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EXAMINATION OF PUBLIC POLICY AND PRIVATE SECTOR  
PURCHASING PRACTICES TO IMPROVE CONSUMPTION AND  
INTRA-REGIONAL TRADE OF SEAFOOD FOR THE CARIBBEAN  
SMALL-SCALE FISHERIES SECTOR



APRIL 2021

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**CARIBBEAN NATURAL RESOURCES INSTITUTE**



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### Disclaimer:

This report was produced by CANARI as an output of the StewardFish project. However, the views expressed herein are those of the author and can therefore in no way be taken to reflect the official opinions of the Global Environmental Facility, the Food and Agriculture Organization of the United Nations or other co-executing partners of the StewardFish project.

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## List of Acronyms

<b>ACP</b>	African, Caribbean and Pacific
<b>BARNUFO</b>	Barbados National Union of Fisherfolk Organizations
<b>CAHFSA</b>	Caribbean Agricultural Health and Food Safety Agency
<b>CANARI</b>	Caribbean Natural Resources Institute
<b>CARICOM</b>	Caribbean Community
<b>CARIFORUM</b>	Caribbean Forum
<b>CCCFP</b>	Caribbean Community Common Fisheries Policy
<b>CERMES</b>	Centre for Resource Management and Environmental Studies
<b>CFRAMP</b>	CARICOM Fisheries Resource Assessment and Management Programme
<b>CIRP</b>	Caribbean ICT Research Programme
<b>CITES</b>	Convention on International Trade in Endangered Species of Wild Fauna and Flora
<b>CLME + SAP</b>	Shared Living Marine Resources of the Caribbean and North Brazil Shelf Large Marine Ecosystems
<b>CNFO</b>	Caribbean Network of Fisherfolk Organisations
<b>COTED</b>	Council for Trade and Economic Development
<b>CRFM</b>	Caribbean Regional Fisheries Mechanism
<b>CSME</b>	Caribbean Single Market and Economy
<b>EDF</b>	European Development Funding
<b>EPA</b>	Economic Partnership Agreement
<b>EU</b>	European Union
<b>FAO</b>	Food and Agriculture Organization of United Nations
<b>FISHCOM WG</b>	CRFM/CARICOM Fisheries and Aquaculture Priority Commodity Working Group
<b>GDP</b>	Gross Domestic Product
<b>GEF</b>	Global Environmental Facility
<b>GPS</b>	Global Positioning System
<b>HACCP</b>	Hazard Analysis Critical Control Point
<b>ICCAT</b>	International Commission for the Conservation of Atlantic Tunas
<b>IUU</b>	Illegal, Unreported and Unregulated
<b>NCD</b>	Non-communicable diseases
<b>NTB</b>	Non-Tariff Barriers
<b>NTM</b>	Non-Tariff Measures
<b>OECS</b>	Organisation of Eastern Caribbean States
<b>RQI</b>	Regional Quality Infrastructure
<b>SFF</b>	Sustainable Fisheries Fund
<b>SIDS</b>	Small Island Developing States
<b>SME</b>	Small and Micro Enterprise
<b>SPS</b>	Sanitary and Phytosanitary Measures
<b>UN</b>	United Nations
<b>UNCLOS</b>	United Nations Convention on the Law of the Sea
<b>USA</b>	United States of America
<b>USD</b>	United States Dollars
<b>UWI</b>	University of the West Indies
<b>WECAFC</b>	Western Atlantic Fisheries Commission

## Executive Summary

In the Caribbean region, small-scale fisheries play a vital role in the economies of coastal communities and rural livelihoods. Fisheries provide important sources of income, employment, food and are an essential aspect of many people's identities.

If done sustainably, increasing the consumption and trade of seafood in the Caribbean region contributes to several positive economic outcomes, including increased food security, enhanced income, and reduced food importation bills. It can also have positive socio-economic outcomes through improved economic resilience and enhanced community health.

Within the Caribbean Community (CARICOM), most nations are net importers of food and food products, importing a combined USD 5 billion in 2018. The trend follows in the seafood sector, with national and regional supplies of seafood and fish products generally unable to satisfy robust demand across CARICOM nations. Further, while seafood consumption in the Caribbean region is high<sup>1</sup> compared to global averages, it is 30 percent less than comparable Pacific Small Island Developing States. In simple terms, there is significant room for increasing both intra-regional (CARICOM-CARICOM) trade of seafood products and the consumption of regional seafood products.

This report outlines the results of a review of public policy and private sector purchasing practices related to the intra-regional trade and consumption of seafood products in the CARICOM region. The review was conducted by interviewing 14 key informants and reviewing related national and regional policies and other documents.

Moreover, this report enumerates the challenges to trade and consumption, the opportunities that exist and recommendations that could be followed to address challenges and leverage existing opportunities.

Among the main challenges to trade of seafood products are those related to transportation, cold chain management, regulations and non-tariff barriers, including the use of 'outdated' trade legislation. The main challenges to seafood consumption included the high cost of seafood when compared to protein alternatives; low taxation rates of 'cheaper' imported seafood products; insufficient supply of products that are attractively packaged and processed; inadequate levels of consumer awareness of alternative species; and inadequate incentives for incorporation of seafood into government programmes, such as school feeding programmes.

Despite these challenges, numerous opportunities exist to enhance intra-regional trade and consumption of seafood products. These include making use of underutilised species; linking seafood consumption to dietary solutions to non-communicable diseases (NCDs); improving value addition and reducing product wastage and capitalising on increased interest in the sustainable blue economy.

Recognising these challenges and opportunities, we note the following key recommendations:

- **Improve support for innovative financing in fisheries:** fishers noted the challenge of accessing capital to improve production methods and make them more sustainable. The lack of capital for investment in sustainable harvest methods and to address documentation challenges were noted particularly as you go towards the harvest end of the value chain. Blended finance and innovative finance modalities are both excellent opportunities for expanding regional production in a sustainable manner.
- **Review and reform outdated trade legislation:** key informants noted the existence of national trade legislation that goes against Caribbean Single Market and Economy (CSME) principles in the trade of agricultural products as a significant barrier to intra-regional trade.

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<sup>1</sup> 29 kg/capita/year compared to a global average of 18 kg/capita/year. Average for pacific SIDS 37 kg /capita/year



- **Invest in traceability and data collection:** tracing Caribbean seafood catch from its exact point of origin to harvest, landing, processing and eventual point of sale is a priority for sustainability, food safety and enhancing consumer confidence in regional seafood products. Fortunately, advances in available consumer electronics, notably global positioning systems (GPS) and smartphones, allow for enhanced data collection and implementation of traceability standards. Investment in modern technologies related to fisheries management such as blockchain, Artificial intelligence for monitoring and advanced harvesting tools are also needed in the industry.
- **Improve consumer awareness and education:** closely related to the opportunities of underutilised species and seafood products as part of the solution to NCDs is conducting consumer awareness and education campaigns. Awareness of the availability of healthy, Caribbean-sourced seafood should be raised among supermarkets and other points of sale. Education of consumers to enhance seafood literacy of how to process, prepare and cook underutilised species is also necessary to expand their consumption.
- **Implement certifications and quality standards related to fisheries:** a cross-cutting recommendation is the implementation of fisheries-related quality standards to increase sustainability while enhancing consumer confidence. This includes exploring the use of blockchain technology in traceability and certification.
- **Strengthen research and development:** based on the current challenges, barriers and opportunities, two follow-up studies are recommended to deepen our understanding of ways in which trade and consumption of seafood can be expanded. These are as follows:
  - *Study on seafood import substitution potential in CARICOM:* we recommend a study on the seafood imports substitution potential in the CARICOM region. Noting that the strong demand for seafood products in the region is largely satisfied by imports from outside the region, analysing the products imported in detail and matching these extra-regional imports with CARICOM product availability will identify specific and immediate trade opportunities that can be capitalised on.
  - *Study on transportation opportunities at the CARICOM level:* while some recommendations related to transport were made, there is a dire need for further research by logistical experts on methods to improve regional transportation efficiency within CARICOM. A significant amount of intra-regional trade relies on non-CARICOM ports such as Miami, for distribution and transportation. A study on increasing transport efficiency of food products within CARICOM can identify logistical opportunities that address economies of scale, transportation timing and less-than-load issues. Studies in the past, such as the 2007 Jagdeo Initiative<sup>2</sup>, have previously identified inadequate transportation as an issue, but these need updating .
  - Research into the development of value-added products and using technology to enhance packaging was also mentioned as a research and development need in the region.

Of these recommendations, stakeholders who participated in a validation webinar for the study identified **'improve support for innovative financing in fisheries'**, **'review of outdated trade legislation'** and **'further research on transportation opportunities'** as priority recommendations. These and other recommendations based on the analysis of public policy and private sector practices are outlined in full in this report. Increasing regional consumption and trade of seafood must be built on sustainable and equitable fisheries that will require continued work to advance and maintain.

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<sup>2</sup> [https://caricom.org/documents/9841-jagdeo\\_initiative.pdf](https://caricom.org/documents/9841-jagdeo_initiative.pdf)

# 1 Introduction

The fisheries sector is an important driver of economies in the Caribbean region, and healthy fish stocks are vitally important for the sustainability of coastal communities and rural livelihoods. All the countries exploit fisheries resources in their waters, and some beyond. The fishing fleets and fishing gears used in marine capture fisheries are predominantly small-scale. Fishers operate from landing sites that range from undeveloped beaches where vessels can be hauled or shallow areas where boats can be safely tied or moored to multi-million-dollar fishing facilities, with processing areas and cold storage.

In 2013, countries bordering and located within the Caribbean and North Brazil Shelf Large Marine Ecosystems (CLME+ region) adopted a 10-year Strategic Action Programme for the Sustainable Management of the Shared Living Marine Resources of the Caribbean and North Brazil Shelf Large Marine Ecosystems (CLME+ SAP). The CLME+ SAP consists of six strategies and four sub-strategies. SAP strategies 1–3, with a focus on governance, are cross-cutting, while strategies 4–6 tackle the three main marine ecosystems (reef, pelagic and continental shelf) in the CLME+ region. The CLME+ SAP aims to contribute to the achievement of the regionally-adopted long-term vision of “a healthy marine environment in the CLME+ that provides benefits and livelihoods for the well-being of the people of the region.”

The CLME+ SAP’s attention to regional and sub-regional transboundary institutional arrangements is necessary, but not sufficient, to address the three transboundary threats of unsustainable fisheries, habitat degradation and pollution at all levels of governance. The dense mosaic of marine jurisdictions and mobility of fisheries resources and people also demand the engagement of national and local level, state and non-state actors to address these threats and to build resilience in these fisheries’ socio-ecological systems.

The ‘Developing Organisational Capacity for Ecosystem Stewardship and Livelihoods in Caribbean Small-Scale Fisheries (StewardFish)’<sup>3</sup> project aims to implement the CLME+ SAP within seven Caribbean Regional Fisheries Mechanism (CRFM) Member States: Antigua and Barbuda, Barbados, Belize, Guyana, Jamaica, Saint Lucia and St. Vincent and the Grenadines. The StewardFish project will achieve its goal by empowering fisherfolk throughout fisheries value-chains to engage in resource management, decision-making processes and sustainable livelihoods, with strengthened institutional support at all levels. This will be achieved through implementation of the four core project components: 1. Developing organisational capacity for fisheries governance; 2. Enhancing ecosystem stewardship for fisheries sustainability; 3. Securing sustainable livelihoods for food and nutrition security and 4. Project management, monitoring and evaluation, and communication.

Activity 3.1.2.2 ‘examining public policy and private sector purchasing practices of seafood to improve consumption and intra-regional trade’ is one of the key activities under component 3 of StewardFish. This activity builds on Activity 3.1.2.1 ‘analysing fisheries value chains and

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<sup>3</sup> StewardFish (2018-2021) is being implemented by the Food and Agriculture Organization of the United Nations (FAO) and executed by the Caribbean ICT Research Programme of the University of the West Indies (UWI-CIRP), Caribbean Natural Resources Institute (CANARI), Caribbean Network of Fisherfolk Organisations (CNFO), Caribbean Regional Fisheries Mechanism (CRFM) and the Centre for Resource Management and Environmental Studies of the University of the West Indies (UWI-CERMES) with Fisheries Divisions/Departments in Antigua and Barbuda, Barbados, Belize, Guyana, Jamaica, Saint Lucia and St. Vincent and the Grenadines. StewardFish is funded by the Global Environmental Facility (GEF).

opportunities for new marketing and distribution seafood products that improve nutrition'. Combined, these activities will contribute to achieving Output 3.1.2 'use of local fish in healthy diets promoted through public policies and private enterprises'.

This report presents the key findings and recommendations of the study that was conducted to examine public policy and private sector purchasing practices of seafood to improve consumption and intra-regional trade in the CARICOM region.

## 2 Background

Between May and November of 2020, CANARI conducted a series of fisheries value chain analyses across three selected StewardFish countries to identify opportunities for additional marketing and distribution of current and new seafood products. This work involved participatory mapping of the following fisheries value chains:

1. Queen conch in St. Vincent and the Grenadines,
2. Caribbean spiny lobster in Jamaica, and
3. Mahi mahi (dolphinfish) in Barbados.

In order to complement the fisheries value-chain analyses, CANARI undertook an examination of public policy and private-sector purchasing practices for seafood in the Caribbean. This analysis was done to provide recommended actions to enhance the enabling environment for improved consumption and intra-regional trade of seafood in the CARICOM region. It reviewed regional and national initiatives, including the on-going 'School Feeding Initiative'<sup>4</sup> operated by FAO. Opportunities were identified to increase the use of seafood products in school feeding programmes and other initiatives to promote healthy eating habits and improve childhood nutrition.

To carry out this study, the following activities were implemented:

1. A desk study (including virtual interviews with fisheries-related state agencies and private sector enterprises) was conducted to review relevant information on public policy and private-sector purchasing practices of seafood in the CARICOM region.
2. A validation webinar with key regional stakeholders involved in the sector, including persons interviewed, was conducted to review the preliminary findings and key recommendations of the study.
3. A technical report was prepared, synthesising findings from the desk study and providing priority recommendations for improving consumption and intra-regional trade of seafood in the CARICOM region.

Additionally, a policy brief will be prepared on the public policy and private-sector purchasing practices of seafood to improve consumption and intra-regional trade seafood in the CARICOM region.

## 3 Methodology

Guided by the StewardFish project document and other background material, the broad problems and questions designed and addressed by this study are as follows:

1. What enabling factors and barriers to intra-regional trade of seafood products exist?
2. What opportunities to promote the consumption of local seafood products in healthy diets and childhood nutrition exist?

The study focused on the CARICOM region, using the three countries for which fisheries value-chain analyses were conducted under Activity 3.1.2.1 as case studies. These were Barbados, Jamaica and

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<sup>4</sup> <http://www.fao.org/in-action/program-brazil-fao/projects/consolidation-school-feeding/en/>

St. Vincent and the Grenadines. Observations and conclusions were drawn from these countries that relate to intra-regional trade in the entire CARICOM region.

The analysis looked broadly at both public policy and private-sector purchasing practices for seafood nationally within the small-scale fisheries sectors in the three target countries and across the CARICOM region. Specific focus was placed on how these policies and practices applied to the fisheries value chains selected in three target countries: Mahi mahi (Barbados), Caribbean spiny lobster (Jamaica) and queen conch (St. Vincent and the Grenadines).

### **Desk review**

Sources and documents that were analysed under this desk review included National Nutritional Standards; CARICOM Regional Food and Nutrition Security Policy; CARICOM COVID-19 Agri Food Action Plan; FAO Country Programming Frameworks; documents on national school feeding programmes; CSME policy documents, including technical reviews of CSME implementation; national foreign trade policies; national export strategies and policy documents from export support agencies; global trade databases; websites of seafood distributors and retailers and national fisheries policies.

### **Key informant interviews**

As significant information gaps on the effects and implementation of public policy and purchasing practices on intra-regional trade and consumption of seafood exist, key informant interviews were used as a data gathering and analysis tool in this study. For additional information on the interview methodology, see Appendix 5.

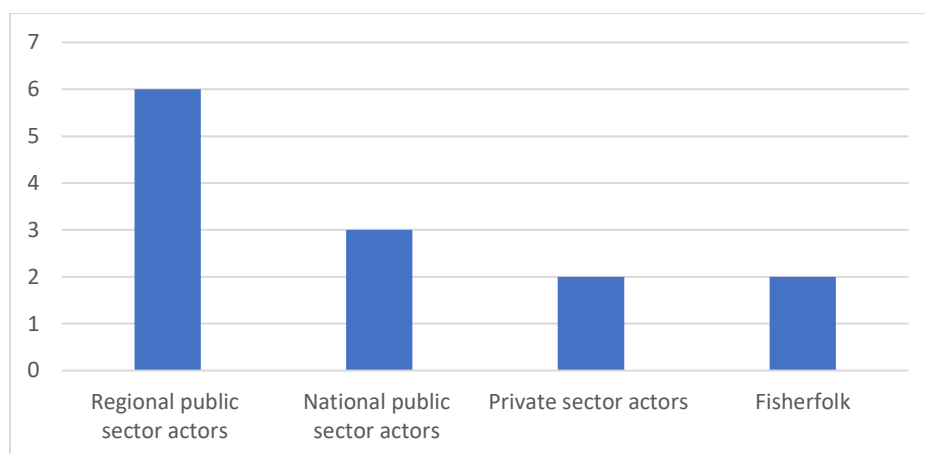
Key informant interviews were conducted with national trade experts from the public sector, heads of school feeding programmes, members of the private sector and fisheries division officials. Regionally, key informants included trade specialists at CARICOM, CRFM, the Caribbean Agricultural Health and Food Safety Agency (CAHFSA) and the Caribbean Network of Fisherfolk Organisations (CNFO). For a full listing of interviewees, see Appendix 1.

For the purposes of this study, stakeholders were grouped into the following four categories:

1. Regional public sector actors [e.g. CARICOM trade, fisheries and Sanitary and Phytosanitary Measures (SPS) experts]
2. National public sector actors (e.g. national fisheries division officials, heads of school feeding programmes)
3. Private sector actors (e.g. seafood distributors, producers of value-added products)
4. Fisherfolk (e.g. regional fisherfolk organisations)

A total of 12 virtual key-informant interviews with 13 key informants were conducted between November 2020 and January 2021. Two of the thirteen interviewees (approximately 15 percent) were female. Requests for interviews were generally sent to organisations, without naming experts. Interviews were comprised of up to 19 questions, grouped into the following categories: policy context, enabling environments, opportunities to improve consumption and trade, and barriers to trade (see Appendix 2 for sample of survey questions). Questions were adapted based on the interview and context. **Figure 3.1** below shows the breakdown of key informant types interviewed for the study.

A desk review of policy and purchasing practice documents and data was conducted concurrently with interviews. Researchers also used interviews as an opportunity to identify any gaps in coverage of the desk review by asking key informants if they were aware of available documents, data and information that could prove useful to this study.



**FIGURE 3.1: NUMBER OF KEY INFORMANT TYPES INTERVIEWED FOR THE STUDY**

### **Presentation to stakeholders**

Preliminary findings and recommendations for improving intra-regional trade were presented to stakeholders for discussion and validation in the form of a two-hour webinar held via Zoom on February 26, 2021 (see Appendix 6 for a list of webinar participants). Zoom polls were used to elicit stakeholder feedback on main challenges and opportunities, which have the greatest perceived potential positive impact on intra-regional trade. Zoom polls were also used to prioritise recommendations for improving intra-regional trade and consumption of seafood in the CARICOM region. Results from these polls were used to support the development of priority recommendations for the report.

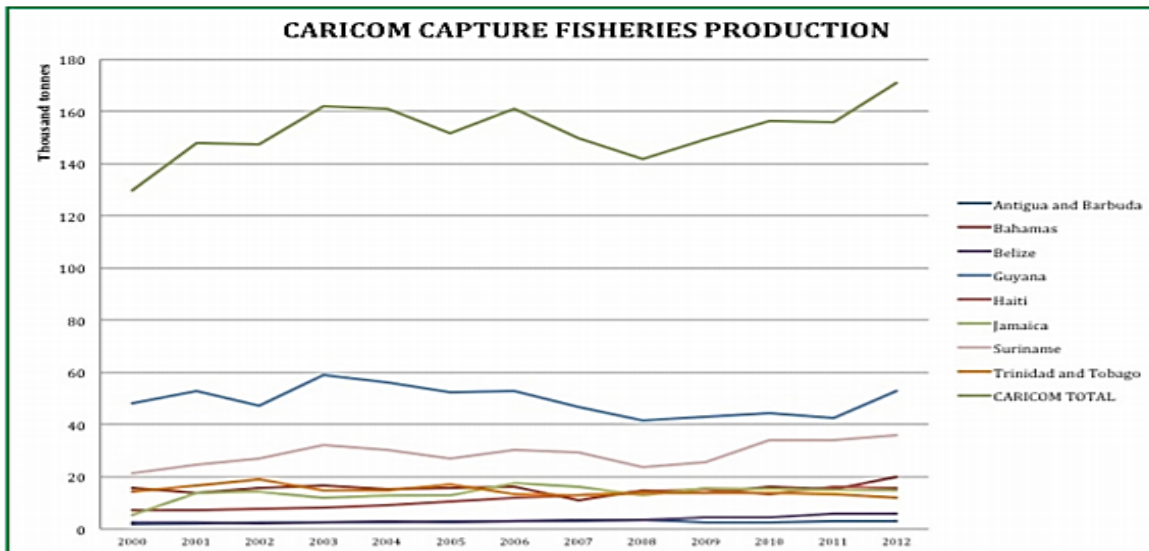
## **4 Overview of intra-regional trade of seafood**

### *4.1 Overview of regional fisheries*

Fisheries resources in the Caribbean provide an important food source and protein to the region, particularly small island developing states (SIDS). Consumption of seafood in the Caribbean ranges from 10 to 35kg per capita<sup>5</sup> (FAO, 2014). According to the State of World Fisheries and Aquaculture (FAO, 2020), the Latin America and Caribbean region has the lowest per capita consumption of seafood, globally, but this is expected to rise by 33 percent by the year 2030. CARICOM imports an estimated one third of the fish and fish products consumed in the region, as it is unable to meet the demand (FAO, 2014).

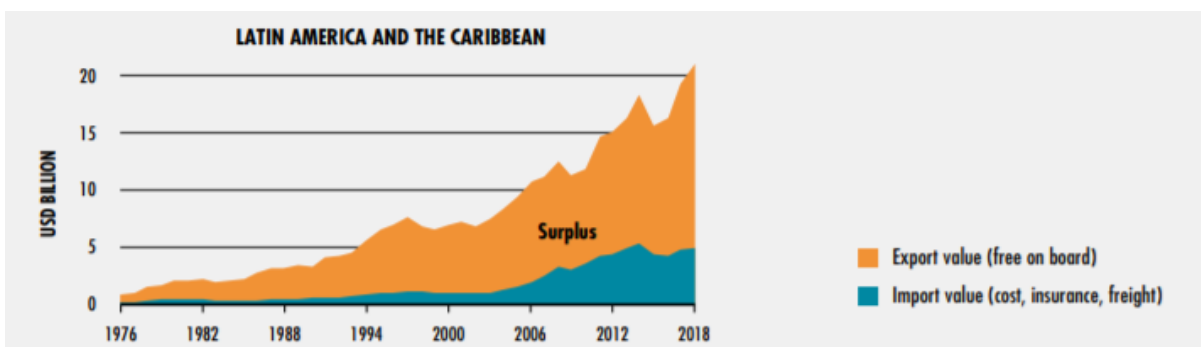
Fisheries also supports socio-economic development of coastal communities by supporting livelihoods in the harvest and post-harvest sectors. Regionally, there are an estimated 64,000 people employed in small-scale fisheries and aquaculture, while another 180,000 are employed in processing and distribution of fish and fish products, boat building, net making and mending and other associated activities (FAO, 2014).

<sup>5</sup> These figures do not entirely account for tourism demand, which would lower the per capita consumption range.



**FIGURE 4.1: CARICOM CAPTURE FISHERIES 2000-2012 (FAO, 2014)**

Caribbean capture fishery production has remained relatively stable, averaging around 335 thousand tonnes between 2012 and 2018 (FAO, 2021). Production in CARICOM has been increasing slightly (see **Figure 4.1**), however, the fisheries resources of the Western Central Atlantic Region, which Caribbean countries are a part of, are fully or overexploited. CARICOM countries that have substantial exports are The Bahamas for spiny lobster and Guyana and Suriname for shrimp, groundfish and seabob. Most production and export is in high value products. Countries with high importation of seafood (as recorded in 2013), include Jamaica, Haiti and Trinidad and Tobago. Most seafood imported in the CARICOM region comes from Canada, China, Netherlands, Norway, Thailand and the United States of America (USA). Imported fish products are diverse, but generally includes items like fillets of both marine and freshwater fish, catfish, salmon, sardines, shrimp and tuna. It is expected that there will be further increases in imports as demand for seafood grows from the tourism sector, growing populations and increasing shifts toward healthy lifestyles and diets (FAO, 2014). **Figure 4.2** shows import and export trends for Latin America and the Caribbean between 1976 and 2018.



**FIGURE 4.2: IMPORT AND EXPORT TRENDS FOR LATIN AMERICA AND THE CARIBBEAN BETWEEN 1976 AND 2018 (FAO, 2020)**

Caribbean fisheries face many challenges to the development and progress of the sector. Key challenges highlighted by the FAO (FAO, 2014) involve fisheries governance; illegal, unreported and unregulated (IUU) fishing and climate change adaptation. Specific challenges include as follows:

- Inconsistent or inadequate implementation of regional fisheries management plans<sup>6</sup>
- Lack of or inadequate or outdated national fisheries management plans
- Outdated national fisheries laws and regulations
- Inadequate fisheries information management systems and data to support decision-making processes
- Insufficient resources for national fisheries management authorities
- Issues associated with IUU fishing within the Western Central Atlantic region
- Climate change and climate variability
- Slow development of and limited investment in the aquaculture industry across the region

## 4.2 *National fisheries of Barbados, Jamaica and St. Vincent and the Grenadines*

A brief overview of the national fisheries sectors in the three case study countries is presented in the proceeding sub-sections. A full listing of laws relevant to fisheries and sale of fish and fisheries products for each country is included in Appendix 3.

### **Barbados**

The fisheries sector in Barbados contributes approximately USD 12–16 million a year to national gross domestic product (GDP) but is noted to be underestimated<sup>7</sup>. The sector employs around 6,000 Barbadians as fishers, vendors and processors.<sup>8</sup> There are 30 landing sites with 13 primary sites from which an estimated 3,000 fishers operate. Most of the fish caught locally is sold directly to customers at fish markets or primary landing sites. The main fisheries resources exploited include as follows: flyingfish, coastal pelagics, large pelagics, deep slope and shallow shelf reef fish. Women make up the majority of vendors and processors in the post-harvest sector<sup>9</sup>. Barbados is a net importer of fish and fish products for the domestic market, recording USD 25.8 million in imports in 2015. Barbadians use an estimated 5,000 to 6,000 tonnes of fish annually, around 3,000 tonnes of which are caught locally, and the rest imported (CANARI, 2020<sup>a</sup>). Although there has been some investment in aquaculture in Barbados, development of the sector is slow due to the high capital costs and resources required and the exploitation of offshore fisheries.<sup>10</sup>

### **Jamaica**

The fisheries sector in Jamaica employs around 40,000 people directly (FAO, 2019) (up to 100,000 both directly and indirectly) and provides a significant source of protein to coastal communities and the wider Jamaican public. Jamaican fisheries include both capture and culture fisheries, with marine capture exploiting shellfish and finfish in the inshore or shallow shelf area as well as offshore pelagics. Fisheries of particular commercial importance are the Caribbean spiny lobster and Caribbean queen conch fisheries. Reef fisheries are particularly important as the sub-sector supports an estimated 20,000 fishers, and is considered a social safety net for fishing or coastal communities. There is also a fairly developed aquaculture sub-sector. The contribution of the fisheries sector to GDP is small, with 0.3 percent recorded in 2012, but through its contribution to livelihoods and food security, the sector has great importance in Jamaica.<sup>11</sup>

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<sup>6</sup> [A Sub-regional Fisheries Management Plan for Flying Fish in the Eastern Caribbean](#), a [Regional Queen Conch Fisheries Management and Conservation Plan](#) and [The Regional Caribbean Spiny Lobster fishery management plan](#) all exist, but their implementation is inconsistent across Caribbean Countries.

<sup>7</sup> Barbados' Fisheries Sector Management and Development Policy.

<sup>8</sup> FAO. 2016-2020. Barbados. Fishery and Aquaculture Country Profile. [online]. Rome. [April 2020].

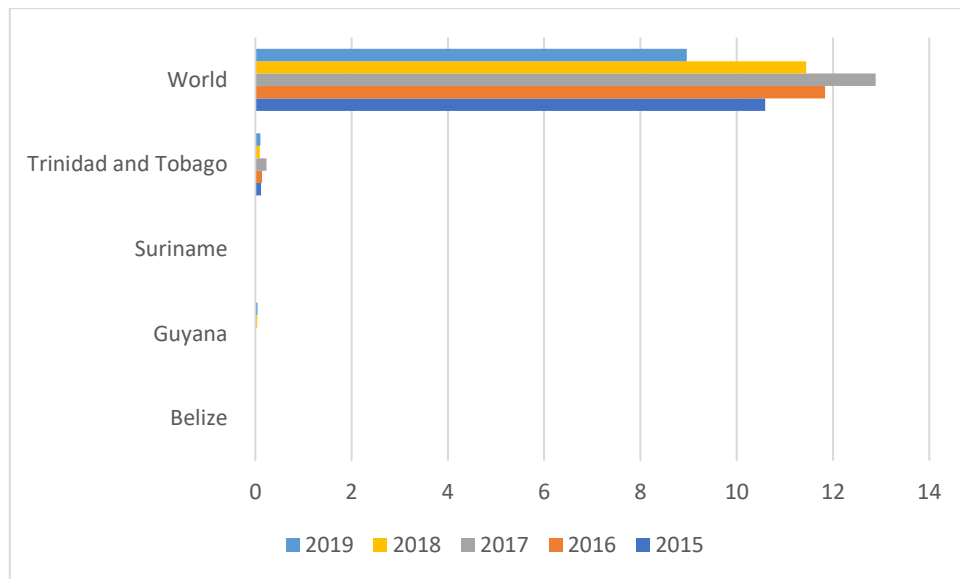
<sup>9</sup> FAO. 2016-2020. Barbados. Fishery and Aquaculture Country Profile. [online]. Rome. [April 2020].

<sup>10</sup> FAO. 2016-2020. Barbados. Fishery and Aquaculture Country Profile. [online]. Rome. [April 2020].

<sup>11</sup> FAO/Global Environment Facility (2016). Project document: Developing organizational capacity for ecosystem stewardship and livelihoods in Caribbean small-scale fisheries (StewardFish) project. GEF.

Jamaica has one of the highest fish consumption per capita rates in the Western Hemisphere, and the high demand for fish has resulted in a large percentage of fish and fish products being imported (approximately 80 percent).<sup>12</sup> Fish is usually sold at markets or landing sites where freshly-caught products fetch higher prices (CANARI, 2020<sup>b</sup>).

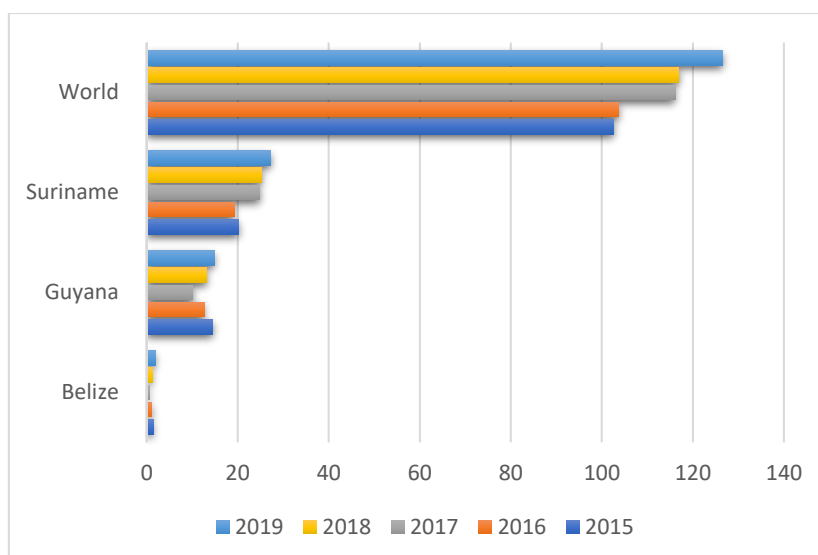
Figures 4.3 and 4.4 show Jamaica’s exports and imports of seafood products, the rest of the world and selected CARICOM nations. As shown in Figure 4.3, the majority, in value, of Jamaica’s seafood exports over the past five years have been external to the CARICOM region. As shown in Figure 4.4, Jamaican seafood imports vary from USD 100 to 120 million per year, with significant imports from the CARICOM countries of Suriname and Guyana. However, most imports are coming from countries external to the CARICOM region.



**FIGURE 4.3 JAMAICAN SEAFOOD EXPORTS (IN USD MILLIONS) TO WORLD AND SELECTED CARICOM MARKETS**

<sup>12</sup> Fishery and Aquaculture Country Profiles. Jamaica (2018). Country Profile Fact Sheets. In: FAO Fisheries and Aquaculture Department [online]. Rome. Updated 08 11 2018. [Cited 24 July 2020]. <http://www.fao.org/fishery/>





**FIGURE 4.4 JAMAICAN SEAFOOD IMPORTS (IN USD MILLIONS) FROM WORLD AND SELECTED CARICOM MARKETS**

### St. Vincent and the Grenadines

St. Vincent and the Grenadines' fisheries are largely small-scale as most fishers operate inshore. There are approximately 4,568 people employed in the sector between 2015 and 2016 (according to FAO estimates). The main fisheries for St. Vincent and the Grenadines include shallow shelf and reef fish, offshore and coastal pelagics, conch, lobsters, turtles and whales<sup>13</sup>. Commonly-caught species are snapper, tuna, cavalli, robin, balahoo and dolphinfish. For 2016, 892 tonnes of marine fish were valued at USD 3.5 million.

The sector makes a small contribution to the GDP (0.5 percent in 2016), however, it plays a significant role in employment and food security, and provides a social safety net for coastal communities. In 2016, the islands had one of the lowest per capita consumption rates in the Eastern Caribbean—11kg per capita. Local demand for fish and fish products are met through local fisheries production and imports, but the sector has a deficit in trading as quantity of fish exported is significantly less than the amount imported. For example, in 2016, the country exported 105 tonnes of fish valued at USD 0.6 million but imported 642 tonnes of seafood, costing USD 2.4 million. Most of the high-valued popular species are exported. These include conch, lobster and other marine fish species.

## 5 Factors enabling intra-regional trade and consumption of seafood

The most common factors enabling seafood trade and consumption in CARICOM, identified through the desk review and the key informant interviews, include as follows:

1. Tariff-free allowances for goods
2. The mandate or programme of work of regional organisations such as CARICOM and associated organisations, policies, and agreements
3. The implementation of the European Development Fund and similar initiatives related to SPS measures
4. Trade and HACCP requirements

<sup>13</sup> CRFM. 2018. CRFM Statistics and Information Report - 2016. 82pp

5. Informal (fisheries/fisherfolk) networks
6. Some private sector purchasing practices

These are discussed further in the following sub-sections.

#### **Tariff-free allowances for goods under CSME**

When asked “Which policy/purchasing practice do you believe has had the greatest positive impact on the intra-regional trade of seafood products?” respondents provided a variety of answers. Overwhelmingly, respondents noted the CSME as well as policy decisions to create regional institutions like CAHFSA and CRFM and the work of these institutions.

Generally, the CSME is thought to operate efficiently, with good dispute resolution mechanisms, such as the Council for Trade and Economic Development (COTED) and positive policies from a duty standpoint. Tariff-free levels for internal CARICOM trade will likely have a positive effect on intra-regional trade, and evidence points to some notable cases in this regard<sup>14</sup>. However, it is difficult to assess the scale of the impact of the CSME on intra-regional trade due to limited data availability.

Regarding the equity effects of the CSME tariff-free levels, it likely does not have a significant positive effect on small-scale fishers, as many other non-tariff barriers to trade, such as Hazard Analysis Critical Control Point (HACCP) and SPS requirements, are particularly difficult for fishers to overcome due to cost and time complexity. Additionally, when asked of the equity effects of this policy, many key informants expressed the opinion that small-scale fishers focused on the domestic market and thus were not affected either positively or negatively by CSME.

#### **Work of CARICOM and associated agencies**

Informants generally noted the work of agencies related to trade at the regional level [e.g. CARICOM and the Caribbean Forum (CARIFORUM)] as having a positive enabling effect on intra-regional trade. The Caribbean Community Common Fisheries Policy (CCCFP) and work of the CRFM in increasing capacity, sustainability, and productivity of fisheries in the region were seen as important to trade, but particularly important to consumption of seafood in the region. The work of CAHFSA and other bodies in harmonising SPS regulations, and providing education and capacity building of food trade regulatory officers (e.g. customs, health and veterinary officers) has a significant effect on enabling intra-regional trade of seafood products.

While CARICOM has a number of policies related to increasing consumption and intra-regional trade of food products, such as the CARICOM Regional Food and Nutrition Security Policy and the CARICOM COVID-19 Response Agri-Food Plan (also known as the ‘25 in 5’ Plan<sup>15</sup>), limited focus is placed on seafood products as a commodity. These policies, while positive for agriculture as a whole, lack specific articulations of actions related to seafood products, and, as such, likely do not fully capitalise on the opportunities to increase seafood trade. The work of CARICOM and its associated agencies were frequently noted as important enabling factors to intra-regional trade of seafood products. **Table 5.1** provides a summary of the enabling factors that were noted, by key informants, as having a positive effect on intra-regional trade and consumption of seafood.

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<sup>14</sup> Increase in Guyanese export of saltfish to Jamaica

<sup>15</sup> <https://caricom.org/caricom-covid-19-response-agri-food-plan/>

**TABLE 5.1: SUMMARY OF THE ENABLING FACTORS (POLICIES, PLANS, PROJECTS, BODIES AND ORGANS) THAT HAVE A POSITIVE EFFECT ON INTRA-REGIONAL TRADE AND CONSUMPTION OF SEAFOOD BY KEY INFORMANTS**

<b>Policies and Plans</b>	
<b>CSME Article 57 of the Revised Treaty of Chaguaramas<sup>16</sup></b>	The Revised Treaty of Chaguaramas was signed in 2001 and established the CSME to address issues of trade, policy coordination and cooperation among member states. Article 57 makes provisions for the “Implementation of the Community Agricultural Policy” and focuses on diversification, financing, linkages, human resources tenure, research and development, SPS, rural development and other key actions in agriculture.
<b>Caribbean Community Common Fisheries Policy (CCCFP)<sup>17</sup></b>	This binding treaty promotes the collaboration of Caribbean fisherfolk and nationals in sustainable use and management of fisheries resources and supporting ecosystems for the greater benefit and welfare of the region.
<b>Caribbean Community Common Agricultural Policy</b>	The Agricultural Policy lays the basis for transforming the agricultural sector to play a meaningful role in the Single Market and Economy and to contribute to improving food and nutrition security in CARICOM. It seeks to increase agricultural exports; satisfy domestic demand for food; establish links with other sectors, particularly tourism; increase employment; and reduce poverty.
<b>CARICOM Regional Food and Nutrition Security Policy<sup>18</sup></b>	This policy was developed to address food security in CARICOM nations focusing on reduction of hunger and development of sustainable food management systems.
<b>CARICOM COVID-19 Response Agri-Food Plan or the ‘25 in 5’ Plan to take CARICOM food import bill</b>	The Caribbean Community (CARICOM) is committed to reducing its US\$5B food import bill by 25% in the next five years (25 in 5) as it implements its food and nutrition programmes
<b>Bodies and Organs</b>	
<b>The Caribbean Regional Fisheries Mechanism (CRFM)</b>	It is an inter-governmental organisation with its mission being “To promote and facilitate the responsible utilisation of the region's fisheries and other aquatic resources for the economic and social benefits of the current and future population of the region”. The CRFM consists of three bodies—the Ministerial Council, the Caribbean Fisheries Forum, and the CRFM Secretariat.
<b>Caribbean Agricultural Health and Food Safety Agency (CAHFSA)</b>	CAHFSA is mandated to perform a coordinating and organising role for the establishment of an effective and efficient regional SPS regime and to execute, on behalf of Member States, such SPS actions that can be more

<sup>16</sup> [https://caricom.org/documents/4906-revised\\_treaty-text.pdf](https://caricom.org/documents/4906-revised_treaty-text.pdf)

<sup>17</sup> <https://caricom.org/documents/12304-cccf-policy.pdf>

<sup>18</sup> [https://caricom.org/wp-content/uploads/9820-regional\\_food\\_nutrition\\_security\\_policy\\_oct2010.pdf](https://caricom.org/wp-content/uploads/9820-regional_food_nutrition_security_policy_oct2010.pdf)

	effectively and efficiently executed through a regional mechanism.
<b>Council for Trade and Economic Development (COTED)<sup>19</sup></b>	This body promotes trade and economic growth within and among the CARICOM members. COTED is focused on strategic development of member states, the work of the Regional Strategic Plan 2015-2019, CSME matters, the Common External Tariff, regional standards and engaging private sector.
<b>CRFM/CARICOM Fisheries and Aquaculture Priority Commodity Working Group (FISHCOM WG)</b>	The FISHCOM WG is responsible for developing and overseeing implementation of the Fisheries and Aquaculture Priority Commodity Strategy and Action Plan. It addresses the needs of marine fish and aquaculture industries pursuant to their identification as priority commodities by CARICOM.
<b>Projects</b>	
<b>11th European Development Fund (EDF) (2014–2020)</b> <b>“Support to CARIFORUM States in furthering the implementation of their Economic Partnership Agreement (EPA) commitments and in meaningfully reaping the benefits of the Agreement”<sup>20</sup></b>	The objective of this project is to assist in the integration of the CARIFORUM into the global economy and to operationalise the CARIFORUM European Union (EU) EPA to improve competitiveness and trade. The project focuses on decreasing “Technical barriers to trade” by developing the region’s quality infrastructure and promoting the adoption of Regional Quality Infrastructure (RQI) regionally, nationally and in the private sector.
<b>10th EDF Programme (2008-2013)</b> <b>“Support to the Forum of Caribbean States in the implementation of the commitments undertaken under the Economic Partnership Agreement (EPA)”<sup>21</sup></b>	For the 10 <sup>th</sup> EDF Programme, the main objective was to facilitate the integration of CARIFORUM States into the global economy and assist efforts of the region to meet the requirements of the EPA.

### Effect of 10<sup>th</sup> European Development Fund Programme and other initiatives to harmonise SPS regulations

Respondents also noted that international trade policy and initiatives to facilitate international trade also had a positive effect on intra-regional trade, including on the development of SPS traceability and laboratory and capacity capabilities. For example, the work of the EU economic partnership agreement with CARIFORUM to improve SPS standards, harmonise SPS regulations and provide training for key personnel involved in export. The project under the 10th EDF Programme titled “*Support to the Caribbean Forum of ACP States in the implementation of the Commitments Undertaken under the Economic Partnership Agreement (EPA)*” was noted as an important initiative for improving the development of effective and efficient national and regional SPS regimes to facilitate food trade (Collins & Peters, 2020).

<sup>19</sup> <https://tradeind.gov.tt/issue-areas/caricom/#:~:text=The%20Council%20for%20Trade%20and,economic%20development%20of%20the%20Community.>

<sup>20</sup> <https://qfactor.crosq.org/11th-edf-tbt-programme/>

<sup>21</sup> <https://website.crosq.org/10th-edf-crip-epa-tbt/>

In the words of one respondent: *“If you use the EU as a target, you are doing the best thing (from a health regulation standpoint) for your people (as it relates to seafood export product quality)”*.

However, it should be noted that while these policies and practices do theoretically enable intra-regional trade by improving technical capacity in important health requirements for trade, they may not have an *overall* positive effect. This is because these programmes largely focus on high value products and species<sup>22</sup> with attractive extra-regional export potential in USA and EU markets that are typically priced out of consumer range for the CARICOM market. Work could be done to ensure that participants in these programmes are aware of the cross applicability of technical capacity building in SPS and health regulations for a diverse set of species and how knowledge of extra-regional export requirements relate to intra-regional trade opportunities. This is necessary to mitigate against the risk of seafood exporters thinking that extra-regional export of goods is the only ‘export’ option.

Unfortunately, as noted in Section 4 ‘Overview of intra-regional trade of seafood’, data points for most CARICOM nations focus on extra-regional export of seafood products. Currently, according to the CARICOM secretariat, only 16.6 percent of regional agricultural imports are sourced from other CARICOM nations. This trend holds true for seafood products as shown in Figure 4.3. Most Jamaican seafood exports head to global markets as opposed to regional markets. There are a few notable exceptions to these trends. Guyana and Suriname are among the exceptions.

### **Informal networks**

Some respondents noted ‘informal networks’<sup>23</sup> as being important to intra-regional trade, particularly in sub-regions with strong geographic proximity and cultural links such as between the Grenadine islands, between St. Vincent mainland and southern Saint Lucia and between Saint Lucia and Martinique. Related to informal networks and geographic proximity, some experts alluded to the existence of some undocumented trade in seafood products between islands.

### **Trade and HACCP requirements**

In the opinion of some experts, the implementation of trade requirements and HACCP requirements was viewed as having a positive impact on intra-regional trade but largely for firms or countries with pre-existing technical capacity. In these cases, food safety standards such as HACCP can act as an enabler of trade, where exporting firms are strategic in their behaviour and use compliance as an opportunity to improve production systems and remaining competitive in markets (DaSilva-Glasgow & Bynoe, 2012). Generally, however, the conclusion that SPS and standards such as HACCP have a negative overall effect on trade holds true and is consistent with cases reported in the literature<sup>24</sup>. This is largely due to the cost associated with meeting these requirements acting as a barrier to enterprises with interest in export opportunities.

Unfortunately, limited evidence existed for incentives for intra-regional trade in the CARICOM region according to experts interviewed. National incentives were routinely recognised and articulated upon<sup>25</sup>. Significant mention, however, was made of incentives provided by international aid development and cooperation agencies to facilitate the export of seafood products.

### **Private sector purchasing practices**

Private sector actors interviewed indicated that formal contracts and purchasing practices are not often used by medium to large-sized seafood processors in the CARICOM region. Informal and verbal agreements are often made between distributors or processors and boat owners. As is noted in

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<sup>22</sup> Lobster, conch, shrimp, tuna

<sup>23</sup> Goodwill, informal networks, political familiarity were all classified as informal networks

<sup>24</sup> <https://core.ac.uk/download/pdf/7055358.pdf>

<sup>25</sup> The Government of Barbados, through its Fisheries Division, offers tax and duty concessions on marine fuel boats engines and spare parts. The Government of St. Vincent and the Grenadines also offers tax and duty concessions on outboard motors, fishing gear and processing equipment.

Section 6.3, distributors and processors have significant incentives to import fish for processing rather than purchase fish locally.

The effect of the use of informal contracts and purchasing practices, combined with strong networks and goodwill, can play a positive role in encouraging intra-regional trade, especially at the sub-regional (eastern Caribbean level). However, the use of informal arrangements may limit value chain channels and access to end consumers in the longer term, as accessing a larger number of end consumers in the retail (supermarket), hotel and restaurant markets requires precise supply chains, that are generally built on more formal contract arrangements and purchasing practices.

**Table 5.2** below summarises the main seafood distributors in the CARICOM region and the markets they serve. While they serve CARICOM markets outside of their main processing locations, significant focus is placed on the extra-regional export of high value species such as lobster, conch shrimp and, to a lesser extent, billfish and tuna. The draw of foreign exchange, particularly (USD and EURO), well-established transportation links and large size of end markets all contribute to this focus on extra-regional export markets for seafood products.

**TABLE 5.2: SEAFOOD DISTRIBUTORS OPERATING IN CARICOM COUNTRIES**

Distribution and processing companies	Headquarters	Markets served
<b>Rainforest Seafood</b>	Jamaica	Jamaica, Belize, Barbados, Saint Lucia, USA (Miami)
<b>Global Seafood Distributors</b>	Guyana	Guyana, Trinidad and Tobago, Jamaica, USA
<b>Land Ice and Fish Limited</b>	Trinidad and Tobago	USA, CARICOM
<b>Ocean Delight</b>	Trinidad and Tobago	Trinidad and Tobago, Antigua and Barbuda, Barbados, St. Kitts and Nevis, Saint Lucia, St. Maarten
<b>Atlantis</b>	Barbados	Barbados
<b>Punto Fresco Sea Foods</b>	Guyana	Antigua and Barbuda, St. Kitts and Nevis, Barbados, Jamaica, USA (New York) , Canada
<b>VJ S Fishing Enterprise</b>	Guyana	Antigua and Barbuda, Barbados, Trinidad and Tobago, USA ( New York), Canada
<b>Shorelinez</b>	Barbados	Barbados, CARICOM (exports products from other distributors like Ocean Delight)
<b>Pritipaul Singh Investments Inc.</b>	Guyana	USA, EU, Trinidad and Tobago

## 6 Challenges to intra-regional trade and consumption of seafood

### 6.1 Transportation challenges

Transportation-related challenges were consistently mentioned by key informants across all sectors and transportation modalities. Below are the challenges noted by key informants:

#### Transportation price

The high price of transportation, particularly air freight, was consistently noted as an issue by experts. Regional taxation of air transportation and the high cost of required packaging methods and materials (based on new regulations) further increased air transportation costs regionally. These costs present a significant barrier to intra-regional trade, particularly for small-scale fishers. The high cost of domestic refrigerated transport to facilitate use of seafood in school feeding programmes, for example, was also noted.

#### Transportation irregularity and connectivity

Experts noted limitations in the regularity of both air and ocean freight as a significant challenge to the seafood trade. Irregularity of transportation shortens the time available for exporters and importers for the processing of trade-related documentation. The irregularity of shipping combined with the seasonality of regional fish stocks can further complicate the trade of seafood products. Delays in transport timing were also noted as high risk to perishable seafood products that require precise logistics to maintain the cold chain.

Additionally, poor transportation links between major seafood-producing nations such as Belize, Suriname and Guyana, directly to other CARICOM nations (particularly those with high seafood demand due to tourism) was noted as a significant connectivity challenge. In many cases, it is easier and cheaper to ship CARICOM products via the USA, rather than directly to other CARICOM states.

#### Less-than-load transportation challenges

Less-than-truckload or less-than-load refers to the transportation of smaller amounts of freight goods. Many regional fisheries do not have large enough production or reach economies of scale to generate a full 40-foot refrigerated container with seafood products. Thus, this requires less-than-load shipping, which generally has higher costs and logistical complexity.

Some notable exceptions to less-than-load transportation challenges exist in the Organisation of Eastern Caribbean States (OECS) sub-region, where there is robust trade among OECS countries using small vessels of varying sizes.

#### Transport and COVID-19

Transportation challenges have deepened significantly during the COVID-19 pandemic with limited inter-island transportation. Reports from private-sector informants indicate a general reduction in inter-regional trade.

### 6.2 Cold chain management challenges

The 'cold chain' describes a temperature-controlled supply chain, which begins from the time seafood is caught, through production, transportation, and eventual sale (see **Figure 6.1**). Anytime the temperature of the seafood rises above 1°C, the cold chain is broken, resulting in irreversible changes to the quality of the seafood product. Deterioration of frozen seafood quality along the

cold chain is influenced by freezing rate, freezing storage temperature, fluctuations in storage temperature, thawing conditions and other factors (Nakazawa & Okazaki, 2020). As a protein source, seafood is not as stable as livestock meat, making the logistics of its transportation more complex and demanding.



**FIGURE 6.1 COLD STORAGE OF FISH PROCESSOR AND DISTRIBUTOR IN MEADOW BANK, GEORGETOWN, GUYANA. (PHOTO CREDIT: GUYANA NATIONAL FISHERFOLK ORGANISATION)**

available statistics) was 29 kg per capita per year compared to a global average of 18 kg per capita per year (see **Figure 6.2**). However, as CARICOM comprises many SIDS and ‘big ocean spaces’, the theoretical potential for seafood consumption is comparatively high. For Pacific SIDS, for which data is available, there is an average of 37.4 kg per capita per year of seafood consumption, which is twice the global average (Love, et al., 2021). Consumption-related challenges conveyed by experts are as follows<sup>26</sup>:

At the start of the cold chain, most key informants noted that most day fishers in the region operate small skiffs or pirogues with no formal cold hold or built-in cold storage, and do not ice or refrigerate fish until they return to port or sometimes not at all if the fish is sold shortly after. At this point in the cold chain, fisherfolk cannot discern any significant degradation in fish quality. However, delays between capture and freezing for export can have significant effects on fish quality, appearance, and shelf life for retailers at the end of the cold chain. One private-sector operator noted that delays in refrigeration at the start of the value chain can result in product being refused by end buyers and have significant effects on profitability of export. High cost and inaccessibility of ice to regional fisherfolk was noted as a challenge by key informants.

Regionally, some countries’ port facilities have inadequate cold storage to facilitate seafood export, again, risking quality degradation of product.

### ***6.3 Consumption-related challenges***

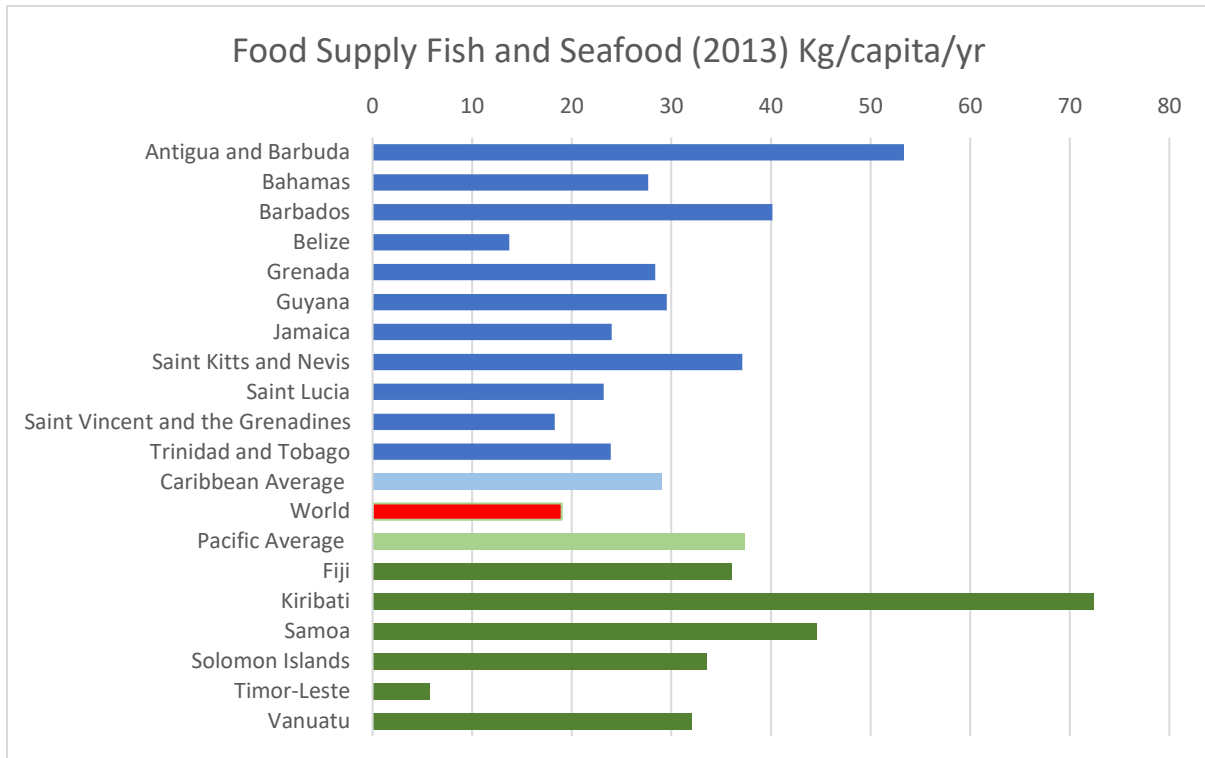
It should be noted that seafood and fish consumption in the region is comparatively high when compared to global levels. According to FAO, the average seafood availability per person per year (for CARICOM nations with

<sup>26</sup> Challenges to increasing the consumption of CARICOM produced seafood products. This report does not advocate for the consumption of seafood above recommended volumes due the risk of exposure to mercury, dioxins, and PCBs.



### Cheaper alternative sources of protein

Experts indicated that other forms of protein outcompete fish and other seafood in price and thus have much higher comparative consumption rates. This was supported by data, with the average annual per capita consumption of meat (mutton, pig, poultry, and bovine meat) of 74.9 kg per year in the Caribbean, being nearly double the global average of 43 kg per year. For comparison, selected Pacific nations had a per capita consumption of meat of 44 kg per year, close to the global average.



**FIGURE 6.2 FISH AND SEAFOOD CONSUMPTION FOR AVAILABLE CARICOM NATIONS AND SELECTED PACIFIC SIDS (FAO, 2021)**

### Insufficient supply to satisfy local demand

Within CARICOM, most nations are net importers of food and food products, importing a combined USD 5 billion in 2018, with only Belize, Guyana and Haiti expected to produce more than 50 percent of their food consumption. The trend follows in the seafood sector with national and regional supplies of seafood and fish products generally unable to satisfy robust demand across CARICOM nations. Consumption demand is satisfied through importation to satisfy both high and lower ends of the consumer market. The historical use of salted cod as an economical source of protein during colonial times has established a strong demand for imported processed fish. This demand for cheap processed fish products continues in the region and is supported by significant import duty breaks on smoked, salted and canned fish.

### Low levels of seafood literacy

Experts noted that Caribbean consumers tend to not be adventurous in their consumer choices and seafood species eaten. The lack of diversification in species demanded by consumers presents a significant risk to the sustainability of highly-targeted fish stocks and means the use of 'unpopular' species is not maximised. Seafood literacy is the set of skills required to source, prepare, and cook seafood to take advantage of the unique quality of individual seafood species (Cullen, et al, 2015, Seaver, 2020). The low levels of seafood literacy amongst consumers of how to use underutilised species presents a significant challenge to increasing consumption in a sustainable manner

regionally. The proceeding section on recommendations notes a number of high-quality species, caught in the region, with limited or non-existent retained consumer demand, but that have high demand from hotels and restaurants which prize the quality of what some consider 'low quality' species.

### Low price competitiveness when compared with imported fish

The CARICOM revised Common External Tariff places a 40 percent duty on most fish products, with some notable exceptions. Under Harmonised System (HS) Code 0.3.02 "Fish, fresh or chilled, excluding fish fillets and other fish meat of heading", fish which are more economical such as herrings, sardines, mackerel and cod, and with a higher rate of cultural demand, are free of duty if imported for processing. Most processed fish products under the Code 0.3.05 "Fish, dried, salted or in brine; smoked fish" have a 20 percent duty. Notably within the salted, dried and smoked fish categories, several products are on a special "A list" of items on which duties have been suspended indefinitely under Article 83 of the Revised Treaty of Chaguaramas, subject to review by COTED. These include dried/salted/smoked herring, cod, Alaska pollock, alewives, haddock and hake. **Table 6.1** shows the tariff levels for selected fish products from the Revised Common External Tariff of CARICOM.

**TABLE 6.1: TARIFF LEVELS FOR SELECTED FISH PRODUCTS FROM THE REVISED COMMON EXTERNAL TARIFF OF CARICOM<sup>27</sup>**

HS code	Category	Description of Goods	Use	Duty rate	
0302.31	Fresh or chilled (not fillets)	Albacore tunas	For processing		
0302.31		Albacore tunas	Other	40%	
0302.32		Yellow fin tuna	For processing	Free	
0302.32		Yellow fin tuna		40%	
0302.41		Herrings	For processing	Free	
0302.41			Other	40%	
0302.43		Sardines	For processing	Free	
0302.43			Other	40%	
0302.44		Mackerel	For processing	Free	
0302.44			Other	40%	
0302.51			Cod	For processing	
0303.41		Frozen (not fillets)	Albacore tunas	For processing	Free
0303.41			Other	40%	
0303.42	Yellow fin tuna		For processing	Free	
0303.42			Other	40%	
0303.51	Herrings		For processing	Free	
0303.51			Other	40%	
0303.53	Sardines		For processing	Free	
0303.53			Other	40%	
0303.54	Mackerel		For processing	Free	
0303.54			Other	40%	
0303.63			Cod	For processing	Free
0303.63			Cod	Other	40%
0305.31	Fish, dried, salted or in	Tilapia	N/A	20%	
0305.41		Pacific salmon	N/A	20%	

<sup>27</sup> [https://caricom.org/documents/16273-revised\\_cet\\_of\\_caricom\\_hs\\_2017\\_revised\\_11\\_april\\_2018\\_\(for\\_link\).pdf](https://caricom.org/documents/16273-revised_cet_of_caricom_hs_2017_revised_11_april_2018_(for_link).pdf)

0305.42	brine; smoked fish,	Herrings	N/A	A <sup>28</sup>
0305.49		Cod	N/A	A
0305.59		Alaska pollock	N/A	A
0305.59		Mackerel	N/A	A

The 0 percent (free) rated nature of these products likely has a significant adverse effect on the consumption of local seafood and intra-regional trade, as these imported seafood options are globally sourced at prices that can easily outcompete local seafood in price and convenience. The 0 percent rated nature of these items are justified by national governments as necessary to support the availability of economical sources of protein. The consumption of salted and smoked imported fish is closely linked to the historical use of salted imported fish, particularly cod, in the Caribbean during colonial times, which has made it a traditional part of regional diets<sup>29</sup>. Substituting extra-regional imports using similar regional products thus presents a significant opportunity to increase intra-regional trade. Increased exports of salted fish from Guyana to Jamaica and smoked fish from Suriname to Jamaica<sup>30</sup> are positive examples of these opportunities and should be closely examined for learning lessons.

The higher price of seafood compared to other proteins was noted as a challenge. Due to this price difference, seafood was seen as a ‘higher-end’ product. Also, the added time required to process fish can be seen as increasing its overall cost to the consumer. This was noted as one of the challenges in the use of seafood in school feeding programmes, which is discussed later in this report.

#### 6.4 Marketing challenges

The desk review and interviews highlighted several marketing issues in seafood trade, including packaging, lack of value-addition, preference for fresh fish and poor promotion and integration through national and regional nutritional guidelines. These issues are discussed further in the following sub-sections.

##### Fresh fish culture

In the culture of Caribbean consumers, frozen fish was noted by multiple key informants as a challenge to intra-regional trade of seafood products. Consumers are typically very sceptical of the quality of frozen fish and have a strong preference for fresh or chilled fish. Supplying chilled, fresh fish for export is difficult due to the extremely high risk of degradation and health hazards, making it unviable, except in a few instances and typically at a higher cost and lower volumes. Fish meat,



**FIGURE 6.3: TRADITIONAL PACKAGING FOR CONCH (PHOTO CREDIT- ALEXANDER GIRVAN)**

<sup>28</sup> A list of items on which suspension of the rates of duty in the Schedule of Rates under Article 83 of the Revised Treaty has been granted to Member States for an indefinite period subject to review by the COTED, with the rates to be applied by Member States.

<sup>29</sup> <http://www.fao.org/3/t8365e/t8365e04.htm>

<sup>30</sup> <https://trendeconomy.com/data/h2/Suriname/0305>

frozen in a very fresh state, is shown to maintain quality in texture and taste after thawing once handled appropriately.

### Packaging

Packaging of seafood products was generally regarded by key informants to be below the grade necessary to attract consumers away from extra-regional competitor products (see **Figure 6.3**). Rainforest Seafoods was noted, by key informants, as one of a few notable exceptions. As a seafood retailer, Rainforest Seafoods provides consumer products with attractive packaging and strong consumer appeal when compared to what was described by one respondent as 'vacuum sealed with a white sticker'. Rainforest Seafoods was noted as having high quality packaging that is attractive to consumers and possibly represents best practice in the region.

### Lack of value-added product offerings

The limited offerings of value-added fish products, with high levels of convenience and ease of preparation, restricts consumption of regional seafood. Many seafood options imported from outside the region outcompete local seafood in the convenience of preparation and time needed to prepare. Generally, key informants perceived the lack of easy-to-prepare regional seafood options for consumers at multiple price points as a barrier to consumption and trade.

In addition, cultural variances in preference for cuts of seafood can limit 'exportability'. Across the region, preferences vary, not only for species, but also for different preparation styles of the same species. Options of whole, gutted, head on, head off, fillets, steaks, butterflied, skinned, etc. are necessary to appeal to a wider variety of end users, particularly in export destinations. Best practice in this regard is displayed by Pritipaul Singh Investments Inc. in Guyana, which offers a wide variety of processing options for export, which significantly diversifies the number of potential end markets (see **Figure 6.4**). In the key informant interviews, one expert independently noted that the increased offering of a variety of 'white-fish' fillets by Guyanese producers has been well received by chefs serving tourism and restaurant markets, as these fish types offer a 'plainer' taste that is easier to manage and manipulate in the kitchen.

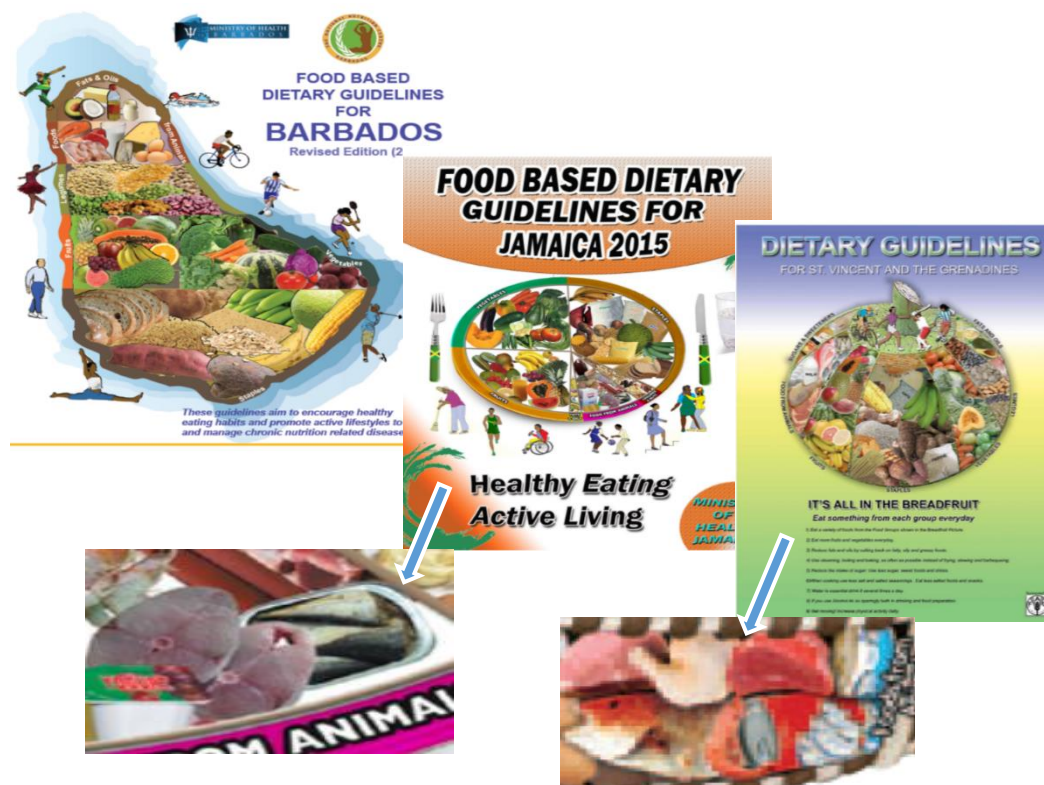


**FIGURE 6.4: PURCHASE OPTIONS FROM PRITIPAUL SINGH INVESTMENTS INC. WEBSITE SHOWING BEST PRACTICE IN FISH CUT AVAILABILITY WHICH INCREASES EXPORTABILITY TO CARIBBEAN END MARKETS**

## Poor integration of regional and local seafood into National Nutritional Guidelines

National nutrition policies show significant room for improvement with regard to the integration of local seafood products. Without integrating local seafood in the most basic guidelines provided to citizens, national dietary guidelines inevitably provide a negative signal to consumers with regards to local seafood consumption. While the primary focus of these policies is providing nutrition options at a low cost, they often select convenient choices, which do not reflect CARICOM seafood production. Unfortunately, this results in guidelines that generally provide recommendations on how to use, portion and consume foreign seafood sources and lack information on the use of local fish and seafood. **Table 6.2** summarises a review of food and dietary guidelines for the seven project countries of StewardFish as it relates to use of seafood (additional school feeding programme information is available in Appendix 4). None of the seven guidelines reviewed provided information on appropriate portion sizes for local seafood, yet three out of seven (42 percent) provided guidelines on recommended portion sizes for imported canned fish and salted flaked fish. One of the guidelines articulated the benefits of seafood or fish consumption. All guidelines had visual representations of foreign seafood types, and of those with representation of local seafood, options were limited to high value species, such as shrimp and snapper (see **Figure 6.5**).

The limited integration of local seafood into national dietary guidelines does not support intra-regional trade and consumption of local products. It is difficult to say if this is done to reflect the relative prices and availability of food products locally or is indicative of institutional biases against local/regional seafood. However, an opportunity exists to better integrate local seafood into national nutritional guidelines as a way of improving seafood consumption. Further, the risk of the use of foreign seafood products in these guidelines reinforces entrenched consumption and trade patterns.



**FIGURE 6.5: VISUAL REPRESENTATIONS OF SEAFOOD IN NUTRITION GUIDELINES FOR SELECTED STEWARDFISH COUNTRIES**

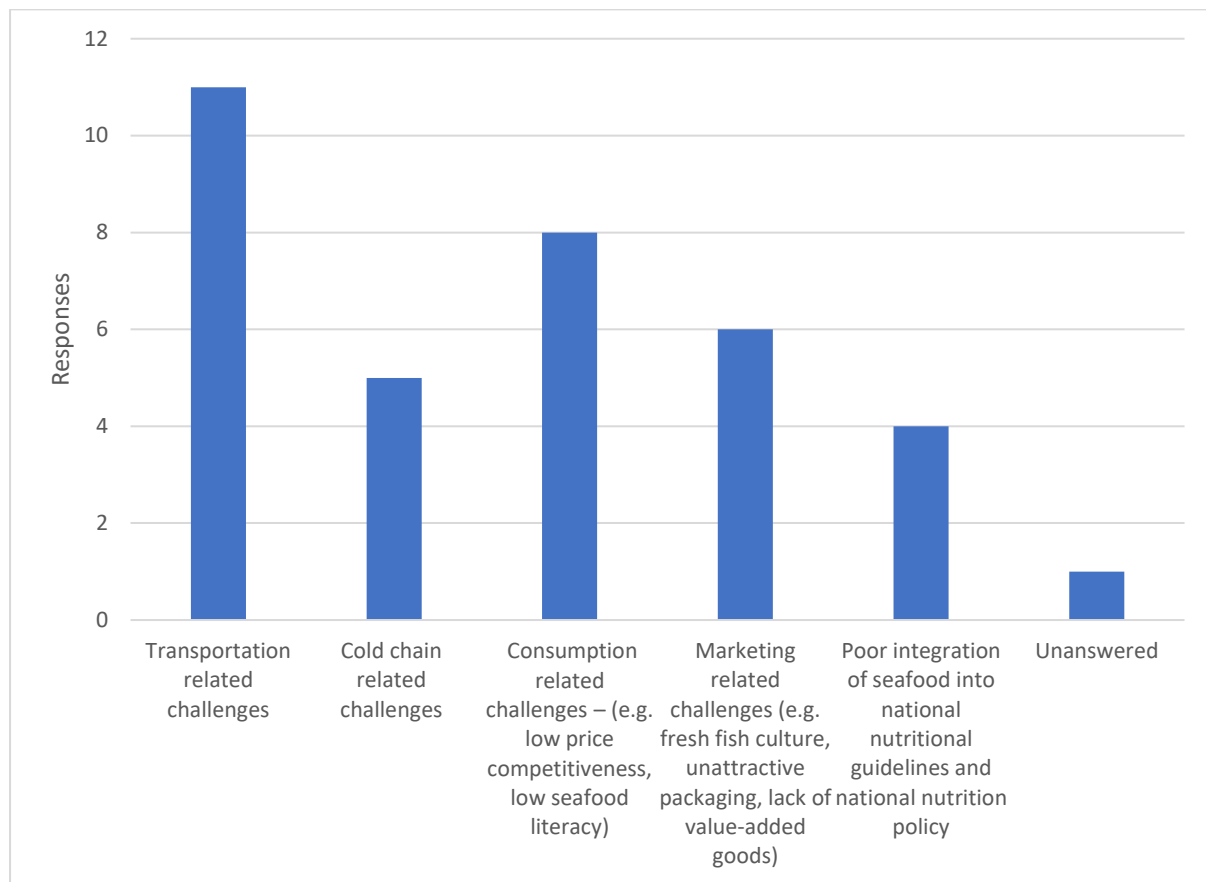
**TABLE 6.2: REVIEW OF FOOD AND DIETARY GUIDELINES FOR 7 PROJECT COUNTRIES OF STEWARD FISH AS IT RELATES TO USE OF SEAFOOD**

Country	Barbados	Jamaica	St. Vincent and the Grenadines	Antigua and Barbuda	Belize	Guyana	Saint Lucia
<b>Title /Year</b>	Food-based dietary guidelines for Barbados (2017)	Food-based dietary guidelines for Jamaica (2015)	Dietary guidelines for St. Vincent and the Grenadines (2006)	Food-based dietary guidelines for Antigua and Barbuda (2013)	Food-based dietary guidelines for Belize (2012)	Food-based dietary guidelines for Guyana (2004).	Dietary guidelines for Saint Lucia (2007)
<b>Health benefit articulation</b>	Health benefits of seafood/fish not articulated.	Health benefits of seafood/fish not articulated.	Health benefits of seafood/fish not articulated.	Health benefits of seafood/fish not articulated.	Fish was identified as a source of macronutrients (namely protein), as well as a source of vitamins and minerals.	Health benefits of seafood/fish not fully articulated. It is identified under the “Food from Animals” food group, and shrimp is used as an example of food from animals in the third multi-way mix.	Health benefits of seafood/fish not articulated.
<b>Specific seafood/fish portion size recommendation</b>	Recommended serving size provided for “Food from Animals”. No specific recommendations of serving sizes for seafood/fish.	Recommended servings of fish and seafood provided of which 2/3 were foreign canned fish and saltfish.	Recommended servings of fish and seafood provided with reference to dried salted fish <sup>31</sup> .	No specific recommendations for seafood/fish serving sizes. There is no recommended serving size for any of the food groups mentioned.	Recommended serving size provided for “Food from Animals”. Examples: flaked salted fish canned tuna/mackerel; large sardine	No specific recommendations for seafood/fish serving sizes. There is no recommended serving size for any of the food groups mentioned.	No specific recommendations for seafood/fish serving sizes. There is no recommended serving size for any of the food groups mentioned.
<b>Visual representation of seafood/fish</b>	Seafood products imaged include shrimp, canned fish, and salmon,	Both local and foreign seafood products pictured in guidelines.	Local fish well represented visually, no images of foreign fish.	Both local and foreign seafood products pictured in guidelines,	Seafood products represented visually are canned fish, such	Local seafood was pictured in the guidelines, namely shrimp. Saltfish	Local seafood pictured in the guidelines, namely red snapper.

	none of which are produced in commercial quantities in Barbados <sup>32</sup> .			along with other meats. The species represented are red snapper (local) and what is likely canned sardine (foreign). The image of the latter is obscured.	as mackerel and tuna. Fresh fish were also represented, but there is uncertainty on the species.	was also pictured, but this may be local or foreign.	
<b>Local seafood vs. alternatives</b>	No specific benefits of local seafood vs. alternatives highlighted.	Health risk of canned fish articulated. Fresh fish given as alternative.	No Specific benefits of local seafood vs. alternatives highlighted. However, benefits of local foods generally well-articulated.	No specific benefits of local seafood vs. alternatives highlighted.	No specific benefits of local seafood vs. alternatives highlighted.  There was one recommendation under “how to use less salt” to “use fresh meat and <i>fish</i> instead of salted ones”.	No specific benefits of local seafood vs. alternatives highlighted.	No specific benefits of local seafood vs. alternatives highlighted.
<b>Access</b>	<a href="http://www.fao.org/3/I9680EN/i9680en.pdf">http://www.fao.org/3/I9680EN/i9680en.pdf</a>	<a href="http://www.fao.org/3/a-az914e.pdf">http://www.fao.org/3/a-az914e.pdf</a>	<a href="http://www.fao.org/3/a-as862e.pdf">http://www.fao.org/3/a-as862e.pdf</a>	<a href="http://www.fao.org/3/a-as848e.pdf">http://www.fao.org/3/a-as848e.pdf</a>	<a href="http://www.fao.org/3/a-as852e.pdf">http://www.fao.org/3/a-as852e.pdf</a>	<a href="http://www.fao.org/3/a-as856e.pdf">http://www.fao.org/3/a-as856e.pdf</a>	<a href="http://www.fao.org/3/a-as860e.pdf">http://www.fao.org/3/a-as860e.pdf</a>

## Further stakeholder views on challenges

Figure 6.6 provides a summary of stakeholder opinions from the validation webinar on the poll question “Which two challenges do you believe have the greatest negative impact on intra-regional trade and consumption of seafood?” (collected during the validation webinar).



**FIGURE 6.6: PARTICIPANTS RESPONSES TO THE POLL QUESTION “WHICH TWO CHALLENGES DO YOU BELIEVE HAVE THE GREATEST NEGATIVE IMPACT ON INTRA-REGIONAL TRADE AND CONSUMPTION OF SEAFOOD?”**

## 7 Non-tariff measures and barriers to intra-regional trade and consumption of seafood

Despite a positive tariff environment for seafood products within CARICOM, most experts highlighted the negative impact that both non-tariff measures (NTMs) and non-tariff barriers (NTBs), faced by Caribbean seafood exporters and importers, have on intra-regional trade. Generally, products of the fish sector are more affected by non-tariff barriers/measures when compared to non-fishier sector products. Key informants indicated that seafood products are particularly prone to NTMs and NTBs, which likely have a negative effect on trade.

Key informants surveyed indicated that the requirement to have HACCP certificates were significant barriers to trade intra-regionally. HACCP is a management system designed to make a product safe and prove that a product is being produced safely. HACCP is meant to prevent, reduce and minimise physical, chemical and biological hazards to foods. Private sector operators noted that in order to meet HACCP requirements operations must be large enough to justify contracting a fulltime compliance officer, which presents a cost barrier for small and micro enterprises (SMEs) in the seafood sector. The cost of maintaining effective HACCP systems was also seen as a challenge, particularly for smaller scale operators.



Regionally, there is significant variance in the capacity of laboratories, level of laboratory accreditation, capacity of institutions in species identification and ability to apply principles of seafood traceability. Experts noted that this variance has a negative impact on trade as recipient countries can apply requirements or standards to importers, which they are unable to meet due to lack of technical capacity and availability of testing.

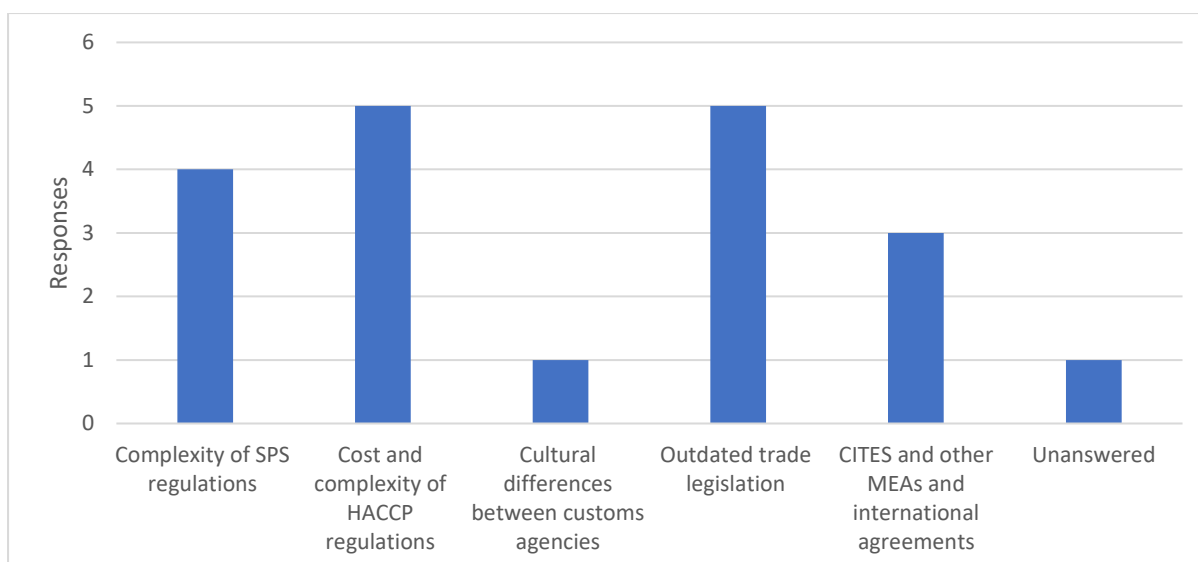
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) requirements were seen as a barrier to trade intra-regionally in high value products such as conch and lobster. CITES regulations require exporters to meet and adhere to additional requirements above and beyond SPS and health requirements with increased costs. It was suggested that this encourages the black-market trade of these products among CARICOM nations. With regards to non-HACCP and SPS requirements, experts noted that some countries can use outdated legislation (trade legislation which do not comply with commitments under the Revised Treaty of Chaguaramas), and international trade obligations as the basis upon which to refuse or return imported regional seafood. The absence of HACCP certification, as articulated above, is a significant NTB to trade. As some experts noted, given the scepticism on the part of consumers about quality of regional seafood, obtaining HACCP certification is an opportunity to convince consumers of regional seafood quality.

While one expert noted recent training of customs officers on SPS and fisheries-related rules in CARICOM, the approach of customs agencies, and other related agencies that deal with food safety of imported products to CARICOM, was viewed as a barrier to intra-regional trade. While not explicitly stated, it was implied that agencies that regulate the implementation of NTMs are less sceptical of the quality of food products sourced outside the region and are more sceptical of those sourced within the region and thus were more likely to impose restrictions, obstacles or restraints. Experts noted that concerns about contaminants, mercury content, water quality of fishing areas, were used as reasons to justify refusal of products. Experts also described situations of seafood goods being turned back at the cost of the exporter, due to imposition of outdated legislation and other obstacles and restraints. Further research on how seafood products are perceived by trade management and border control agencies is necessary to identify specific points of concern and their international obligations.

In addition, poor coordination among and between agencies involved in certification for both export and import was seen as a challenge, particularly by private-sector actors. In some cases, export certification for seafood products involved up to four agencies, with their own bureaucracies and coordination challenges that can result in processing delays for key export documentation. These delays in documentation processing can have significant negative knock-on effects on private sector actors and trade. Seafood has particularly high storage costs and a high risk of quality degradation over time, meaning even short delays in the cold chain can have significant impacts on profitability.

These processing delays can also interact with other challenges, such as transportation irregularity, to have a 'compounded' negative effect on trade. In one example, a value-added processor, in St. Vincent and the Grenadines, in need of crab meat was given a week's notice of availability of freight transportation from Guyana. The processor contacted a supplier in Guyana for crab meat, who, despite availability of product, was unable to proceed with the transaction as insufficient time was available to process required export documentation.

During the validation webinar, attendees were asked to identify the NTB or NTM with the greatest impact on seafood trade in the CARICOM region. Cost and complexity of HACCP regulations and outdated legislation were the most popular responses, while cultural differences between customs agencies was the least (see **Figure 7.1**).



**FIGURE 7.1: REPOSSES TO NON-TARIFF MEASURES/BARRIERS WITH THE GREATEST IMPACT ON SEAFOOD TRADE IN CARICOM**

## 8 School feeding programmes – overview, challenges and opportunities

School feeding programmes have a long history in the Caribbean. For example, in Barbados, the programme was implemented in 1963 and in 1984 in St. Vincent and the Grenadines. School feeding programmes have facilitated learning, particularly for children from vulnerable communities or low-income households. It has been identified as one of the most successful policies, addressing regional nutrition challenges and is being reviewed as a regional and national initiative with opportunities for improving consumption of seafood. School feeding programmes provide a sustainable market for locally produced food, while addressing the need for promoting healthy diets among school children (FAO, 2015).

As part of the study, the school feeding programmes for Barbados, Jamaica and St. Vincent and the Grenadines were examined, and attempts were made to interview representatives of these programmes. Unfortunately, only one interview was held with a representative from the St. Vincent and the Grenadines School Feeding Unit. **Table 8.1** gives a brief background of each of the programmes, including the beneficiaries and the menus currently used.

**TABLE 8.1: SUMMARY OF SCHOOL FEEDING PROGRAMMES IN BARBADOS, JAMAICA, ST. VINCENT AND THE GRENADINES**

	Barbados	Jamaica	St. Vincent and the Grenadines <sup>33</sup>
<b>Year started</b>	1963	No details found	1984
<b>Responsible ministry/agency</b>	Ministry of Education, Technological and Vocational Training	Ministry of Education Youth and Information through the School Feeding Unit and Nutritional Products Limited	Ministry of Education and National Reconciliation

<sup>33</sup> Information shared by key informant representing the School Feeding Unit

<b>Beneficiary types</b>	Government primary schools; senior school (one); private institutions (like the Learning Centre, Challenor School and St. Patrick's Roman Catholic School); secondary schools (to select students)	Nutribun <sup>34</sup> is served to primary, junior high and some high schools, while lunch is served island-wide	Public primary schools and public pre-schools
<b>Number of beneficiaries (schools and/or students)</b>	93 schools, 24,000 daily meals (1995)	Nutribun- 138,000 students Lunch- 176,000 students	64 primary schools 14 pre-schools  7,528 primary school students benefiting and there were 114 cooks preparing lunches for the 2018-2019 school year
<b>Menu</b>	A menu was not found, but milk was mentioned on the website <sup>35</sup> and one interviewee said that fish is served in the programme.	The programme serves Nutribun and milk, and cooked lunches. In a review of the programme in 2014, it was said that the menu will use local sources of meat, protein, beans and peas and will include sandwiches, banana bread, fruit juice, carrot cake and scones with the intention of contracting local farmers for produce. <sup>36</sup>	The School Feeding Unit has been piloting different menus, which include local vegetables, local fruits, soup, corn meal/cassava/coconut dumplings, fish, beef and roti. The types of animal products included in the menu are chicken, turkey mince, cheese, milk and fish.

Of these three school feeding programmes, the St. Vincent and the Grenadines programme was the only one in which fish was explicitly listed as a menu item. One interviewee indicated that seafood is served in Barbados. Sourcing information and interviews from school feeding programmes was difficult. These results are based on an interview with one (1) national school feeding coordinator, interviews with local private sector operators with relationships with school feeding programmes, and review of available information on the menus of school feeding programmes.

<sup>34</sup> Nutribun is a bread product used in school feeding programmes.

<sup>35</sup> <https://mes.gov.bb/Departments/School-Meals/>

<sup>36</sup> [https://japarliament.gov.jm/attachments/article/1316/1316\\_2014%20Ministry%20Paper%2090.pdf](https://japarliament.gov.jm/attachments/article/1316/1316_2014%20Ministry%20Paper%2090.pdf)

In St. Vincent and the Grenadines, national school feeding programme guidelines suggest use of fish at least once per week, with filleted fish indicated as preferred. These guidelines are a positive signal from policy officials towards increasing the consumption of fish. However, despite these guidelines, reaching the target has proved difficult, particularly with regards to the use of local seafood.

The use of local seafood in school feeding programmes faces a number of challenges, including high purchase costs, high transportation costs, high processing costs, and cultural challenges.

The comparatively higher cost of fish versus alternative proteins was consistently noted as a challenge to the use of local seafood in school feeding programmes.

International transportation of unprocessed seafood requires a consistent cold chain to maintain quality and health standards. School feeding programmes reported that they are generally unable to support the cost of cold transportation for safety requirements of seafood.

Time taken to process fish was also noted as a challenge, as even partially-processed fish (e.g. scaled, head removed, and filleted) requires additional time to be broken down to appropriate portion sizes. This time, of course, represents additional costs to school feeding programmes, suppliers of school feeding programmes, and schools to prepare meals on site. This time taken and additional costs represent a disincentive to the preparation of local fish, which is reflected in current menus. The convenience of processing foreign seafood alternatives, such as canned fish and salted fish, was considered to be higher.

Cultural challenges include preparation methods that are perceived to present a choking risk to children due to the presence of fish bones. Suppliers to school feeding programmes articulated the perceived liability risk of fish bones, and that this negatively impacted their desire to supply local seafood products to schools. School feeding programmes articulated the difficulty of on-site preparation, the time it takes for careful de-boning, and the need for additional supervision of young children while consuming fish as challenges to the incorporation of local fish into menus and offerings.

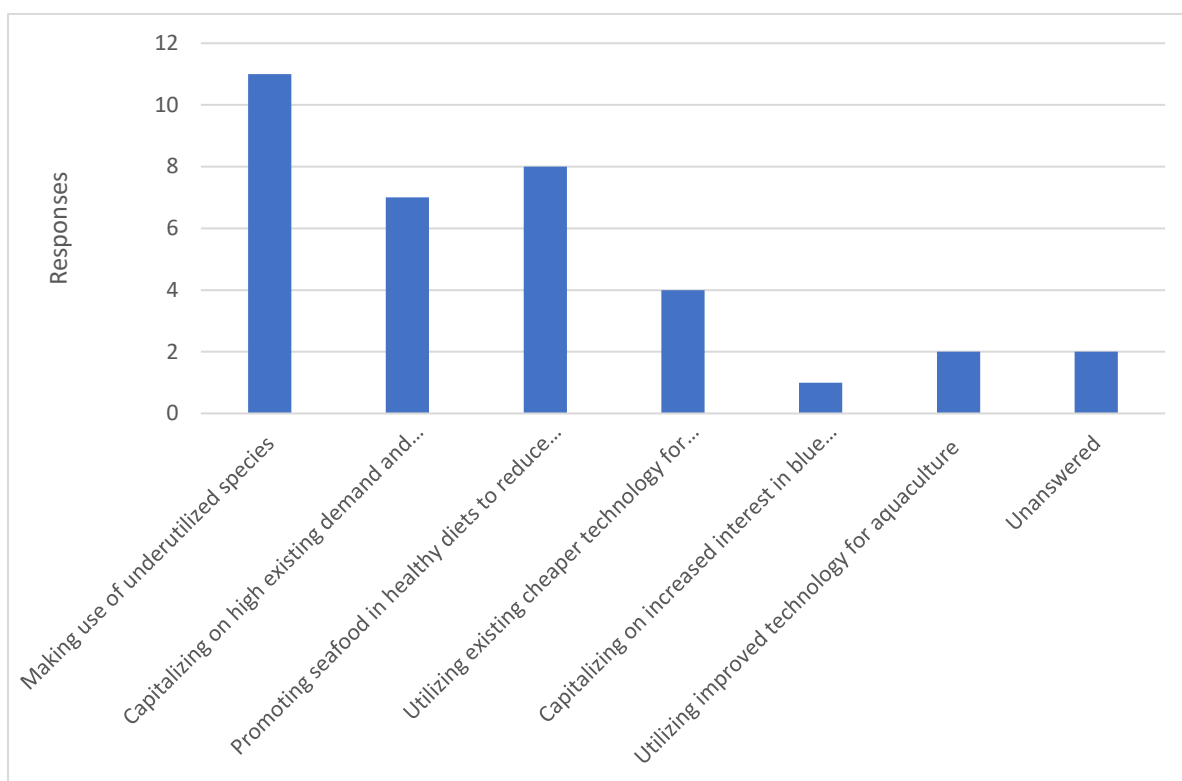
The menus of food actually served by school feeding programmes reflects the reality of these challenges, with most seafood or fish options represented being imported, like canned tuna and imported salted fish. These were cited as being a preferable option in terms of cost and processing convenience when compared to local seafood options.

Recommendations to address these challenges are closely related to other recommendations to improve consumption of seafood, however, specific to school feeding programmes, governments could arrange guaranteed purchase contracts with SMEs producing processed seafood products with higher convenience, lower choking risk and potentially lower costs, if underutilised species are incorporated.

Several processed seafood products, such as seafood burgers, nuggets, fish fingers, patties, pies, and samosas are already offered in the market by SMEs that could partner with school feeding programmes through government support schemes. The combination of economic benefits such as tax breaks, subsidised inputs (subsidising purchase of sustainable seafood products) and a steady demand can make this a viable opportunity for increased consumption of local seafood.

## **9 Opportunities to enhance intra-regional trade and consumption of seafood**

Improving consumption and intra-regional trade of seafood in the CARICOM region requires thoughtful prioritisation of actions to address the numerous challenges, articulated above, by all stakeholders involved in fisheries value chains. In the validation webinar, stakeholders were asked to identify which opportunities they believed would have the greatest impact on improving intra-regional consumption and trade of seafood products. The results are shown in **Figure 9.1**.



**FIGURE 9.1: RANKING OF OPPORTUNITIES BY STAKEHOLDERS IN VALIDATION WORKSHOP**

In this section, we highlight opportunities to improve intra-regional trade and consumption identified by stakeholders and from available data. It should be noted that current production data indicates that supply of seafood products is unable to satisfy an existing and relatively robust demand in the region. Expanding consumption and intra-regional trade without increasing sustainable production (through increased production or reduced wastage) is extremely challenging.

Thus increasing intra-regional trade can be seen as having two components: first, addressing barriers that exist for trade currently (trading more with what we have) and, secondly, reducing wastage and expanding sustainable production to supply more fish to the market (i.e. producing more to satisfy demand).

### **Making use of underutilised species**

In the words of one key informant *“we don’t necessarily need to catch more; we need to do more with what we catch”*. Experts freely listed underutilised species such as diamond back squid, rainbow runner, bangamary and robin, as high-quality species with healthy stocks<sup>37</sup>. These fisheries are currently underutilised in the region due to cultural unawareness of the fish quality and preparation methods. Highlighting these species through regional and national campaigns, collaboration with local chefs and restaurants, and providing marketing support are a few ways to build public awareness. The increased consumption of lionfish was noted as an example of how consumption patterns of the Caribbean public can shift with concerted marketing and collaboration. This also includes the provision of a wider variety of cuts to appeal to different end markets. Detailed recommendations on how to appropriately market underutilised species was provided by a number of experts. They noted that building knowledge of time and temperature control for food safety and appropriate cooking methods were essential aspects of shifting culture towards new species.

<sup>37</sup> Both bangamary and robin are consumed domestically in Guyana and St. Vincent and the Grenadines where they are harvested respectively, but currently export to other CARICOM nations is limited.

### **Improving value addition and reducing product wastage**

Cultural preferences for certain species and cuts of fish create waste from existing popular species. Value addition by improving regional processing capacity in the use of cuttings, meal, shells, and bones must be explored to reduce wastage, and improve product offerings. This ultimately maximises value for both producers and consumers alike, without adding pressure to the existing fish stock.

### **Improving consumer awareness of general seafood quality**

One respondent noted *“if we can export to one of the most stringent markets in the world (the EU), why is it sometimes hard to export to my neighbour because of quality?”*. Improving SPS, implementation of HACCP, and traceability regionally would bring the benefits of improved quality standards that should be marketed to regional consumers.



**FIGURE 9.2: VENDOR IN ST. VINCENT PROCESSING FISH FOR SALE (PHOTO CREDIT: ST. VINCENT AND THE GRENADINES NATIONAL FISHERFOLK ORGANISATION/SVGNFO)**

### **Linking seafood consumption to addressing regional challenges to NCDs**

Experts noted fish and seafood as a healthy protein alternative and a potential part of a healthy diet to combat the issue of NCDs in the Caribbean. In the region, NCDs are the leading cause of death and disability with 76.8 percent of the total deaths (non-Latin Caribbean, excluding Haiti) being due to NCDs in 2016<sup>38</sup>.

CARICOM faces high rates of occurrence of NCDs due to the consumption of a high fat, high sugar diet. Substituting fish and other seafood for other forms of protein is demonstrated to be part of a healthy diet that combats the occurrence of NCDs. Many experts noted this as an opportunity to increase seafood consumption through alignment with national and regional health policies.

### **Capitalising on increased interest in blue economy investments**

In general, the region is facing a major opportunity in the increased interest, and the financial and political support for the development of a sustainable blue economy. Increasing both the consumption and trade of local and regional seafood requires significant investments in improving the implementation and enforcement of current policy, and accelerated investment in developing sustainable fisheries that are more economically efficient and productive. Key informants generally noted this interest in the sustainable blue economy in a positive way and as a major opportunity to accelerate production, trade, and consumption.

The fisheries sector is in need of investment and further government support. Actors complained that fishing is not seen as an important industry, with potential to generate significant financial returns, and thus suffers from chronic underinvestment from government and holders of capital. Furthermore, inadequate investment in fisheries education stifles innovation in the industry. However, there is a desire to ‘professionalise’ the sector which requires deeper collaboration between fisherfolk, processors and government actors.

<sup>38</sup> <https://carpha.org/What-We-Do/NCD/Overview>

### **Investment in traceability and data collection**

There is need to address the pervasive data challenges of seafood production across the region. Actioning recommendations to address data collection and stock assessment issues are difficult because of chronic understaffing by governments, resulting in this type of work being normally funded and carried out by projects. The International Commission for the Conservation of Atlantic Tunas (ICCAT), of which some CARICOM countries are contracting parties, has sanctions for not collecting data. To explore new opportunities, information and data need to be collected on new species.

Inadequate data on spoilage of fish, by-catch and wastage, that doesn't enter the economic system means that losses are not accounted for in the harvest sector. This data is essential to understand the scale of the industry and the scale of waste produced.

**Table 9.1** summarises some of the opportunities and threats to intra-regional trade and consumption of seafood products in CARICOM.

**TABLE 9.1: SUMMARY OF OPPORTUNITIES AND THREATS TO INTRA-REGIONAL TRADE AND CONSUMPTION OF SEAFOOD PRODUCTS IN CARICOM**

	Political	Economic	Socio-cultural	Technology	Legal	Environmental
<b>Opportunities</b>	Harnessing the potential of CSME by building awareness of benefits to producers	COVID-19 and resulting disruptions to international supply chains	Promoting the incorporation of regional and national fish and seafood into diets as part of the public health response to the regional issue of NCDs	Significant scope to improve the use of modern cold chain technology to improve product quality and longevity	Improved harmonisation of SPS rules	Significant number of underutilised species
	Strong political interest in food independence as it relates to reducing food import bills at the national and CARICOM levels	Impact investing opportunities supporting the use of environmental and social indicators in financial investing in the small-scale fisheries sector	Improving seafood literacy, particularly of underutilised species with healthy fish stocks	Improved traceability technology, including declining cost for the use of smartphones for traceability in small-scale fisheries	-	Sustainability certification
	-	Tax breaks for distributors and boat owners who invest in sustainability measures	Seafood import substitution through consumer education of regional alternatives for commonly-demanded products	-	-	-
	-	Increased interest in investing in the sustainable blue economy	-	-	-	-
	-	Strong consumer demand for seafood products	-	-	-	-
<b>Threats</b>	Low levels of awareness of regional policy commitments	Low levels of regional transport interconnectivity	Cultural aversion to frozen local fish	SPS regulations	High levels of SPS regulation complexity,	Overexploitation of popular species due to consumer demand



	by national stakeholders				particularly for small-scale fishers	
-	Low cost of imported fish products and other sources of protein	-	-	-	High cost of adhering to HACCP requirements	-
-	High cost of air transport	Low diversity in species consumed due to inadequate cultural familiarity	Weak cold chain, inconsistent use of good cold storage practices at start of cold chain			
-	Timeliness of supply particularly for tourism and retail markets	Low seafood literacy among general consumers	-	-	-	-
-	Inability to blend public and private finance	-	-	-	-	-

## 10 Recommendations to enhance intra-regional trade and consumption of seafood

Recommendations here are articulated based on the review of opportunities and challenges as well as feedback provided during the stakeholder validation webinar. During the webinar, polls were used to prioritise opportunities with the greatest potential positive impact on intra-regional trade and recommendations with the greatest impact according to stakeholder perspectives.

### **Review and reform outdated trade legislation**

Key informants noted the use of national trade legislation that goes against the principles of CARICOM CSME principles in the trade of agricultural products as a significant barrier to intra-regional trade. While recent efforts in harmonisation of SPS and other trade-related rules represent significant progress, without a region-wide legal review of national trade legislation, outdated rules can be used by national authorities as a method to refuse or delay importation of seafood products, acting as a disincentive to intra-regional trade.

It is recommended that a review and reform of outdated national trade legislation be conducted as these hamper the implementation of Article 57 of the Revised Treaty of Chaguaramas. Without reform, there is risk that the potential gains of tariff-free status of the CSME may not be realised.

### **Improve support for innovative financing in fisheries**

Fishers noted the challenge of accessing capital to improve production methods and make them more sustainable. Insufficient capital for investing in production methods and to support addressing documentation challenges were noted, particularly as you go towards the harvest end of the value chain. Fishers and private sector operators also noted inadequate transparency in the process of accessing benefits related to fisheries as a challenge. Key informants indicated that private holders of the capital, regionally, perceive investments in sustainable fisheries to be risky and unprofitable<sup>39</sup>. For example, a credit union will understand the risk and yields of someone requesting funds to operate a taxi in a tourism market yet not understand the risk and yields in an investment in cold chain technology that will improve product quality and afford access to high value consumer markets.

Blended finance and innovative finance modalities are both excellent opportunities for expanding regional production in a sustainable manner and not just financing overcapitalised fisheries. Blended finance is the mixing of both public and private funds through investment deals to facilitate sustainable development. Private sector operators who are aiming to become more sustainable in the region have expressed that current governance and financial frameworks are not favourable to mixing development or public funds and private funds to catalyse investment in sustainable fishing approaches. Investment is needed in policy development and execution and development of sustainable value chains<sup>40</sup>. More specifically, investment is needed in data collection and information management, enforcement and monitoring of IUU fishing, sustainable harvesting methods, traceability, cold chain development, transportation, processing, packaging, and marketing. The scale of investment needed means that the traditional methods of relying on development finance and public funds are insufficient to improve economic and biological performance of regional fisheries. Addressing these challenges requires governance and regulatory frameworks that enable the use of public capital and development finance to de-risk and catalyse private sector investments in a sustainable fisheries sector.

Related to blended finance is the use of innovative financing modalities and impact investing. Innovative finance refers to “financial solutions to development challenges that remain insufficiently

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<sup>39</sup> Return seeking holders of private capital are reluctant to invest in the industry due to lack of

<sup>40</sup> <https://www.edf.org/sites/default/files/documents/financing-fisheries-reform.pdf> page 2

addressed by traditional aid flows” (future humanitarian financing) (Future Humanitarian Financing, n.d.). Impact investing refers to investments made with the intention to generate measurable social and environmental impacts as well as financial return. Impact investments and innovative financing solutions can involve the use of private capital at lower interest rates, preferential repayment periods, or pay for performance contracts. The deployment of these approaches requires the expansion of education of financial institutions of the opportunity presented by sustainable seafood industry development and should be pursued at all scales across the region from small credit unions to large regional banks.

In the case of both innovative or blended finance and impact investing, governments and development agencies must support activities that enable the use of private capital and de-risk these investments. Some recommended actions include as follows:

- Providing seed capital for innovative production technologies and aquaculture
- Underwriting risk of financial institutions investing in sustainable fisheries
- Providing technical assistance to financial institutions investing in sustainable fisheries
- Using price guarantees and purchase contracts for sustainably managed fisheries

The use of blended and innovative finance has the potential to accelerate the implementation and impacts of many of the recommendations articulated in this report.

An important step towards the implementation of blended finance, innovative finance and impact investing regionally is the development of a Sustainable Fisheries Fund (SFF) for the Western Central Atlantic region. The SFF aims to “enhance the conservation and management of marine aquatic resources and promote sustainable fisheries operations and value chains in the Western Central Atlantic”. By providing private sector with access to credit at preferential interest rates, innovative guarantees, and more accommodating conditions, the SFF intends to accelerate the implementation of regional fisheries recommendations towards sustainability. **Table 10.1**<sup>41</sup> summarises some of the benefits the SFF intends to provide to different stakeholders involved in fisheries value chains.

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<sup>41</sup> Please note this table includes the term RFMO does not reflect the authors views.

**TABLE 10.1: BENEFITS OF THE SUSTAINABLE FISHERIES FUND BEING DEVELOPED<sup>42</sup>**

FOR THE PRIVATE SECTOR	FOR GOVERNMENTS	FOR THE CREDIT SUPPLIERS
Reduce costs of credit/increase profitability	Increase uptake & implementation by the private sector of fisheries management/conservation recommendations	Contribute to implementation of scientifically-based measures that rebuild stocks and that deter and prohibit non-sustainable fishing practices
Support implementation of (binding) fisheries management measures	National level financial institutions used as intermediary, which builds and maintains local expertise and ownership and contributes to employment	Monitoring of impact guaranteed within Regional Fisheries Management Body (RFMB) structure
Receive technical support for business development	Reduce reliance on the government and its subsidies for adapting to climate change	Opportunity to ensure socially and environmentally-responsible investments in fisheries
Aid meeting market and IUU requirements	Meet regionally-made commitments	Through (indirect) fund provision, reduction of transaction costs
Facilitate adaptation to climate change	Secure access to credit and investment for the sector, tied with sustainability controls	Reduced risks of non-repayment of loans through use of local banks
Contribute to environmental sustainability	Support the competitiveness of the fisheries sector in the export markets	Technical assistance costs covered by WECAFC members

### Invest in traceability and data collection

Tracing Caribbean seafood catch from its exact point of origin to harvest, landing, processing and eventual point of sale is a priority for sustainability, food safety, and enhancing consumer confidence in regional seafood products. Fortunately, advances in available consumer electronics, notably global positioning systems (GPS) and smartphones, allow for enhanced data collection and implementation of traceability standards. Regionally, investment should be directed towards enhanced data collection and traceability, particularly in small-scale fisheries to improve sustainability, access to high value end markets, consumer confidence and eventual implementation of fishing sustainability standards. Closely related to these investments is the conducting of stock assessments. Blockchain represents an opportunity to implement traceability, supply chain monitoring, and the deployment of innovative financial instruments. Blockchain solutions are currently being promoted by the United

<sup>42</sup> Adapted from: FAO. 2019. Development of a Sustainable Fisheries Fund for the Western Central Atlantic: Wilderness Markets and Conservation International. Rome. 30 pp. <http://www.fao.org/3/ca3176en/CA3176EN.pdf>

Nations Environment to improve transparency and efficiency of financial transactions, while enhancing data collection along the entire value chain.<sup>43</sup>

### **Explore opportunities to strengthen intra-regional transportation**

Facilitating inter-island transportation of seafood products is essential to facilitating further intra-regional trade. Significant opportunities exist for private sector operators with strong understanding of logistics. Waiving of taxes of air transport for seafood products would have a significant effect. Increased investment in cargo abilities that are separated from passenger flights would have significant impacts in intra-regional trade in agricultural products, especially seafood. In the Eastern Caribbean, where flight schedules prioritise the movement of people, flight irregularity and changing schedules, are potentially detrimental to the delivery schedules of valuable cargo, such as seafood products. The COVID-19 pandemic has had a notably negative effect on intra-regional trade due to declining cargo/freight availability stemming from reduced passenger flight movements. With investments in cargo-only flights prior to the pandemic, regional food security would have been strengthened, considering changing global supply chains.

Ocean freight currently relies on international standards of 40-foot refrigerated containers reliant on irregular freight arrivals, particularly for smaller islands. Investment is necessary in innovative transportation modalities that can supply less than load volumes of seafood products with higher regularity. Some private sector informants noted the opportunity of transporting fish not using containers, but using retrofitted trawlers and fishing boats, with large cold holds having the capacity to transport 10,000 to 15,000 lbs. of fish. This option may better suit the scale of fishing economies in the region.

Investment in the regional cold chain is needed. From start to end, further investment is necessary in the cold chain to reduce spoilage, maximise quality, and maximise 'exportability' of the region's seafood products. While some national incentives are provided for supporting cold chain development, they need better publicity, clearer mechanisms for approval, and more thoughtful formulation to ensure they are relevant to the capacities and needs of small-scale fisherfolk. Offering tax free incentives for high-seas vessels to be equipped with advanced cold storage abilities will have little impact if the process to receive these incentives lacks transparency and if fisherfolk do not have the technical capacity to use these vessels and techniques.

### **Implement certifications and quality standards related to fisheries**

A cross-cutting recommendation is the implementation of fisheries-related quality standards to increase sustainability while enhancing consumer confidence. Fisheries standards require consistent measurement of stock sustainability, ecosystem impacts, and effective fisheries management. In doing so, they do not only enable and facilitate effective and sustainable management of fisheries, but, through the issuance of certifications, enhance consumer confidence and product value.

### **Improve consumer awareness and education**

Closely related to the opportunity of underutilised species and using seafood products as part of the solution to NCDs is conducting consumer awareness and education campaigns. Building awareness of availability of healthy, Caribbean-sourced seafood with supermarkets and other points of sale should be conducted. In addition, education of consumers to enhance seafood literacy, that is, how to process, prepare, and cook underutilised species is necessary to expand their consumption. A regional guide or cookbook on how to prepare underutilised species would likely have a significant impact on consumer seafood demand, without increasing pressure on overfished stocks.

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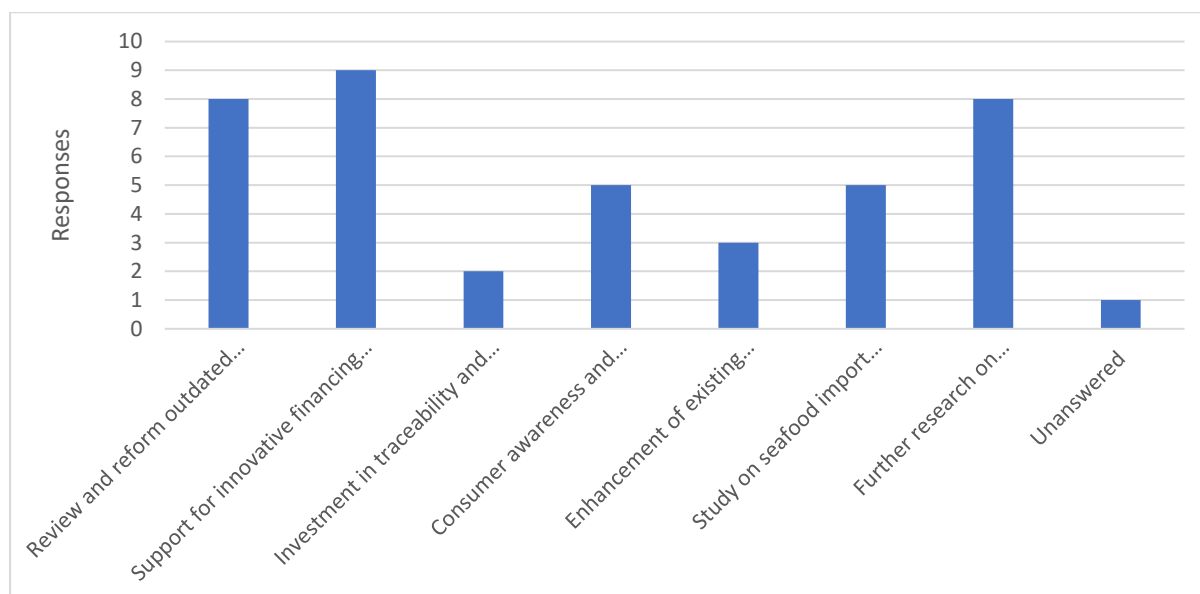
<sup>43</sup> <https://wedocs.unep.org/bitstream/handle/20.500.11822/34226/FB019.pdf?sequence=1&isAllowed=y>

## Conduct research and development

Based on the current challenges, barriers, and opportunities, we recommend two follow-up studies to deepen our understanding of ways in which trade and consumption of seafood could be expanded. These are as follows:

- *Study on seafood import substitution potential in CARICOM*: we recommend a study on the seafood imports substitution potential in the CARICOM region. Noting that the strong demand for seafood products in the region is largely satisfied by imports from outside the region, analysing the products imported in detail and matching these extra-regional imports with CARICOM product availability will identify specific and immediate trade opportunities that can be capitalised on. This study should pay particular attention to high value items that are imported to satisfy tourism demand that can be substituted with currently-underutilised local fish species, such as Diamond backed squid substituted for calamari. Examples of best practice exist in the production of a Diamondback squid recipe book in Dominica through cooperation with the Japan International Cooperation Agency (JICA)<sup>44</sup>. To increase its consumption and use in local diets.
- *Further research on transportation opportunities at the CARICOM level*: while some recommendations related to transport were made, there is a dire need for further research by logistical experts on methods to improve regional transportation efficiency within CARICOM. A significant amount of intra-regional trade relies on non-CARICOM ports, such as Miami, for distribution and transportation. A study on increasing transport efficiency of food products within CARICOM can identify logistical opportunities that address economies of scale, transportation timing, and less-than-load issues.

Prioritisation of these recommendations based on their cost to implement nationally and regionally as well as the estimated eventual benefits in terms of enhanced health, nutrition, livelihoods, foreign exchange savings, food security and sustainability, should be done. However, stakeholder perspectives on priority recommendations was sought in the validation webinar. **Figure 10.1** indicates the ranking of priority recommendations to improve intra-regional trade and consumption by polled participants.



**FIGURE 10.1: STAKEHOLDER PRIORITIZATION OF RECOMMENDATIONS**

<sup>44</sup> [https://www.jica.go.jp/english/news/field/2013/130710\\_01.html](https://www.jica.go.jp/english/news/field/2013/130710_01.html)

## 11 Conclusion

Based on the analysis of responses from key informants and available public-policy documents, current regional public policy has a positive effect on intra-regional trade, but determining the exact scale of this effect is difficult.

However, due to a variety of barriers and challenges, intra-regional trade and consumption of seafood is likely below its theoretical potential, leaving social, economic, and environmental benefits on the table.

Increased intra-regional trade of seafood products would, theoretically, reduce food importation bills, reduce foreign exchange deficits, increase income and economic resilience of vulnerable coastal communities, reduce pressure on overfished stocks, increase food security, and have positive benefits on community health.

Some recommendations for accessing these benefits include support for innovative financing in fisheries, investment in traceability and data collection, the implementation of certifications and quality standards related to fisheries, consumer awareness and education, and further research on import substitution and transportation opportunities. Of these, participants in a validation webinar identified **support for innovative financing in fisheries**, **review of outdated trade legislation**, and **further research on transportation opportunities** as priority recommendations.

While these recommendations would represent a first step in the right direction, much more work needs to be done to create an enabling environment for sustainable seafood production. For example, more support is needed for actors in the seafood value chain producing value-added products, with high intra-regional export appeal. Direct efforts need to be made to increase local seafood content in school feeding programmes as a method of entrenching consumer values, and continued research is needed on stock sustainability, underutilised species, and alternative fish production methods such as aquaculture.

With these continued efforts, regional economies and peoples will see a number of benefits from increased intra-regional trade and consumption of seafood.

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## Appendices

### Appendix 1: Key informant interview list

**TABLE 0.1: KEY INFORMANTS INTERVIEWED FOR STUDY**

Country	Name	Organisation	Position	Contact
Regional	Mr Shaun Baugh	CARICOM Secretariat/ CAHFSA Board of Directors	Programme Manager, Agriculture and Industry	shaun.baugh@caricom.org
	Mr Sandiford Edwards	CARICOM Secretariat	CARICOM / FAO Programme Liaison	Sandiford.Edwards@fao.org
	Mr Nigel Durrant	CARICOM Secretariat	CARICOM Food Trade Specialist	Nigel.Durrant@Caricom.org
	Mr Peter Murray	Caribbean Regional Fisheries Mechanism (CRFM) Secretariat		peter.a.murray@crfm.int
	Mr L. Simeon Collins	Caribbean Agricultural Health and Food Safety Agency (CAHFSa)	Chief Executive Officer	cahfsa14@gmail.com ceo@cahfsa.org
	Mr Adrian La Rhoda	Caribbean Network of Fisherfolk Organisations (CNFO)	Chairman	alarodabahafish@gmail.com
	Mr Keith B. Flett	One Skip	Founding Partner	kbflett@gmail.com
St. Vincent and the Grenadines	Ms June Masters	CRFM Secretariat	Statistics & Information Analyst	june.masters@crfm.net
	Mrs Vickilyn Job-Millington	Ministry of Education, School Feeding Unit	School Feeding Programme Coordinator	coordinatorsfp.moe@gmail.com
	Mr Ferique Shortte	Fisheries Division	Manager of Kingstown Fishing Market	agriinputgeneral@gmail.com feriqueshortte@gmail.com
	Mr Sheldon De Nobriega	Villamar Ltd.	Manager	villamar@vincysurf.com
Barbados	Dr Louis Woodroffe	Ministry of Foreign Affairs	Director General of Foreign Trade	registry@foreign.gov.bb
	Mr Adrian Wiltshire	Manager	ASK Farms	askfarms@hotmail.com

## Appendix 2: Sample Survey

### STEWARDFISH - EXAMINATION OF PUBLIC POLICY AND PRIVATE SECTOR PURCHASING PRACTICES OF SEAFOOD FOR THE CARIBBEAN SMALL-SCALE FISHERIES SECTOR

#### Key Informant Interviews – Regional Private Sector Actors

Name of interviewer:

Date:

Name of participant:

Organisation/Title:

Gender:

**Introduction:** We are doing an examination of public policy and private sector purchasing practices of seafood in the Caribbean small-scale fisheries sector as a part of the Developing Organisational Capacity for Ecosystem Stewardship and Livelihoods in Caribbean Small-Scale Fisheries (StewardFish) project from December 2020 to January 2021. This analysis will be used to develop recommendations to promote the use of local fish in healthy diets and identify priorities to improve intra-regional trade of seafood in the CARICOM region. This assessment is being Implemented by Caribbean Natural Resources Institute (CANARI) in collaboration with the Food and Agriculture Organisation of the United Nations and country focal points in Antigua and Barbuda, Barbados, Belize, Guyana, Jamaica, Saint Lucia, and St. Vincent and the Grenadines.

1. a) Can you please describe your role and responsibilities?  
b) How long have you served in this role?

#### Policy context

2. Which policies/practices are important to intra-regional (within CARICOM) trade of seafood products? Please be exhaustive and list all the policies that are relevant to the management of intra-regional trade of seafood products.
3. (Optional) Probe for.
  - a. Work of Export support agencies
  - b. Trade and Transport policy

#### Enabling Environment

4. Which policy/purchasing practice do you believe has had the greatest **positive impact** on the intra-regional trade of seafood products?
  - a. What effects has this policy/practice had, and why do you believe it was effective?
  - b. What is the impact of this policy/practice on private sector actors i.e. processors distributors and retailers?
    - i. **(If impact significant)** Do you think private sector actors are aware of this policy and how it relates to them?
5. What incentives for intra-regional trade of seafood products exist for the private sector?
  - a. Can you suggest some incentives that you believe would have a positive impact on the intra-regional trade of seafood products?
6. Which Policy or purchasing practice do you believe has the greatest **negative impact** on the intra-regional trade of seafood products?

- a. What effects has this policy/practice had, and why do you believe it has had negative impacts?
- b. **(Optional)** What is the impact of this policy/practice on private sector actors i.e. processors distributors and retailers?

### **Purchasing practices**

7. What are the primary **purchasing practices** you use to buy from local fisherfolk?
  - a. What type of contracts do you have with fisherfolk?
  - b. What are the primary challenges associated with the contracts/arrangements you have with fisherfolk?
8. What are the primary challenges associated with purchasing local and regional seafood for your commercial process (processing/retail/distribution)?
9. Which is easier to use for your business: locally-purchased fish or imported fish?
  - a. Please explain why
  - b. **(Optional)** What factors lead to price differences between imported seafood and local seafood?
10. How could your relationship with local fishers be improved to improve income sustainably from Caribbean fisheries?

### **Opportunities**

11. What opportunities exist to promote **intra-regional trade** of seafood products in the CARICOM region?
  - a. What opportunities specifically related to transportation and distribution of seafood products exist?
12. What opportunities exist to promote the **consumption** of regional seafood as a part of a healthy diet in the CARICOM region?
  - a. What opportunities specifically related to marketing of seafood products exist?
13. **(Optional)** What are the most important **investments** the Caribbean private sector could make to increase seafood trade regionally?

### **Barriers to trade**

14. What are the primary barriers to **intra-regional trade** of seafood in the CARICOM region from your perspective?
  - a. What are the primary non-tariff barriers to seafood trade in CARICOM?
  - b. Are there any particular food standard-related barriers to seafood trade in CARICOM?
15. What are the primary **transportation** challenges related to intra-regional seafood distribution?
16. What are the primary **marketing** challenges related to intra-regional seafood trade?
17. What are the primary barriers to intra-regional trade of product lobster/conch/dolphinfish in the CARICOM region.

### **Closing**

18. Are there any statistics or studies or documents that you believe would be relevant to this study that you can share?
19. Do you have any additional comments or recommendations?

### Appendix 3: National fisheries policies for the three case study countries

**TABLE 0.2: NATIONAL FISHERIES POLICIES AND PLANS FOR BARBADOS, JAMAICA, AND SAINT VINCENT AND THE GRENADINES.**<sup>45</sup>

Country	National laws, policies, plans, programmes and projects	Description
Barbados	Fisheries Act, 1993 (Cap. 391, amended 2000) and Fisheries (Management) Regulations (1998)	This is a guiding framework for development of and investment in the fisheries sector including the development of the new Fisheries and Aquaculture Act. It was developed jointly by the Fisheries Division and the FAO.
	Fisheries Act Cap. 391, (1993), amended 2000	This Act guides the development and management of the fisheries sector. It makes provisions for the development of a FAC, access, licensing of vessels, research, safety at sea, inspections, etc.
	Barbados Fisheries Policy (draft) (2020-2030)	This provides a guiding framework for development and investment of the fisheries sector along with the development of a new Fisheries and Aquaculture Act.
	Barbados Fisheries Sector Management and Development Policy (not dated)	This instrument outlines guidelines for use and management of fisheries resources sustainably. It focuses on food and nutrition security and references both international and regional fisheries governance mechanisms, agreements and conventions, such as UNCLOS and the Code of Conduct for Responsible Fisheries.
	Barbados Fisheries Management Plan (2004-2006)	This national policy was developed with the main goal of developing and managing the fishing industry of Barbados to ensure it sustainably contributes to the economic, social and nutritional well-being of citizens. It was developed for a period of three years.
	Barbados Sea Egg Fishery Management Plan (draft)	This plan was designed for the sustainable management and use of the sea egg fishery to ensure maximum sustainable yields and benefits to stakeholders of the fishery.
	Markets and Slaughter-Houses Act	Guides the regulation of markets and slaughterhouses.
	Territorial Waters Act	Delineates the territorial waters of Barbados
	Marine Boundaries and Jurisdiction Act	Makes provisions for the exclusive economic zone for Barbados.
Jamaica	Fisheries Act (2018)	This Act repeals the Fishing Industry Act, and makes provisions for sustainable fisheries management, inclusive of aquaculture.
	National Food Safety Policy (2013)	This policy was developed to promote and develop national food safety and security systems, following national and international guidelines and standards to ensure health of

<sup>45</sup> Compiled from Institutional Analysis and Organisational Assessment Reports and Value Chain Analysis reports prepared by and for CANARI activities under StewardFish

		humans, environment, animals and plants. The policy addresses food safety, traceability, risk analysis, institutional arrangements for collaboration and management and creation of behaviour change through public education and awareness.
	Food and Nutrition Security Policy (2013)	This policy was developed for achieving food and nutritional security in Jamaica and to eliminate malnutrition.
	Maritime Areas Act (1996)	This was amended by the Fisheries Act No. 18 of the 2018 Act. It defines the territorial waters of Jamaica.
	Exclusive Economic Zone Act (1991)	This Act establishes the Exclusive Economic Zone of Jamaica, beyond the Territorial Sea.
	Aquaculture, Inland and Marine Products and By-Products (Inspection, Licensing and Export) Act (1999) and Regulations (2000)	This Act makes provisions for the inspection, certification of inland and marine products and by-products, and licensing of persons involved in the value chain.
	Fishing Industry (Special Fishery Conservation Area) Regulations (2012)	These regulations were developed under the Fishing Industry Act and outlines the prohibitions associated with Special Fishery Conservation Areas.
St. Vincent and the Grenadines	Fisheries Act (1986)	This is the main fisheries legislation for the islands aimed at developing and managing fisheries.
	Fisheries Regulations (1987)	This is aligned to the Fisheries Act of 1986 and makes provisions for the management and regulation of fisheries.
	Fisheries and Aquaculture Policy, 2018	This policy provides guidelines for long term development of the sector addressing resources management, access, quality control and assurance, and overall sustainable development of the sector.
	Fisheries (Prevention of Illegal, Unreported and Unregulated Fishing) Regulations (2017)	These regulations are used to regulate High Seas fishing fleets targeting tunas and other open water pelagic species.
	Fisheries (Fish and Fish Products) Regulations (S.R.O. No. 12 of 2006).	These regulations specifically address the quality and handling of fish and fish products, including HACCP and maintenance of the cold chain.
	Maritime Areas Act (1983) Act No. 15 of 1993	This Act defines the Territorial Sea and the Exclusive Economic Zone, Continental Shelf and other delineations in the marine area of St. Vincent and the Grenadines.

## *Appendix 4: Additional school feeding programme information*

### **Trinidad school feeding**

Currently, the breakfast menu on the school nutrition programme, which rotates over a four-week cycle at the kitchens of the 75 contracted caterers, include sweetbread; chicken-chow and whole wheat hops; easy cheese roll or whole wheat pizza bread; schnecken; hot tuna salad with whole wheat croissant or bake; spinach and cheese whole wheat crescent; cassava pumpkin muffin; whole wheat cheese spread sandwich; peanut butter and jelly whole wheat sandwich; enriched Chelsea bun; enriched banana bread; enriched coconut drop; and saltfish buljol; or saltfish and pumpkin, with corn bake.

For lunch, meals consist of stewed pink beans with pumpkin, saffron rice with mixed vegetables and macaroni pie; vegetarian hoagie with sweet peppers, corn, pineapple, and onion topped with cheese; amchar mango with curried bodi or bhaji and paratha roti; vegetarian whole-wheat pizza; teriyaki sauce with vegetable chow and fried rice with carrots; vegetarian cheesy chilli pasta with vegetables; stewed chicken with ochro rice, pumpkin and carrots and hot cassava salad or corn on the cob; stewed chicken with callaloo and steamed rice; and black-eyed peas pelau with pumpkin, corn on the cob or plantain.<sup>46</sup>

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<sup>46</sup> <https://www.guardian.co.tt/life/love-and-nutrition-in-school-box-lunch-6.2.684376.7024096573>

## *Appendix 5: Key informant interview methodology*

Interviews were typically conducted by two researchers, one researcher typically lead questioning with support from the second researcher<sup>47</sup>. Both researchers recorded summary notes on interviewees responses. One researcher led the editing and combination of notes into a final summary transcript of response. Interviews were digitally recorded and reviewed by one researcher to ensure summary notes on responses accurately reflected statements made during the interview. Verbatim word for word transcripts were not used for this analysis. Interviews averaged an hour in length. A standardised open-ended interview was used with questions modified to represent different respondent types (public sector, school feeding programmes, private sector).

For all key informant interviews, open ended questions were used to give greater freedom of expression to interviewees. Interviewers asked questions sequentially.

Researchers used an inductive thinking approach, generating observations using key informant interviews, seeking patterns in the observations, developing a theory about these observations, and finally concluding with a hypothesis about how intra-regional trade could be developed.

Responses from all key informants to single questions were combined into a single list. Each response was broken down into key phrases commonly seen throughout responses (open Coding). These key phrases were then coded into groups or families of responses with similar meaning.

For example, the respondent may say, 'The common external tariff is the most important public policy for intra-regional trade', while another respondent will say, 'The single market is the most important public policy for intra-regional trade'. These two responses both refer to the CARICOM single market and economy and will be both coded axially as 'CSME'.

Using this method, responses were grouped and categorised for the analysis of the effects, impacts, implementation and shortcomings of public policy and private sector purchasing practices as it relates to intra-regional trade and consumption of seafood.

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<sup>47</sup> Four of the interviews were conducted by one researcher.



*Appendix 6: List of validation webinar participants*

**TABLE 0.3: LIST OF STAKEHOLDERS AND PROJECT PARTNERS ATTENDING THE VALIDATION WEBINAR**

<b>Name</b>	<b>Organisation</b>	<b>Email</b>
<b>Dexter Miller</b>		dextermiller42@gmail.com
<b>Ferique Shortte</b>	Fisheries Division, St. Vincent and the Grenadines	feriqueshortte@gmail.com
<b>Ian Horsford</b>	Fisheries Division, Antigua and Barbuda	Ian.Horsford@ab.gov.ag
<b>Joyce Leslie</b>	Fisheries Division, Barbados	Joyce.Leslie@barbados.gov.bb
<b>June Masters</b>	CRFM	june.masters@crfm.net
<b>Luis Acosta</b>	Fisher, Grenada	luis.05.acosta@gmail.com
<b>Margaret Straughn</b>	Fisheries Department, Saint Lucia	rita.straughn@gmail.com
<b>Maria Pena</b>	CERMES	maria.pena@cavehill.uwi.edu
<b>Nigel Durrant</b>	CARICOM	nigel.durrant@caricom.org
<b>Patrick McConney</b>	CERMES	patrick.mcconney@gmail.com
<b>Pamashwar Jainarine</b>	Guyana National Fisherfolk Organisation	pjainarine@gmail.com
<b>Sheena Griffith</b>	BARNUFO	aishiagriffithsheena@gmail.com
<b>Shelly-Ann Cox</b>	CERMES	Shellsalc@gmail.com
<b>Sylvia White</b>	BARNUFO	Sylvia-white@live.com
<b>Terrence Phillips</b>	FAO	Terrence.Phillips@fao.org
<b>Tylon Joseph</b>	Gouyave Fisherfolk Cooperative Society Limited	tylonjoseph23@gmail.com
<b>Tyrone De Freitas</b>	Ministry of Foreign Trade, Barbados	tdefreitas@foreign.gov.bb
<b>Vickilyn Millington</b>	School Feeding Unit, St. Vincent and the Grenadines	coordinatorsfp.moe@gmail.com