. For instance, the countries need to amend their legal framework to combat IUU fishing, improve control and monitoring actions and take a proactive role in complying with international law rules, such as the ones agreed by Regional Fisheries Management Organisations. (IP/14/653)	1) No IUU activities reported by PNG-flagged vessels 2) Infringements cited mostly on the lack of capacity to trace catches through its supply chain (<i>i.e.</i> catches of foreign-flagged vessels operating within PNG waters and supplying PNG canneries) 3) Lack of clarity on its fishing licensing and inconsistencies in its transshipment regulations	1) Lack of willingness from PNG authorities to cooperate with flag States of vessels operating in waters under PNG jurisdiction 2) Awareness that information on catch certificates issues by flag States may be incorrect 3) Lack of clarity and transparency of laws and procedures (licensing, vessel registration, reliability of information and data relating to landings and catch) undermines the possibility for sanctioning	1) Absence of a National Plan of Action IUU and outdated Tuna Management Plan of 1998 2) Regulatory deficiency in its domestic CMMs 3) PNG not yet compliant with WCPFC CMMs (<i>e.g.</i> observer coverage), PNG considers WCPFC rules do not apply to waters under its jurisdiction 4) Current level of catch exceeding the PNG Tuna Management Plan	Oct 2015 (2015/C 324/09)	...”has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing”	

				and following up of infringements				
Philippines	Jun 2014 (2014/C 185/03)	The Commission considers that the Philippines and Papua New Guinea do not currently fulfil their duties as flag, coastal, port or market State in line with international law. For instance, the countries need to amend their legal framework to combat IUU fishing, improve control and monitoring actions and take a proactive role in complying with international law rules, such as the ones agreed by Regional Fisheries Management Organisations. (IP/14/653)	<ol style="list-style-type: none"> 1) No evidence of Philippines-flagged vessels in RFMOS lists 2) Systemic problems undermining the traceability of catch because of the lack of available official information about fish landed, imported, processed 3) Lack of control and monitoring (e.g., inspections at sea and port, logbook checks) 4) Uncontrolled transshipment at sea and landing can be certified off carrier vessels without verification of fishing practice (e.g., use of FADs) 5) Weak operational status of VMS 	<ol style="list-style-type: none"> 1) Lack of access to the necessary information on position or activities of its own vessels operating outside its EEZ 2) Lack of administrative capacity, given the size of its fishing fleet 3) Partial implementation of VMS obligations, FMC only in development state 4) No legal framework to adequately sanction IUU vessels (e.g., fines of approximately 32 EUR) 	<ol style="list-style-type: none"> 1) Failure to implement CMMs, fulfil reporting obligations (IOTC) 2) Failure to impose ban on large scale driftnet into its domestic legislation in line with RFMO CMMs (IOTC) 	Apr 2015 (2015/C 142/05)	...”have introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing”	
Republic of Guinea	Nov 2012 (2012/C 354/01)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	<ol style="list-style-type: none"> 1) Guinean-flagged vessels on RFMOS IUU lists 2) Operation of Guinean-flagged purse seiners without an international fishing license nor VMS (ICCAT) 	<ol style="list-style-type: none"> 1) Failure to cooperate or take enforcement action in response to observed IUU fishing 2) Failure to enforce VMS 3) Lack of legal framework for enforcement/sanctioning IUU vessels 	<ol style="list-style-type: none"> 1) Reporting deficiencies (ICCAT) 2) VMS in the Guinean Fisheries Monitoring Centre not functioning. 3) Lack of monitoring on transshipment operations 4) Lack of implementation of its Guinean Fisheries Code concerning logbook submission etc. 5) "general lack of compliance with IOTC measures and response" (IOTC) 			Nov 2012 (2013/C 346/02)

Sierra Leone	Apr 2016 (2016/C 144/06)	In Sierra Leone legal texts governing fisheries are outdated and sanctions fail to deter illegal operators operating internationally under the flag of Sierra Leone, without the fisheries authorities' knowledge. In addition, the number of licensed vessels exceeds the available resources and authorities fail to monitor or control their waters. (IP/16/1457)	1) Evidence of vessels flagged to Sierra Leone involved in IUU 2) The authority in charge of fisheries does not have any information on Sierra Leone fishing vessels operating beyond the Sierra Leone EEZ, potentially allowing illegal operators to use the flag of Sierra Leone without detection 3) Vessels do not report or transmit any information regarding their activities, landings and transshipments to the Sierra Leonean authorities. Therefore it is unlikely the traceability of fish or fish products stemming from these vessels can be guaranteed.	1) Not all foreign-flagged vessels operating within its EEZ have VMS or onboard observers 2) Lack of cooperation with third countries with regards to the operation of its vessels beyond its EEZ 3) National fisheries legal framework outdated 4) Funding for MCS limited	1) Identified as non-compliant by ICCAT and by IOTC for a general lack of compliance and failure to provide reports and information 2) Have not ratified any international legal instruments related to fisheries management except UNCLOS 3) No national plan of action on IUU			
Solomon Islands	Dec 2014 (2014/C 447/09)		1) No Solomon Islands-flagged vessels in IUU lists and no evidence of IUU activities 2) Lack of transparency (<i>e.g.</i> all tuna processed in Solomon Islands to be identified as originating from there, irrespective of the fishing vessel) 3) Cannery operators could not answer clearly to the questions on the traceability chain and the establishment of the quantities sold and processed 4) Series of weaknesses in the validation process for catch certificates	1) The reliability and correctness of responses from its officials are compromised and undermined by the lack of transparency and the little or no possibilities to ensure traceability of fishery products 2) Despite the number of transshipments of foreign flagged vessels within its waters, the Solomon Islands has not established a collaboration with the flag states 3) Its Fisheries Bill is outdated and did not cater for the country's international/regional obligations	1) The State's legal framework does not ensure efficient and effective management of vessels operating in waters under their jurisdiction. 2) Absence of clear CMMs based on the best scientific advice etc., particularly within its archipelagic waters (<i>i.e.</i> outside of WCPFC jurisdictions)	Feb 2017 (2017/C 60/05)	...”have introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing”	
Sri Lanka	Nov 2012 (2012/C 354/01)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in	1) Listing of more than 3000 vessels in the IOTC record of authorized vessels without	1) Lack of reporting on the known IUU vessels as stipulated in its agreement with IOTC	1) Failure to fulfil its reporting obligations (IOTC) 2) Failure to implement VMS and other CMMs (IOTC)			Oct 2014 (2014/715/EU)

		monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	having legislation to provide those vessels with a legal licence 2) Reported IUU activities by Sri Lankan vessels in the IOTC areas	2) Lack of documentation and reporting (e.g., requirements for logbook submission)				
St Kitts and Nevis	Dec 2014 (2014/C 447/10)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	1) Evidence of the recent registration under Saint Kitts and Nevis Registry of a supporting fishing vessel previously involved in illegal transshipments under the flag of Panama. 2) The traceability of products is hindered by a lack of transparency in Saint Kitts and Nevis' national laws, registration and licensing systems 3) Not in a position to provide information on what species were caught by Saint Kitts and Nevis high seas fishing fleet and what were the trade flows of the products caught	1) Failure to cooperate with coastal states regarding the operation of its long distant vessels 2) There is no national strategy on monitoring, control and surveillance of the fishing fleet and no inspections nor observer scheme 3) The treatment of infringements and serious infringements is not adequate to secure compliance, to discourage violations wherever they occur and to deprive offenders of the benefits accruing from their illegal activities	1) General lack of participation and cooperation with RFMOs			
St Vincent and Grenadines	Dec 2014 (2014/C 453/04)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	1) No evidences of IUU fishing by vessels flagged Saint Vincent and the Grenadines	1) Failure to report to the EC any information regarding the deficiencies in its fisheries management 2) Lack of landing and transshipment declaration, nor VMS to effectively monitor its fisheries	1) Failure to fulfil its reporting obligation (ICCAT) 2) Lack of fisheries management plans in accordance with ICCAT CMMs			May 2017 (2017/918)
Taiwan	Oct 2015 (2015/C 324/10)	The decision to issue a yellow card to Taiwan is based on serious shortcomings in the fisheries legal framework, a system of sanctions that does not deter IUU fishing, and lack of effective monitoring, control and surveillance of the long-distance fleet. Taiwan does not systematically comply with RFMO obligations.	1) 22 vessels involved in IUU activities between 2010 and 2015 (e.g. fishing gears non-marked, no original documents, no fishing related documentations, outdated fishing licences, no VMS system, shark finning operations, illegal at-sea transshipments without reporting, etc.)	1) Measures introduced by Taiwan to monitor its fleet are not comprehensive, partially covering the long distance fleet, partially implemented or are still plans that have not been developed yet. No quantifiable management targets, no indications on fishing effort levels, quotas, licences,	1) Failure to provide all the mandatory information on its authorized vessels (IOTC) 2) Identified as repeated offender of IUU (IOTC) 3) Failed to present the ICCAT observers valid authorisations to tranship, and numerous cases of non-compliance in connection with the logbooks	June 2019 (2019/C 221/02)	...”has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of	

		(IP/15/5736)	<p>2) Lacking a traceability system to ensure full transparency of fishing transactions (<i>i.e.</i> catch, transshipment, landing, transport, factory processing, export and trading)</p> <p>3) Exposes the system to potential abuse by allowing trading operators to over declare incoming quantities from erroneous catch certificates and launder fish through overestimations</p> <p>4) Absence of cooperation with third country authorities and inability to monitor the size and capacity of the fleet allowing for illegal acts, to operate from Taiwan without risk of detection.</p>	<p>authorizations for fishing to third countries, number of vessels in RFMOs, etc.</p> <p>2) Insufficient fines to deprive large commercial vessels of the benefits accrued from potential illegal activities (max set to approximately 9 000 euros).</p> <p>3) Absence of an effective MCS system demonstrating the inability to monitor fishing operations at sea and undermines the ability of the Fisheries Agency to effectively enforce rules applicable to the different sea areas concerned.</p>	<p>4) Failed to fully comply with the requirements for Landings and Transhipment Data (SPRFMO)</p>		<p>being identified as non-cooperating countries in fighting IUU fishing”</p>	
Thailand	Apr 2015 (2015/C 142/06)	<p>As a result of a thorough analysis and a series of discussions with Thai authorities since 2011, the Commission has denounced the country's shortcomings in its fisheries monitoring, control and sanctioning systems and concludes that Thailand is not doing enough.</p>	<p>1) Vessels fishing without permit issued by the flag State or the coastal States concerned; no VMS on-board in the high seas and in coastal States where VMS is a requirement for all foreign flagged vessels; presented erroneous information regarding fishing areas to obtain validation of catch certificates from the Thai authorities and importation of the products into the EU; falsified or concealed their markings, identity or registration; obstructed the work of coastal State officials in the exercise of their duties in inspecting for compliance with the applicable conservation and management measures. Lack of record and report entry,</p>	<p>1) The critical adoption of the fisheries bill that would enable implementation and enforcement of key fisheries management and traceability tools was still in draft</p> <p>2) The rules governing registration of vessels and licencing are unclear and failure to comply with the obligation to register provided for in Thai law has not been adequately sanctioned by the authorities</p> <p>3) Insufficient fines to deprive large commercial vessels of the benefits accrued from potential illegal activities.</p> <p>4) VMS not specified in Thai legislation as mandatory</p>	<p>1) Failure to investigate possible infractions of RFMO CMMs (IOTC)</p> <p>2) Current domestic laws insufficient (<i>e.g.</i> failure to include definitions of IUU, narrow scope focused mostly on fishing activities in territorial waters, failure to incorporate international treaties)</p> <p>3) Failure to ratify international legal instruments related to fisheries management</p> <p>4) Deficiencies in VMS implementation</p>	Jan 2019 (2019/C 6/07)	<p>...”has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing”</p>	

			<p>exit and catch data to the coastal states authorities.</p> <p>2) 5 Thai vessels were arrested for fishing illegally in PNG EEZ</p> <p>3) Lack of VMS</p> <p>4) No legal basis to inspect, sanction or refuse access of third country vessels into Thai ports</p>					
Togo	Nov 2012 (2012/C 354/01)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	<p>1) Togo vessels on RFMO IUU lists</p> <p>2) Togolese-flagged vessels reported to have engaged in fishing activities that violated CCAMLR</p>	<p>1) Delayed response to sanction its vessels for reported IUU activities</p> <p>2) Togo does not have any specific legislation to address IUU fishing activities, only measure taken is deregistration (<i>i.e.</i>, no sanctions or deterrents)</p>	Lack of response to requests by RFMOs, however, Togo is not a member of any RFMOs.	Oct 2014 (2014/C 364/02)	...”has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing”	
Trinidad and Tobago	Apr 2016 (2016/C 144/07)	Trinidad and Tobago also has a large fleet operating internationally where authorities do not control or inspect foreign vessels, nor cooperate with relevant flag States. The poor traceability system also causes the risk of laundering of fisheries products. (IP/16/1457)	<p>1) Strong indications that Trinidad and Tobago is not in a position to provide information on the characteristics of the highly migratory species caught by its high seas fishing fleet or the fishing products landed or transhipped in its ports and what were the trade flows of those products.</p> <p>2) Apparent lack of traceability and of information available about the fish landed or transhipped by the State’s flagged vessels or by third country flagged vessels in its ports.</p>	<p>1) Lack of cooperation with third countries despite it being a main port State in the Eastern Caribbean</p> <p>2) The current legal framework lacks a definition of serious infringements and a comprehensive list of serious offences addressed with adequate sanctions. The value of fines is not linked to the value of the fish caught illegally does not systematically deprive offenders of the benefits accruing from their illegal activities.</p> <p>3) VMS and logbooks are not compulsory, no observer program, no operational Fisheries Monitoring Centre</p> <p>4) Only information received by the authorities are the Fishing Trip Reports</p>	<p>1) Failure to comply with statistical reporting obligations (ICCAT)</p> <p>2) Identified as possibly operating in CCAMLR region</p>			

Tuvalu	Dec 2014 (2014/C 447/11)		No evidence of Tuvalu-flagged vessels engaged in IUU activities	<ul style="list-style-type: none"> 1) No legal framework or the control over its fleet and waters necessary to adequately sanction offenders 2) Tuvalu's Marine Resources Act lacks explicit definition of IUU fishing activities 	<ul style="list-style-type: none"> 1) Its Tuna Management Plan is outdated and have yet to enact a shark management plan in line with the WCPFC CMM 2) Tuvalu excludes its territorial and archipelagic waters from the application of the VDS, other CMMs (e.g. observer coverage on longline) are not applied adequately 3) Challenges as regards data collection, reporting, and compliance 4) Inability to limit the number of fishing licences and the total allowable catch. 	Jul 2018 (2018/C 253/06)	...”has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing”	
Vanuatu	Nov 2012 (2012/C 354/01)	The warning "identifies concrete shortcomings, such as lack of dialogue or lack of actions to address deficiencies in monitoring, controlling and surveillance of fisheries, and suggests corrective actions to resolve them." (IP/12/1215)	One Vanuatu flagged vessel on IOTC IUU list, subsequently removed	<ul style="list-style-type: none"> 1) Lack of compliance with the IOTC request regarding its IUU vessel 2) No specific rules and measures in the legal system of Vanuatu designed to specifically address IUU fishing infringements committed on the high seas 3) No administrative sanctions to financially penalise fishing operators carrying out illegal fishing activities 	<ul style="list-style-type: none"> 1) Reporting deficiencies (ICCAT) 2) Non-compliance with certain number of CMMs (WCPFC) 	Oct 2014 (2014/C 364/02)	...”has introduced the necessary measures for the cessation of IUU fishing activities in question and the prevention of any future such activities, rectifying any act or omission leading to the notification of the possibility of being identified as non-cooperating countries in fighting IUU fishing”	
Vietnam	Oct 2017 (2017/C 364/03)	Vietnam is not doing enough to fight illegal fishing. It identifies shortcomings, such as the lack of an effective sanctioning system to deter IUU fishing activities and a lack of action to address illegal fishing activities conducted by Vietnamese vessels in waters of neighbouring countries, including Pacific Small Island Developing States. Furthermore, Vietnam has a poor system to control landings of fish that is processed locally before being exported to international markets, including the EU.	<ul style="list-style-type: none"> 1) 8 Vietnamese-flagged vessels involved in IUU infringement within third countries’ EEZ in SIDS CWP area between 2015 and 2017 2) Fished without a licence and against conservation measures in force 3) Issues with port control of Antarctic toothfish fisheries 4) Lack of control and inconsistencies 	<ul style="list-style-type: none"> 1) Outdated legal framework and deficient monitoring, control, and surveillance framework 2) Fisheries Law 2003 does not oblige vessels to report their catches. Do not address the fishing activities of Vietnamese vessels in high seas and waters of third States. 4) Lack of alignment with international obligations 	<ul style="list-style-type: none"> 1) Not ratified the 2009 FAO PSMA 2) Identified by the CCAMLR as a non-contracting party possibility involved in the harvest, landing or trade of toothfish but not cooperating with the catch documentation scheme 			

Country	Rationale Summary	Recurrence of IUU vessels and IUU trade flows (Article 31(4)(a) of the EU-IUU Regulation)	Failure to cooperate and to enforce (Article 31(5)(b), (c) and (d) of the EU-IUU Regulation)	Failure to implement international rules (Article 31(6) of the EU-IUU Regulation)	Listing	Rationale	Delisting	Rationale
Belize	"Despite the EC working closely with the state's authorities to set up fisheries management and effective control measures, they have still not addressed structural problems and have failed to show real commitment to tackling the problem of illegal fishing." (IP/13/1162)	1) The number of the vessels that carried the flag of Belize in the RFMO IUU vessels list increased. 2) Aquatic Living Resources Bill not adopted nor submitted to the House of Representatives, with no concrete timetable for its enactment and implementation 3) Draft National Plan of Action of Belize to fight IUU not adopted	1) No new sanctions for IUU vessels 2) No new deterrent sanctioning system	1) Still not compliant or only partially compliant with area closure, VMS etc. (IOTC) 2) No detailed timetable for implementation of VMS, observers, etc. (IOTC)	Mar 2014 (2014/170/EU)	"The main shortcomings identified by the EC in the suggested plan of action were related to several failures to implement international law obligations, linked in particular to the failure to adopt an adequate legal framework, the lack of adequate and efficient monitoring, the lack of a control and inspection scheme, the lack of a deterrent sanctioning system, and improper implementation of the catch certification scheme. Other identified shortcomings relate, more generally, to compliance with international obligations, including RFMOs' recommendations and resolutions, and the conditions for the registration of vessels according to international law."	Dec 2014 (2014/914/EU)	1) Introduction of an adequate and efficient monitoring, control and inspection scheme, created a deterrent sanctioning system and ensured the proper implementation of the catch certification scheme. 2) Set up a new system of registration of vessels according to international law. 3) Adoption of its own National Plan of Action against IUU
Cambodia	"Despite the EC working closely with the state's authorities to set up fisheries management and effective control measures, they have still not addressed structural problems and have failed to show real commitment to tackling the problem of illegal fishing." (IP/13/1162)	1) No documentation presented in support of actions undertaken on the presumed illegal fishing activities 2) No concrete plan of action on high seas fishing submitted 3) No legal framework pertaining to legislation of fishing vessels nor a deterrent sanction system	1) Inadequate sanctions (<i>i.e.</i> , IUU vessels deregistered but no fine or other penalties) 2) No progress on cooperation with other countries in enforcement 3) No progress in observer training	1) Lack of response to reporting requests (ICCAT, CCAMRL) 2) No reporting on the progress, observer program, supervision of Transshipment, etc.	Mar 2014 (2014/170/EU)	"The main shortcomings identified by the EC in the suggested plan of action were related to several failures to implement international law obligations, linked in particular to the failure to adopt an adequate legal framework, the lack of adequate and efficient monitoring, the lack of a control and inspection scheme, and to the lack of a deterrent sanctioning system. "		
Cameroon								

Comoros	"Despite the EC working closely with the state's authorities to set up fisheries management and effective control measures, they have still not addressed structural problems and have failed to show real commitment to tackling the problem of illegal fishing." (IP/13/1162)	1) No change in situation regarding the 20 vessels operating outside its EEZ without authorization 2) The lack of control by the Comorian authorities on the Comorian vessels operating outside the Comorian EEZ regarding their fishing activities, landings and transhipments. 3) Not in a position to guarantee the transparency of its markets to allow the traceability of seafood products	1) Failure to cooperate with the EC 2) The Comorian authorities did not report taking any enforcement measures against the vessels operating outside the Comorian EEZ, without an authorisation from the Comorian authorities, as well as outside the area of competence of the IOTC. 3) A 6-month grace period starting from August 2016 had been effectively granted to fishing and fishing-related vessels flying the Comorian flag operating in breach of Comorian law and requirements 4) No concrete decision on deregistration adopted 5) Inadequate deterrent system	1) Partial compliance with IOTC reporting requirement 2) Lack of ratification of other international instruments (e.g., UNFSA, FAO Compliance Agreement, PSMA)	Jul 2017 (2017/1332)	The decision to issue a red card to the Comoros is based on the typical use of its flag as flag of convenience. Most of the Comorian fleet has no connection to the country and operates in breach of national law, mainly in the waters of West Africa. These vessels have been found to disregard the laws applicable in the national waters they operate in, transhipping fish from one vessel to another, a practice related to the laundering of illegal catches.		
Curacao								
Ecuador								
Fiji								
Ghana								
Kiribati								
Korea								
Liberia								
Panama								

Papua New Guinea								
Philippines								
Republic of Guinea	"Despite the EC working closely with the state's authorities to set up fisheries management and effective control measures, they have still not addressed structural problems and have failed to show real commitment to tackling the problem of illegal fishing." (IP/13/1162)	1) No effective control and monitoring of the activities of the Guinean fishing vessels in the high seas 2) Guinean authorities have validated catch certificate of illegal transshipment 3) Fleets continue to operate without international fishing licences 4) No concrete deterrent system implemented (or proposed)	1) Guinea Fisheries Code cannot cover possible illegal fishing activities on the high seas 2) No legal framework for cooperation with EU or RFMOs to follow up IUU fishing activities 3) Absence of VMS, monitoring of bycatch etc. 4) Forged Guinean licences to foreign vessels operating in the Guinean waters, and no criminal investigations nor proceedings	1) Still not compliant with RFMO CMMs (IOTC) 2) Failure to provide requested information (ICCAT)	Mar 2014 (2014/170/EU)	"The main shortcomings identified by the EC in the suggested plan of action were related to reforms still dues in order to ensure a sufficiently adequate and efficient monitoring of its fishing fleet, an effective implementation of national law and regulations on fisheries, enforcement of the rules by pursuing and sanctioning the IUU fishing activities detected, reinforcement of the means for inspection and surveillance, deterrent sanctioning system, fisheries policy consistent with administrative capacity in terms of control and surveillance."	Oct 2016 (2016/1818)	1) Introduction of an adequate and efficient monitoring, control and inspection scheme, created a deterrent sanctioning system and ensured the proper implementation of the catch certification scheme (<i>i.e.</i> , aerial surveillance, VMS) 2) Set up a new system of registration of vessels according to international law. 3) Introduction of technical, conservation and management measures to ensure a reasonable balance between the fishing licences delivered, resources available and local control and enforcement capacities
Sierra Leone								
Solomon Islands								
Sri Lanka	"Sri Lanka has not sufficiently addressed the shortcomings in its fisheries control system identified in November 2012. The main weaknesses include shortcomings in the implementation of control measures, a lack of deterrent sanctions for the high seas fleet, as well as lacking compliance with international and regional fisheries rules." (IP/14/1132)	1) Recurring IUU activities by Sri Lankan flagged vessels 2) A revised Fisheries Act still not applicable 3) Licences issued without a predetermined procedure and sanctions still inadequate	1) Failure to put in place a deterrent sanctioning system for its large vessels 2) Persistent IUU practices	1) Continued failure to fulfil its reporting obligations (IOTC) 2) Failure to comply with its VMS obligations (IOTC)	Oct 2014 (2014/715/EU)	Sri Lanka has not sufficiently addressed the shortcomings in its fisheries control system identified in November 2012. The main weaknesses include shortcomings in the implementation of control measures, a lack of deterrent sanctions for the high seas fleet, as well as lacking compliance with international and regional fisheries rules.	Jun 2016 (2016/992)	1) Introduction of an adequate and efficient monitoring, control and inspection scheme (<i>i.e.</i> , logbooks, radio call signs for fishing vessels, and VMS) 2) Creation of an efficient deterrent sanctioning system. 3) Revision of the fisheries legal framework and proper implementation of the catch certification scheme.

St Kitts and Nevis								
St Vincent and Grenadines	<p>...”strong indications that Saint Vincent and the Grenadines had failed to discharge the duties, incumbent upon them under international law as flag, port, coastal or market State, to take action to prevent, deter or eliminate IUU fishing.”</p>	<p>1) At least 2 vessels flagged to Saint Vincent and the Grenadines involved in IUU in 2015 and 2016 2) Removal of a fishing vessel from the register without penalties 3) Lack of cooperation with coastal states regarding its vessels 4) Lack of monitoring of its vessels operating within ICCAT area and landing in Trinidad and Tobago ports</p>	<p>1) Saint Vincent and the Grenadines was not in a position to monitor its vessels operating in the high seas, in third countries' waters or calling in third countries ports. 2) Lack of definition of serious infringements and comprehensive list of serious offences to be addressed with proportionate sanctions.</p>	<p>1) The country is not fulfilling the member-duty to adopt, with respect to its nationals, measures for the conservation of the living resources of the high seas implemented by the ICCAT. 2) Late submission of its annual report, North Atlantic swordfish management plan and compliance table to ICCAT</p>	Jul 2017 (2017/1333)	<p>For Saint Vincent and the Grenadines the decision comes due to the lack of control by the authorities of vessels flying their flag. These vessels operate all over the Atlantic and offload their catches in Trinidad and Tobago (which has already been warned in order to improve control over activities in its ports). Effectively, these vessels elude any control over their activities. This raises the concern that they are involved in illegal practices. Two vessels from Saint Vincent and the Grenadines are already on the international vessel "black list" compiled by the RFMOs.</p>		
Taiwan								
Thailand								
Togo								
Trinidad and Tobago								
Tuvalu								
Vanuatu								
Vietnam								

