



A Trade-Based Analysis of the Economic Impact of Non-Compliance with Illegal, Unreported and Unregulated Fishing: The Case of Vietnam

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Abbreviations

ASC	Aquaculture Stewardship Council
ASEAN	Association of Southeast Asian Nations
COVID-19	Coronavirus Disease
CPTPP	The Comprehensive and Progressive Agreement for Trans-Pacific Partnership
CV	Chevaux vapeur (horsepower)
EEZ	Exclusive Economic Zones
EIF	Entry into Force
EU	European Union
EUR	European Union Euros
EVFTA	European Union-Vietnam Free Trade Agreement
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GSO	General Statistics Office of Vietnam
GSP	Generalized Scheme of Preferences
HS4/6	Harmonized Commodity Description and Coding System four or six-digit codes
IFTP	International Fisheries Trade Permit
ITDS	International Trade Data System
IUU	Illegal, Unreported and Unregulated fishing
kg	Kilograms
m	Meters

MARD	Ministry of Agriculture and Rural Development
MCS	Monitoring, Control and Surveillance
MEP	Member of the European Parliament
MPA	Marine Protected Area
NOAA	National Oceanic and Atmospheric Administration of the United States
OECD	Organisation for Economic Co-operation and Development
PROBLUE	World Bank's Program for the Blue Economy
PROFISH	World Bank's Global Program on Fisheries
PSMA	Port State Measures Agreement
RFMO	Regional Fisheries Management Organization
SIMP	Seafood Import Monitoring Program
t	Tons
UNFSA	United Nations Fish Stocks Agreement
UNSD	United Nations Statistics Division
USD	United States Dollar
VASEP	Vietnam Association of Seafood Exporters and Producers
VIFEP	Vietnam Institute of Fisheries Economics and Planning
VMS	Vessels Monitoring System
WCPFC	Western and Central Pacific Fisheries Commission
WWF	World Wide Fund for Nature

Preface and Acknowledgments

Vietnam's fisheries industry has rapidly transformed itself into a commodity-oriented industry with its exports reaching close to 9 billion US Dollars (USD) a year. Fishery and aquaculture commodities represent Vietnam's fifth largest export in value, accounting for approximately 4 percent of the country's exports in 2018. In 2016, the industry also contributed to approximately 5 percent of Gross Domestic Product (GDP) and provided a total of 4.7 million formal jobs (approximately 5 percent of total formal sector jobs), including around 2 million direct jobs and 2.7 million indirect jobs along fisheries value chains. Around 8.5 million people (10 percent of the total population) derive their main income directly or indirectly from fisheries. As of 2019, the country produced approximately 8.2 million tons of finfish and shellfish, of which capture fisheries accounted for 46 percent and aquaculture had a share of 54 percent. In terms of value, aquaculture's share is higher – at around 75 percent of the total value of the industry.

As a key player in the global market, Vietnam has prioritized the development of sustainable fisheries. The country, however, is challenged by a number of issues including illegal, unreported and unregulated (IUU) fishing and food safety. These issues are being addressed in order for Vietnam to boost its competitiveness and maintain the sustainability of its fisheries sector. As part of these efforts, a shift from quantity to quality could enable Vietnam to meet its growth targets for the fisheries sector and seize emerging opportunities in a more competitive manner, as consumer markets become more sensitive to food standards and sustainability considerations.

This report is part of a series of World Bank-led studies that aim to contribute to Vietnam's efforts to boost its marine economy in a sustainable and climate resilient manner.¹ This report focuses on examining the potential impact of the IUU yellow card that was issued to Vietnam by the European Union (EU). The analysis underscores the importance of implementing measures that will address the management, governance and monitoring issues raised by the IUU yellow card and, more importantly, support sustainable fisheries.

¹ To date, other studies from this series cover the following topics: Situation Assessment of Integrated Coastal Zone Management (ICZM) in Vietnam; Supporting Resilient Coastal Economies: Guidance for Valuing Natural Assets in Coastal Areas and Establishing Coastal Setback Lines; Informing the Operationalization of Vietnam's Marine Strategy: Insights from International Experiences; and Mobilizing the Private Sector in Shrimp Aquaculture Activities in Vietnam.

The study is funded by two World Bank managed global partnerships – the Global Program on Fisheries (PROFISH) and the Program for the Blue Economy (PROBLUE). PROFISH was established with key donors and stakeholders to engage the World Bank in improving environmental sustainability, human wellbeing, and economic performance in the world’s fisheries and aquaculture, with a focus on the welfare of the poor in fisheries and fish farming communities in the developing world. The mission of PROFISH is to promote and facilitate the contribution that fisheries and aquaculture can make to poverty reduction, sustainable economic growth, better nutrition and economic opportunities for women. In November 2018, PROFISH became part of PROBLUE – a new umbrella multi-donor trust fund, housed at the World Bank, that supports the sustainable and integrated development of marine and coastal resources in healthy oceans. PROBLUE is fully aligned with the World Bank’s twin goals of ending extreme poverty and increasing the income and welfare of the poor in a sustainable way. This report uses PROBLUE financing associated with the fund’s pillar on building government capacity to manage marine resources in an integrated way to deliver more long-lasting benefits to countries and communities.

The report is prepared by the following persons: Mr. Nguyen Hoai Nam (Deputy General Secretary, VASEP), Dr. Nguyen Tien Thong (Nha Trang University, Copenhagen Business School), and Ms. Le Hang (Deputy Director, VASEP). From the World Bank, the team overseeing this work included: Diji Chandrasekharan Behr (Senior Natural Resources Economist), Lan Thi Thu Nguyen (Senior Environmental Economist), Xavier Vincent (Lead Fisheries Specialist) and Mizushi Satoh (Environmental Specialist), Dung Thuy Vu (Program Assistant), and Christine Horansky (editor).

Executive Summary

Illegal, unreported and unregulated (IUU) fishing is a threat to the sustainable use of fishing resources. To eliminate the destructive fishing practices, the whole value chain of fish trade needs to be well regulated. Trade-related policy measures show potential for contributing towards the elimination of unsustainable fishing practices.

The EU's launch of the IUU-combating fishing program and the introduction of measures to deal with countries that exploit, produce and export fishery products with illegal fishing origin, is indispensable in addressing harmful trends and a concern of the whole world, especially the fishing community. The program includes the flagship use of a warning card system. The EU is a very important trading partner for Vietnam and major importer of Vietnam's fish products, of which seafood plays an important role. The EU market helps pave the way for Vietnamese seafood to enter the world market. Vietnam's seafood export to the EU has increased sharply over the past 20 years, from USD 90 million in 1999 to nearly USD 1.5 billion in 2017 (and since decreased to closer to USD 1.3 billion in 2019).

The year of 2017 marked a critical turning point for Vietnam's fisheries when the EU issued a yellow card warning to Vietnam for not cooperating and making enough efforts to combat IUU fishing. The EU made nine recommendations to improve the Vietnamese fisheries management system following the warning. Over the past two years, the Government of Vietnam, ministries and the entire Vietnamese fishing community have actively improved to meet the recommendations of the EU to remove the IUU yellow card. The EU has appreciated Vietnam's efforts to combat IUU exploitation, however, so far, the IUU yellow card has not yet been removed. In the past two years, the quantity of seafood exports to the EU have decreased significantly, showing the immediate impact of the yellow card warning on Vietnam's seafood industry. However, that is only part of the negative impact as visible in export figures. There will be many other consequences from the IUU yellow card warning and the impact will be more serious if Vietnam does not remove the yellow card soon or receives a red card warning.

The main objective of this study is to assess the economic impact of the IUU yellow card, and a possible red card, on Vietnam's fisheries sector in the short term and medium term. The study analyses case studies (Thailand's yellow card and Sri Lanka's red card), trade flow, and updated data in order to assess the economic losses for the worst-case scenario.

The study shows that capture fishery has borne direct impacts from IUU regulations and the receipt of the yellow card. In contrast, there have been more indirect impacts on aquaculture. The most immediate short-term impact for Vietnam seafood would be a trade ban from the European Commission if the country fails to address the requirements for combating IUU fishing. It is estimated that the total Vietnam seafood sector would lose an estimated amount of USD 480 million if it lost the EU market. Of this amount, capture fisheries, including tuna, swordfish, mollusk, cephalopod, and other marine species, would lose around USD 387 million per year. The indirect impacts for aquaculture stem from an increasingly negative reputation, the increasing burden of custom control, and missing the opportunities to take advantage of the Vietnam - European Union Free Trade Agreement (EVFTA)'s preferential tax levels. The aquaculture sector could lose around USD 93 million from the indirect impacts. The medium-term impact if the ban lasts for 2-3 years would mean the disruption of the Vietnamese seafood sector, as a result of which there could be a decline of at least 30 percent in earnings for capture fisheries.

The report also reviews the new challenges faced by the seafood sector as a result of the Coronavirus Disease (COVID-19) pandemic. Currently, there are many difficulties facing seafood producers. However, if Vietnam can remove the IUU yellow card soon, taking advantage of tariff preferences and institutional changes from EVFTA, the opportunity to recover and grow back in the EU market is very feasible. This shows the need for reasonable and effective solutions to quickly overcome the yellow card. Doing so could bring the fishery industry closer to achieving the annual growth target of 7-9 percent in exports and reaching USD 16-18 billion for export by 2030.



Vietnam Seafood Production

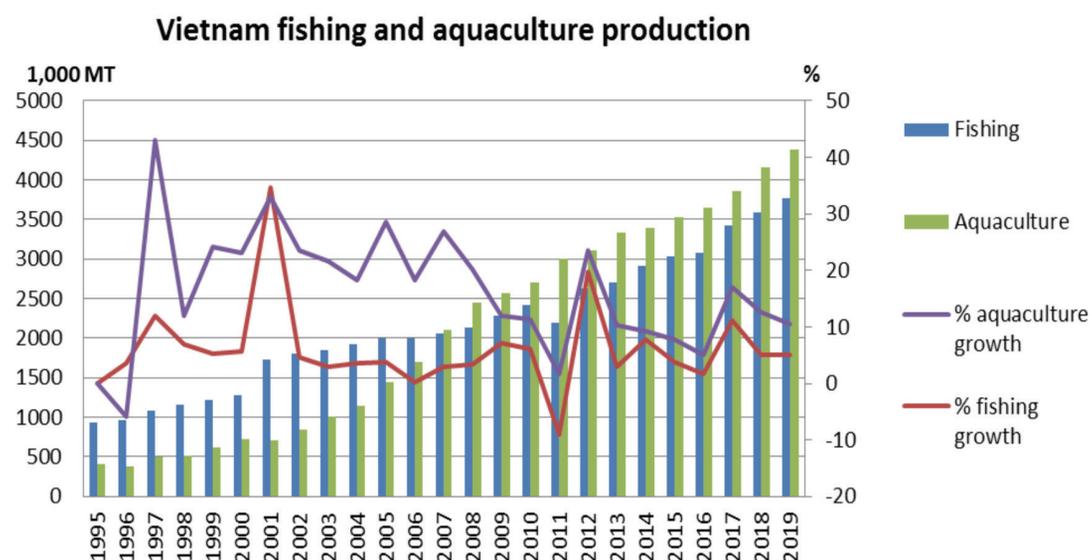
1.1. Overview of Vietnam's Seafood Industry

Vietnam is one of the largest seafood producers in the world, with a high growth rate. According to the Vietnam Association of Seafood Exporters and Producers (VASEP), the country produced over 8.15 million tons (t) of finfish and shellfish in 2019 (VASEP, 2020), of which capture fisheries accounted for 46 percent and aquaculture accounted for 54 percent of total volume. Aquaculture accounted for about 75 percent of the total value and its farming volumes are growing faster than that of fisheries. Vietnam is the world's third largest seafood exporter. Its seafood export value increased from USD 1.8 billion in 2000 to USD 8.6 billion in 2019, of which aquaculture contributes USD 5.3 billion and capture contributes USD 3.3 billion as of 2019 (VASEP, 2020).

Figure 1 presents Vietnam's seafood production during the period of 1995 to 2019. Over the last decade (2009–2019), production increased sharply; with output increasing from 4.9 million tons in 2009 to 8.15 million tons in 2019, an average annual growth rate of five percent. During

the same period, aquaculture production increased significantly; from 2.6 million tons in 2009 to 4.4 million tons in 2019, resulting in an average annual growth rate of six percent. The most important farming species in Vietnam are pangasius (catfish) and shrimp. Aquaculture practices are concentrated in the Mekong Delta, accounting for 95 percent of total pangasius production and 80 percent of total shrimp production (VASEP, 2020).

FIGURE 1. Vietnam’s Capture Fisheries and Aquaculture Production, 1995–2019 (VASEP, 2020)



As presented in Table 1, the Mekong Delta is the most important area for aquaculture, while the North and Central coastal areas are the main regions for capture fisheries, and the Red River Delta in the North and highland regions are important for fresh-water fisheries and aquaculture.

TABLE 1. Vietnam’s Capture Fisheries And Aquaculture Production By Region, 2010-2018 (tons)

	2010	2015	2016	2017	2018
WHOLE COUNTRY	5,142,745	6,582,139	6,870,703	7,313,400	7,768,516
Red River Delta	592,266	826,369	876,684	943,381	1,008,412
Northern midlands and mountain areas	75,428	113,760	122,698	131,861	140,516
North Central and Central coastal areas	1,086,137	1,463,965	1,501,234	1,619,060	1,718,349
Central Highlands	24,258	38,176	39,350	42,479	45,755
South East	364,542	436,421	467,416	480,616	494,271
Mekong River Delta	2,999,114	3,703,448	3,863,322	4,096,004	4,361,213

Source: General Statistics Office of Vietnam (GSO), 2019

In general, Vietnam has great advantages for developing both fisheries and aquaculture. The country has a long coastline, sea area is three-fold that of the mainland, and it possesses a favorable climate as well as much biodiversity. The seafood processing industry is very well developed and plays an important role in the economy.

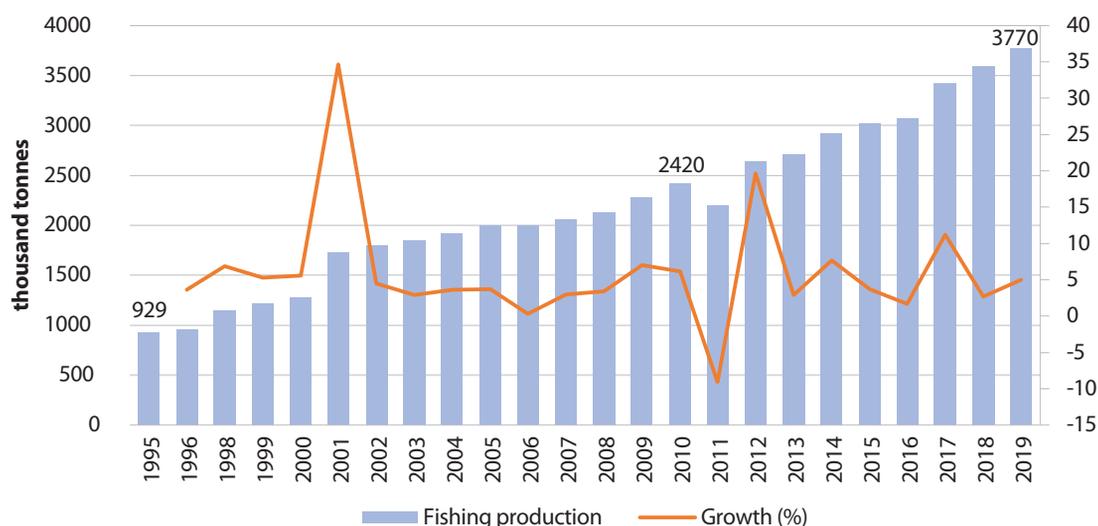
1.2. Capture Fisheries

Over the past 30 years since the economy's reform, Vietnam capture fisheries development has grown at about 5 percent per year and reached a total of 3.7 million tons in 2019 (Figure 2). The capture fisheries sector is characterized as small scale, with the majority of fishing vessels having below 90 horsepower (*chevaux vapeur*, CV). Fishermen operate individually with small fishing vessels, mainly undertaking near-shore fishing with low productivity, and multi-species fisheries. The exact composition of their catch is hard to document, as authorities do not compile detailed catch statistics. According to Thuoc and Long (1997), marine fishers in Vietnam land over 2,000 fish species, both demersal and pelagic, predominantly using trawls, but also gillnets, hooks and lines, lift nets, purse seines, and fixed nets. Of the 2,000 fish species, about 70 percent are associated with tropical waters and the remaining 30 percent with sub-tropical waters, especially in the Gulf of Tonkin. Inland fisheries (estimated at 200 thousand tons per year) also rely on a range of freshwater fish and, to a lesser extent crustaceans, however for coastal fisheries, there is little information available to document catch composition. The hard-to-trace nature of multi-species and small-scale fisheries leads to difficulties in managing and combatting illegal fishing practices.

A sizeable share of the harvest volume is made up of low-value products, such as small or juvenile fish, low-value species, and fish spoiled by poor post-harvest conservation practices. This explains why the total value of the wild catch is worth less than half the value of the farmed production, despite being of similar volume. Sometimes referred to as “trash fish”, low-value fish are often used to produce aquaculture feed as well as fish sauce (DERG and CIEM, 2010). In 2016, Vietnam produced 2.8 million tons of aquaculture feed (Alltech, 2016), making the country the second largest producer globally, just behind China. Because Vietnam has a market for low-value fish, discarding is not widely practiced. Only large trawlers going out to sea for several days are believed to discard significant volumes of low-value fish, up to about 60 percent of the total catch (Long, 2003).

While accounting for only about 2 percent of the total value of fisheries (Zeller and Pauly, 2015), tuna and billfishes are the most important target species for offshore fishers. The effort focuses mainly on skipjack (*Katsuwonus pelamis*), which is caught all year round, as well as bigeye (*Thunnus obesus*) and yellowfin (*Thunnus albacares*), which are caught between December and June. The tuna fleet mainly uses long lines, purse seines and gillnets. There is some uncertainty regarding the total volume of tuna landed by Vietnamese fleets, but it seems that the catches of offshore fleets have increased at least four-fold in volume since 2010, mainly thanks to growing harvests of skipjack.

FIGURE 2. Vietnam's Capture Fisheries Volume and Growth, 1995-2019



Vietnamese marine fishers also harvest a wide variety of crustaceans (mainly shrimp, prawn, lobster and crab), cephalopods (cuttlefish, squid, and octopus) and mollusks. In particular, Vietnam's waters are home to over 100 species of shrimp, about half of which are commercially harvested, mainly in the shallow waters along the coast of the Gulf of Tonkin and in the Mekong Delta (Thuoc and Long, 1997). According to the Vietnam Institute of Fisheries Economics and Planning (VIFEP), harvests of marine shrimp more than doubled over the last twenty years and currently account for about 20 percent of the total harvest value (Zeller and Pauly, 2015).

TABLE 2. Vietnam Fishery Capture Volumes by Region, 2010-2018 (tons)

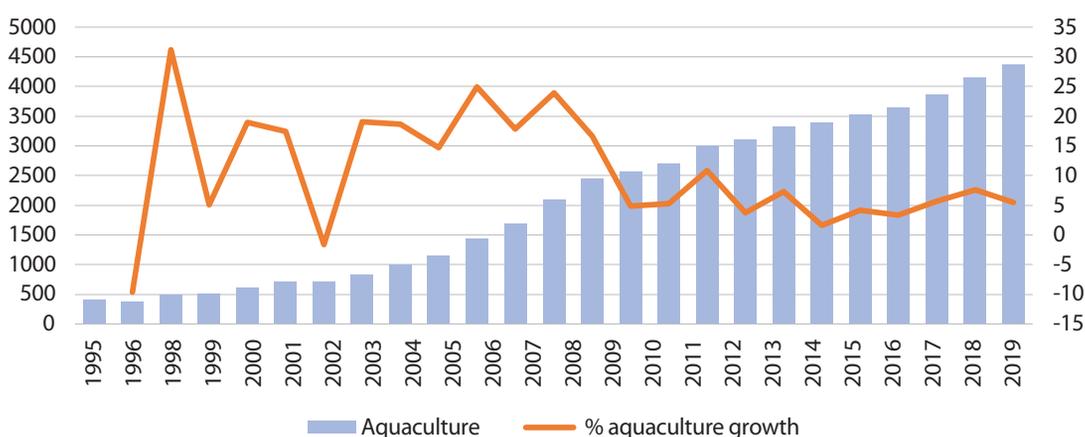
	2010	2015	2016	2017	2018
WHOLE COUNTRY	2,414,411	3,049,944	3,226,095	3,420,500	3,606,700
Red River Delta	198,403	245,455	261,596	280,429	305,391
Northern midlands and mountain areas	9,636	10,998	11,152	12,010	12,338
North Central and Central coastal areas	911,165	1,239,264	1,275,809	1,386,873	1,47,518
Central Highlands	3,883	4,733	6,713	7,168	7,770
South East	278,766	317,323	344,143	353,009	362,186
Mekong River Delta	1,012,558	1,232,171	1,326,682	1,381,011	1,443,497

The most important harvest regions are the Mekong River Delta and the Northern Central and Central coastal areas, which together account for about 80 percent of the total harvested volume (Table 2). Phu Yen, Khanh Hoa, and Binh Thuan are the most important fisheries provinces in the Central regions, while Kien Giang is the main fishing province of the Mekong Delta.

1.3. Aquaculture

Aquaculture production systems in Vietnam are dominated by farms cultivating fish and other aquatic species in fresh and brackish water. Marine aquaculture has been introduced only recently and accounts for only about 4 percent of the area used for aquaculture in the country. Key aquaculture species include pangasius (catfish), prawns and shrimps (in particular, giant tiger prawn and whiteleg shrimp), and to a lesser extent, tilapia². Figure 3 presents the data for aquaculture production from 1995 to 2019.

FIGURE 3. Vietnam's Aquaculture Production Volume (Thousand Tons) and Annual Growth (Percent), 1995–2019



Production systems are diversified according to geographic and climatic conditions (Aquaculture Vietnam, 2017). The Northern region is dominated by freshwater fish ponds, rice-cum-fish and marine cage aquaculture. The Central region is dominated by the intensive culture of giant tiger prawn and marine cage aquaculture of finfish and lobster. Aquaculture in the Southern part of the country is the most diverse. Farming activities in the region include pond, fence and cage aquaculture of catfish, aquaculture of several indigenous species such as snakehead fish, climbing perch and giant river prawn, various intensification levels of shrimp aquaculture, and integrated aquaculture such as rice-cum-fish, rice-cum-prawn and mangrove-cum-fish.³ The

2 Lately, whiteleg shrimp is increasing its market share and replacing tiger prawn, mainly due to its shorter production cycle of 3-4 months, instead of 6 months for tiger prawn (Flaaten, 2018). Marine aquaculture is, however, slowly finding its way to the seafood supply chain. Increasing quantities of bivalves and marine fishes such as cobia, seabass and grouper, are produced each year. Vietnam is also working on diversification of its rapidly growing aquaculture industry. For example, four species of sturgeon are being spawned in commercial numbers in the Vietnamese highlands where cooler waters and a more temperate climate allow production of caviar. This enables diversification through production of a product different than normally associated with a tropical climate (Aquaculture Vietnam, 2017).

3 Rice-cum-fish and rice-cum-prawn refer to production of fish and prawn in rice fields, where they grow until harvest, along the rice paddy. Similarly, mangrove-cum-fish are fish cultured in mangrove forests.

majority of the output originates from the Mekong River Delta, which accounts for around 70 percent of Vietnam’s total farmed fish production and 80 percent of total farmed shrimp production (Table 1).

TABLE 3. **Vietnam’s Aquaculture Production by Region, 2010-2018 (tons)**

	2010	2015	2016	2017	2018
WHOLE COUNTRY	2,728,334	3,532,246	3,644,608	3,892,900	4,161,816
Red River Delta	393,863	580,915	615,087	662,952	703,022
Northern midlands and mountain areas	65,792	102,762	111,546	119,851	128,178
North Central and Central coastal areas	174,972	224,701	225,425	232,188	242,831
Central Highlands	21,375	33,443	32,637	35,311	37,984
South East	85,776	119,098	123,273	127,606	132,085
Mekong River Delta	1,986,556	2,471,327	2,536,640	2,714,992	2,917,716

The Mekong Delta is the hub of aquaculture production of Vietnam. The region contributes around 70 percent of the total aquaculture production of the country (Table 3). Pangasius and shrimp are the main species farmed in the region and are major products of Vietnam’s seafood exports.

1.4. Contribution to the Economy

With an export value of nearly USD 9 billion per year, fishery and aquaculture is a key national economic sector for Vietnam, contributing 9-10 percent of total export turnover, ranking fifth in export value (behind telephone, textiles, electronics, and footwear) and representing 4-5 percent of GDP. The industry provides about 4.7 million direct and indirect jobs across all production chains of the country (VINAFIS). In particular, the processing and seafood export sector currently creates about 300,000 direct jobs.

Overall, between 1995 and 2016, employment in the seafood sector more than tripled. The aquaculture subsector alone saw the number of jobs more than quadruple over the same time period. However, most of this growth occurred before 2006. Since then, the level of employment has stabilized. In 2016, the seafood sector accounted for about 5 percent of the total labor force in Vietnam, considerably more than the average of 0.5 percent for countries in the Organisation for Economic Co-operation and Development (OECD).⁴

4 Total labor force was sourced from the International Labour Organization (ILO) ILOSTAT database in April 2019. This indicator is part of the ILO Estimates and Projections series, analysed in the ILO’s World Employment and Social Outlook reports. The OECD average was based on the 13 countries for which data were available in OECD.Stat for fisheries, aquaculture and processing sectors.

However, despite unprecedented growth on all fronts, the importance of the seafood sector is declining in relative value to the rest of economy because of even faster growth in the non-agricultural economy. The combined shares of agriculture and seafood in GDP and in employment have fallen from, respectively, 39 percent in 1990 to 16 percent in 2016 (World Bank, 2018) and 75 percent in 1991 to 42 percent in 2016 (ILOSTAT, 2018).

A more detailed picture of the importance of fisheries and aquaculture to households in Vietnam is derived every five years, when the Rural, Agricultural and Fishery Census is conducted. The last census took place in 2016, showing important variation in terms of socio-economic importance throughout the country. The census results suggest that about 4 percent of Vietnamese rural households derive their income mainly from fisheries and aquaculture (635,112 households in total) at the national level.⁵ However, in the Mekong River Delta region, where the highest percentage of households depending on seafood production was recorded, more than one household in ten derives their income mainly from fisheries and aquaculture (10.8 percent).

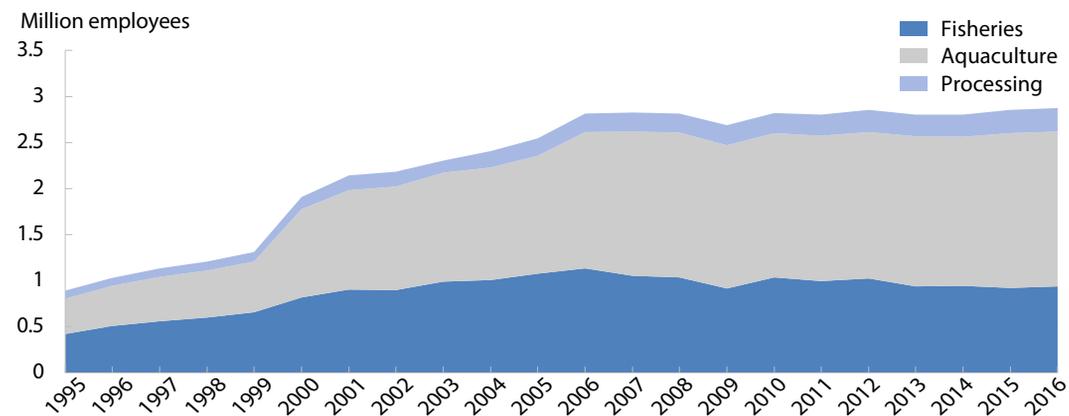
In line with employment numbers, census results confirm that the seafood production sector is consolidating. Despite continued production growth, since 2011, the numbers of households depending on seafood production and seafood “production units”, which include fishery and aquaculture enterprises, cooperatives and households, have both stabilized. The number of households involved in aquaculture specifically has decreased by 1 percent, but the fall in reliance on small-scale production (that is, farms with a cultivated area of less than 0.2 ha) was four times greater. Along the same line, Rurangwa et al. (2016) note that the number of small-scale farms producing pangasius has declined considerably since 2000.

The Vietnamese government would like to see this seafood production boom continue in the future, in particular through the continued growth of aquaculture production and, to a lesser extent, further expansion of large-scale offshore fishing. The future of Vietnamese seafood development, and the feasibility of the Government’s plans, however, hinge on better policies that address pressures on natural resources and challenges in the global market.

The increase in fleet size has also generated new employment opportunities in the sector: between 1995 and 2016, employment in capture fisheries has more than doubled from 420,000 people to nearly a million (Figure 4).

5 Following GSO specification, these are fishery households, that is households with all or most of the active individuals engaged in aquaculture and fishing.

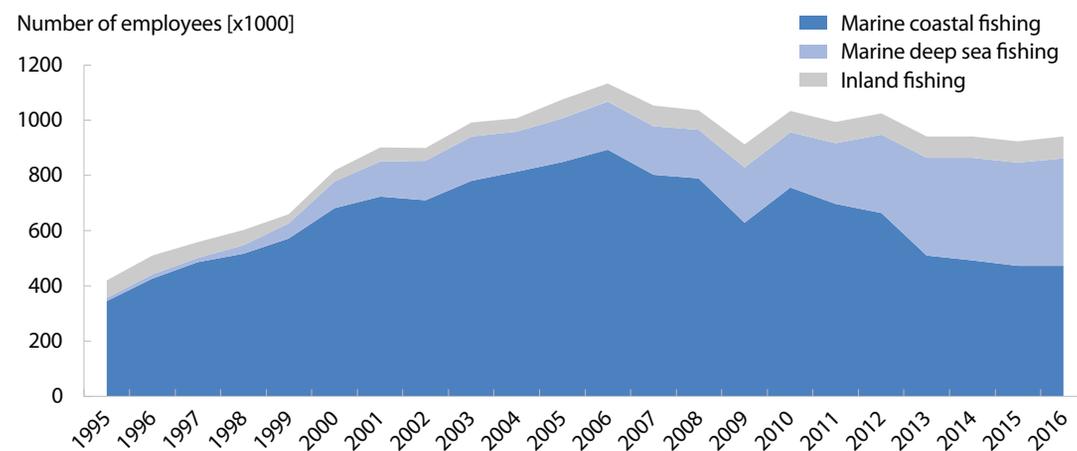
FIGURE 4. **Employment in Vietnamese Fisheries and Aquaculture, 1995-2016 (VIFEP, 2017)**



Note: Missing values for employment in the processing sector for 2006 and 2009 were extrapolated based on the average between the two neighboring values.

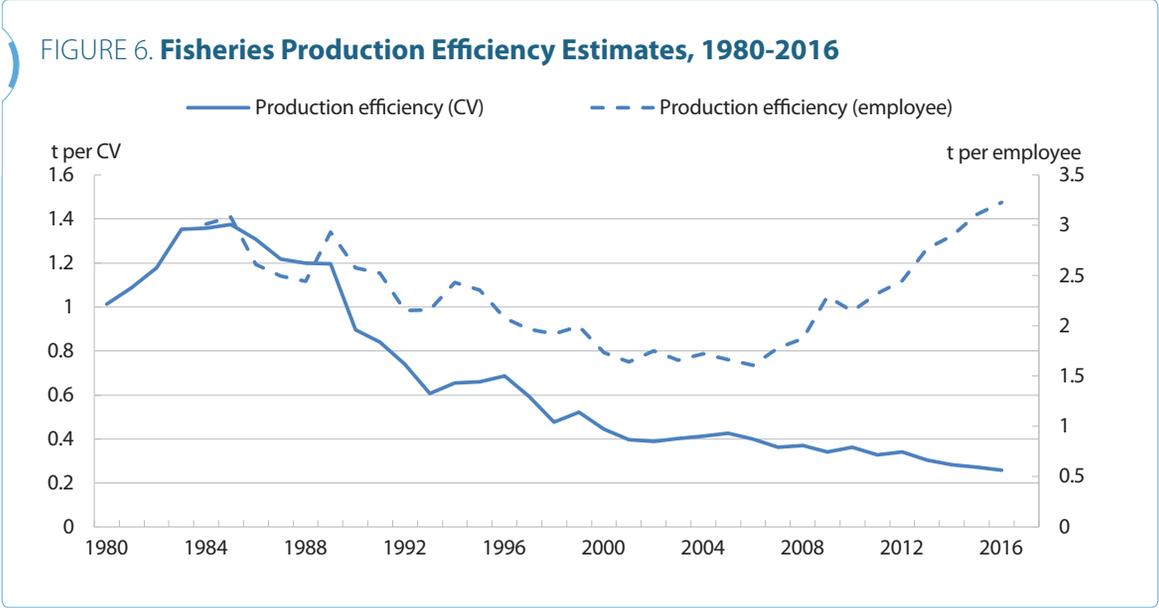
Both the increase in large-scale vessel capacity, and the shift in employment structure across the different fleet segments, show a restructuring of the Vietnamese fleet towards larger scale deep-sea fishing and away from coastal fishing since the 1990s (Figure 4 and 5). This shift has been initiated by government support to invest in larger and more powerful boats capable of exploiting offshore resources. This effort has been motivated, in part, by the suspected overexploitation of marine resources close to the shore and by aspirations to elevate Vietnam to a status of regional maritime power (Fau, 2015).⁶

FIGURE 5. **Employment Structure in Vietnamese Fisheries, 1995-2016 (VIFEP, 2017)**



6 A report to the European Parliament notes: “The government also encourages Vietnam’s fishing fleet to sail out into disputed waters and provide a maritime defence function as part of a fishing militia. In 2009, Vietnam’s National Assembly passed the Law on Militia and Self-Defence Forces that paved the way for the ‘fishing militia’ to officially operate. [...] An estimated 8000 vessels and 1.22 per cent of Vietnam’s maritime labour are members of the fishing militia” (Fau, 2015).

Comparing fleet capacity and harvest statistics suggests a decreasing efficiency of the Vietnamese fisheries sector (Figure 6). This was particularly the case during the 1980s and 1990s, as shown by the strongly declining trend in catch per unit of effort. The fleet grew more than twice as quickly as production in volume between 1995 and 2016. Average output per employee has however recovered its early 1980s level, with a steady increase since the mid-2000s, after two decades of decline.



Note: Fleet production efficiency is measured in catch per unit of effort (CPUE), that is, catch volume (in tons) per unit of vessel power (CV). Source: Fleet capacity (in total CV) and the total number of employees in the fisheries sector were sourced from Thuoc and Luong (1997) for years prior to 1995; both statistics were reported by VIFEP as of 1995. Production volume was sourced from the Food and Agriculture Organisation (FAO) of the United Nations (2019) for years prior to 1990 and from the General Statistics Office of Vietnam (GSO) from 1990 onward.



2

Markets of Vietnam's Seafood Industry

2.1. Export Markets

Driven by growing global demand for food, and for seafood in particular, Vietnamese seafood exports have increased significantly. The value of exported seafood increased from USD 1.8 billion in 2000 to nearly USD 8.6 billion in 2019 (VASEP, 2010). This has made Vietnam the world's third largest exporter of seafood, after China and Norway, according to the United Nations Statistics Division (UNSD, 2018). The main markets to which Vietnam exports its seafood are the European Union, United States (US), Japan and China (Table 4). However, because of even faster growing trade in other products and services, the share of seafood in total export value has decreased from over 12 percent in the early 2000s to 4 percent in 2017 (UNSD, 2018).

TABLE 4. Vietnam's Export of Seafood by Commodities and Markets, 2019 (VASEP, 2020)
(USD million)

Products	2019	Change vs. 2018 (percent)	Markets	2019	Change vs. 2018 (percent)
AQUACULTURE PRODUCTS	5,367.507	-7.7	The US	1,473.979	-9.2
Shrimp:	3,362.862	-5.4	Japan	1,462.107	6.1
- Whiteleg shrimp	2,358.076	-3.4	China	1,417.208	17.0
- Black tiger	687.149	-15.9	EU	1,297.233	-11.9
Pangasius	2,004.645	-11.4	The UK	280.615	-12.7
CAPTURE PRODUCTS	3,210.990	8.3	Netherlands	217.214	-26.9
Tuna:	719.464	10.2	Germany	188.245	-3.1
- HS code 16 (processed)	415.196	25.8	South Korea	782.893	-9.4
- HS code 03 (frozen/fresh/chilled tuna)	304.268	-5.8	ASEAN	692.129	3.4
Mollusk	676.241	-11.6	Canada	229.857	-4.1
- Squid and octopus	576.656	-14.2	Australia	208.309	-22.9
- Bivalve mollusk	93.642	5.6	Mexico	111.796	-3.2
Crabs and other crustaceans	148.996	11.0	Russia	102.799	18.8
Other finfish (except tuna and pangasius)	1,666.284	16.2	Other markets	800.182	-8.3
TOTAL	8,578.491	-2.5	Total	8,578.491	-2.5

Vietnam's total seafood exports reached a peak in 2018 with a value of USD 8.8 billion. The annual growth rate of the country's seafood exports, on average, is about 5 percent during the period from 2005 to 2019 (Figure 7).

FIGURE 7. Vietnam's Export Value of Seafood, 2005-2019 (VASEP, 2020)

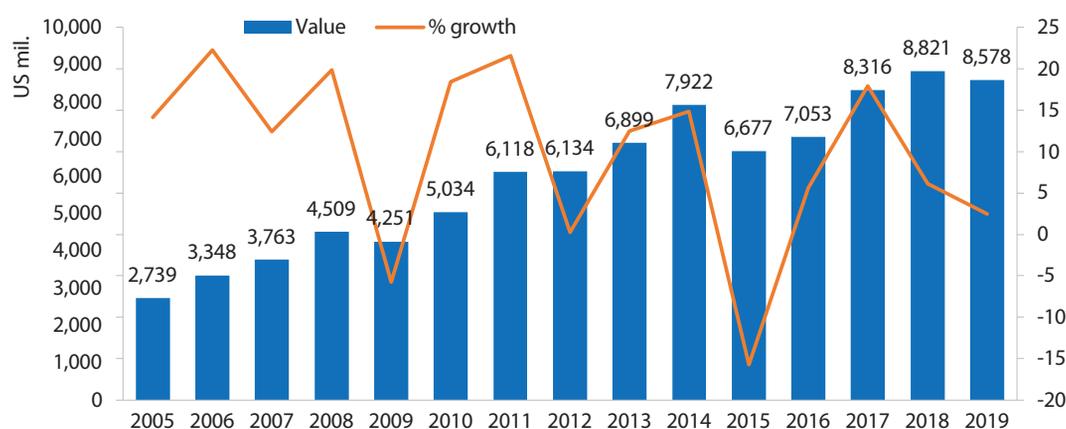
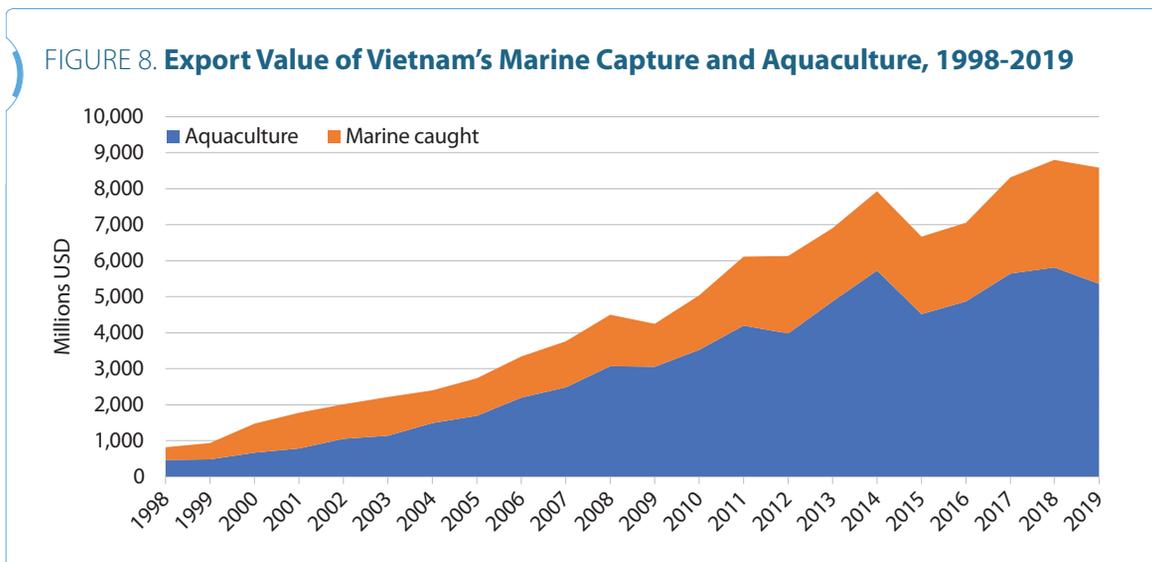
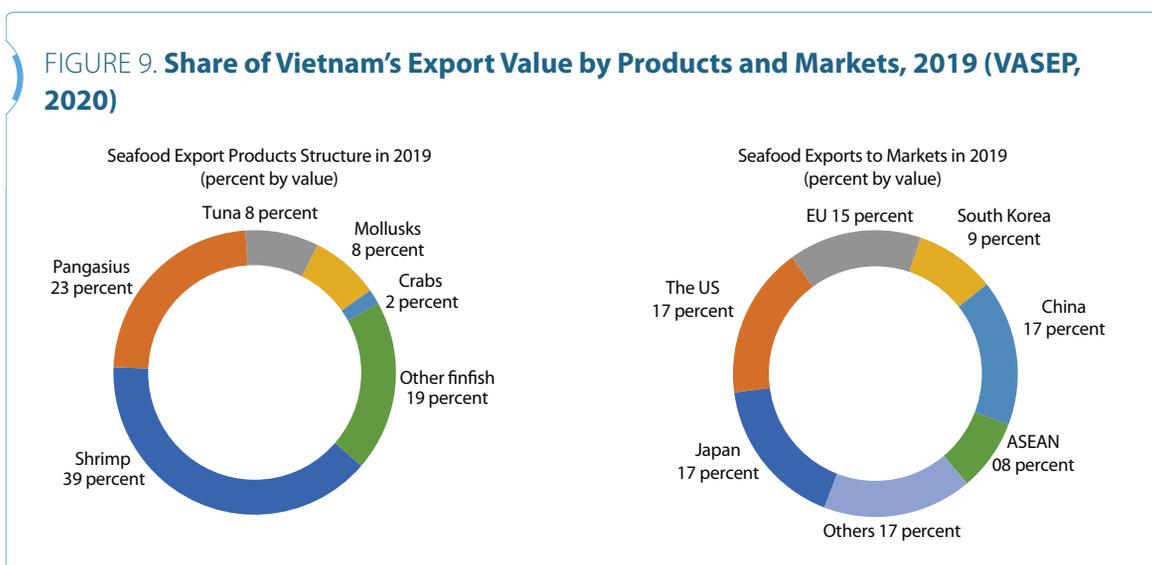


Figure 8 distinguishes between the export value of capture and aquaculture products. Both capture fisheries and aquaculture have increased in export value over time; however aquaculture has a higher growth rate while capture currently represents only about one-third of total export value.

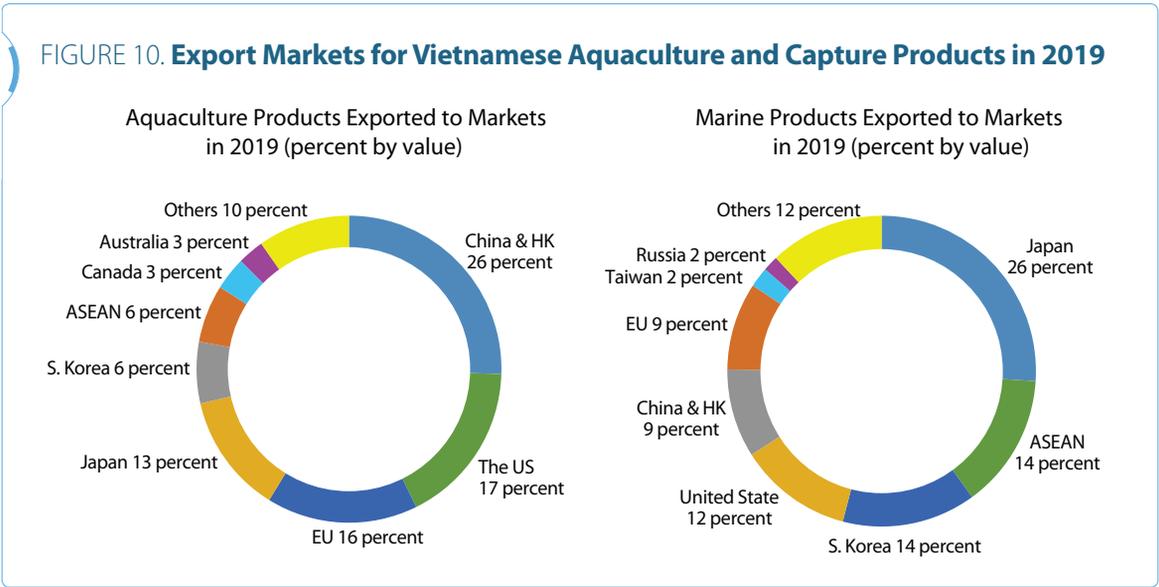


Growth in export value has followed mainly from the expansion of the shrimp sector (both cultured and harvested) as well as greater focus on other more valuable products. The share of prepared and preserved seafood products in total export value increased from about 1 percent in 2000 to over 25 percent in 2019 (VASEP, 2020). In terms of products, prawns and shrimp (mainly black tiger prawn, but also whiteleg shrimp) represented about 40-45 percent of total exports in value, followed by pangasius, which accounted for about 20-22 percent, and mollusk and tuna, which respectively represented about 8 percent and 6 percent (VASEP, 2020). Aquaculture accounted for about 60-65 percent of the total seafood export value in 2016 (VASEP 2020).



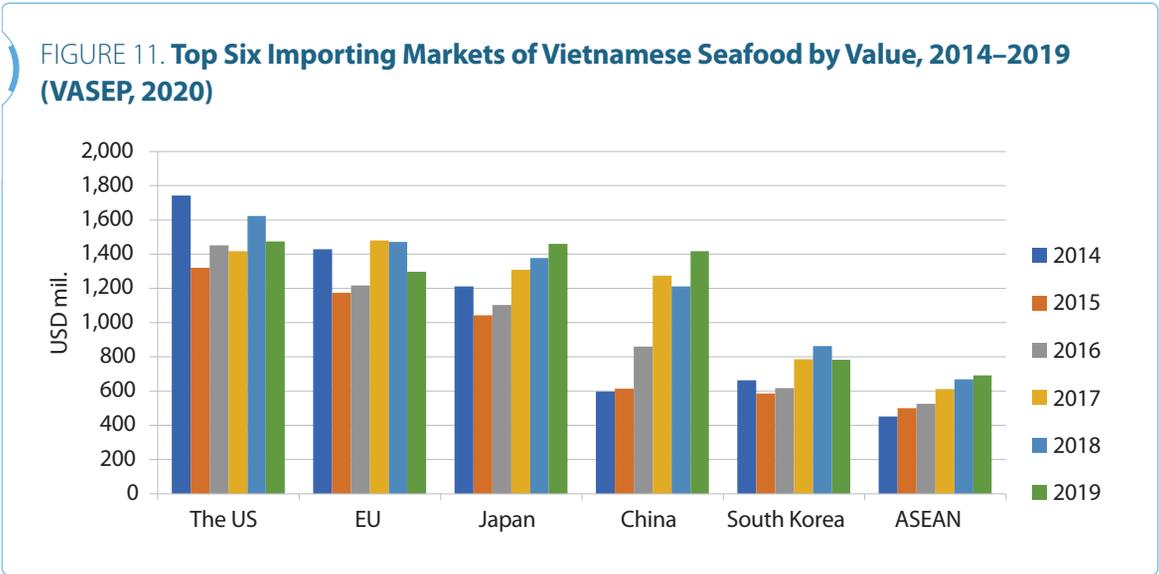
Two major export commodities – pangasius and shrimp – together represent over 60 percent of Vietnam’s total export value (Figure 9). Tuna, mollusk and crab, which are the main target of IUU regulation, account for less than 20 percent of total exports. The US, China and Japan each account for 17 percent of the total export market. Although Vietnam’s exports to the EU market have been decreasing and the EU shares only 15 percent of the total value, this market is critical for the seafood sector because of its high standard of requirements. Other markets respond to what is happening in the EU market and the seafood sector uses its standard to improve quality and safety.

FIGURE 10. Export Markets for Vietnamese Aquaculture and Capture Products in 2019



As of 2019, the EU market represents 16 percent of the total export value of Vietnam’s aquaculture products and only 9 percent of its capture commodities (Figure 10). The EU market is becoming more important for shrimp and prawn products but less important for pangasius. Pangasius producers have found substitute markets for their exports in China, Japan, and South America.

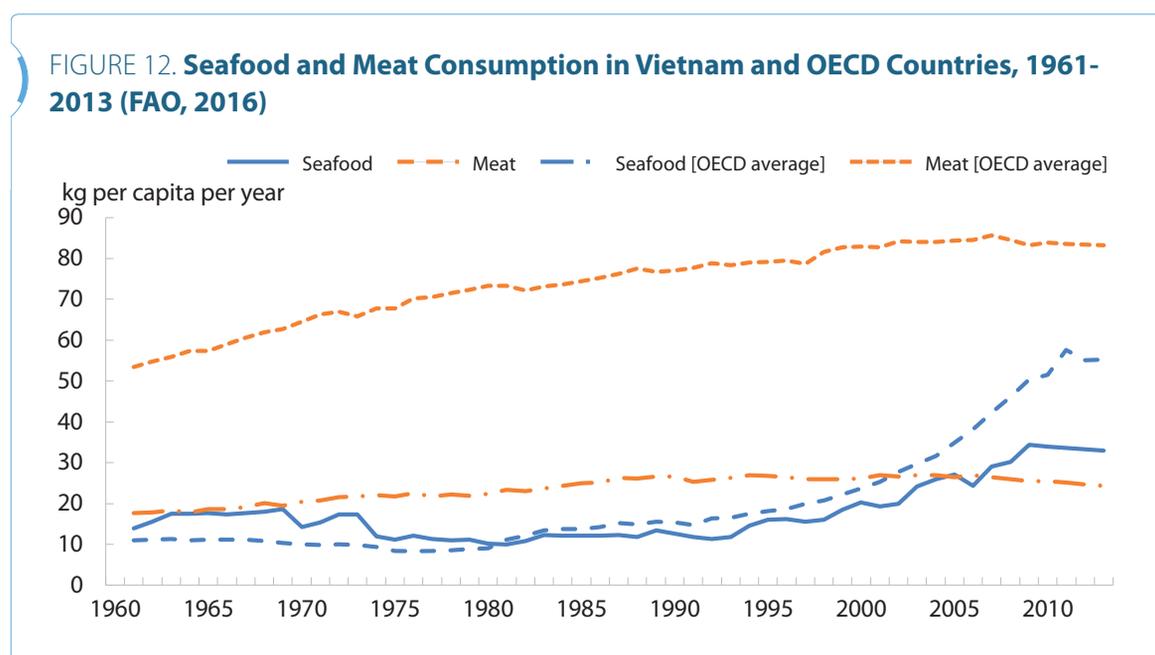
FIGURE 11. Top Six Importing Markets of Vietnamese Seafood by Value, 2014–2019 (VASEP, 2020)



The EU used to be the second largest importing market for Vietnamese seafood, however, over the last five years its market share has dropped. Meanwhile, total export value for seafood has kept stable at USD 1.3 billion, due to other markets such as China, Japan, and South Korea significantly increasing imports from Vietnam (Figure 11).

2.2. Domestic Consumption

While average seafood consumption in Vietnam is higher than that for OECD countries, seafood products are becoming relatively less important as a source of protein in Vietnamese diets. The average consumption of meat per capita surpassed that of seafood in the early 1980s and continues to grow rapidly (Figure 12).⁷ However, the average consumption of seafood per capita is also increasing along with aquaculture development.



According to the Agro Processing and Market Development Authority at the Ministry of Agriculture and Rural Development (MARD), average seafood consumption in Vietnam was 31 kilograms (kg) per capita in 2017. Seafood consumption in the domestic market is predicted to increase sharply, with the annual average expected to hit 33-35 kg per person by 2020.

With a population of 95 million Vietnamese and high economic growth of around 6-7 percent per year, domestic demand for seafood is increasing. The national market is becoming an important substitute market for international exports. Large seafood producers of tuna, shrimp and pangasius have strategies to exploit the domestic market by introducing their varieties of value-added seafood to domestic consumers.

⁷ The importance of fish to food security of Vietnam is embedded in the national regulatory framework – see Resolution No. 63/NQ-CP on national food security.



3

Market Regulations on IUU Fishing

3.1. EU Regulations to Combat IUU Fishing

Illegal, Unreported and Unregulated (IUU)⁸ fishing is a major threat to livelihoods, food security and ocean health globally. As the world's largest importer of seafood products, accounting for 24 percent of total world trade in value (IUU Watch, 2016), the EU is a valuable destination market for fisheries operators. The EU imports many high-value products via trading partners on all continents. EU member states also lend their flags to a significant number of vessels active in distant waters that catch a large share of the fish consumed within the EU market. The EU Regulation to prevent, deter and eliminate IUU fishing entered into force on January 1, 2010. The regulation applies to all landings and trans-shipments of EU and third-country fishing vessels in EU ports, and all trade of marine fishery products to and from the EU. It aims to make sure that no illegally caught fisheries products end up on the EU market.

⁸ Illegal, unreported and unregulated (IUU) fishing is a term used to capture a wide variety of fishing activity. IUU fishing is found in all types and dimensions of fisheries - it occurs both on the high seas and in areas within national jurisdiction. It concerns all aspects and stages of the capture and use of fish, and it may sometimes be associated with organized crime. More information on the broad set of activities classified as illegal, unreported and unregulated fishing can be found at: <http://www.fao.org/iuu-fishing/background/what-is-iuu-fishing/en/>

Since the European Union’s illegal fishing laws came into force in 2010, a series of countries have been issued warnings – known as “yellow cards” – for failure to improve their fisheries management. The majority of these countries have undertaken robust reforms, and subsequently had the yellow cards removed. Others have failed to comply and were then issued red cards, with resulting sanctions (European Commission, 2018). As shown in Table 5, since 2012, the EU has pre-identified IUU fishing in 26 exporting countries, of which seven have been sanctioned and three of those were able to have the red card withdrawn: Sri Lanka, Belize and Guinea.

TABLE 5. **List of 26 countries carded by the European Commission (Updated Oct. 2019)**

	Yellow cards	Red cards	Green card
Nations with red cards: (3)			
Cambodia	11/2012	11/2013	
Comoros	10/2015	5/2017	
Saint Vincent & Grenadines	12/2014	5/2017	
Nations with yellow cards: (7)			
Kiribati	4/2016		
Liberia	5/2017		
Saint Kitts & Nevis	12/2014		
Sierra Leone	4/2016		
Trinidad and Tobago	4/2016		
Vietnam	10/2017		
Ecuador	10/2019		
Nations with red/yellow cards removed (16)			
The following nations were previously carded but have made credible progress in improving their fisheries governance and combatting IUU, and have subsequently been removed from the watchlist:			
Belize	11/2012	11/2013	12/2014
Curacao	11/2013		2/2017
Fiji	11/2012		10/2014
Ghana	11/2012		10/2014
Guinea	11/2012	11/2013	10/2016
Panama	11/2013		2/2017
Papua New Guinea	6/2014	10/2015	
Philippines	6/2014		4/2015
Solomon Islands	12/2014		2/2017
South Korea	11/2013		4/2015
Sri Lanka	11/2012	10/2014	6/2016
Togo	11/2012		10/2014
Vanuatu	11/2012		10/2014
Tuvalu	12/2014		7/2018
Taiwan	10/2015		6/2019
Thailand	4/2015		1/2019

Source: iuuwatch.eu

Being issued a yellow or red card from the EU causes serious consequences for the seafood exports of a country:

1. Seafood exports to the EU will decrease after a country receives a yellow card warning. EU customers are very afraid of being fined under the Commission's IUU regulation, therefore reducing or stopping purchases from countries that have received the yellow card warning.
2. The country of warning will be published in official EU magazines and websites. This worsens the image and adversely affects the reputation and brand of the country's seafood industry.
3. Other markets may apply more stringent control regulations to countries with EU yellow card warnings, such as the United States, which is applying a seafood import control system to combat IUU fishing, from January 1, 2018 onward.
4. During the time of the yellow card warning, 100 percent of containers of seafood exported from the country with the yellow card to the EU will be detained to check the source. This can take a long time, up to 3-4 weeks per container, and the "origin" inspection fee is about USD 700 per container. In addition, port charges and other risks are also incurred. The largest risk is that a large proportion of containers will be rejected and returned, which represent heavy losses. (For example, in the case of the Philippines, 70 percent of containers were refused. Loss for exports to the EU with the yellow card can be up to 10,000 Euros (EUR) per container ([VASEP, 2018]).
5. After receiving the yellow card warning, the warned country will have six months to resolve its IUU fishing issues. If there have not been substantial improvements as determined by an EU assessment, the country will be identified as a non-cooperating country and will receive the red card. The red card means that no exports of the country's marine products are allowed into the EU.
6. The EU is a dominant world market so receiving a red card can have a ripple effect in other markets. In addition to all fishery products from a country with a red card being banned from the EU, other world markets may follow in applying the same restrictions to seafood products from the red-carded country.

3.2. US Seafood Import Monitoring Program

The United States' National Oceanic and Atmospheric Administration (NOAA) Fisheries published its final rule establishing the Seafood Import Monitoring Program (SIMP) on December 9, 2016. The Program establishes, for imports of certain seafood products, the reporting and record-keeping requirements needed to prevent IUU-caught and/or misrepresented seafood from entering US commerce, with the stated goal of providing "additional protections for our national economy, global food security and the sustainability of our shared ocean resources."

As of December 31, 2018, all shrimp and abalone imported into the US are required to comply with SIMP regulations, including: licensing, data reporting and record keeping. When shrimp shipments arrive at the US port, there must be a complete record of traceability according to SIMP regulations. Because of this, Vietnamese shrimp exporters must now prepare all required documents for traceability of its shrimp exports into the US market.

When SIMP came into effect, the US authorities worked directly with importers to track records and origins of imported seafood shipments. Therefore, after December 31, 2018, in order to import shrimp into the US, importers are required to have an International Fisheries Trade Permit (IFTP). To obtain this permit, the importer must be a permanent resident with a business address in the United States. The permit is valid for one year and renewed each year. The importer is responsible for keeping records of the harvest and chain of custody of the product. In order to obtain all records of shipments, the exporters must provide full documents to the importers.

Such regulations are causing concern for Vietnamese shrimp exporters. Currently, only a few Vietnamese shrimp companies have representative offices or opened branches in the US to carry out procedures for importing shrimp from Vietnam.

Compared to the 12 other species (mainly from fishing) on the SIMP list, shrimp have a particular characteristic in which shrimp farming accounts for a high proportion of total volume. The fact that NOAA put shrimp on SIMP's list is probably mainly to prevent shrimp trade fraud rather than anti-IUU. Therefore, NOAA needs to have more specific and suitable regulations for shrimp.

3.3. Combating IUU Fishing in other Markets

In May 2017, the Japanese Parliament agreed unanimously to ratify the first international treaty tackling IUU fishing – the Port State Measures Agreement (PSMA). The PSMA allows Japan to strengthen seafood inspections in ports and, if there is enough evidence, to refuse IUU fishing vessels port entry or access to port services, including the landing, trans-shipment, processing and packaging of seafood. This step will allow Japan to work closely with other major markets such as the EU and US to strengthen and align their port control schemes.

To date, 66 nations plus the EU have ratified the PSMA, including Vietnam. This includes many markets that import Vietnamese seafood products, including Japan, South Korea, Australia, Canada, the US, Peru, and Association of Southeast Asian Nations (ASEAN) countries.

The PSMA, which is administered by the FAO, mandates that countries require vessels that fly their flag to submit to port inspections. If a port state denies a ship entry because of suspected illegal fishing, it must notify the flag state (the country where the vessel is registered). If the flag state is a party to the PSMA, that country then has the duty to investigate the vessel and, if it finds evidence of illicit fishing, take action to penalize the ship, such as by levying fines or revoking

its registration. The flag state must then report the result of that investigation and the actions it has taken to the FAO, relevant port states, and regional fisheries management organizations.

3.4. Vietnam's Regulations to Combat IUU Fishing

3.4.1 The EU's IUU Yellow Card for Vietnam Fisheries

On October, 23 2017, the EU officially issued the yellow card warning for Vietnamese seafood exported to its market because of insufficient efforts to meet the EU Regulation to prevent, deter and eliminate illegal, unreported and unregulated fishing. At the same time, the EU made nine recommendations that Vietnam needs to correct in order for its yellow card to be withdrawn:

1. Revise the country's legal framework to ensure compliance with international and regional rules applicable to the conservation and management of fisheries resources.
2. Ensure the effective implementation and enforcement of the revised national legislation.
3. Enhance the effective implementation of international rules and management measures through a full sanctioning regime with enforcing and monitoring systems.
4. Address deficiencies identified in the Monitoring, Control and Surveillance (MCS) related to the requirements of international and regional regulations as well as within the framework of the fishing certification system.
5. Strengthen the management and improvement of the registration and licensing system for fishing.
6. Balance fishing capacity and fishing fleet policy.
7. Enhance traceability of fishery products and take all necessary steps, in accordance with international law, to prevent illegal fishery products from being traded and imported into the Vietnamese territory.
8. Strengthen and improve cooperation with other countries (especially coastal states in the waters where Vietnamese flag vessels can operate) in accordance with their international obligations.
9. Ensure compliance with obligations on reporting and recording in Regional Fisheries Management Organizations (RFMOs).

Since the issuance of the yellow card, Vietnam has been working hard to comply with the requirements stipulated by the European Union. The Government of Vietnam – including its Prime Minister, relevant ministries, central agencies, Provincial Peoples Committees in the coastal provinces/cities, and the whole political system – has focused on the instruction and implementation of necessary solutions to address the nine recommendations made by the Commission. Of these, the central issues identified were: (i) the prevention and elimination of illegal fishing outside of national Exclusive Economic Zones (EEZ); and (ii) conducting traceability of fish/fishery products.

In May 2018, the inspection team from the Commission's Directorate General for Maritime Affairs and Fisheries (DG-MARE) came to Vietnam to check on the implementation of its recommendations. It identified four recommendation categories that Vietnam should continue working on to combat IUU fishing: (1) the legal framework; (2) monitoring and control systems for fishing vessels; (3) law enforcement; and (4) traceability of caught fisheries.

In November 2019, an inspection team visited Vietnam for the second time to assess the country's efforts in implementing the Commission's recommendations. They confirmed Vietnam has made a lot of progress compared to the first inspection in May 2018 and is on the right track towards implementing the Fisheries Law and legal guiding documents. In a letter sent to the Vietnamese Directorate of Fisheries in December 2019, the Commission's inspection team recognized the country's cooperation, transparency and honesty in providing and exchanging information during their time in Vietnam.

The country's significant improvements in the monitoring, control and surveillance of fishing vessels have been noted. In addition, the management process and organization of fishing vessels and output through the port were carried out flexibly and effectively.

Vietnam has also made great efforts to install fishing vessel monitoring systems, provide regulations, and implement gear marking fishing vessels, based on the Commission's recommendations.

The Commission's inspection team also acknowledged Vietnam's efforts in increasing management of fishing density through freezing offshore fishing fleets. MARD also issued a decision on assigning a quota of offshore fishing permits for 28 coastal provinces.

The inspection team praised Vietnam's improvements in building a database of fishing vessels, updating information on fishing vessel licensing, and planning for sustainable fishing vessel development. Previously, Vietnam had no surveillance system in its ports, but a system has now been implemented in Kien Giang as a model that has effectively controlled fishing vessels.

The Commission highly praised Vietnam for joining and working to implement the FAO Port State Measures Agreement and the United Nations Fish Stocks Agreement, as well as signing bilateral cooperation agreements.

However, some shortcomings were pointed out, such as slow progress of installing cruise monitoring equipment on fishing vessels, incomprehensive surveillance systems with many technical errors, as well as limited and inconsistent sanctioning of violations among localities. There is also no evidence to prove competent authorities are in place to ensure sufficient and accurate traceability mechanisms in fishery processing plants. The Commission also said that they will not withdraw the yellow card if Vietnam has not solved the problem of fishing in foreign waters.

The team has suggested Vietnam continue completing its legal framework and law enforcement’s implementation work, along with increasing the monitoring, control and surveillance of fishing vessels, seafood traceability and fishing certification.

3.4.2. Vietnam’s Regulations on Caught Marine Products for Export

Table 6 below summarizes Vietnam’s regulations on caught marine products for export and import in line with obligations to combat IUU fishing since 2017, following the issuance of the yellow card by the EU.

TABLE 6. Vietnam’s Regulations on Caught Marine Products for Export and Import (in Line with Obligations to Combat IUU Fishing Since 2017)

No.	Title of legal documents	Main content related to combating IUU fishing
1	Fisheries Law No. 18/2017/QH14 dated November 21, 2017	<p>The Commission’s recommendations on amendment of regulations on management and combating of IUU fishing have been fully legislated in the Fisheries Law of 2017 and are reflected in most chapters and articles. Examples include:</p> <ul style="list-style-type: none"> - Regulations on IUU fishing are specifically presented in Chapter 4, detailing regulations on practices of illegal, unreported and unregulated fishing; regulations on catch certificates and catch statements (Articles: 60, 61) - Regulations on duties and obligations of fishing port authorities on catch statements, in collaboration with organization controlling IUU fishing operations; duties of vessel owner, master entering and leaving fishing port (Articles: 81, 82, 83)
2	Decree No. 26/2019/ND-CP dated March 08, 2019 guiding the implementation of Fisheries Law	<p>Management of operations of fishing boats in Vietnamese waters:</p> <ul style="list-style-type: none"> - Specific regulations on the size of fishing vessels allowed to operate in respective fishing zoning areas (coastal, inshore and offshore) to protect fisheries resources - Regulations on installing Vessel Monitoring System (VMS) for fishing vessels of 15 to 24 meters (m) in maximum length; fishing vessels of more than 24 m in maximum length shall be installed with VMS connected with satellite. VMS installed on fishing vessels shall be turned on in continuity during operation at sea - Detailed regulations on procedures for granting and withdrawing fishing licenses for Vietnamese fishing vessels operating beyond the jurisdiction of Vietnamese waters - Regulation for fishing vessels larger than 15 m in maximum length that are permitted to operate fishing activities outside Vietnamese waters. These shall be installed with VMS connected with satellite, as well as communication equipment regulated according to respective fishing zoning areas - Specific regulations on procedures to allow Vietnamese fishing vessels to fish outside of Vietnamese water areas

TABLE 6. Vietnam’s Regulations on Caught Marine Products for Export and Import (in Line with Obligations to Combat IUU Fishing Since 2017) (cont)

No.	Title of legal documents	Main content related to combating IUU fishing
3	Decree No. 42/2019/ND-CP dated May 16, 2019 on regulating administrative sanctions in fisheries sector	The Decree regulates administrative sanctions for 14 IUU acts regulated in Vietnam’s Fisheries Law of 2017
4	Circular No. 02/2018/TT-BNNPTNT dated January 31, 2018	Amend and supplement Circular No. 50/2015/TT-BNNPTNT, Circular No. 02/2006/TT-BTS, Circular No. 62/2008/TT-BNN and Circular No. 26/2016/TT- BNNPTNT dated June 30, 2016. In particular, fishing ports shall: appraise, log, and issue certificates of origin for fishery products that are caught domestically and not in violation of regulations on illegal fishing; follow strict control procedures for the management of aquatic raw materials imported into Vietnam; and promulgate a list of banned aquatic species and fisheries
5	Circular No. 19/2018/TT-BNNPTNT dated November 15, 2018	Deals with procedures and guidelines for the investigation and assessment of aquatic resources and the living environment of aquatic species, including: procedures for setting up and appraising projects establishing Marine Protected Areas (MPAs) and contents of decisions on the establishment of provincial MPAs; guidelines for management of protected areas of aquatic resources; promulgation of the list of fishing occupations and gears banned from use in commercial fishing and the list of areas banned from commercial fishing for a fixed term; and marking of fishing gears used at fisheries
6	Circular No. 21/2018/TT-BNNPTNT dated November 15, 2018	Details procedures for the preparation and submission of fishing reports and fishing logbooks, including: publishing of the list of designated fishing ports with sufficient systems for reporting fishery products processed from catches; publishing of the IUU vessel list; and validation of catch statements for raw materials and catch certificates, as well as statements for imported raw materials (or fishery products processed from imported raw materials) that do not violate the illegal fishing regulation
7	Circular No. 23/2018/TT-BNNPTNT dated November 15, 2018	Prescribes standards, tasks, professional development, orders and procedures for granting and withdrawing technical seals and cards of fishing vessels registrars; recognition of establishments eligible for fishing boats registry; ensuring technical safety for fishing boats, fisheries surveillance vessels and official ships; approving fishing vessel registrations and marking fishing vessels
8	Circular No. 24/2018/TT-BNNPTNT dated November 15, 2018	Stipulates usage, management and updating of a national fisheries database

TABLE 6. Vietnam’s Regulations on Caught Marine Products for Export and Import (in Line with Obligations to Combat IUU Fishing Since 2017) (cont)

No.	Title of legal documents	Main content related to combating IUU fishing
9	Circular No. 25/2018/TT-BNNPTNT dated November 15, 2018	Provides guidelines for regulations in Clause 4 and 6, Article 98 of the Fisheries Law regarding procedures for the risk assessment and licensing of the importation of live aquatic animals and plants not on the list of aquatic species permitted to be traded in Vietnam (for food, decoration, entertainment or display in fairs, exhibitions and scientific research.)
10	Circular No. 36/2018/TT-BNNPTNT dated December 25, 2018	Provides amendments to Circular No. 26/2016/TT-BNNPTNT dated June 30, 2016 by the Minister of Agriculture and Rural Development on quarantine of aquatic animals and products thereof
11	Circular No. 11/2019/TT-BNNPTNT dated October 25, 2019	Provides amendments and additions to some articles of Circular No. 36/2018/TT-BNNPTNT dated December 25, 2018
12	Decree No. 26/2019/ND-CP dated March 08, 2019 guiding implementation of the Fisheries Law	On the issuance of licenses to fishing import vessels, including: the control of import, temporary import, re-export, temporary export, re-import and transit of fishery products originating from illegal, unreported and unregulated fishing

3.4.3. Vietnam’s International Obligation to Combat IUU Fishing

Since December 18, 2018, Vietnam has been a signatory of the United Nations Fish Stocks Agreement (UNFSA). Vietnam also recently adopted the FAO Port State Measures Agreement and signed bilateral cooperation agreements. Although the country takes considerable catches from the area under the management of the Western and Central Pacific Fisheries Commission (WCPFC), it is only a cooperating non-contracting party of this RFMO. As such, Vietnam does not have a legal obligation to adhere to a number of conservation and management measures adopted for this area, nor does Vietnam have to participate in a full annual evaluation process (WCPFC, 2017).

In the field of fisheries, Vietnam actively cooperates with other countries, especially in combating IUU fishing. Vietnam has signed four international treaties and 17 international agreements related to fisheries and maritime cooperation with countries in and outside the region, such as Malaysia, Myanmar, Indonesia, Egypt, and Russia.

Agreements have also been signed with other countries to set up hotlines for fisheries activities. These include signing agreements with Australia to combat IUU, opening a Vietnam-Philippines hotline in 2015, and establishing hotlines with China in 2013 on unexpected incidents of fishing activities at sea.

In addition, Vietnamese localities have cooperated and implemented projects with foreign partners in order to improve the capacity and quality of fishing, aquaculture, purchasing and processing of seafood, and combating IUU fishing. These include projects organized

and supported by the FAO, Japan International Cooperation Agency (JICA), Southeast Asia Fisheries Development Center (SEAFDEC), and World Wide Fund for Nature (WWF).

Vietnamese authorities have also signed and implemented agreements to improve information sharing and coordination between the Vietnamese Navy and Coast Guard and functional forces from countries such as India, Japan and China. Additional efforts are underway, including:

- A Memorandum of Understanding on the use of a hotline for information exchange to address IUU fishing activities between the Governments of Vietnam and Brunei (signed March 28, 2019).
- A Memorandum of Understanding (MOU) on combating IUU fishing between the Vietnam Ministry of Agriculture and Rural Development and the Australian Ministry of Agriculture and Water Resources. (According to this memorandum, there were two classes in 2017 and four training courses in 2018 in Binh Chau commune on Ly Son island (Quang Ngai), with a total of about 600 fishermen attending.)
- Actively participating in regional initiatives and multilateral forums to exchange information and experiences on IUU fishing.

3.5. Case Studies

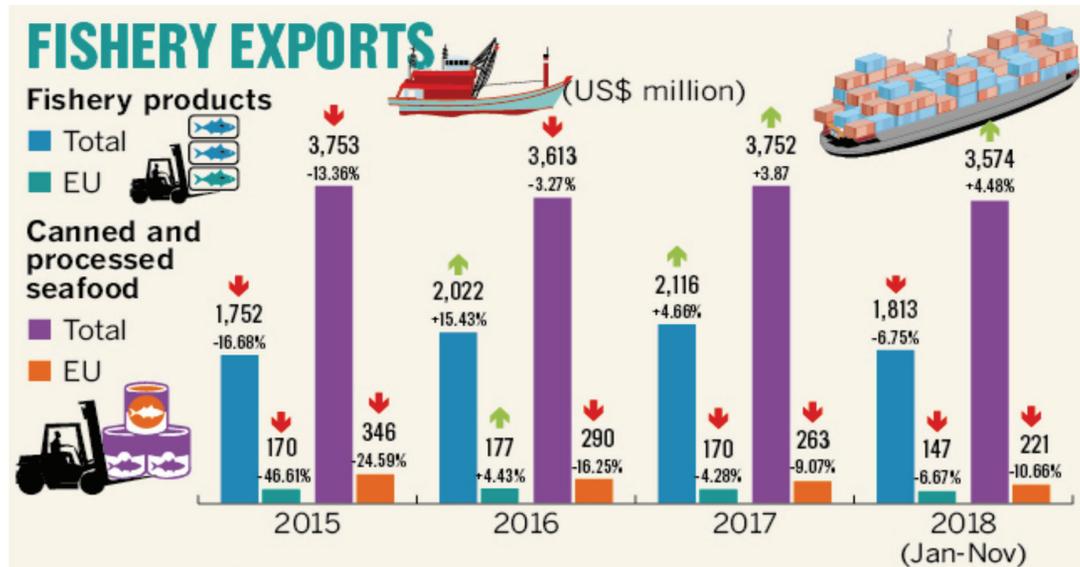
As of October 2019, the European Union has issued yellow and red cards to 26 countries (see Table 5 for details). This section presents the economic impacts caused by yellow cards and red cards in two of these countries. Thailand and Sri Lanka are selected for case studies because the two countries have economic development at comparable levels to Vietnam. Thailand received a yellow card in 2015, but the EU removed the warning after nearly four years of effort to improve the situation. In contrast, Sri Lanka was issued red card by the EU because it did not make enough effort to combat IUU fishing following the issuance of a yellow card warning.

3.5.1. Yellow Card Case of Thailand

The EU issued a yellow card warning against Thailand in April 2015 over its failure to combat IUU fishing, jeopardizing the export of Thai fishery products. Since then, Thailand has confronted the issues identified by the EU by enacting new laws and enforcing regulations. Based on the actions taken by Thailand, on January 8, 2019, the EU removed Thailand from its group of warned countries.

Being in the yellow card category has had a damaging impact on Thailand's fishery industry in terms of both sales and reputation. The below graph shows continuous drops in fisheries exports to the EU, particularly exports of canned and processed products to the market. In the four years after the yellow card was issued for Thailand, total canned and processed seafood exports decreased by 5 percent, from USD 3,753 million to USD 3,574 million, of which, exports to the EU fell 35 percent from 346 million dollars in 2015 to 221 million dollars in 2018.

FIGURE 13. Thailand's Exports of Fishery Products and Processed Seafood to EU and World, 2015–2018



Source: Commerce Ministry

Nation Graphics

In January 2019, the EU formally announced the lifting of a yellow card for Thailand in recognition of the substantial progress Thailand has made in tackling IUU fishing since 2015. The decision to lift the yellow card for Thailand follows the constructive cooperation of Thai authorities with the Commission, resulting in a comprehensive and structural reform of their fisheries' legal and policy systems in order to curb illegal fishing. Measures taken include:

- Comprehensive review of the legal framework for fisheries, in line with the International Law of the Sea, including deterrent sanctions schemes
- Full reform of fleet policy management, with sound systems for registration and control of fishing vessels
- Strengthening of Monitoring, Control and Surveillance (MCS) tools, including ensuring the full coverage of the industrial fleet with Vessels Monitoring Systems (VMS) and a robust system of inspections at port
- Full implementation of the FAO Port State Measures Agreement on foreign-flagged vessels that land their catches in Thai ports to supply the processing industry
- Comprehensive traceability system covering the whole supply chain and all modes of transportation, in line with international standards
- Improved administrative procedures as well as training and political support, leading to proper enforcement of legislation
- Significant reinforcement of financial and human resources for the fight against IUU fishing.

3.5.2. Red Card Case of Sri Lanka

The seafood industry is important to the Sri Lankan economy, with the fisheries sector accounting for 2.2 percent of the country's total merchandise exports in 2017. The large pelagic finfish caught offshore are the country's main seafood export product. The European Union is the largest export partner for Sri Lankan seafood, accounting for nearly one-third of Sri Lanka's total global exports (of all products) (Sandaruwan et al., 2019; Murdy, 2018).

In November 2012, Sri Lanka was issued a yellow card warning by the European Commission for failing to meet its obligations under international law as a flag state to take action to prevent, deter and eliminate IUU fishing. The Commission's decision cited a lack of deterrent sanctions for the high-seas fleet (of more than 3,000 vessels); a lack of compliance with international and regional fisheries rules; and shortcomings in implementation of control measures such as VMS, catch reporting, inspection and licensing systems. In October 2014, Sri Lanka was identified as a non-cooperating country in the fight against IUU fishing and issued a red card. However, to avoid disrupting ongoing commercial contracts, a ban on the import of fisheries products caught by Sri Lankan vessels into the EU was delayed until mid-January 2015, three months after the red card. The EU Council of Ministers added Sri Lanka to the list of non-cooperating third countries in January 2015. The Government of Sri Lanka worked hard to remove the ban and, as a result of those efforts, the country was delisted in June 2016.

According to several post analyses (e.g., Mundy, 2019; Sandaruwan et al, 2018; and others), the EU ban on seafood trading caused severe impacts for the Sri Lankan economy. Total exports decreased by 36 percent, with excess production diverted to the local market. As a result, imports also decreased by 16 percent. The largest drop in growth experienced by Sri Lanka was during 2015–2016, in the year after red card was issued. As a consequence of the ban, all EU countries are required to completely stop fish trading with banned countries.

As shown in Figure 14 and 15 (Mundy 2018), two product groups – fresh and chilled fish (HS0302) and fish fillet and meat (HS0304) – were most significantly impacted. The export value of the two product groups was reduced to nearly zero in 2016.

FIGURE 14. **Monthly Import of Fresh and Chilled Fish (HS0302) from Sri Lanka to EU (Mundy 2018)**

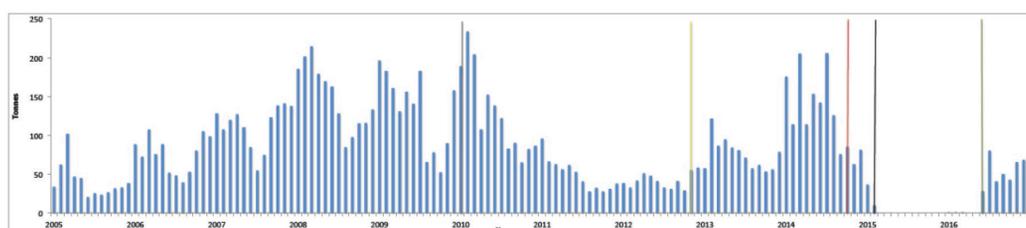
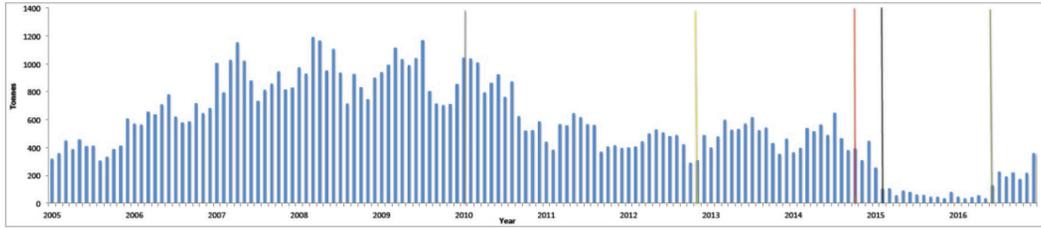
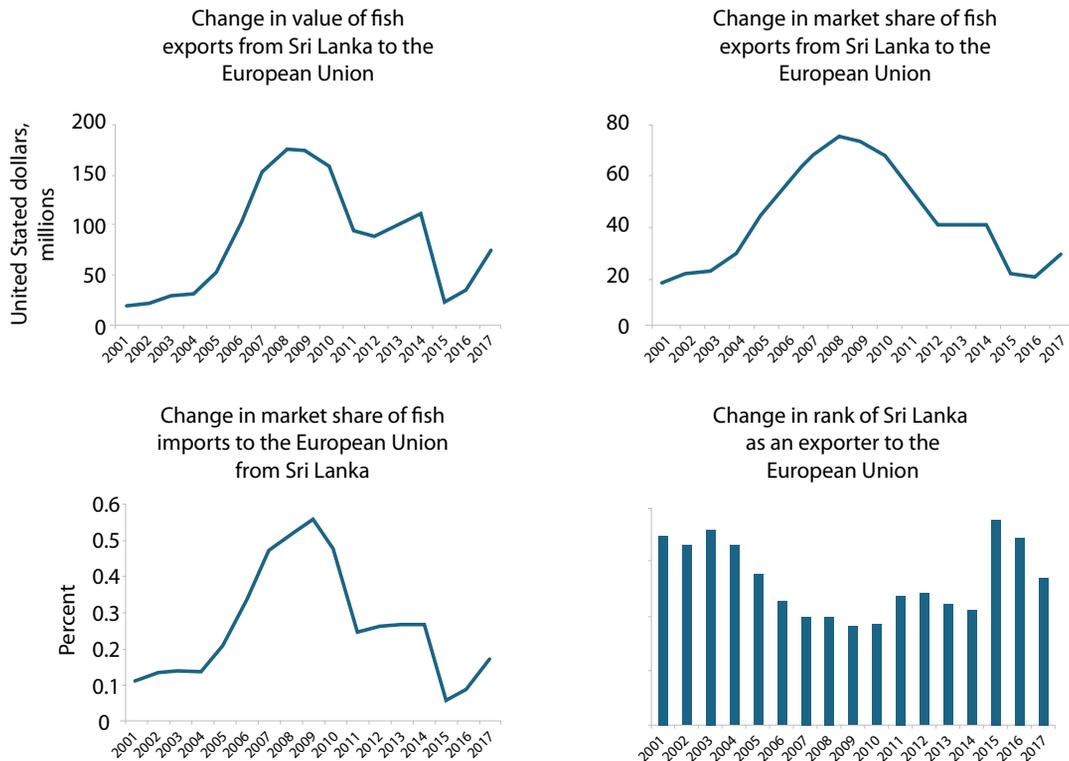


FIGURE 15. Monthly Import of Fish Fillet and Meat (HS0304) from Sri Lanka to EU (Mundy 2018)



Sri Lankan fish exports had previously occupied 0.52 percent of the market share for seafood in the EU, ranking as the 36th largest exporter in 2009. Due to the ban however, the market share of Sri Lanka in the EU fish export market dropped down to 0.06 percent and its rank dropped to 74th place (Figure 16). Even though Sri Lanka is a minor supplier for fish exports to the EU, for some specific products, the role of Sri Lankan products is greater than for other seafood products; for example, in the categories of frozen, fresh or chilled fish fillets and meat of yellow-fin tuna (030349, 030487, 030499 and 030232).

FIGURE 16. Changes in Seafood Exports from Sri Lanka to EU, 2001–2017 (Sandaruwan, et al 2019)





4

Economic Impact of IUU Non-Compliance for Vietnam Seafood

4.1. Methodology

This section presents the results of an economic impact assessment of Vietnam being issued the yellow card and a potential red card by the European Commission for IUU fishing. The assessment is carried out in two stages.

The first stage is to analyze the trade flow of Vietnam exports to the EU and other major markets in order to understand the impacts of IUU regulations (January 2010) and the yellow card issued to Vietnam (October 2017).

The second stage is to assess the potential economic impacts if Vietnam were to be red carded. The assessment is based on the case study lessons and trade flow analyses, and how they could be applied to a simulated red card scenario. The assessment will be carried out for both direct and indirect impacts in the short and medium terms.

4.2. Yellow Card Impact Assessment

The assessment applies the methodology suggested by Murdy in *The impact of the EU IUU Regulation on seafood trade flows: Identification of intra-EU shifts in import trends related to the catch certification scheme and third country carding process* (2018). The assumption behind this methodology is that given the estimated volumes of illegally-caught seafood entering the EU prior to the IUU Regulation’s entry into force and yellow card issuance, the import controls introduced through the IUU Regulation and yellow card warning are expected to have had an impact on seafood trade flows to the EU. The investigation is performed through an analysis of fish and fishery product imports reported by the 28 EU member states in the Eurostat database for the period of 2007 to 2019.

The relevant commodity codes and descriptions included in the analysis are outlined in Table 7. These codes are part of the World Customs Organization’s Harmonized Commodity Description and Coding System (HS), which utilizes both four-digit (HS4) and six-digit codes (HS6). The longer codes represent more refined description levels within the HS03 grouping for fish and crustaceans. Fluctuations in seafood trade flows in Vietnam can be observed at the HS4 levels, while a closer look at HS6 levels can provide insight into affected product categories.

TABLE 7. **Commodity Codes and Descriptions Included in the Analysis**

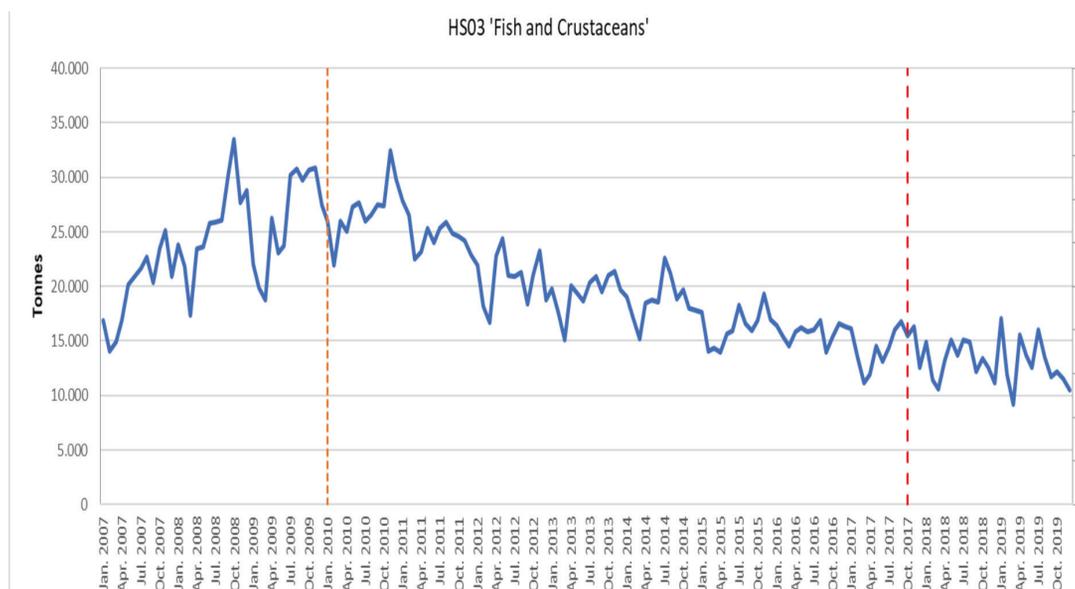
HS4	Description
03	Fish and crustacean
0301	Live fish
0302	Fish, fresh or chilled, excluding fish fillets and other fish meat
0303	Fish, frozen, excluding fish fillets and other fish meat
0304	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen
0305	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.
0306	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked crustaceans, whether in shell or not, whether or not cooked before or during the smoking process; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; of crustaceans, fit for human consumption flours, meals and pellets
0307	Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked molluscs, whether in shell or not, whether or not cooked before or during the smoking process; flours, meals and pellets of molluscs, fit for human consumption
1604	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs
1605	Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved

4.2.1. Overall Assessment for Trade Fluctuations: Analysis at HS4 Level

This assessment examines the trade fluctuation between Vietnam and the EU to understand how the EU IUU Regulation and the yellow card issued to Vietnam impact the country's trade. The IUU Regulation entered into force on January 1, 2010 and may have an indirect impact on Vietnam. In contrast, the yellow card is a direct warning to the country and could have immediate effects. Thus, in the figures below, two critical points of time are presented to make a comparison of fluctuations before and after January 2010 (when the regulations went into effect), and before and after October 2017 (when the yellow card was issued to Vietnam).

Figure 17 presents the fluctuation of entire fish and crustacean commodities (including fresh, frozen, chilled and other product forms) exported from Vietnam to the EU during the period of January 2007 to December 2019. Overall, there is a decreasing trend in exports of fish and crustacean commodities from Vietnam to the EU over the time period. The export volume declined from 238 thousand tons in 2007 to 156 thousand tons in 2019, which corresponds to a decrease of 35 percent. However, the export value of this commodity group increased from EUR 580 million to EUR 751 million during this period, an equivalent increase of 29 percent.

FIGURE 17. Fluctuation in Export Volume of Total Fish and Crustaceans (HS03) from Vietnam to EU, 2007–2019

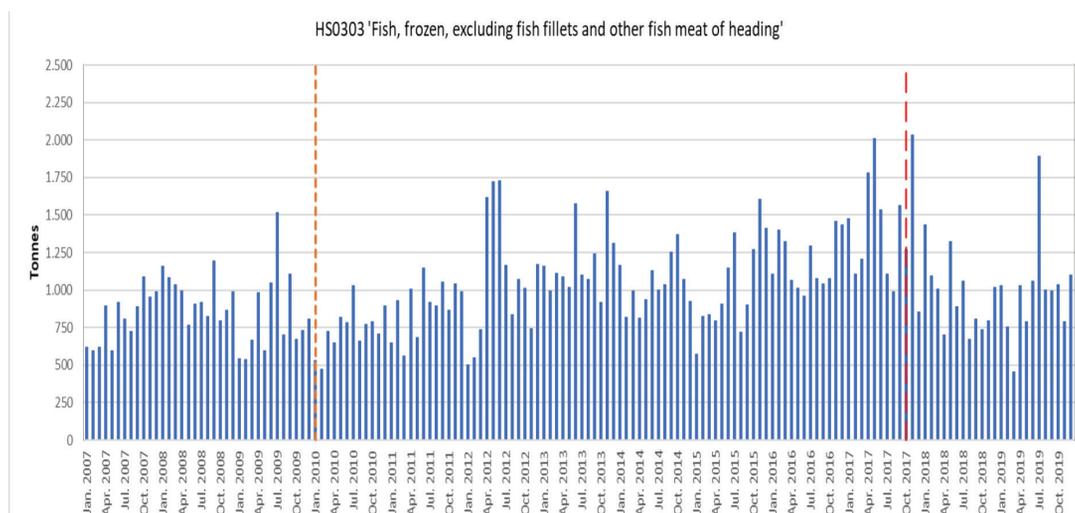


The fluctuation in export volume is caused by several factors, including the impact of the EU IUU Regulation that came into force in 2010. The investigation below looks at individual groups of products within the category of fish and crustaceans (HS03) to uncover the impacts of the IUU Regulation on Vietnamese seafood exports.

At the HS4-level, the HS0303 category includes “fish, frozen, excluding fish fillets and other fish meat”. In Vietnam, this category accounted for only 4 percent of total export volume in 2007,

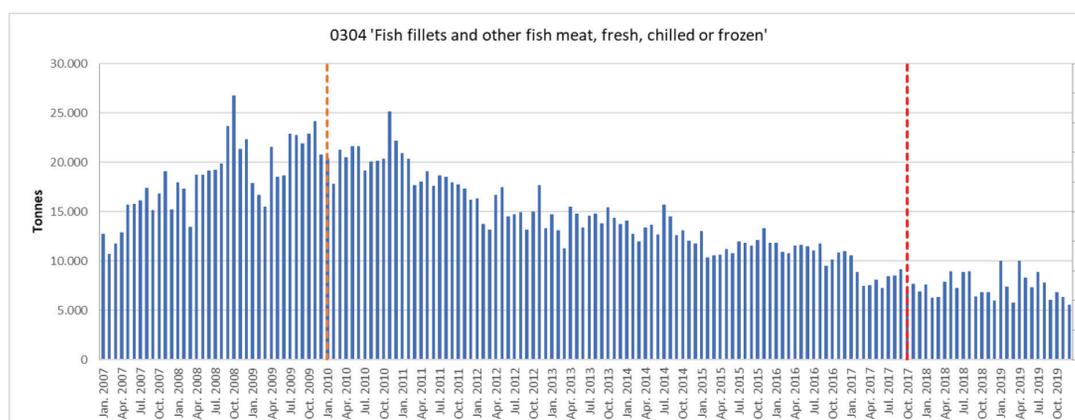
but had increased to 8 percent by 2019. As shown in Figure 18, there was a decline of total export volume in HS0303 products after the EU IUU Regulation took effect in January 2010 and after the yellow card was issued for Vietnam in October 2017.

FIGURE 18. Fluctuation in Export Volume of HS0303 Products from Vietnam to EU, 2007-2019



The HS0304 category accounts for the largest share of total export volume within HS03 (fish and crustaceans), at 75 percent and 58 percent in 2007 and 2019, respectively. The HS0304 group includes mainly fillet of fish, in which pangasius is the major export item. Figure 19 shows a clear declining trend in export volume of this category during the entire period from 2007 to 2019. The decrease is mainly due to the decrease in exporting pangasius to this market. Further analysis of this trend will be presented below.

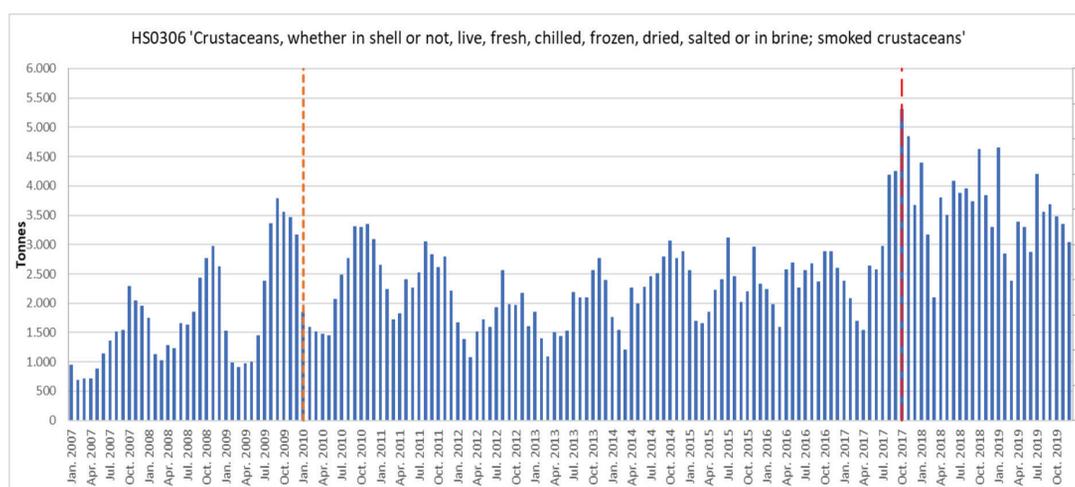
FIGURE 19. Fluctuation in Export Volume of HS0304 Products from Vietnam to EU, 2007-2019



The HS0305 category includes dried, salted or in brine, or smoked fishery products. This group represents less than 1 percent of the total volume of exports and therefore is not included in further analysis.

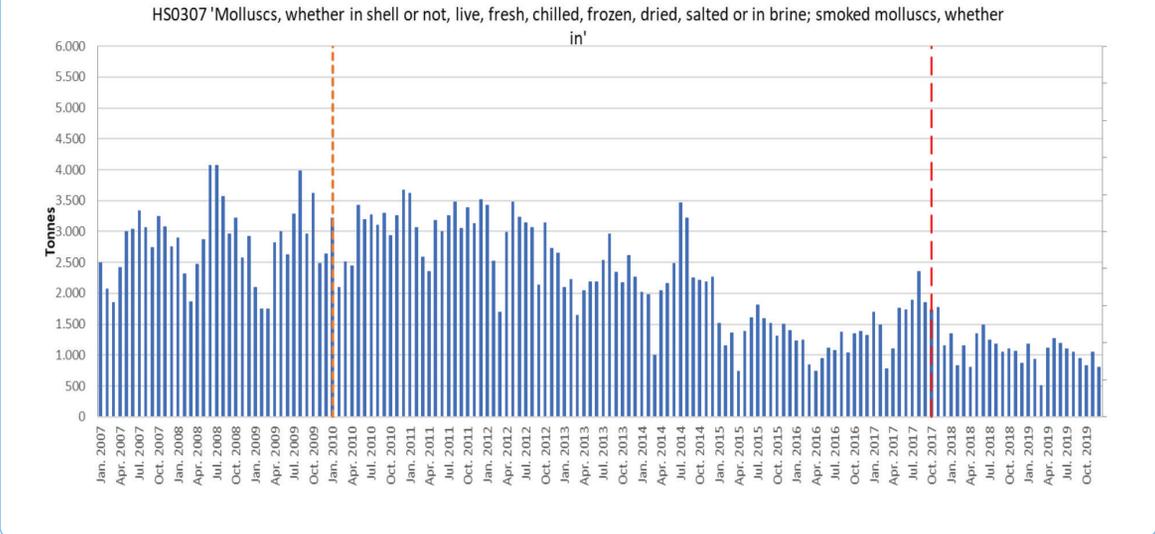
The HS0306 category includes crustacean products that are possibly harvested from wild stocks in marine or fresh water (e.g., crabs, lobsters, crayfish) or aquaculture (e.g., shrimp and prawn). The HS0306 category represented only 7 percent of total export volume of HS03 (fish and crustaceans) in 2007, but has increased significantly to 28 percent in 2019. As shown in Figure 20, the export volume of HS0306 declines significantly for five continuous months in 2010 after the IUU Regulation took effect. The decline is seen more clearly throughout the years 2018 and 2019 after the yellow card was issued in October 2017. Other factors notwithstanding, the dropping export volume of crustacean has been caused mainly by the IUU Regulation and the yellow card.

FIGURE 20. Fluctuation in Export Volume of HS0306 Products from Vietnam to EU, 2007-2019



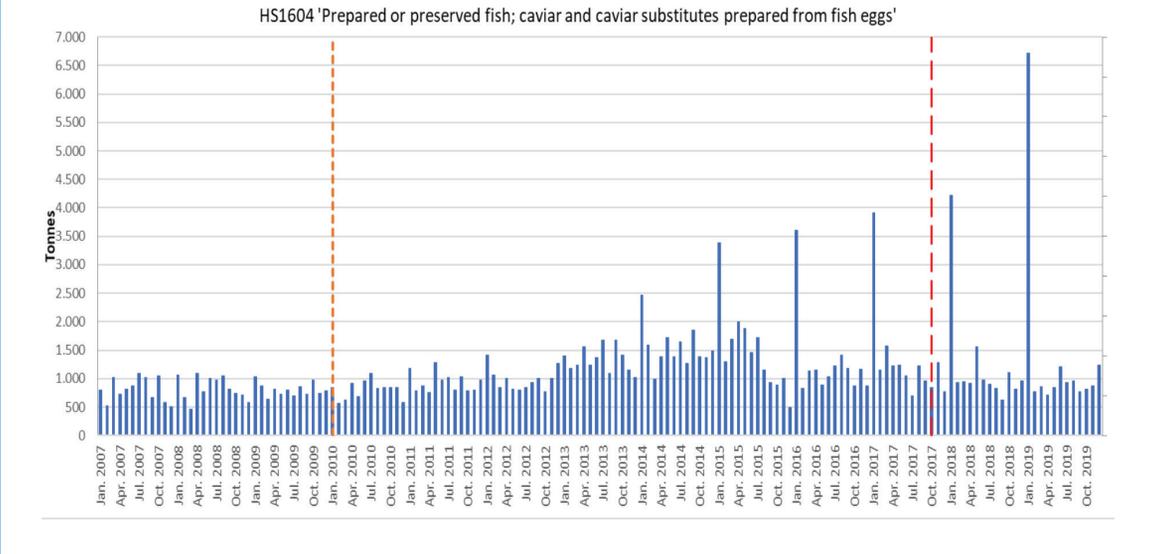
The HS0307 category consists of mollusk species such as squid, octopus and cuttlefish, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine. The share of export volume for this category has declined from 14 percent to 8 percent in the period from 2007 to 2019 (Figure 21). There was a significant increase in HS0307 exports some months after the IUU Regulation took effect, and recovery occurred strongly after that. However, the yellow card has caused a significant decline since 2018.

FIGURE 21. Fluctuation in Export Volume of HS0307 Products from Vietnam to EU, 2007-2019



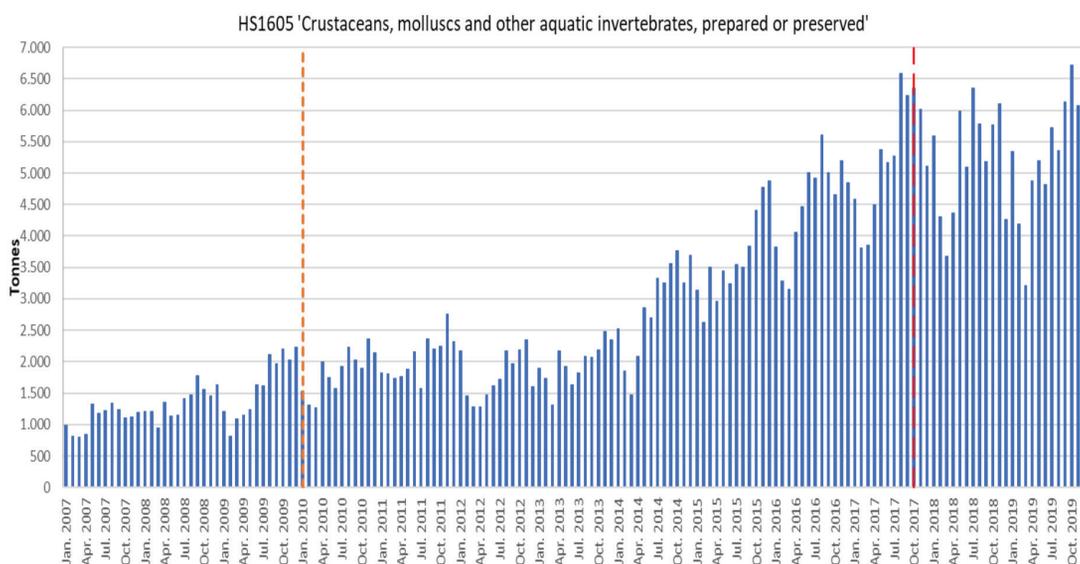
In addition to the HS03 group that encompasses fish and crustaceans, there are also relevant commodity codes for analysis under the HS16 group, which consists of prepared and preserved products. Within this group, there are two categories, HS1604 and HS1605, that include fishery commodities. The HS1604 category consists of prepared and preserved fish and caviar products, which represent only 3 percent of total seafood export value in 2007, and 5 percent in 2019. The HS1605 category consists mainly of prepared and preserved shrimp and prawn items, for which the share of total seafood export value increased from 9 percent in 2017 to 28 percent in 2019.

FIGURE 22. Fluctuation in Export Volume of HS1604 Products from Vietnam to EU, 2007-2019



As presented in Figures 22 and 23, the export volumes of HS1604 and HS1605 seemingly were not impacted by the IUU Regulation taking effect in January 2010 or the yellow card being issued in October 2017.

FIGURE 23. Fluctuation in Export Volume of HS1605 Products from Vietnam to EU, 2007-2019



The export of shrimp and prawn in prepared and preserved forms is increasing significantly by about 14 percent per year. This commodity group is from aquaculture and thus it has not been impacted by the IUU Regulation or the yellow card. Further analysis will be presented below.

Table 8 below summarizes the change in export volume between one and two years before and after the IUU Regulation took effect (January 2010) as well as before and after yellow card was issued for Vietnam fisheries (October 2017). The calculation is based on the yearly export volume for major product categories within HS03 (fish and crustaceans) and HS16 (prepared and preserved products). The calculation is performed for the entire EU and 8 major importers, including Italy, Spain, the Netherlands, Germany, Portugal, France, the UK and Belgium.

Overall, there was a minor decrease in exports after the IUU Regulation took effect. However, there was a significant decrease in exports of fresh, frozen and chilled products (HS0303, HS0304, and HS0307) after Vietnam received the yellow card warning. With the exception of HS0306 (crustacean species such as shrimp and prawn), all other categories saw a significant decrease in the first year.

Exports of HS0303 (frozen fish, excluding fillet or other fish meat) decreased 32 percent in the first year and 16 percent in the second year after the yellow card warning. Similarly, exports of HS0304 (fish fillet), the category that represents the largest share, decreased by 10 percent in the first year and 32 percent in the second year after the yellow card warning. Exports of HS0307 (octopus, squid and cuttlefish) decreased 30 percent in the first year and 12 percent in the second year after the yellow card warning. On the other hand, exports of HS1604 and HS1604 (prepared and preserved products) had a slight decrease in the first year after the yellow card warning, followed by an increase in the second year.

Among major EU markets, there were significant declines in import volumes from Italy, Spain, Germany, the Netherlands and Belgium after Vietnam received the yellow card warning. The category with the most significant decline in export volume was HS0304 (fish fillet, which is mainly pangasius fillet) and this decrease is unlikely to be due to the IUU Regulation. Further analysis and explanation is presented below.

TABLE 8. Summary of Fluctuations in Seafood Export Volume (tons) from Vietnam to the EU, before and after the IUU Regulation (2010) and before and after the Yellow Card (2017)

Commodity	Importers	Import 1 year pre-Reg (2009)	Import 1 year post-Reg (2010)	Percent change	Import 2 year pre-Reg (2008)	Import 2 year post-Reg (2011)	Percent change	Import 1 year pre-yellow card (2017)	Import 1 year post-yellow card (2018)	Percent change	Import 2 year pre-yellow card (2016)	Import 2 year post-yellow card (2019)	Percent change
HS0303		9,917	8,836	-11	11,527	10,742	-7	16,932	11,536	-32	14,258	11,931	-16
HS0304		243,596	249,867	3	238,113	219,651	-8	97,269	87,761	-10	132,000	89,954	-32
HS0306	EU28	26,523	28,240	6	22,317	29,092	30	38,101	44,342	16	29,273	40,681	39
HS0307		33,004	36,410	10	35,802	37,629	5	19,293	13,461	-30	13,667	12,010	-12
HS1604		9,692	9,625	-1	9,939	11,279	13	15,923	14,797	-7	15,388	16,676	8
HS1605		19,303	22,059	14	16,308	24,648	51	62,872	62,492	-1	54,051	62,775	16
HS0303		4,837	3,695	-24	6,640	4,668	-30	6,367	4,186	-34	6,114	4,955	-19
HS0304		12,376	12,146	-2	16,991	14,125	-17	7,191	8,237	15	12,586	6,942	-45
HS0306		2,530	2,070	-18	2,290	2,652	16	2,131	2,232	5	2,015	1,430	-29
HS0307	Italy	15,867	17,900	13	19,931	18,687	-6	11,947	8,003	-33	8,708	6,837	-21
HS1604		630	595	-6	241	644	167	1,871	2,141	14	979	670	-32
HS1605		3,510	3,727	6	2,529	4,356	72	7,575	5,855	-23	4,819	7,359	53
HS0303		739	1,073	45	662	1,696	156	1,817	279	-85	575	9	-98
HS0304		54,316	53,851	-1	48,055	48,203	0	10,293	8,253	-20	25,402	8,867	-65
HS0306		390	869	123	832	717	-14	397	534	34	558	349	-38
HS0307	Spain	5,713	6,227	9	4,726	6,351	34	2,149	1,720	-20	1,373	1,738	27
HS1604		302	120	-60	357	77	-78	926	1,469	59	1,930	6,053	214
HS1605		2,339	3,500	50	1,024	3,117	204	11,063	10,555	-5	10,358	11,804	14
HS0303		978	823	-16	786	879	12	1,845	1,914	4	1,808	1,671	-8
HS0304		28,005	29,689	6	36,112	28,264	-22	15,668	17,298	10	17,791	14,698	-17
HS0306		2,875	3,391	18	2,247	3,193	42	7,950	9,258	16	5,090	7,178	41
HS0307	Netherlands	909	954	5	596	1,264	112	1,118	596	-47	773	751	-3
HS1604		515	1,106	115	565	1,481	162	1,589	811	-49	1,453	1,336	-8
HS1605		1,610	2,009	25	1,597	2,668	67	8,756	9,471	8	6,028	7,427	23
HS0303		660	529	-20	477	453	-5	536	467	-13	571	434	-24
HS0304		37,719	36,784	-2	26,829	31,852	19	9,323	7,819	-16	11,857	9,091	-23
HS0306		5,507	6,290	14	4,667	7,465	60	4,298	5,227	22	4,613	5,344	16
HS0307	Germany	1,133	1,226	8	1,228	1,088	-11	480	363	-24	599	395	-34
HS1604		4,226	3,676	-13	3,685	5,684	54	6,588	5,352	-19	5,271	3,665	-30
HS1605		2,202	2,625	19	2,566	3,581	40	5,701	5,930	4	5,170	6,225	20

TABLE 8. Summary of Fluctuations in Seafood Export Volume (tons) from Vietnam to the EU, before and after the IUU Regulation (2010) and before and after the Yellow Card (2017) (continued)

Commodity	Importers	Import 1 year pre-Reg (2009)	Import 1 year post-Reg (2010)	Percent change	Import 2 year pre-Reg (2008)	Import 2 year post-Reg (2011)	Percent change	Import 1 year pre-yellow card (2017)	Import 1 year post-yellow card (2018)	Percent change	Import 2 year pre-yellow card (2016)	Import 2 year post-yellow card (2019)	Percent change
HS0303		49	52	5	#VALUE!	125	NA	1,151	1,212	5	1,413	1,045	-26
HS0304		3,757	5,423	44	2,546	5,388	112	2,937	4,174	42	4,938	3,947	-20
HS0306	Portugal	1,842	1,749	-5	951	983	3	420	563	34	664	509	-23
HS0307		5,882	5,966	1	4,789	6,666	39	592	421	-29	233	595	155
HS1604		66	143	118	186	147	-21	42	544	1195	572	698	22
HS1605		317	306	-4	160	36	-78	11,645	10,987	-6	10,729	10,605	-1
HS0303		626	571	-9	661	770	16	1,788	1,215	-32	1,167	1,303	12
HS0304		10,504	15,830	51	14,057	17,684	26	6,692	4,389	-34	11,290	5,242	-54
HS0306		2,966	4,008	35	3,110	3,394	9	3,928	4,899	25	3,792	4,472	18
HS0307	France	1,239	1,550	25	1,465	1,054	-28	1,455	1,457	0	834	878	5
HS1604		52	111	113	78	191	145	604	581	-4	503	692	38
HS1605		2,666	3,050	14	2,427	3,241	34	3,254	3,058	-6	3,381	3,140	-7
HS0303		751	871	16	535	907	70	1,206	936	-22	778	1,244	60
HS0304		9,349	12,091	29	5,542	13,068	136	15,217	13,954	-8	15,131	15,886	5
HS0306		4,147	4,296	4	3,264	5,143	58	8,527	10,953	28	5,590	11,955	114
HS0307	UK	331	308	-7	340	483	42	303	130	-57	200	92	-54
HS1604		420	376	-11	764	162	-79	656	777	18	764	438	-43
HS1605		2,860	2,764	-3	2,329	3,701	59	8,418	9,972	18	7,856	9,212	17
HS0303		742	549	-26	1,071	671	-37	968	848	-12	1,130	823	-27
HS0304		13,897	12,657	-9	15,245	10,072	-34	6,917	5,948	-14	7,266	6,395	-12
HS0306		3,502	3,175	-9	2,745	3,090	13	6,471	6,724	4	4,091	5,249	28
HS0307	Belgium	991	1,373	39	1,772	785	-56	876	276	-68	477	159	-67
HS1604		381	263	-31	372	334	-10	343	386	12	391	346	-11
HS1605		2,369	1,987	-16	2,198	1,618	-26	2,826	2,998	6	2,714	2,957	9

4.2.2. Directly and Indirectly Impacted Products: Analysis at HS6 Level

The above assessment for commodities at the four-digit (HS4) level reveals the overall impacts of the IUU Regulation and the yellow card warning. At the HS4 level, the commodity categories include combined numbers for capture and aquaculture products that show trends, but do not precisely reveal impacts of the IUU Regulation. An assessment at the six-digit (HS6) level can be performed for groups of commodities classified by both production methods (e.g., capture and aquaculture) as well as product forms (e.g., frozen and prepared). Table 9 presents six groups of commodities classified to species and product forms, including: other crustacean (e.g., lobster, crab, oyster, mussel and clam); octopus and squid; tuna and swordfish; tilapia and carp; pangasius; and shrimp and prawn. Groups 1-3 include species that are mainly from wild capture fisheries, which can be assumed to be impacted significantly by the IUU Regulation, while Groups 4-6 consist mainly of species from aquaculture.

From this breakdown, the following assumptions can be made:

- Groups 1, 2, & 3: impacted directly by IUU yellow cards (mainly capture fisheries)
- Groups 4, 5, & 6: impacted indirectly by IUU yellow cards (mainly aquaculture)

TABLE 9. Major Groups of Commodities at HS6 Level

No.	Groups	Commodity	HS 6 digits
1	Other crustacean such as crab, lobster, oyster, mussels, clam	Prepared or preserved	160559; 160590; 160510; 160556;
		Fresh, chilled and frozen	030729; 030722; 030799; 030792; 030772; 030611; 030615; 030619; 030614
2	Octopus, squid and cuttle fish	Prepared or preserved	160555; 160554
		Fresh, chilled and frozen	030759; 030752; 030743; 030749
3	Tuna, swordfish, dogfish and other sharks	Prepared or preserved	160414
		Fresh, chilled and frozen	030342; 030349; 030361; 030357; 030487; 030421; 030484; 030375; 030381
4	Tilapia, carp and other fish	Prepared or preserved	160419; 160420
		Fresh, chilled and frozen	030323; 030489; 030461; 030439
5	Pangasius: fresh and frozen	Fresh, chilled and frozen, fillet and wholefish	030429; 030462; 030324; 030432
6	Shrimp and prawns	Prepared and preserved	160521; 160529; 160520
		Frozen products	030613; 030617

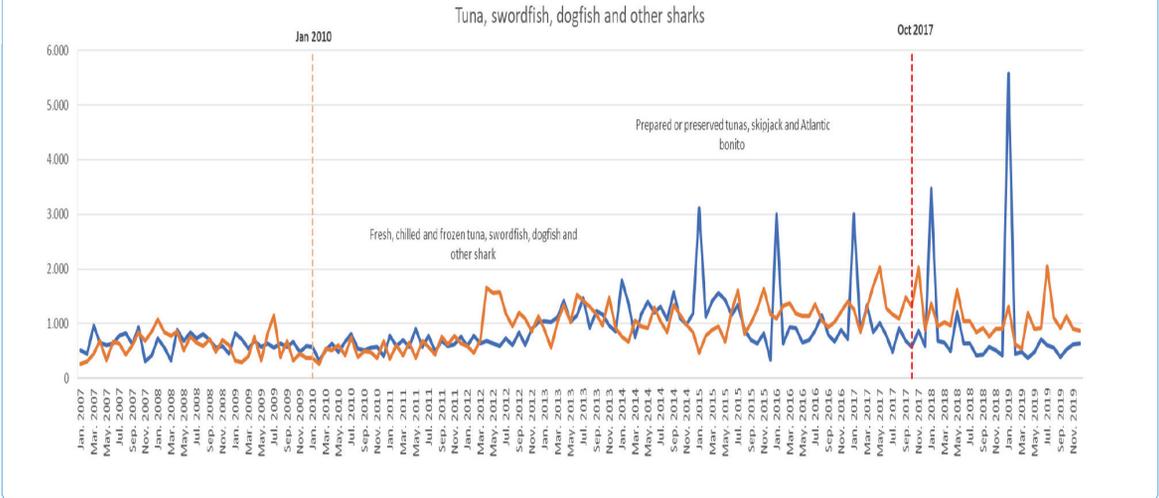
The analyses below are separated into two parts according to the two commodity groups: first, those that are directly impacted by the EU IUU Regulation, and second, those that are those indirectly affected.

Directly Impacted Products

Tuna, swordfish, dogfish and other sharks are marine captured species and, therefore, the main Vietnamese products impacted by the EU IUU Regulation. Figure 24 presents the fluctuation in exports of tuna and other marine fish, showing a slight decrease in the monthly export volume

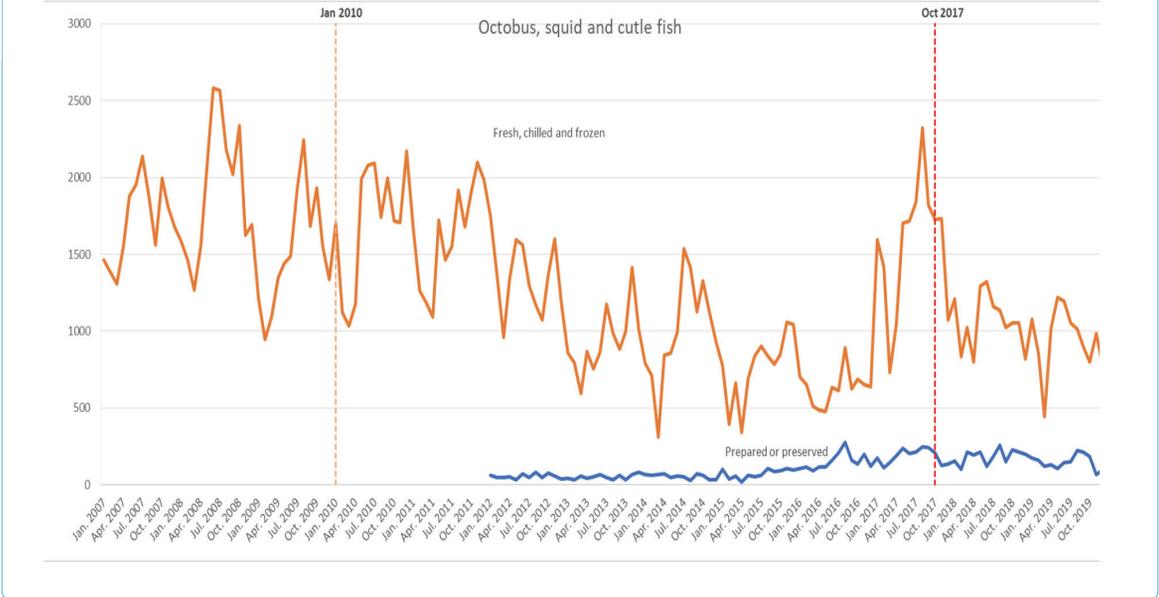
when the IUU Regulation took effect (January 2010) and then when the yellow card warning was issued (October 2017). The calculation of difference in yearly export volumes in Table 10 shows the decline more clearly.

FIGURE 24. Fluctuation In Export Volume (tons) of Tuna and other Marine Fish from Vietnam to EU, 2007-2019



Octopus, squid and cuttlefish are also marine capture species and, thus, these commodities are subject to the IUU Regulation. The export volume of these commodities, as shown in Figure 25, presents a clear decline after the IUU Regulation took effect (January 2010), and especially after the yellow card warning (October 2017).

FIGURE 25. Fluctuation in Export Volume (tons) of Octopus, Squid and Cuttlefish from Vietnam to EU, 2007-2019



Other crustaceans include lobster, oyster, clam and mussels, which are also harvested from wild stocks or extensive farming systems. Figure 26 shows a slight decline in export volume of these commodities after the IUU Regulation took effect (January 2010) and after the yellow card warning (October 2017).

FIGURE 26. Fluctuation in Export Volume (tons) of other Crustacean Products from Vietnam to EU, 2007-2019

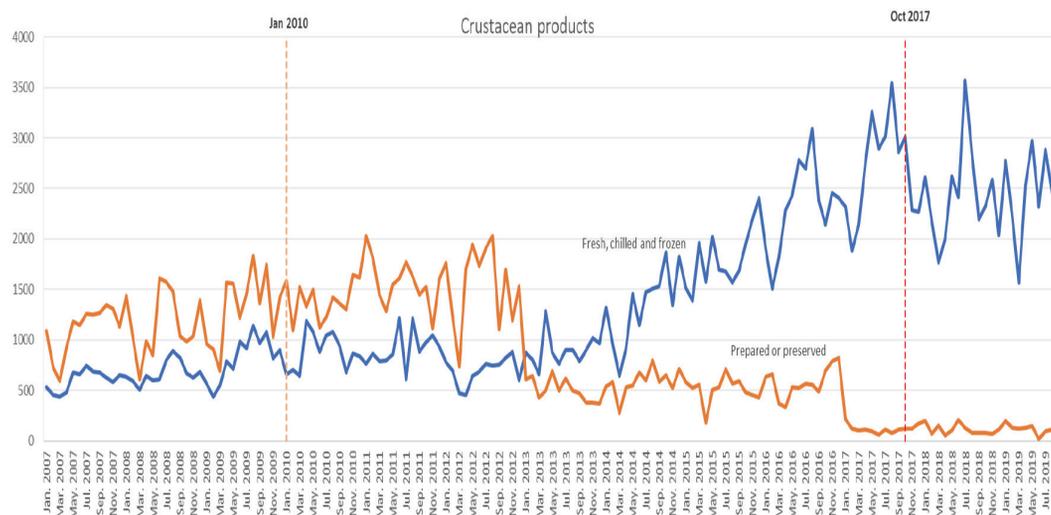


Table 10 summarizes the calculation of export volume fluctuations in the period from 2007 to 2019. It shows clearly that aquaculture commodities are nearly not impacted by the IUU Regulation and the yellow card warning.

The significant decline in exports of farmed species is mainly for pangasius. Decline of pangasius exports is largely due to the negative impacts of social media and unfair claims. An interview with the top pangasius producer and exporter⁹ confirms that the product has not been impacted by the IUU Regulation so far. However, there may be an indirect impact when the EVFTA takes effect. According to the EVFTA, the import tariff for frozen fillet from Vietnam to the EU will be reduced from 5.5 percent to 0 percent after a period of three years. However, the European Commission also plans to monitor the results of Vietnam’s efforts to combat IUU fishing, and if sufficient progress is not made, the tariff may not be deducted as per the agreement.

10 Thanks to Mrs. Ngo Vi Tam, CEO of Vinh Hoan corp., for the discussion and information.

TABLE 10. Summary of Fluctuations in Export Volume (tons) of Major Groups of Commodities from Vietnam to EU, 2007-2019

Groups	Commodity	Import 1 year pre-Reg (2009)	Import 1 year post-Reg (2010)	Percent change	Import 2 year pre-Reg (2008)	Import 2 year post-Reg (2011)	Percent change	Import 1 year pre-yellow card (2017)	Import 1 year post-yellow card	Percent change	Import 2 year pre-yellow card (2016)	Import 2 year post-yellow card (2019)	Percent change
Other crustacean such as lobster, oyster, clam, mussels	Prepared or preserved	9,846	10,599	7.6	8,070	10,921	35.3	32,227	29,088	-9.7	27,898	31,623	13.4
	Fresh, chilled and frozen	15,738	16,729	6.3	14,014	18,819	34.3	1,407	1,332	-5.3	6,964	1,387	-80.1
Octopus, squid and cuttle fish	Prepared or preserved	0	0	NA	0	0	NA	2235,8	2229,7	-0.3	1807,8	1771,1	-2.0
	Fresh, chilled and frozen	18,189	20,526	12.8	22,914	19,547	-14.7	18,720	12,722	-32.0	7,562	11,337	49.9
Tuna, swordfish, dogfish and other sharks	Prepared or preserved	7,521	6,642	-11.7	7,880	8,089	2.7	11,978	10,163	-15.1	11,960	11,444	-4.3
	Fresh, chilled and frozen	6,299	5,900	-6.3	8,598	6,902	-19.7	16,372	12,383	-24.4	14,297	12,505	-12.5
Tilapia, carp and other fish	Prepared or preserved	2,090	2,940	40.6	1,968	3,164	60.8	3,924	4,612	17.5	3,276	5,186	58.3
	Fresh, chilled and frozen	NA	NA	NA	NA	NA	NA	6910,3	6121,6	-11.4	8175,8	5005,7	-38.8
Pangasius: fresh and frozen	Prepared or preserved	227,273	229,962	1.2	217,553	199,472	-8.3	79,199	72,210	-8.8	108,115	73,535	-32.0
	Fresh, chilled and frozen, fillet and wholefish	9,440	11,399	20.8	8,201	13,690	66.9	28,344	31,086	9.7	24,129	29,312	21.5
Shrim and prawns	Prepared or preserved	25,380	27,272	7.5	21,114	28,193	33.5	37,198	43,657	17.4	28,304	39,866	40.9
	Frozen products												

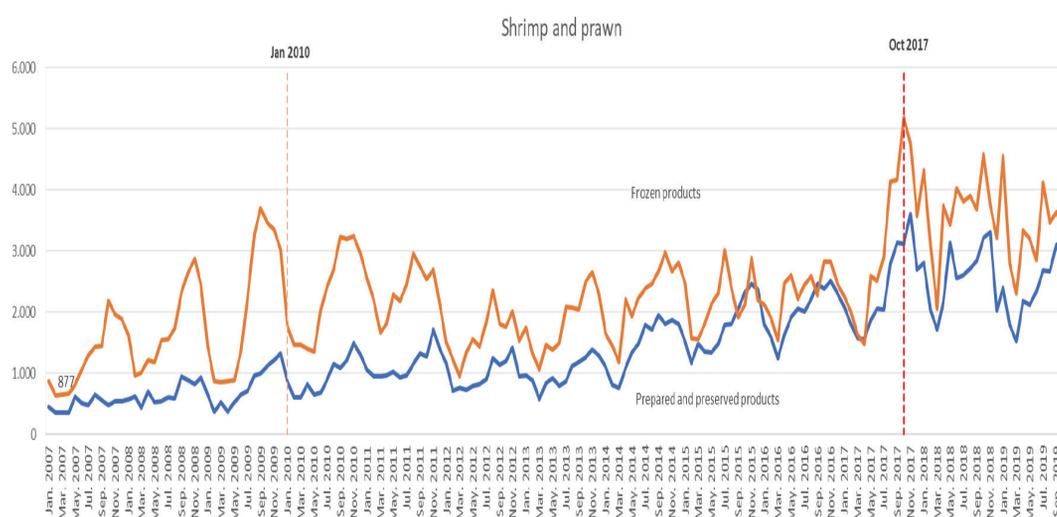
Tuna, swordfish, dogfish and other sharks are the main commodities impacted by the IUU Regulation and yellow card warning. One year after the IUU Regulation took effect, the export volume of these species fell by 11.7 percent for prepared and preserved products, and 6.3 percent for frozen and chilled products. The yellow card impact was even more significant. The export volume declined by 15.1 percent for prepared and preserved items, and 24.4 percent for frozen and chilled products, one year after the yellow card warning. Two years after the yellow card, the export volumes decreased 4.3 percent and 12.5 percent for the two product forms, respectively.

Export volume of frozen and chilled mollusk products fell by 14.7 percent in the second year after the IUU Regulation took effect, and declined by 32 percent in the first year after the yellow card warning. However, the export volume of these commodities increased by nearly 50 percent in the second year after the yellow card warning. The export volume of crustaceans (excluding shrimp and prawn) declined by 9.7 percent for prepared and preserved items, and 5.3 percent for frozen and chilled products in the first year after yellow card. However, in the second year after the yellow card, the prepared and preserved items of this commodity increased 13.4 percent, while the export of chilled and frozen items continuously declined, by 80 percent.

Indirectly Impacted Products

Shrimp and prawn are the major export commodities of Vietnam to the EU, with a growth of 9 percent per year during the period of 2007 to 2019. Monthly export volume fluctuates, as shows in Figure 27. This fluctuation, however, is mainly due to the seasonal effect rather than the IUU Regulation. For example, the low export season is usually January through March, while the high export season is from September to December every year.

FIGURE 27. Fluctuation in Export Volume (tons) of Shrimp and Prawn from Vietnam to EU, 2007-2019

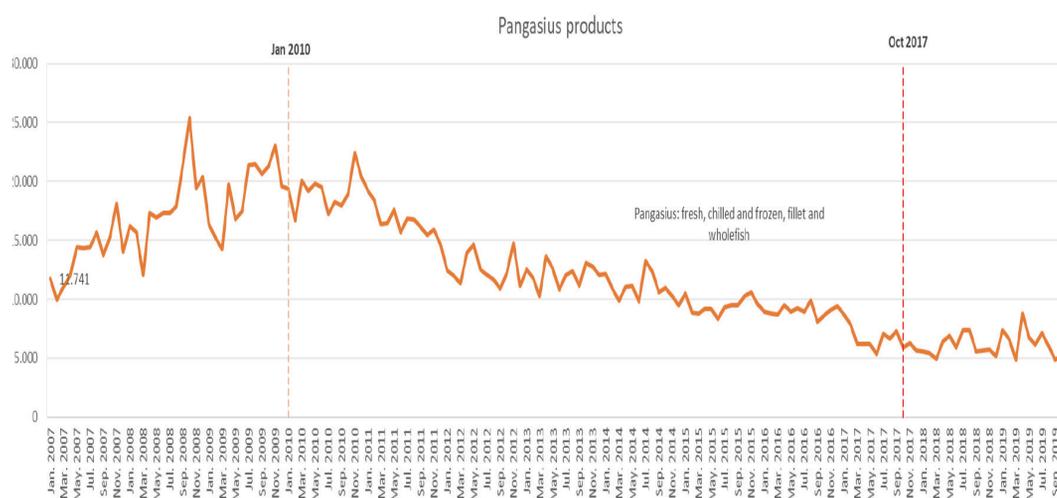


Pangasius products, consisting mainly of frozen fillet, decreased significantly over the last 10 years, as shown in Figure 28. A decline of 11 percent per year in the period of 2010-2019 was due to the negative effect of the market on the species. For example, there were unfair claims regarding fish safety, farming sustainability, and labor matters from an EU politician that led the species to be added to the red list by WWF in 2010 (Little et al, 2012). Further controversy was ignited shortly afterward by a Member of the European Parliament (MEP), Struan Stevenson (Senior Vice President of the European Parliament’s Fisheries Committee) when he attacked the fish’s environmental, social and safety credentials during an address to the European Parliament. This speech attracted considerable media attention.

The Vietnam Association of Seafood Exporters (VASEP) then invited the MEP to visit Vietnam in 2011 on a ‘fact-finding mission’. Following the visit, Stevenson publicly stated that his earlier assertions about the safety of the fish, the quality of the water in which it is produced, and the labor conditions of the workforce had been ‘misplaced’. Furthermore, many pangasius producers have received certificates from the Aquaculture Stewardship Council (ASC), the newest standard certified and provided by WWF as an environmental and safety guarantee in farming practices.

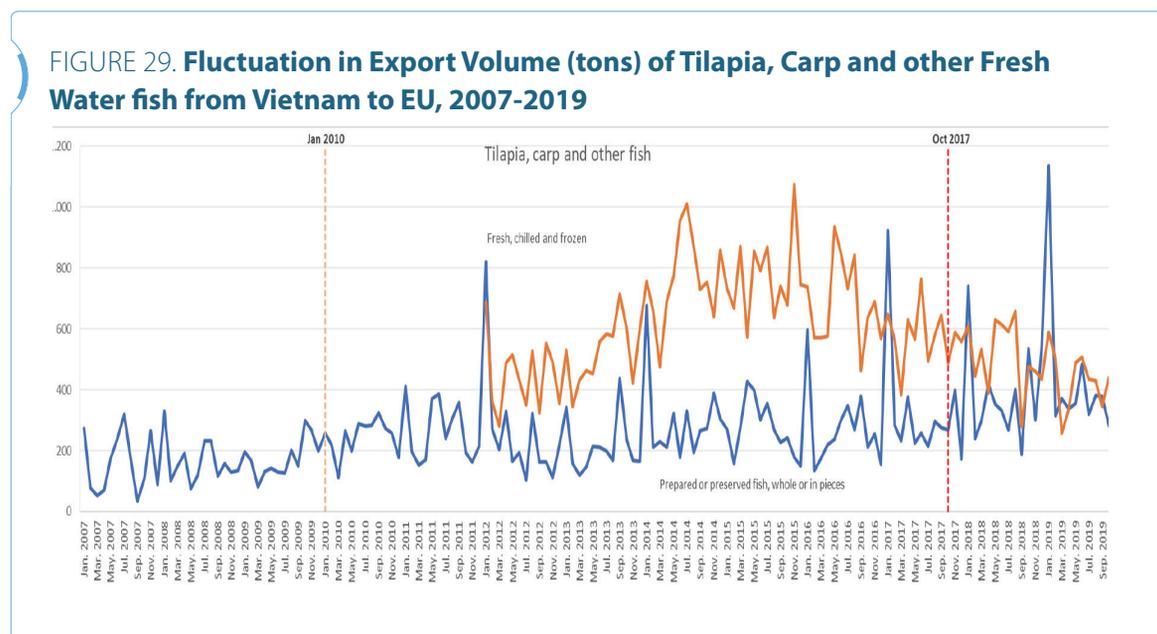
In 2017, pangasius again was claimed by a Spanish TV channel to involve unsafe aquaculture, leading the French retailer Carrefour to decide to stop stocking pangasius and suspend the sale of this fish in all its stores in Belgium, and then France and Spain (Undercurrent News, 2017). The ASC responded quickly to the decision and stated that the facts do not support Carrefour’s decision against pangasius. In response, Carrefour replied that the decision was more about meeting its consumers’ demand than any particular environmental concerns.

FIGURE 28. Fluctuation in Export Volume (tons) of Pangasius from Vietnam to EU, 2007-2019



Those two scandals for Vietnam pangasius in the EU market caused the product to suffer a damaged reputation. The market share of pangasius has therefore steadily shrank in the EU market.

Monthly export volume of tilapia, carp and other fresh water fish to the EU has fluctuated significantly over the period from 2007 to 2019, although this is mainly due to its seasonal effect (Figure 29). The trend is therefore not clear and there is no evidence showing that this commodity group is impacted by the IUU Regulation.



There was a decline in the export volume of tilapia, carp and other farmed fish, in the fresh, chilled and frozen form, during the period of 2007 to 2019. This commodity group saw a decline in export volume of 11.4 percent in the first year after the yellow card warning, and 38.8 percent in the second year after the yellow card warning.

Further investigation using in-house data is performed below to assess the change in the export value of Vietnam’s main seafood products to the EU market, before and after being issued the yellow card warning in October 2017.

General Impact Assessment of Yellow Card on Vietnam’s Marine Product Exports to the EU Market

As presented in Table 11, the export results for all seafood products to the EU market in the first year after the yellow card (2018) have not shown a clear negative impact of the card on Vietnam’s seafood industry. Total exports of marine products decreased by 6 percent. Of these marine products, cephalopod decreased by 22 percent, bivalve mollusk decreased by 19 percent, crabs decreased by 14 percent, and other marine fishes decreased by 4 percent. Meanwhile, tuna exports to the EU in 2018 still grew by 12 percent. However, compared to the strong

growth momentum of tuna in the previous two years (which increased by 18 percent in 2016, and 23 percent in 2017), this result reflected a slowing of that trend. Meanwhile, the export of farmed products was quite stable, with pangasius increasing sharply by 20 percent, and shrimp only decreasing slightly by 3 percent. Overall, the results of seafood exports to the EU in 2018 decreased only slightly by 1 percent compared to 2017.

By 2019, however, total seafood exports to the EU market showed a clear deterioration, decreasing by 12 percent overall compared to 2018. Total exports of marine products continued to decrease by 5 percent, while exports of farmed seafood fell deeper with a 15 percent drop. In particular, the three main marine products to the EU market all dropped significantly: cephalopod continued to decline by 19 percent, tuna reversed its growth trend by falling 12 percent, and bivalve mollusk dropped sharply by 119 percent, while other marine products increased by 14 percent.

Comparing export results from 2017 to 2019, after two years of impacts from the yellow card, the decrease in seafood exports to the EU market is even more evident declined at 12 percent or USD 183,3 million. Two years after the issuance of the yellow card, total marine product exports had decreased by over 10 percent, an equivalent decline of USD 43 million. Of these, cephalopod plunged the most with a 37 percent drop, bivalve mollusk decreased by 11 percent, tuna decreased by nearly 2 percent, and crabs decreased by 11 percent. The exports of farmed products to the EU also decreased by 13 percent from 2017 to 2019.

This downward trend is expected to continue further in 2020, especially in the context of the COVID-19 pandemic, which has affected Vietnam's fishing activities as well as the catch certification of seafood exported to the EU.

TABLE 11. Total Export Value (USD Million) of Seafood Products from Vietnam to EU, 2015-2019

Products	2015	2016	2017	2018	2019	Percent change 2017/2016	Percent change 2018/2017	Percent change 2019/2018	Percent change 2019/2017
Pangasius:	285.101	260.977	203.023	243.958	235.448	-22	20	-3	16
HS16	8.220	35.329	9.120	8.694	8.012	-74	-5	-8	-12
HS03	276.881	159.562	193.904	235.263	227.435	22	21	-3	17
Shrimp:	548.582	600.369	862.818	838.295	689.797	44	-3	-18	-20
HS16	252.621	284.341	367.170	381.594	309.166	29	4	-19	-16
HS03	295.961	316.028	495.648	456.702	380.631	57	-8	-17	-23
Total aquaculture	833.683	861.346	1,065.841	1,082.253	925.245	24	2	-15	-13
Tuna:	97.375	114.570	141.936	158.274	139.638	2	12	-12	-2
HS16	50.520	53.023	62.339	73.150	57.642	18	17	-21	-8
HS03	46.855	61.548	79.598	85.124	81.996	29	7	-4	3
Cephalopod	61.456	70.004	106.102	83.055	66.994	52	-22	-19	-37
Bivalve mollusk	51.769	52.390	69.776	56.175	62.026	33	-19	10	-11
Crab	20.978	20.203	15.573	13.450	13.873	-23	-14	3	-11
Other marine fish	110.026	99.944	81.488	78.599	89.458	-18	-4	14	10
Surimi	23.563	18.782	10.216	7.614	15.123	-46	-25	99	48
Total capture	341.604	357.111	414.875	389.553	371.989	16	-6	-5	-10
Total fish/seafood	1,175.287	1,218.457	1,480.717	1,471.806	1,297.233	22	-1	-12	-12

Source: VASEP

Based on the export data of Vietnam’s marine products from 2017 to 2019, it is evident that imports increased sharply and continuously during this period (Table 12), including a 33.5 percent increase in 2018 and 19 percent increase in 2019. After two years, the export value had increased by 59 percent. Of the total exports, 93 percent are fresh/raw or chilled/frozen products that are used as raw materials for processing and exporting, allowing producers to make full use of processing capacity as well as maintain jobs for workers at the factories. This increase in imports explains why even when exporting to the EU is difficult because of the IUU yellow card, exports to other markets still increase.

TABLE 12. **Import Value of Main Impacted Products (USD Million), Pre-and Post-Yellow Card**

	2017	2018	2019	Percent change 2018/2017	Percent change 2019/2018
Tuna	269.944	353.602	416.998	31	18
Cephalopod	77.626	143.039	175.878	84	23
Crab	29.460	48.487	82.143	65	69
Bivalve mollusk	27.355	27.325	41.609	0	52
Other marine fish	523.037	67.403	77.811	-87	15
Total capture products	944.778	1,261.209	1,506.070	33	19

4.2.3. Substitute Export Markets

The EU has always been the most important market for Vietnamese seafood. However, the US, Japan, South Korea, and currently China, are also important markets. This section assesses the trade fluctuations in other markets to investigate how the yellow card may lead to the switch among export markets.

Figure 30 below shows that the EU market currently is only the fifth largest market for Vietnamese seafood, as Japan, South Korea and ASEAN countries have grown to become increasingly important markets. Since 2018, the EU has dropped from its position as the second largest of Vietnam’s seafood import markets to fifth place, now ranking behind Japan, the US, South Korea and ASEAN countries. For Vietnam’s total marine product exports, the share of the EU market decreased from 15 percent to 11.6 percent from 2017 to 2019. For Vietnam’s total seafood exports, the share of the EU market fell from 17.8 percent to 11.9 percent from 2017 to 2019. The decrease in export value to the EU is caused by different factors, including the yellow card warning.

FIGURE 30. Top 5 Importing Markets of Vietnam Marine Products, 2009-2019 (VASEP)

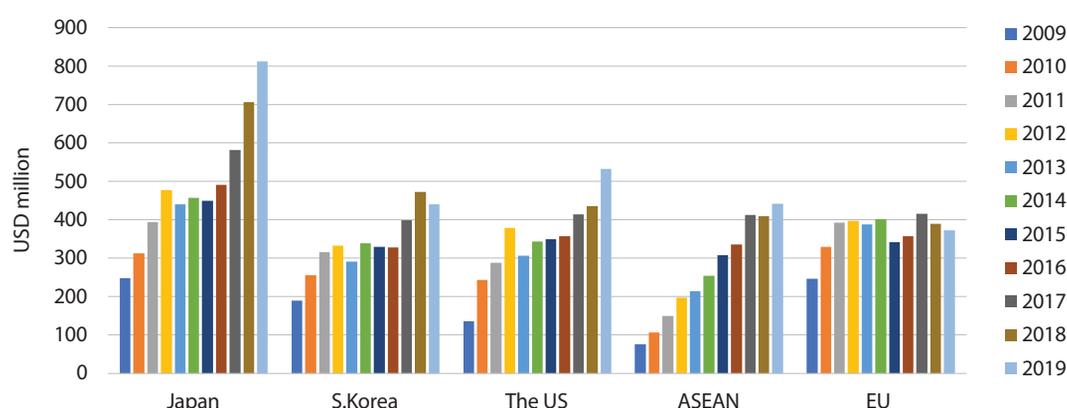


Table 13 shows Vietnam’s export volume to the substitute markets before and after the yellow card warning for overall seafood products. Of these, it appears that China, South Korea, the US and Thailand seem to be the most important substitute markets to which Vietnamese producers have chosen to switch their trade.

TABLE 13. Vietnam Seafood Exports to Substitution Markets (Volume in Tons, HS03)

Export markets	Export volume in tons				Change (percent)		
	2016	2017	2018	2019	2017/2016	2018/2017	2019/2018
China	51,081	89,349	177,506	357,390	74.9	98.7	101.3
US	194,509	164,782	173,699	149,886	-15.3	5.4	-13.7
South Korea	115,373	123,398	141,713	136,660	7.0	14.8	-3.6
Thailand	88,027	87,555	93,734	98,620	-0.5	7.1	5.2
Japan	67,829	76,936	74,598	76,894	13.4	-3.0	3.1
Other	594,784	614,677	623,002	646,215	3.3	1.4	3.7
Total (exl. EU)	1,111,604	1,121,769	1,138,121	1,184,255	0.9	1.5	4.1

Source: Trademap.org (extracted by May 2020)

The US Market

From 2017 to 2019, Vietnam’s exports of marine products to the US market grew at a steady pace, with an increase of 5.3 percent in 2018 and over 22 percent in 2019. In total, exports increased by nearly 29 percent from 2017 to 2019. All marine products saw two-digit growth: cephalopod grew 55 percent, surimi rose 42 percent, tuna increased 40 percent, and crabs were up by 12 percent. Exports of farmed products (shrimp and pangasius) grew at first, with an 18 percent increase in 2018, but plummeted 21 percent in 2019. Total seafood exports to the US from 2017 to 2019 still maintained a 4 percent growth, mainly thanks to the positive growth of marine products.

TABLE 14. **Fluctuation in Export Value (USD Million) from Vietnam to US, Pre- and Post-Yellow Card**

Products	2017	2018	2019	Percent change 2018/2017	Percent change 2019/2018
Shrimp	659.239	637.722	653.886	-3	3
Pangasius	344.439	549.452	287.767	60	-48
Total aquaculture	1,003.629	1,187.174	941.653	18	-21
Tuna	225.693	229.542	316.257	2	38
Cephalopod	9.675	10.172	14.962	5	47
Bivalve mollusk	8.438	9.773	11.227	16	15
Crab	51.678	65.086	57.806	26	-11
Other products	116.548	119.206	12.932	2	-89
Total capture	413.965	435.848	532.326	5	22
Total seafood exports	1,417.593	1,623.022	1,473.979	14	-9

Japan Market

Data from Table 15 shows that Vietnam’s seafood exports to Japan after 2017 still maintained a positive growth rate, despite it being a modest 5-6 percent. Total marine exports to this market saw relatively high growth as well, increasing by 17.5 percent and 15 percent in 2018 and 2019, respectively. In total, from 2017 to 2019, marine product exports to Japan increased by 35 percent, of which, surimi exports grew 34 percent, crabs increased by 55 percent, bivalve mollusk was up by 41 percent, and tuna increased by 16 percent. However, the item with the highest share, cephalopod, dropped 5.5 percent. Other marine fish exports also increased sharply by 51 percent.

Meanwhile, shrimp exports to Japan decreased continuously for two years. From 2017 to 2019, shrimp exports dropped by 12 percent, causing the total export of farmed seafood to Japan to decrease by over 8 percent during that time period. In addition to Japan and the US, Vietnam’s exports of marine product to other markets in the past two years have sustained positive growth. For example, the exports of marine products to South Korea from grew 10 percent from 2017 to 2019, while exports to China still increased by 16 percent during that time period.

TABLE 15. **Fluctuation in Export Value (USD Million) from Vietnam to Japan, Pre- and Post-Yellow Card**

Products	2017	2018	2019	Percent change 2018/2017	Percent change 2019/2018
Pangasius	3.955	32.206	31.209	714	-3
Shrimp	704.148	639.431	618.578	-9	-3
Total aquaculture	708.103	671.637	649.787	-5	-3
Cephalopod	148.708	154.185	140.522	4	-9
Tuna	24.396	24.808	28.307	2	14
Surimi	27.489	38.823	36.718	41	-5
Crab	32.003	37.977	49.687	19	31
Bivalve mollusk	7.723	8.376	10.904	8	30
Other capture	361.012	442.299	546.183	23	23
Total capture	601.331	706.468	812.321	17	15
Total seafood products	1,309.433	1,378.105	1,462.107	5	6

4.3. Assessing Red Card Impact

The European Commission issued a yellow card to the fisheries of Vietnam on October 2017. With this first step of the process, called pre-identification, the Commission warns the country of the risk of being identified as a non-cooperating country. The yellow card starts a formal dialogue in which the Commission and the country work together to solve all IUU issues of concern. To date, the Commission has performed two dialogues and inspections and extended Vietnam another six months (January-June 2020) to try to remove yellow card. The expected case is that the dialogue works well, so that the yellow card can be removed and a green card issued to show progress.

If, however, progress is not sufficient, the Commission will identify the country as non-cooperating. This is called a **red card**. The Commission will then propose to the Council to add this country to the list of non-cooperating countries. All products for which catch certificates are validated after that decision will be banned from the EU market.

This section estimates the short- and medium-term impacts if Vietnam were to receive a red card and be listed as a non-cooperating country. The estimation of economic impacts is based on following assumptions:

- The trade ban is imposed completely on capture seafood products; and
- The red card indirectly impacts aquaculture products.

Immediate and Short-Term Impacts

The immediate and short-term impact of a red card would be the loss of revenues from the EU

market for both capture and aquaculture products. The table below presents the estimated loss. The estimated numbers are calculated mainly based on the export value to the EU market in 2019, lessons from the case studies, results of trade flow analyses, and other information (e.g., the new EVFTA trade agreement between Vietnam and the EU).

TABLE 16. **Estimated lost from EU market for red card scenario**

Products	Description of impact	Estimated loss (USD million)
Direct impact: Capture products	2016	<i>Equal to the 2019 export value of:</i>
Tuna	Trade ban	140.000
Cephalopod		67.000
Bivalve mollusk		62.000
Crab		14.000
Other marine fish		90.000
Surimi		15.000
Indirect impact: Aquaculture	Risk of damage to reputation, custom controls, and missing the opportunities to take advantage of the EVFTA's preferential tax levels	<i>10 percent of export value in 2019:</i>
Pangasius		24.000
Shrimp		69.000
Total lost from EU markets		480.000

In 2019, the total export value of Vietnamese seafood to the EU was about USD 1.3 billion, of which capture products contributed around USD 387 million. If the European Commission issues the red card, the consequence will be the same as in the case of Sri Lanka: that all capture products are banned from entering the EU market.

Aquaculture products will experience indirect impacts if red card is issued. The impacts include the risks to reputation, burdensome custom control by import authorities, and especially, and missing the opportunities to take advantage of the EVFTA's preferential tax levels.

In July 2020, the European Union-Vietnam Free Trade Agreement (EVFTA) tariff scheme takes effect. Previously, nearly 50 percent of tariff lines were subject to a basic tax rate of up to 22 percent. Upon implementation of the EVFTA, the majority of high taxes (from 6-22 percent) will reduce to 0 percent (about 840 tariff lines). About 50 percent of the remaining tariffs lines (with a base tax rate of 5.5-26 percent) will reduce to 0 percent after 3 to 7 years.

Shrimp products, including frozen tiger shrimp (HS03061792), are entitled to a tax reduction from the base rate of 20 percent to 0 percent Entry into Force (EIF). Other shrimp products follow a 3–5-year schedule; particularly processed shrimp, which has a 7-year tax reduction schedule. Pangasius products have a roadmap for a 3-year tax reduction, while smoked fish has a 7-year roadmap. Frozen tuna products get a tax reduction to 0 percent (EIF), except for frozen tuna loins, which have a 7-year roadmap, and canned tuna products, which have a 0 percent tariff rate quota of 11,500 tons.

After the EVFTA agreement takes effect, some processed products that have a high basic tax rate (20 percent) will reduce to a special rate of 0 percent immediately, such as oysters, scallops, squid, octopus, clams and processed abalone. In addition, most of the frozen cephalopod products with basic tariffs of 6-8 percent will be reduced immediately to 0 percent. Other products such as surimi will be reduced from 14.2 percent to 0 percent, and swordfish will be reduced from 7.5 percent to 0 percent.

There is a clear advantage for Vietnamese frozen black tiger shrimp and whiteleg shrimp exports. Tiger shrimp will be reduced from Generalized Scheme of Preferences (GSP) tax of 4.2 percent to 0 percent as soon as the agreement comes into effect, while frozen whiteleg shrimp will gradually decrease to 0 percent in 5 years. Meanwhile, other competitors are subject to higher taxes. Thailand has a basic tax rate of 12 percent, but has not signed a free trade agreement with the EU or received GSP tax. Ecuador was imposed a basic tax rate of 12 percent, while Indonesia and India receive GSP tax of 4.2 percent.

Frozen pangasius products that are enjoying 5.5 percent of GSP tax will be entitled to 0 percent tax after 3 years, while Indonesia will still be subject to GSP tax of 5.5 percent and China will be subject to basic tax of 9 percent.

For tuna products, Vietnam will have a better chance after 3 to 7 years when the tax rate reduces to 0 percent, improving Vietnam's ability to compete with its biggest rival, Thailand. Currently, Thailand has a tax rate from 18-24 percent.

On average, pangasius and shrimp products exported to the EU have current tariffs between 8-12 percent. If the EVFTA is implemented, the tariffs will reduce to zero. Taking into account all impacts, it is estimated that aquaculture products (e.g., shrimp and pangasius) will lose 10 percent of total revenue in 2019, at a loss of USD 93 million in total value.

The total loss caused by red card of Vietnam seafood export to EU market is around USD 480 million. Notice that the lost caused by direct impact to capture products means that those seafood products cannot enter the market. The producers may supply to domestic market or to substitute markets (e.g. China, US, S.Korea and Japan). However, estimation of how much the domestic market and substitute markets can absorb the exceeding supply is uncertain and beyond this study. Meanwhile, the lost from indirect impact for aquaculture means that this is the potential costs paid by the aquaculture producers when they export to the EU markets.

Medium-Term Impact

The fisheries sector is critically important for Vietnam's economy and society. If the red card penalty lasts for 2 to 3 years, the entire sector will be impacted:

- Wild catch fishery and its processing sector will shrink at least 30 percent from the current capacity. This leads to a loss in export value, job creation and poverty elimination.
- The EU market requests the highest quality standards for importing products and offers good prices, which requires producers to constantly innovate and develop their production

systems to meet its requirements. However, if the sector loses the high-standard market, it also loses the incentive to upgrade their value chain.

- A ban would risk the reputation of Vietnamese seafood products in general. Other markets such as the US or Japan may follow the EU IUU regulation. While imports into China are increasing rapidly, its market is very uncertain and poorly predictable.
- The Government Vietnam has set a goal to reach USD 16-18 billion in seafood exports by 2030. To achieve that goal, the country must have an average annual growth rate of 7-9 percent in seafood exports for the next 10 years. With the scenario of the yellow card not being removed, the growth rate of 9 percent per year certainly cannot be achieved. With a red card penalty, it would be difficult to maintain positive growth in Vietnam's seafood exports in the coming years. In addition, other main markets such as the US, Japan and South Korea will likely restrict or completely stop importing seafood from Vietnam. At the same time, the price of seafood exported to other markets would also decrease, because importers will try to lower prices or because Vietnamese seafood will have to compete fiercely with products of other countries. This can have a serious impact on the whole seafood industry, reducing the reputation of not only marine products but also the aquaculture products of Vietnam in world markets. At that time, the declining fisheries economy would affect the lives of at least 4.7 million Vietnamese workers and would have a solid impact on other industries as a result of changes in the labor structure of the seafood sector.

4.4. Assessing COVID-19 Pandemic Impact

The COVID-19 pandemic is having a great influence on Vietnam's seafood production and export in the first two quarters of 2020. The clear impacts on the fisheries industry include the following:

- *Seafood turnover:* Vietnam seafood exports reached USD 8.4 billion in 2020, down nearly 2 percent compared to the same period in 2019. The supply chain of raw materials and finished products was "broken" during the pandemic. Cash flow and sources of goods were in shortage (or congested and stored), while businesses still had to fulfill social responsibilities along the chain and with employees, causing businesses to face many difficulties and great pressures.
- *Import markets:* The import markets affected the most include China, which had a 3 percent decrease, the EU (a 6 percent decrease), South Korea (a 2 percent decrease) and ASEAN countries (a 18 percent decrease). Other import markets maintained a slight growth over the same period (UK rose by 23 percent, while the US had a 1.2 percent increase, Canada rose by 14 percent).
- *Export products:* Pangasius exports dropped the most, by 25 percent, cephalopod plunged by 3 percent, and tuna slumped by 10 percent, while shrimp exports still had a positive growth of 1.8 percent.

There are many difficulties ahead that Vietnam's seafood enterprises are facing in the new context, including:

- *New trends in consumption behaviors:* Due to blockade orders from many countries and consumer fears about the pandemic, there have been major changes in consumer markets. These include: a decrease in hotels, restaurants, and cafés (HORECA) distribution; as well as a decrease in consumers' incomes, leading to a reduction in the consumption of high-end products and a move toward essential, intermediate and low-end products. This will have a direct impact and lead to a downward trend in product prices; an upward trend of online sales and home consumption; and significantly increased demand for technology applications (especially digital technology).
- *Postponement, delays and paucity of new import orders:* Only about 50 percent of orders have been delivered under signed contracts; 20-40 percent of orders have been postponed and 20-30 percent of orders have been requested to be canceled or canceled. The signing of new contacts is also difficult, especially for major markets such as the US, Japan and EU. Many small and medium enterprises do not have new orders for the second and third quarter of 2020, while some businesses have received new orders with smaller volumes.
- *Freight transport problems:* Many cargo ships have been delayed for many days or even canceled. Shipping lines have cut trains or changed routes and ports of destination, leading to long transportation times and high costs. The import and customs clearance of goods into countries were delayed and the blockade of orders in some countries made the ports congested, causing a shortage of refrigerated containers. Original documents have been delivered later than the shipment (both for import and export). The recovery of sea shipping will take longer than production recovery, which will cause the transportation cost to increase during the pandemic and could easily create a new higher price floor.
- *Financial problems:* Many seafood producers have experienced delays in receiving payments from customers. As export turnover plummeted, enterprises could not turn around the capital, lacking cash flows to pay for bank loans. Input costs also increased significantly, including for electricity, water, raw materials and wages. Businesses have been "burdened" with more incurred costs such as high bank fees, and new costs, such as the cost of changing the ship's journey, changing the destination port, or storing containers at the port, plus the cost of purchasing medical equipment to prevent the spread of COVID.
- *Other challenges:* Purchasing power from markets decrease and recover slowly. Some businesses will be eliminated: closed, bankrupted or sold to other investors. Outstanding debts may increase, affecting related industries (e.g., insurance, banking, and supporting industries). Many ponds will stop raising, causing more material shortages in the future and raw material prices will soar. As the supply chain is interrupted, production costs will increase due to higher inventories and the shortage of cold storage, while a labor shortage will also be a challenge.

However, there are also opportunities for Vietnam's fisheries industry to adapt, recover and develop in the coming period:

- Investor confidence in Vietnam and Vietnamese seafood has increased significantly in the wake of the COVID-19 pandemic (thanks to effective policies to combat an epidemic, implement social security and invest in economic development).
- The main countries competing with Vietnam (such as India and Ecuador) have had to blockade and quarantine to prevent epidemics, reducing production and exports by 50 percent. Indonesia and the Philippines and Thailand also dropped about 30 percent. These countries will have more significant lags than Vietnam in restoring production to maintain the supply to the world. This is a great opportunity for Vietnamese seafood to increase its production to gain market share in the markets.
- There will be a shift in production from China to Vietnam, especially after the US-China trade war and the COVID-19 epidemic.
- The demand for raw materials from preliminary processing from Vietnam tends to increase.
- Convenient and value-added fishery products tend to be preferred in the world market.
- Supporting industries for aquaculture (producing medicine, chemicals, packaging materials, equipment, equipment for aquaculture, processing, etc.) have a chance to develop in Vietnam, thereby creating favorable conditions for seafood businesses to be more active in production.

4.5. Vietnam Seafood Exports in 2020 and forecast for 2021 in Context of COVID-19 Pandemic and IUU Yellow Card

The COVID-19 pandemic has been very complicated for Vietnam and countries around the world over the past 2 years, affecting export in 2020. Vietnam's seafood exports in 2020 reached USD 8.4 billion, which was a decrease of 1.9 percent compared to 2019. In 2020, aquaculture (shrimp, pangasius) accounted for 62 percent with USD 5.2 billion, and captured seafood accounted for 38 percent with USD 3.2 billion.

The COVID-19 pandemic disrupted global seafood trade in 2020, changing consumption trends in fishery products. The pandemic has reduced the demand for seafood imports in most markets. The main importers of Vietnamese seafood such as the EU, China, South Korea, and Japan slightly decreased their imports from Vietnam (by between 3 and 6 percent). In contrast, the US, the largest market, increased seafood imports from Vietnam by 10 percent. In addition, other markets such as Russia, UK, Australia, and Canada significantly increased seafood imports from Vietnam (by between 10 and 32 percent).

In 2020, due to the pandemic, Vietnam's main export products fluctuated according to market trends, leading to an increase in exports of whiteleg shrimp, marine shrimp, variable fish, crabs and bivalve mollusks, while pangasius exports decreased notably, and tuna, squid, and octopus exports decreased slightly. The exports were reduced for some Vietnamese marine products such as frozen tuna and other captured fish, frozen squid and octopus. At the same time, the pandemic created opportunities for dried and canned and processed seafood because they were suitable for home consumption, had a long shelf life, and could be processed quickly and were ready to eat. Therefore, exports of many items increased – for example, canned tuna increased by 19 percent, dried fish increased by 22 percent, dried marine shrimp increased by 112 percent, dried squid increased by 29 percent, crabs increased by 49 percent, and fish sauce increased by 24 percent. Therefore, the total marine exports remained at USD 3.2 billion, equivalent to the value 2019.

These trade shifts resulted in the EU dropping to become the fourth most important market in terms of importing Vietnamese seafood, accounting for 11 percent of Vietnam's exports. Vietnam's seafood exports to the EU were affected by both the COVID pandemic and the IUU yellow card, resulting in a turnover of only USD 959 million, a decrease of 5.7 percent compared to 2019. UK leaving the EU in February 2020 also resulted in a decrease in demand from the EU seafood market, compared to the previous year. However, the Vietnam - EU Free Trade Agreement (EVFTA) brought positive results for Vietnamese seafood exports in the second half of 2020, after falling 16 percent in the first quarter and 20 percent in the second quarter in term of value. In 2020, seafood is one of the export industries that will benefit significantly when the EVFTA comes into effect because 50 percent of the tariff lines will be 0 percent by 2020, including major commodities such as shrimp, tuna, squid, and octopus. This will help the seafood business community, which has been flexible and adapting to the market trends during the pandemic.

Forecast on seafood exports in 2021

In 2021, although the output of seafood raw materials has been stable to date, the COVID pandemic is still a serious problem globally and will continue to affect global supply chains and trade, including seafood trade. Vietnamese seafood enterprises have shown they can flexibly adjust their export products to suit the changing trend of the market. Accordingly, enterprises are concentrating in the production and export of products such as whiteleg shrimp, canned fish, dried fish, and processed seafood.

There are several enterprises who are benefiting from the market opportunities and export growth momentum of 2020. There, however, are also several enterprises, especially small and medium scale enterprises, facing more difficulties, after a challenging COVID year with reductions in orders, and less capital.

Since second quarter of 2021, the recovery in two major markets - US and EU - and sharp increases in exports to potential markets and sharp increases in exports to the markets joined The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) have

resulted seafood export turnover of over USD 4.1 billion nationally in the first half of this year. However, since May 2021, the COVID pandemic has hit Ho Chi Minh City and the Mekong Delta provinces, affecting production, processing and export of seafood because of measures such as isolation and social distancing. Therefore, it is forecasted that seafood exports will slow down over the last six months of 2021. In the best-case scenario, where the pandemic is reduced and relatively controlled after three months, the monthly growth rate will only fluctuate between six and eight percent. At that time, seafood exports can reach the target of USD 9 billion by the end of 2021. In a worse-case scenario, where the pandemic lasts longer and China continues or increases control of frozen seafood imported from countries, including Vietnam, exports may only reach approximately USD 8.8 billion.

TABLE 17. Vietnam Seafood Exports in 2020 and forecast for 2021 (USD Million)

Products	QI/2020	Percent change	QII/2020	Percent change	QIII/2020	Percent change	QIV/2020	Percent change	2020 Total	Percent change	2021 (Forecast)	Percent change
Shrimp	628.556	1.8	894.401	8.7	1,168.022	17.5	1,042.485	12.3	3,733.464	11.0	4,014.188	7
- Whiteleg	439.517	7.6	628.178	13.4	870.577	19.8	776.787	16.2	2,715.059	15.1	3,211.350	18
- Black tiger	124.281	-15.5	152.725	-14.1	152.639	-16.7	145.799	-18.5	575.444	-16.3	558.180	-3
Pangasius	334.061	-29.3	333.451	-31.9	375.109	-24.8	450.159	-17.2	1,492.780	-25.5	1,625.074	9
Tuna	146.471	-10.4	146.229	-27.9	184.426	2.1	171.625	-0.5	648.751	-9.8	721.206	13
HS code 03	82.004	-13.7	65.481	-47.4	78.151	-23.4	86.537	-7.7	312.173	-24.8	387.091	24
HS code 16	64.467	-5.7	80.748	2.8	106.275	35.3	85.088	7.9	336.577	10.6	343.308	12
Mollusk	127.813	-21.7	160.502	-6.9	187.950	13.2	200.064	14.7	676.330	0.01	729.630	8
Cephalopod	107.441	-24.1	132.460	-9.9	156.352	12.0	164.200	10.6	560.454	-2.8	591.602	6
Bivalve mollusk	19.453	-3.6	23.026	-1.7	29.019	14.3	33.485	35.9	104.983	12.1	129.573	23
Other mollusk	0.919	-40.2	5.017	140.2	2.579	173.9	2.378	73.0	10.893	83.3	8.148	-25
Crabs	33.274	33.4	38.188	26.2	55.470	21.7	54.738	13.5	181.671	21.9	178.602	-2
Other fish	351.079	-0.8	401.049	0.3	457.124	1.0	469.853	2.2	1,679.104	0.8	1,770.547	7
Total	1,621.254	-9.7	1,973.821	-6.8	2,428.101	3.8	2,388.923	2.6	8,412.098	-1.9	9,038.943	7



5 | Conclusion

With vast aquatic resources (including water surface area, land area and coastal length), Vietnam is the fourth largest fishery producer in the world and the third largest source of aquatic products for the world market, thanks to stable labor resources, high capacity and good processing technology. Vietnamese seafood products have reached over 160 markets and stood firm in many large and rigorous markets such as the EU, US, Japan, and South Korea, which have great influence on the world market. However, consumers in the world market, especially in large markets such as the EU, US, and Japan, are increasingly interested in responsible and sustainable products. Therefore, combating IUU fishing is critical first and foremost for the sustainable development of Vietnam's fisheries, as well as responding to market trends and regulations so that Vietnam maintains its reputation and foothold in the markets.

The study aims to assess the economic impacts of a yellow card and a possible red card being issued by European Commission to the Vietnam seafood sector. To achieve this objective, the study uses different approaches, including case studies and trade flow analysis, to underscore the economic losses and other negative consequences for Vietnam if the country cannot address issues related to its role in combating IUU fishing.

The analysis shows that capture fishery sees direct impact from the IUU regulations and carding process, while aquaculture has indirect impacts. Two years after the issuance of the yellow card, total marine product exports had significantly decreased by 12 percent, an equivalent decline of USD 183.5 million. Whereby, total national marine product exports dropped by over 10 percent or 43 USD million after two years. Of these, cephalopod plunged the most with a 37 percent drop, bivalve mollusk decreased by 11 percent, tuna decreased by nearly 2 percent, and crabs decreased by 11 percent. The exports of farmed products to the EU also decreased by 13 percent from 2017 to 2019.

In case receiving red card from the EU, the immediate and short-term impact for Vietnam seafood sector would be a trade ban from the European Commission if the country fails to address the requirements for combating IUU fishing. It is estimated that the total Vietnam seafood sector which includes tuna, swordfish, mollusk, cephalopod and other marine species, would lose around USD 387 million per year. The indirect impacts for aquaculture include an increasingly negative reputation, the imposed burden of custom control, and missing the opportunities to take advantage of the EVFTA's preferential tax levels. Aquaculture would lose around USD 93 million from indirect impacts. In total, the Vietnam seafood sector would immediately lose the EU markets, an export value of nearly USD 480 million. The medium-term impact if the ban lasts for 2-3 years includes the disruption of the seafood sector, in which at least 30 percent of capture fisheries would shrink in scale.

If Vietnam can remove the IUU yellow card soon, taking advantage of tariff preferences and institutional changes from EVFTA, the opportunity to recover and grow back in the EU market is very feasible. If this happens, Vietnam will have more opportunities in other markets, and can better compete with other producing and exporting countries. In that scenario, Vietnam's seafood export will surely reach the goal of USD 16-18 billion before 2030.

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Annex A: International Regulations on Fisheries

EU IUU Regulation

The EU IUU Regulation requires flag states to certify the origin and legality of the fish, thereby ensuring the full traceability of all marine fishery products traded from and into the EU. The measures therefore aim to ensure that countries comply with their own conservation and management rules as well as with internationally agreed rules. When flag states are unable to certify the legality of products in line with international rules, the European Commission (EC) starts a process of cooperation and assistance to help improve their legal framework and practices. The milestones of this process include the yellow cards as warnings, the green cards if issues are solved, and the red cards if they are not. The red card leads to a trade ban.

The Regulation includes three schemes:

1. *Catch certification scheme:* Only marine fisheries products validated as legal by the competent flag state can be imported to or exported from the EU.
2. *Third country carding process:* The Regulation enables the EU to enter into dialogue with non-EU countries that are assessed as not effectively combatting IUU fishing. If third countries fail to put in place the required reforms in a timely manner, sanctions, including trade bans on their fisheries products, can be imposed.
3. *Penalties for EU nationals:* EU nationals who engage in, or support IUU fishing anywhere in the world, under any flag, face substantial penalties proportionate to the economic value of their catch, which deprives them of any profit and thereby undermines the economic driver.

The three schemes are supported by following EU legislations:

1. Regulation (EC) No. 1005/2008 – Establishing a Community system to prevent, deter and eliminate IUU fishing. This is the legal basis to identify IUU fishing and is applied to all fishing vessels. The regulation seeks to ensure full traceability of all marine fishery products traded with the EU, excluding freshwater fishery products, aquaculture products, and ornamental fish.
2. Regulation (EC) No. 1010/2009 – The implementing regulation, establishing the Catch Certificate. It lays down technical details of certain provisions of IUU regulation, such as: prior notification of landing, trans-shipment and consignment; landing and trans-

shipment declaration; benchmark criteria of port inspection; simplifying the catch certification scheme; risk management criteria for certification; and administrative cooperation with third countries.

3. Regulation (EC) No. 1224/2009 – Establishing a Community control system for ensuring compliance with the rules of the common fisheries policy. The whole chain of production and marketing should be covered by a control regime. The control regime should include a coherent traceability system and it should also protect the interests of consumers by providing information concerning the marine products. To achieve this goal the regulation requires that fisheries and aquaculture products placed on the market or likely to be placed on the market in the Community shall be adequately labeled to ensure the traceability of each lot. Lots of fisheries and aquaculture products may be merged or split after first sale only if it is possible to trace them back to the catching or harvesting stage. Member States shall ensure that operators have in place systems and procedures to identify any operator from whom they have been supplied with lots of fisheries and aquaculture products and to whom these products have been supplied.
4. Regulation (EU) No. 1379/2013 – Establishing the organization of the markets for fishery and aquaculture products. It regulates the labeling indications for all fishery and aquaculture products that are marketed within the EU, irrespective of the marketed method, and offered to the final consumer or a mass caterer.

The largest importers of fishery products from outside the EU include Spain, the UK, Germany, Italy, the Netherlands and France. Imports by these countries account for an estimated 73 percent of the total volume of EU fishery imports subject to the IUU Regulation. These countries are also the largest EU importers of Vietnam's seafood products.

The export countries are determined to take appropriate measures to ensure that legal fishing will not be subject to official warnings (yellow cards) for improvement. If these countries do not improve, they will face a ban on exports of seafood products to the EU market (red card). If these countries have made the necessary reforms, they will be cleared of the warning (and receive a green card).

US Seafood Import Monitoring Program

NOAA Fisheries published its final rule establishing the Seafood Import Monitoring Program (SIMP) on December 9, 2016. The Program establishes, for imports of certain seafood products, the reporting and record-keeping requirements needed to prevent IUU-caught and/or misrepresented seafood from entering US commerce.

NOAA and its US Government partner agencies are involved in numerous efforts to engage internationally, enhance enforcement, strengthen partnerships, and establish seafood traceability. SIMP is the first phase of a risk-based traceability program requiring the importer of record to provide and report key data – from the point of harvest to the point of entry into US commerce. Measures include the following:

- SIMP establishes permitting, data reporting and record-keeping requirements for the importation of certain priority fish and fish products that have been identified as being particularly vulnerable to IUU fishing and/or seafood fraud.
- The data collected will allow these priority species of seafood to be traced from the point of entry into US commerce back to the point of harvest or production to verify whether they were lawfully harvested or produced.
- The collection of catch and landing documentation for these priority seafood species will be accomplished through the International Trade Data System (ITDS), the US government's single data portal for all import and export reporting.
- SIMP is not a labeling program, nor is it consumer facing. In keeping with the Magnuson-Stevens Act authority (under which the regulatory program has been promulgated) and the strict information security of the ITDS, the information collected under this program is confidential.
- The importer of record will be required to keep records regarding the chain of custody of the fish or fish product from harvest to point of entry into the US.
- The final rule reflects and responds to numerous public comments and messages received on the proposed rule (February 2016) and underscores NOAA Fisheries' extensive efforts to establish an effective program that minimizes the burden of compliance on the industry while providing the necessary information to identify illegal and/or misrepresented seafood imports before they enter the US market.

LIST OF PRIORITY SPECIES:

Abalone, Atlantic Cod, Blue Crab (Atlantic), Dolphin fish (Mahi Mahi), Grouper, King Crab (red), Pacific Cod, Red Snapper, Sea Cucumber, Shark, Shrimp, Swordfish Tunas: Albacore, Bigeye, Skipjack, Yellowfin, and Bluefin.

January 1, 2018 is the mandatory compliance date for most priority species listed in the rule, with shrimp and abalone compliance phased in at a later date. The effective date of this rule for all imported shrimp and abalone products, wild capture and aquaculture-raised, will be stayed until commensurate reporting and/or record-keeping requirements have been established for US domestic aquaculture-raised shrimp and abalone production. At such time, NOAA Fisheries announced a compliance date for shrimp and abalone from January 1, 2019 onward.

INFORMATION TO BE COLLECTED:

- Harvesting or Producing Entity
- Name and flag state of harvesting vessel(s)
- Evidence of authorization to fish (permit or license number)
- Unique vessel identifier (when available)

- Name(s) of farm or aquaculture facility
- Type(s) of fishing gear used
 - o *Note: The fishing area and type of fishing gear should be specified per the reporting convention and codes used by the competent authority exercising jurisdiction over the wild capture operation. If no such reporting requirements exist, FAO fishing area and gear codes should be used.*
- Fish – What, when and where
 - o Species of fish— Aquatic Sciences Fishery Information System (ASFIS) three-alpha code
 - o Landing date(s)
 - o Point(s) of first landing
 - o Product form(s) at time of landing - including quantity and weight of product
 - o Area(s) of wild-capture or aquaculture harvest
 - o Name of entity(ies) to which the fish was landed or delivered
 - *Note: In cases where entries and products comprise more than one harvest event, each event that is relevant to a shipment must be reported but the importer does not need to link each event to a particular fish or portion of the shipment. Importer of Record*
- Name, affiliation and contact information
- NOAA Fisheries-issued international fisheries trade permit (IFTP) number.
- Importer of record is responsible for keeping records regarding the chain of custody detailed above.
- Information on any trans-shipment of product (declarations by harvesting/carrier vessels, bills of landing)
- Records on processing, re-processing, and co-mingling of product

