



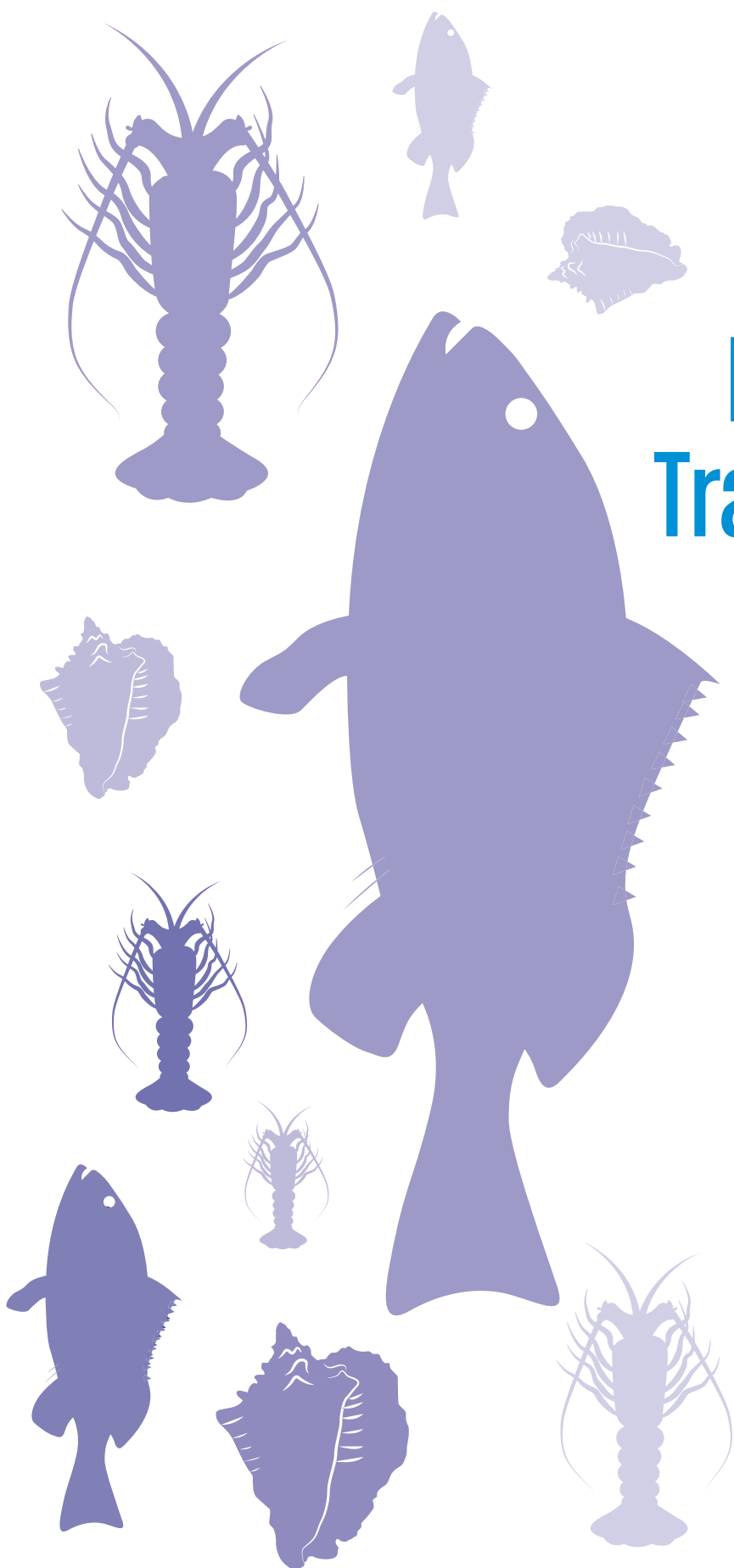
Oceans Economy and Trade Strategy:

Belize Marine Fisheries and Seafood Processing

Oceans Economy
and Trade Strategies Project
(OETS)
UNCTAD-DOALOS



UNITED NATIONS
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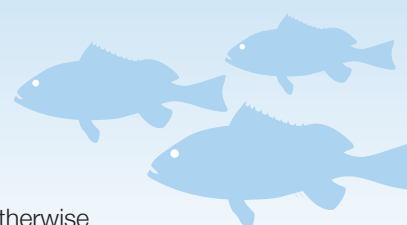
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Explanatory notes

- Reference to dollar and \$ indicate United States of America dollars, unless otherwise stated.
- Reference to Belize dollar is indicated as BZD.
- Use of an en dash (–) between dates representing years, e.g. 2015–2018, signifies the full period involved, including the initial and final years.
- To reflect the closest estimate for data, decimals and percentages are rounded off. Numbers in money are rounded to the nearest dollar, unless otherwise stated.
- Decimals and percentages in this document do not necessarily add to totals because of rounding.





4 Marked Crowns + \$2 = Pack of 8 Exercise Books

TIME	PRICE
8:00 AM	\$4.50
10:30 AM	\$4.50
1:30 PM	\$4.50
3:00 PM	\$4.50
5:00 PM	\$4.50

Photo: Belize Fisheries Department

Contents



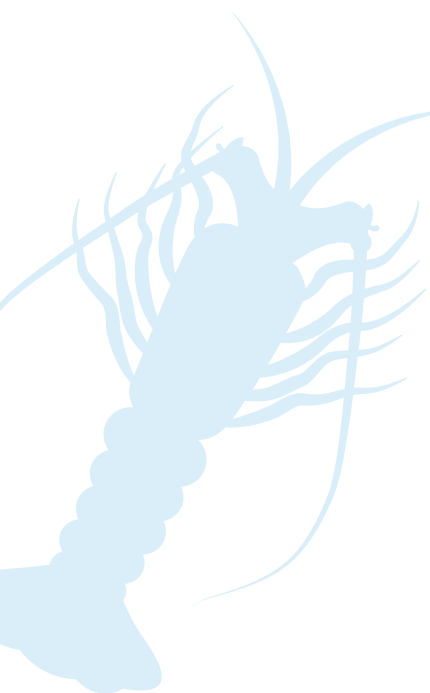
Acknowledgments	iii
Explanatory notes	iii
Abbreviations and acronyms	viii
Executive Summary	ix
Impacts of the coronavirus disease pandemic	xi

I. Introduction	1
1.1 Belize's oceans economy	1
1.2 Methodology and ocean sectors selection	2

II. Institutional and legal framework of the oceans economy	4
2.1 United Nations Convention on the Law of the Sea	4
2.2 International and regional agreements and organizations related to fisheries management	5
2.2.1 <i>International organizations</i>	5
2.2.2 <i>International agreements</i>	6
2.3 International and regional agreements and organizations related to trade	7
2.4 The institutional structure of fisheries management in Belize	11
2.5 Relevant national policies, strategies, and action plans	13
2.6 Regulatory framework of marine fisheries and seafood processing	14
2.6.1 <i>Marine fisheries</i>	15
2.6.2 <i>Seafood processing</i>	18
2.7 Key issues identified	19

III. Overview of chosen sectors: economic and trade assessment	21
3.1 Supply capacity: marine fisheries and seafood processing	21
3.1.1 <i>Current fishery production trends in Belize fisheries</i>	21
3.1.2 <i>Description and breakdown of fishing activity</i>	22
3.2 Market characteristics	26
3.2.1 <i>Foreign demand: importers of seafood products</i>	26
3.2.2 <i>Major commercial players</i>	27
3.3 Evolution of prices	29
3.4 Diversification efforts of fisheries	30
3.5 Review of key strengths and concerns	31

IV. Oceans economy assessment and value chain analysis	33
4.1 Marine fisheries	33
4.1.1 Sustainable use and conservation of marine resources	34
4.1.2 Capacity development	34
4.1.3 Improving market access	36
4.1.4 Fisheries and the tourism sector	37
4.1.5 International markets	38
4.1.6 SWOT analysis for the marine fisheries sector	40
4.2 Seafood processing centres	41
4.2.1 Sustainable use of marine resources	41
4.2.2 Labor characteristics at processing centres	41
4.2.3 Improving market access: access to niche markets	42
4.2.4 Domestic market	43
4.2.5 SWOT analysis for the seafood processing sector	47
4.3 Summary of key issues and potential actions	47
4.4 Value chain of target species	48
4.4.1 Marine fisheries: finfish	49
4.4.2 Seafood processing	51
V. Strategic design and action plan	54
References	62
Annex 1. Stakeholders attendance of OETS Belize project field missions and workshops, 2018–2019	65
Annex 2. Summary of HS codes of the products and species considered in the two selected sectors	66
Annex 3. List of interviews and information requests conducted for the OETS report	67
Annex 4. UNCTAD’s Oceans Economy pillars	68
Annex 5. HS codes for finfish species for exports in Belize	69
Annex 6. List of commonly encountered species of fish	70
Annex 7. Belize spiny lobster international value chain to the United States and China, Hong Kong SAR	71
Annex 8. Belize queen conch international value chain	72



Boxes

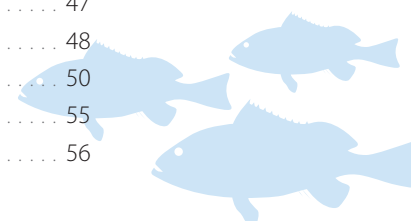
Box 1. National Trade Policy strategies pertaining to marine fisheries sector	39
Box 2. National Trade Policy strategies pertaining to seafood processing sector	46

Figures

Figure 1. Map of Managed Access Program fishing areas	15
Figure 2. Breakdown of export performance	21
Figure 3. Total national exports in capture fisheries, 2010–2018	23
Figure 4. Finfish export breakdown, 2010–2018	24
Figure 5. Spiny lobster products - export weights and values, 2008–2018	24
Figure 6. Queen conch products - export weights and values, 2008–2018	25
Figure 7. Belize’s finfish importers in 2018	25
Figure 8. Breakdown exported to the United States, 2018	27
Figure 9. Importers of fish products breakdown, 2018	27
Figure 10. Registered hotels and overnight tourists, 2012–2018	31
Figure 11. Simplified representation of fisheries value chain format	48
Figure 12. Belize finfish supply chain illustration	49
Figure 13. Local value chain estimates for spiny lobster product	52
Figure 14. Local value chain estimates for queen conch product	53

Tables

Table 1. Summary of proposed strategies for the marine fisheries and seafood processing sectors	x
Table 2. Summary of key institutional issues highlighted and proposed strategies and actions	20
Table 3. Number of registered fishers and vessels, 2016–2018	22
Table 4. Summary of product exports by company	29
Table 5. Price range of seafood products	30
Table 6. Summary of highlighted key trade issues and potential responses	32
Table 7. List of fish products in Belizean supermarkets, 2019	36
Table 8. Belize marine product imports current prices, 2015–2018	37
Table 9. SWOT analysis for marine fisheries sector	40
Table 10. Employment in the fish sector, 2011–2013	42
Table 11. SWOT analysis for seafood processing sector	47
Table 12. Summary of key issues and potential actions	48
Table 13. Category and price per pound of finfish species paid, 2017	50
Table 14. Strategic development recommendations	55
Table 15. Action plan 2020–2025	56



Abbreviations and acronyms

ACP	African, Caribbean and Pacific Group of States	GSTP	UNCTAD's Global System of Trade Preferences
AMF	adaptive management framework	HACCP	Hazard Analysis and Critical Control Point
BAHA	Belize Agricultural Health Authority	HS	Harmonized System code
BDF	Belize Defence Force	ITC	International Trade Centre
BELTRAIDE	Belize Trade and Investment Development Services	IUU fishing	illegal, unreported and unregulated fishing
BFD	Belize Fisheries Department	MAFFSD	Ministry of Agriculture, Fisheries, Forestry, the Environment and Sustainable Development and Immigration Services and Refugees
BTB	Belize Tourism Board	MCCAP	Marine Conservation and Climate Adaptation Project
BTIA	Belize Tourism Industry Association	MFA	Ministry of Foreign Affairs of Belize
BZD	Belize dollar	MSC	Marine Stewardship Council
CAF	development bank of Latin America	MSY	maximum sustainable yield
CARICOM	Caribbean Community	NTP	National Trade Policy
CARIFORUM	Caribbean Forum	OACPS	Organization of African Caribbean and Pacific States
CBD	Convention on Biological Diversity	OECD	Organisation for Economic Cooperation and Development
CFU	Capture Fisheries Unit	OETS	Oceans Economy and Trade Strategy
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	OLDEPESCA	Latin American Organization for Fisheries Development
COVID-19	coronavirus disease	OSPECSA	Central American Fisheries and Aquaculture Organization
CROSQ	CARICOM Regional Organization for Standards and Quality	PSMA	Agreement on Port State Measures
CRFM	Caribbean Regional Fisheries Mechanism	SDGs	Sustainable Development Goals
CZMAI	Belize Coastal Zone Management Authority and Institute	SIB	Statistical Institute of Belize
DFC	Development Finance Cooperation	SICA	Central American Integration System
DGFT	Directorate General for Foreign Trade	SIDS	Small Island Developing States
DOALOS	Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations	SPS	sanitary and phytosanitary
DSF	deep slope fishery	SWOT	strengths, weaknesses, opportunities, and threats analysis
EEZ	exclusive economic zone	TAC	total allowable catch
EPA	Economic Partnership Agreement	TNC	The Nature Conservancy
ESSMP	Environmental Safeguards and Social Management Plan Deep Slope Fishing	UNCLOS	United Nations Convention on the Law of the Sea
FAO	Food and Agriculture Organization of the United Nations	UNCTAD	United Nations Conference on Trade and Development
GATT	General Agreement on Tariffs and Trade	WCS	Wildlife Conservation Society
GDP	gross domestic product	WTO	World Trade Organization

Executive Summary

Belize's fisheries sector supports over 2,500 fishers directly and over 15,000 Belizeans indirectly (BFD, 2019). The fisheries and seafood processing sector also supports the ever-growing tourism sector by supplying the restaurant and hotel industry with finfish, spiny lobster, and queen conch in addition to exporting large volumes of these products.

Belize exported 2.06 million pounds in weight of seafood product valuing at \$21.3 million in 2019.¹ In the last decade, total production has yielded a steady catch of spiny lobster and queen conch, which are now classified as mature fisheries, while the potential for deep-sea fishing has long been identified as a potential commercial stock (BFD, 2019). Therefore, the fisheries sector economic interests must be considered when maximizing the benefits of Belize's ocean bounty while maintaining ecosystem health.

The Oceans Economy and Trade Strategy (OETS) project was developed to assist developing countries to realize the full potential of oceans economy sectors. This report was prepared in consultation with the United Nations Conference on Trade and Development (UNCTAD), the Division for Ocean Affairs and the Law of the Sea (DOALOS) of the Office of Legal Affairs of the United Nations, and the Government of Belize.

The main objective of this report is to assess the economic potential and regulatory needs for the marine fisheries (finfish) and seafood processing sectors (queen conch and spiny lobster), and to present an action plan that enables sustainable trade in those sectors. The sectors were selected by Belize during a stakeholder workshop, held on 28-29 November 2018 in Belize City.² Prior to that meeting, legal, institutional, and economic studies were conducted.³ This report builds on those studies and the outcomes of the workshop. Table 1 provides a summary of the proposed strategies for the marine fisheries and seafood processing sectors as devised by the participants.

Additional interviews with key stakeholders revealed ongoing projects and initiatives such as a deep-sea fisheries subproject, a PESCA⁴-tourism subproject, a traceability pilot project, and local sustainable seafood branding initiatives. Actions proposed by this plan may be streamlined with these ongoing projects and initiatives to achieve the intended outcomes listed below.

¹ SIB, 2020 and personal communication through email by a representative from SIB as the information was not yet available on the website. March, 2020.

² See <https://unctad.org/meeting/first-national-stakeholder-workshop-oceans-based-sectors-selection-and-assessment-0>

³ UNCTAD, 2019a, *Overview of economic aspects of fisheries and marine tourism sectors in Belize*. Available at <https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-04122019-belize-Economic-7.pdf> and UNCTAD, 2019b, *The United Nations Convention On The Law Of The Sea and The Legal and Institutional Framework For Ocean Affairs in Belize: Sustainable Marine Fisheries, Marine Aquaculture, Seafood Processing, Marine and Coastal Tourism*. Available at <https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=2553>.

⁴ *Fishing* in Spanish.





The intended outcomes of implementation include:

1. **Increased capacity of stakeholders** in ocean-based economic sectors by creating an enabling environment for research and development.
2. **Economic resilience** through the diversification of fisheries and seafood production by identifying opportunities for market access.
3. **Overall sustainable economic growth** in ocean-based economic sectors thus improving livelihoods of those involved directly in the ocean economy.
4. **Production of high-quality marine products** through value added options.
5. **Enhanced synergies** with ongoing projects, national plans, strategies, and policies of Belize.

Each part of the report outlines the current status of the sectors, issues to be addressed, and actions that may be undertaken by the Government of Belize and associated stakeholders under UNCTAD’s five Oceans Economy pillars to increase trade and boost economic growth. With an expected cost of \$1.25 million, the action plan, presented in part five of this report, provides for actions for implementation of the strategies described in Table 1.

Table 1. Summary of proposed strategies for the marine fisheries and seafood processing sectors

Marine fisheries
<i>Goal: to increase capacity of fishers for the sustainable harvest of commercially important deep slope fish species (E.g. red snapper).</i>
Proposed strategies
Provide training and capacity building opportunities for fishers to develop the deep slope fishing sector.
Support the acquisition of suitable fishing vessels, gear, and equipment to allow fishers access to the fishery resource all within the maximum sustainable yield (MSY) boundaries of the species in question.
Support increased export of finfish (fresh and frozen fish) and finfish products to regional and international markets (i.e. Mexico and the United States of America).
Implementation of Hazard Analysis and Critical Control Point (HACCP) standards for fish processing/handling facilities for fish and fish products for domestic consumption.
Promote domestic consumption (through tourism) using educational campaigns for national fish consumption.
Strengthen linkages between fishing and tourism sectors to optimize economic benefits for both sectors.
Seafood processing
<i>Goal: to add value to commercially targeted species, to access niche markets and to develop and implement smart marketing approaches for fishery products.</i>
Proposed strategies
Support access to new and strategic niche markets with the assistance of Belize Trade and Investment Development Services (BELTRAIDE) and other government agencies.
Support export-oriented seafood business establishments to increase revenue generation by using smart marketing techniques (market intelligence gathering, sale/export of fishery products during the periods of highest demand/highest tourism).
Increase and expand marine product lines for domestic sale (marketing of small packages and increasing availability of high-quality seafood products in domestic markets).

Support increased domestic consumption of fishery products by the tourism sector through legal acquisition from Belize Agricultural Health Authority (BAHA) and HACCP certified and licensed seafood business establishments.

Strengthen the linkages between fishing and tourism to increase economic benefits to both sectors.

Promote the domestic use (lobster head meat) and marketing of marine products, including export of currently discarded fishery by-products, such as queen conch trimming that can potentially generate additional revenue to stakeholders.

Source: First National Stakeholder Workshop. UNCTAD, 2018e.



Impacts of the coronavirus disease pandemic

Since the drafting of the present OETS report in 2019, the coronavirus disease (COVID-19) outbreak has become a pandemic currently affecting all states, economies, and people. As of 31 August 2020, Belize has had a total of 1,007 COVID-19 cases, 13 of which have resulted in deaths. In response to the pandemic, the Government of Belize has since issued a series of Statutory Instruments, Orders, Protocols, and Rules on the essential services, closure of businesses, relief programs, and social distancing guidelines to reduce the spread of the virus (Government of Belize Press Office, 2020).

Similarly, to other countries, Belize's economy has been substantially impacted. The Government has set up the Unemployment Relief Program, which provides with \$150 per month during three months; with a maximum of two persons in the same household, to assist the people who have been left unemployed due to the pandemic, and vulnerable populations. Additionally, food assistance programs have been set up to assist those in need.

The Government has also established the Micro, Small and Medium Enterprise Support Program. This \$14.5 million initiative provides financial relief to help safeguard and promote employee retention and assist these enterprises as they transition and adapt to the economic challenges presented by the COVID-19 (Government of Belize Press Office, 2020). Despite these crucial measures, the pandemic will likely have a lasting impact on many economic sectors, including those addressed under the OETS project.

The tourism sector in Belize, which accounts for roughly 40 per cent of the gross domestic product (GDP), has experienced a near-total collapse, affecting many related industries, including fisheries and food processing. UNCTAD estimates that annual inbound tourism expenditure worldwide, including Belize, will fall between one third (moderate scenario) to two thirds (intermediate scenario) in 2020 (UNCTAD, 2020).⁵ Noting the significant economic consequences caused by the spread of this virus; marine based industries are no exception.

Regarding the impacts of the COVID-19 pandemic on the finfish and seafood processing sectors, which are linked to the tourism sector, a significant effect was the decline in the demand for seafood products by hotels and restaurants. It is estimated that fisheries production has declined by approximately 60 per cent due to the pandemic. The demand

⁵ See https://unctad.org/en/PublicationsLibrary/ditcinf2020d3_en.pdf (accessed 22 September 2020).



for finfish dropped by approximately 40-50 per cent, due to Belizean loss of incomes and the finfish price increase from high fuel cost. More than ever, it is important to promote national investment in the two sectors selected in this project and implement the proposed strategies for the development of these sectors as the country is at an impasse with tourism.

As for exports of the species selected by the project, the effects of the virus seem to have been little to nil so far. Exports of spiny lobster and queen conch were completed before restrictions and lockdown came into effect; the fishing season for spiny lobster in Belize closed before the lockdown (15 February 2020), and the queen conch season had an early closure fulfilling the national quota on 27 March 2020 (BFD, 2020). Possible future impacts on this sector remain unclear. Even though exports have not been affected this year, they may be affected in 2021 due to shock in a global demand and shifts in demand, especially in major destination markets such as the United States.

Moreover, exports rely on connectivity, and in particular, through maritime and air connections. Currently, air connectivity projections in the forthcoming months are not very optimistic. This situation may bring medium-term impacts on the fisheries and seafood processing sectors due to lower tourist demand and less connectivity.

In moving forward with the goal to increase the capacity of fishers for the sustainable harvest of commercially important deep slope species, priority actions to promote domestic consumption of finfish species in Belize should be placed at the forefront.

Regarding the specific impacts on the fisheries and seafood processing sectors, it is important to first note that there is no evidence to support that the COVID-19 virus can infect aquatic animals. They may potentially become contaminated with the virus when handled by people who are infected. However, by employing proper food safety and sanitation standards that are already in place by major export facilities, this risk is largely mitigated (Bondad-Reantaso et.al., 2020).

Other anticipated impacts include potential additional and stringent non-tariff measures, and particularly sanitary and phytosanitary (SPS) measures. Though demand for fresh seafood products has declined due to the declining tourism industry and the closure of restaurants and retail stores; the demand for canned, packaged, and non-perishable products has increased for at home consumption. Moving forward with the objective of adding value to commercially targeted species, a priority action to be considered is to build capacity within processing centres and personnel to overcome potential challenges from SPS standards and other non-tariff measures that may arise in future exporting procedures.

Given the unprecedented impacts of the pandemic, including the two sectors chosen by the Government of Belize, potential and ongoing impacts and anticipated roadblocks to implementing the identified strategies and action plan, will be highlighted throughout this report, where appropriate.



INTRODUCTION



Photo: Belize Fisheries Department

1.1 Belize's oceans economy

Belize's economy is heavily reliant upon its natural resources in many of the country's economic sectors. As such, developing sound management practices and policies to enhance growth and economic development for the nation is of great importance. Belize has also recognized the significance of maintaining healthy marine ecosystems while maximizing benefits of harnessing the oceans bounty. This essential for continued economic growth in several sectors, such as fisheries, seafood processing, aquaculture, and tourism.

To achieve this, the Government of Belize in collaboration with the United Nations Conference on Trade and Development (UNCTAD) and with the Division for Ocean Affairs and the Law of the Sea (DOALOS) of the Office of Legal Affairs of the United Nations, is facilitating the development of an Oceans Economy and Trade Strategy (OETS) for Belize under the project Evidence-based and Policy Coherent Oceans Economy and Trade Strategies. The OETS project aims to support developing countries in realizing economic benefits from the sustainable use of marine resources. It will assist coastal and insular developing countries, particularly Small Island Developing States (SIDS), in promoting the sustainable trade of products and services in ocean-based economic sectors by analyzing, elaborating and adopting evidence-based and policy-coherent ocean economy and trade strategies and contribute to building national capacities to implement them (UNCTAD, 2018a).

Barbados and Costa Rica are also part of the OETS project, each addressing their specific ocean-based economic sectors. This report was developed to initiate the second of three phases of the project following the preliminary data analysis, legal, and institutional review of four of Belize's oceans economy sectors, and the selection process of two sectors in which this strategy is based (UNCTAD, 2018a). It aims to provide further analysis on two of Belize's ocean-based economic sectors, and an action plan to profitable pathways to international and domestic markets which may be identified and accessed to create sustainable economic growth while incorporating important social factors. This report also identifies and highlights significant legal and institutional aspects currently being developed for the sustainable management of Belize's ocean resources.

Like many other developing countries, including SIDS, Belize's economic growth is heavily linked with exports to trade partners in the region and North America (Caribbean Development Bank, 2018). It has long been recognized that Belize's main challenge is applying changes to marine sectors to address the high international trade standards. This is mainly attributed to the lack of resources (mostly financial), which constrains the industry to overcome non-tariff barriers (FAO, 2005), coupled with the impacts of climate change and risk of natural disasters such as hurricanes. The country must develop and implement robust strategies to build a resilient oceans economy to achieve sustainable growth.

Through this report, Belize may identify pathways to achieve a balance in sustainable economic growth while continuing to protect vital natural resources. Intended outcomes of implementation include:

- Increased capacity of stakeholders in ocean-based economic sectors by creating an enabling environment for research and development.
- Economic resilience through diversification of fisheries and seafood production by identifying opportunities for market access.
- Overall sustainable economic growth in ocean-based economic sectors thus improving livelihoods of those involved directly in the ocean economy.
- Production of high-quality marine products through value added options.
- Enhanced synergies with ongoing projects, national plans, strategies, and policies of Belize.

In addition to the expected outcomes above, the implementation of this strategy will enhance the ability for Belize to achieve the Sustainable Development Goals (SDGs), particularly SDG14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development and its specific targets⁶ (United Nations, 2015).

Other SDGs and their targets may also be partially achieved through the focus of this strategy. For instance, SDG 5: Achieve gender equality and empower all women and girls whereby women in fisheries and their roles along the seafood value chain are highlighted to improve livelihoods. The implementation of the OETS may also contribute to the achievement of SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture, and SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

1.2 Methodology and ocean sectors selection

The main objective of this report is to provide analytical inputs needed to elaborate a national strategy to promote sustainable trade products and services in ocean-based economic sectors within the United Nations Convention on the Law of the Sea (UNCLOS) framework.

The OETS project is divided into three phases of implementation: project formulation; validation, and implementation and dissemination. Starting in January 2018, a legal study⁷ was prepared to provide an overview of the ocean governance framework and the implementation of relevant UNCLOS provisions in Belize. An economic study⁸ on the status of the four considered sectors was conducted to prepare the economy and trade strategy under this project. The sectors, identified during multi-stakeholder consultations in phase 1, were: aquaculture, coastal tourism, marine fisheries, and seafood processing (UNCTAD, 2019b).

After completing these reports, a workshop took place in November 2018 (UNCTAD, 2018e) with the participation of stakeholders representing government, private sector, fisherfolk organizations, and regional bodies (annex 1). They met and were presented with

⁶ Particularly targets 14.2, 14.4, 14.6, 14.7, 14.B, and 14.C.

⁷ Produced by a consultant of UNCTAD and DOALOS to describe Belize's national legal and institutional framework for oceans, including the international legal instruments to which it is a party, and in relation to four of Belize's ocean-based economic sectors.

⁸ Produced by the UNCTAD outlining the economic and social factors and statistics available for analysis. UNCTAD, 2019a, available at <https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-04122019-belize-Economic-7.pdf> (accessed 29 September 2020).

an overview of each sector whereby both studies (legal and economic) were considered. Representatives from each identified sector were present except for coastal tourism. After the two-day discussion and deliberation, participants chose two of the four sectors as a priority, and discussed the next steps for developing the OETS report.

The two chosen sectors were:

- **Marine fisheries within the exclusive economic zone (EEZ):** focusing on the sustainable use of deep slope, and underutilized finfish species.
- **Seafood processing of spiny lobster (*Panulirus argus*) and queen conch (*Strombus gigas*):** focusing on value addition of the targeted species through access to niche markets.⁹

The two sectors being the focus of the OETS project were further investigated through an oceans economy assessment using the UNCTAD Ocean Economy pillars (annex 4). A trade assessment, a strengths, weaknesses, opportunities, and threats (SWOT) analysis, and a value chain analysis were conducted to determine key issues within each sector. Some of the main inputs of this report include economic factsheets produced from the economic study, a report of Belize's legal framework produced from the legal study, workshop presentations, national policies, production and export data, socioeconomic data, interviews with stakeholders in each sector, and ongoing projects.

Interviews (annex 3) were also conducted with stakeholders from the fishing sector to determine current efforts and projects being implemented, to highlight ongoing and potential challenges, and to identify linkages and areas for potential growth in the marine fisheries sector.

This report is divided into five chapters. Chapter I outlines the context in which this report has been drafted and the significance of supporting Belize's oceans economy sectors. Chapter II describes the current institutional framework; Belize's international obligations, national policies, and regulations under which this strategy is established. Chapter III outlines the current environmental, social, and economic factors of each sector, and areas for improvement are emphasized. Chapter IV presents an oceans economy assessment, a value chain analysis, and a SWOT analyses for chosen sectors to determine priority action. Lastly, chapter V explains the recommended implementation actions for consideration and approval by the Government of Belize.

⁹ The list of products covered by these two sectors can be found in annex 2 under the Harmonized Commodity Description and Coding Systems (also known as the Harmonised System -HS). Annex 5 lists the HS codes for the species considered in the marine fisheries (finfish) sector.



Photo: Jason Houston/Rare

INSTITUTIONAL AND LEGAL FRAMEWORK OF THE OCEANS ECONOMY

This chapter describes how Belize has adopted UNCLOS regulations and other international treaties and agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). It also elucidates the national institutional capacities, which together form the legal and institutional framework under which marine fisheries and seafood processing sectors operate. Much of this information has been incorporated from the above-mentioned legal study commissioned by this project, as well as national policies and management plans related to the chosen sectors.

2.1 United Nations Convention on the Law of the Sea

UNCLOS is the international agreement that provides the legal framework defining the rights, responsibilities, and obligations of States in regard to the world's oceans and related human activities. The framework which sets out the powers of States to exercise sovereignty and jurisdiction over maritime areas, including the right to explore and exploit, conserve and manage natural resources and carry out other economic activities in maritime areas under their national jurisdiction. Belize became a signatory to UNCLOS in 1982 and ratified it in 1983. Since then, Belize has taken significant steps to give effect to its obligations under the Convention.

Through several laws and regulations, the country has given effect to UNCLOS, for example by the demarcation of the maritime areas (territorial waters and EEZ) through the Maritime Areas Act 1992 (Usher, 2018). UNCLOS gives States sovereign rights for the purpose of exploring and exploiting, conserving and managing living and non-living resources as well as the obligation to protect and preserve the marine environment in the EEZ.

Specifically related to the development of this strategy, articles 61 and 62, outline the responsibility and rights of States to use evidence-based decision making to determine allowable catch to conserve living resources while providing optimum utilization for the benefit of developing the State's economy. Many legislative instruments have been passed to ensure this, including the High Seas Fisheries Act 2013, Fisheries Act 1987, and the Coastal Zone Management Act 1998. As of February 2020, the Government of Belize passed the Fisheries Resources Act, and repealed the Fisheries Act, Chapter 210 of the Laws of Belize, Revised Edition 2011. This new legislation objectives are:

- To optimize present and future benefits through long-term conservation, management, sustainable use and development within the fisheries waters of Belize.
- To provide for the effective regulation of the fishing industry.
- To provide for the management and regulation of mariculture.

In addition to expanding the powers of the Government of Belize on the management of its marine resources, this act also incorporates international conservation and management measures in accordance with the relevant rules of international law, particularly reflected in UNCLOS.

2.2 International and regional agreements and organizations related to fisheries management

Belize is a party to many international agreements and participates in various regional and international organizations related to marine fisheries management. Listed below are the main organizations and agreements to be considered, which may assist in the implementation of or in favor of developing the OETS project and action plan for Belize.

The Central American Fisheries and Aquaculture Organization (*Organización del Sector Pesquero y Acuícola del Istmo Centroamericano, OSPESCA*) aims to encourage the development and the coordinated management of regional fisheries and aquaculture activities, such as marine capture, inland capture and aquaculture fish stocks in waters within national jurisdiction, helping to strengthen the Central American integration process (FAO, 2020a).

The Caribbean Regional Fisheries Mechanism (CRFM) aims to promote and facilitate the responsible utilization of the region's fisheries and other aquatic resources, in internal waters, territorial seas, continental shelves and EEZ of member States, for the economic and social benefits of the current and future population of the region (FAO, 2020b).

The Latin American Organization for Fisheries Development (*Organización Latinoamericana de Desarrollo Pesquero, OLDEPESCA*) aims to meet Latin American food requirements adequately by making use of Latin American fishery resource potential for the benefit of Latin American peoples through concerted action in promoting the constant development of the countries and the permanent strengthening of regional cooperation in this sector. The area of competence of OLDEPESCA extends to the waters within the national jurisdiction of its Member States and covers marine capture, inland capture, and aquaculture fish stocks (FAO, 2020c).

The Western Central Atlantic Fishery Commission aims to promote effective conservation, management and development of the living marine resources of the area of competence of the Commission, in accordance with the Code of Conduct for Responsible Fisheries adopted by the Food and Agriculture Organization of the United Nations (FAO), and addressing common problems of fisheries management, and development faced by members of the Commission. The following three principles guide the work of the Commission: promote the application of the provisions of the FAO Code of Conduct for Responsible Fisheries and its related instruments, including the precautionary approach and the ecosystem approach to fisheries management; ensure adequate attention to small-scale, artisanal and subsistence fisheries; and coordinate and cooperate closely with other relevant international organizations on matters of common interest (FAO, 2020d).

Belize's participation in these organizations indicates a strong and active international presence where sharing of information and knowledge transfer take place. Through continued collaboration, knowledge transfer and support garnered, pathways to develop the fisheries and seafood processing sectors in Belize might be identified.

2.2.1 International organizations

2.2.2 International agreements

Belize is also a signatory to many international agreements geared towards safeguarding marine biodiversity. These include CITES, the Inter-American Convention for the Protection and Conservation of Sea Turtles, the Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region also known as the Cartagena Convention, and its Protocol Concerning Specially Protected Areas and Wildlife, the Convention for the Conservation of the Biodiversity and the Protection of Priority Wilderness Areas in Central America, and the Convention on Biological Diversity (CBD).

Particularly related to marine fisheries and seafood processing sectors, CITES has shaped the policy and regulations for marine fisheries and seafood export for Belize. CITES develops a list of species divided into three appendices subject to regulations in international trade. Appendix I provides a list of critically endangered species, and trade is only permitted under exceptional circumstances. Appendix II lists species that are not endangered but trade should be closely monitored and controlled to ensure stock is not overutilized. Appendix III lists species that are protected in some places that seek assistance in controlling trade.

Queen conch is listed under Appendix II of CITES, whereby exports and trade of any product derived from the species is subject to strict regulation. To ensure compliance, the Belize Fisheries Department (BFD) has established a season, size limits, and quota system. A special permit is also required to export any queen conch commodity out of Belize. In addition to strengthened management measures, the country has established scientific authority to oversee and advise on the effects of trade on the species' status.

In 2016, the review, approval and adoption process of the Regional Queen Conch Fishery Management and Conservation Plan took place at the 17th Conference of Parties of CITES and at the 16th Western Central Atlantic Fishery Commission meeting. The plan addresses the need for coordinated management of the queen conch by fisheries scientists and managers in the Wider Caribbean Region. The management and conservation plan details actions for implementation and indicators for monitoring. The Government of Belize may use and link those with this strategy.

Other international agreements and guidelines that should be considered in relation to marine fisheries and seafood processing include: the United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982, relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (United Nations Fish Stocks Agreement), the Agreement on Port State Measures (PSMA), the FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas, and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

The objective of the PSMA is to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing by preventing vessels engaged in IUU fishing from using ports and landing their catches. In this way, the PSMA reduces the incentive of such vessels to continue to operate while it also blocks fishery products derived from IUU fishing from reaching national and international markets. The PSMA applies to fishing vessels seeking entry into a designated port of a State which is different to their flag State (FAO, 2009a). Currently, Belize is not a party to the PSMA, although ratification of this agreement by Belize could complement recent measures taken by the Government to combat IUU fishing.

The United Nations Fish Stocks Agreement aims to ensure the long-term conservation and sustainable use of straddling and highly migratory fish stocks within the framework of UNCLOS. The International Guidelines for the Management of Deep-sea Fisheries in the High Seas sets out a framework for data collection, assessments and monitoring, control,

and surveillance for deep-sea fisheries management (FAO, 2019b). Though it pertains to high seas fishery, this framework provides guidelines for effective management. Also relevant are the provisions of General Assembly resolutions 61/105, 64/72, 66/68, 69/109 and 71/123 on sustainable fisheries related to the impacts of bottom fishing on vulnerable marine ecosystems and the long-term sustainability of deep-sea fish stocks.

The Nagoya Protocol, Adopted on 29 October 2010 in Nagoya, Japan, provides the legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources (CBD, 2020), which is the objective of the Protocol itself contributing to the conservation and sustainable use of biodiversity.

2.3 International and regional agreements and organizations related to trade

Belize is a party to various international institutions and agreements for regulating and overseeing international trade. These agreements were taken into consideration when developing this report and formulating potential strategies for the Government to undertake.

UNCTAD is a permanent intergovernmental body established in 1964 to support developing countries in accessing the benefits of a globalized economy more fairly and effectively. Technical assistance is provided so that states may use trade, investment, finance, and technology as vehicles for inclusive and sustainable development (UNCTAD, n.d.). Belize's trade preferences to note are described below.

UNCTAD provides substantive support to the operation of the Global System of Trade Preferences (GSTP), established in 1988. The GSTP is a framework for the exchange of trade preferences among developing countries in order to promote intra-developing-country trade. Belize has not acceded to or ratified the GSTP; however, the country could become a member if interested in access to southern markets and enhanced south-south cooperation (UNCTAD, 2018d).

World Trade Organization (WTO), established in 1995, is an international rule-setting organization dealing with international trade and Belize is among the 128 original members. Since its establishment, the WTO continues to provide a forum to negotiate trade agreements aimed at reducing obstacles to international trade and ensuring a level playing field for all, thus contributing to economic growth and sustainable development.

The cornerstone on which the WTO agreements are built ensures that countries do not normally discriminate between trading partners of the Organization. These principles are known as the most-favored-nation and national treatment.

Some provisions allow the derogation from the most-favored-nation principle, one of which is the Enabling Clause,¹⁰ which provides the legal basis for countries to offer differential and more favorable treatment to developing countries, such as non-reciprocal preferential

¹⁰ WTO Decision of 28 November 1979 (L/4903). Available at https://www.wto.org/english/docs_e/legal_e/enabling1979_e.htm (accessed 20 September 2020).

treatment (such as zero or low duties on imports) to products originating in developing countries.¹¹ The Enabling Clause legally supports several arrangements, including the Generalized System of Preferences, under Resolution 21 (II), taken at the UNCTAD II Conference in New Delhi in 1968.¹² Belize is a beneficiary to eleven of the thirteen Generalized System of Preferences schemes: Australia, Belarus, Canada, Japan, Kazakhstan, New Zealand, Norway, Russian Federation, Switzerland, Turkey, and the United States. These countries could be attractive market options for exporters to access, particularly Canada and Japan.

Also, the WTO provides a legal and institutional framework for the implementation and monitoring of the decisions taken in the various negotiating rounds, including the Uruguay Round (1994), and subsequent agreements (e.g. the WTO Trade Facilitation Agreement 2013), as well as for settling disputes arising from their interpretation and application. The WTO dispute resolution function has been a key pillar of the multilateral trading system for more than two decades.

However, the adjudication system was compromised by the lack of consensus on the appointment of substitute appellate body members, which has blocked several key functions under the current WTO Dispute Settlement Understanding, and in particular, the appellate body. Currently, some WTO members are exploring alternative options such as an embodied or parallel arbitration system among willing states. Alternative options include the Multi-party Interim Appeal arrangement or to resort to arbitration under Article 25 of the WTO Dispute Settlement Understanding. The WTO trade policy review and dispute settlement mechanisms, hence, are both integral to the effective operations of the Organization.

Pertaining to the international trade rules surrounding fisheries products, there are a few important WTO agreements that need to be considered:

- General Agreement on Tariffs and Trade (GATT) 1947, 1986, 1994 operating within the WTO framework in order to promote international trade by reducing or eliminating barriers such as tariffs or quotas and incorporating the non-discrimination principles in trade and trade-related policies.
- Agreement on Technical Barriers to Trade (entered into force on 1 January 1995), aims to ensure that technical regulations, standards, and conformity assessment procedures are non-discriminatory and do not create unnecessary trade obstacles. Technical Barriers to Trade measures are to achieve legitimate policy objectives, such as protecting human health and safety, or protecting the environment.
- Agreement on the Application of Sanitary and Phytosanitary Measures (entered into force on 1 January 1995), known as SPS Agreement, sets out the basic rules for food safety and animal and plant health standards. The agreement allows countries to set their appropriate level of protection or standards which must be based on science and should not be more trade restrictive than necessary. They should be applied only to the extent necessary to protect human, animal or plant life or health. Further, they should not arbitrarily or unjustifiably discriminate between countries where identical or similar conditions prevail.

¹¹ Available at the WTO website <https://www.wto.org/english/tratop_e/devel_e/dev_special_differential_provisions_e.htm#:~:text=Theper cent20Enablingper cent20Clauseper cent20isper cent20the,productsper cent20originatingper cent20inper cent20developingper cent20countries.> (accessed 20 September 2020).

¹² Available at <https://unctad.org/en/Pages/DITC/GSP/About-GSP.aspx> (accessed 20 September 2020).

Caribbean Community (CARICOM) is a group of twenty countries, of which fifteen are full members and five are associate members, established in 1973 by Treaty of Chaguaramas, including the CARICOM Single Market and Economy whose vision is to create “a Community that is integrated, inclusive and resilient; driven by knowledge, excellence, innovation and productivity; a Community where every citizen is secure and has the opportunity to realize his or her potential with guaranteed human rights and social justice; and contributes to, and shares in, its economic, social and cultural prosperity; a Community which is a unified and competitive force in the global arena.”

CARICOM is based on four pillars: economic integration; foreign policy coordination; human and social development; and security. The CARICOM Single Market and Economy is at the heart of CARICOM economic integration and serves to provide the foundation for growth and development by creating a single economic space for the production of competitive goods and services.

Within the framework of the CARICOM Single Market and Economy, all restrictions to trade among members have been lifted and countries apply a common external tariff to goods imported from non-members. The latest version of the Common external tariff was adopted in 2017. The import tariff applied to most fish and fish products (e.g. chapter 3 of the HS) is 40 per cent ad valorem import duty. The import duty to most processed products is zero.

CARICOM has also negotiated several bilateral trade agreements with states in the wider Caribbean and Central America namely Colombia, Costa Rica, Cuba, Dominican Republic, and the Bolivarian Republic of Venezuela. Belize has ratified most of these CARICOM Bilateral Agreements.

Other organizations within CARICOM that may assist in developing and implementing this strategy include the CARICOM Regional Organization for Standards and Quality (CROSQ), the regional centre for promoting efficiency and competitive production in goods and services, through the standardization and the verification of quality. In this regard, CROSQ aims to support international competitiveness to enhance the region’s social and economic development.

CARIFORUM-European Union Economic Partnership Agreement (EPA) is a regional trade and economic agreement between the fifteen Caribbean Forum (CARIFORUM) States, including Belize, and the European Union.¹³ It is “is guided by the principles of: (a) supporting and building upon the regional integration process; (b) promoting the development objectives of countries of the Region, while being consistent with their development strategies; (c) encompassing Special and Differential Treatment, including provisions that go beyond existing WTO measures in addressing the constraints of small size and vulnerability; (d) flexibility such that countries can individually calibrate the pattern and schedules of implementation, consistent with their national circumstances, while pursuing the objective of regional integration; (e) incorporating and improving on the Lomé and Cotonou acquis regarding market access, for traditional and non-traditional Caribbean exports; and (f) a binding commitment to engage in consultations on any matter deemed necessary in order to safeguard the benefits of the Agreement”, (Caribbean Trade Reference Centre, 2008).

¹³ The CARIFORUM is a regional organisation of fifteen independent countries in the Caribbean region (Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, the Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, Saint Christopher and Nevis, Surinam, and Trinidad and Tobago). See <https://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&reatyId=7407> (accessed on 19 October 2020).

The EPA is intended to stimulate greater investment between both parties, through mutual removal of barriers to investment, and enhancing the Caribbean economic space's attractiveness in respect of foreign investment opportunities.

This Agreement is also intended to stimulate Caribbean exports of non-traditional products and services, encouraging and supporting diversification in these economies. Under the EPA, all duties of the European customs on CARIFORUM goods have been phased out for most products of HS chapters 1 to 97, with some exceptions such as sugar and sugar-based products and those under chapter 93 (arms and ammunition). Therefore, the European Union's applicable tariffs regarding tuna loins and all species for processing is zero per cent. Nevertheless, the main challenge in accessing European Union markets for fish and seafood products are multiple and sometimes complex non-tariffs measures such as sanitary and technical measures. According to a recent International Trade Centre (ITC) and European Union report study,¹⁴ 54 per cent of all interviewed fish exporters to the European Union stated they were significantly affected by non-tariff measures when seeking to reach that market.

CARIFORUM-United Kingdom EPA. CARIFORUM States have recently signed an Economic Partnership Agreement to govern trade with the United Kingdom following its withdrawal from the European Union. The Agreement replicates the CARIFORUM/EU EPA and will ensure continuity of the Region's preferential trading relationship with that country after left the European Union. The agreement is expected to come into effect in 2021 (CARICOM Today, 2019).

African, Caribbean, and Pacific Group of States (ACP), established in 1975, consists of 79 member states. The extension of the ACP's goals saw the development and launch of many programs such as the Overcoming Technical Barriers to Trade Program, designed to contribute to improve competitiveness in local, regional and export markets by enhancing the export capacity of economic operators in ACP countries. More recently, the European Union, the ACP, and FAO signed a €40 million, five-year program (FISH4ACP) to boost the development of sustainable fisheries and aquaculture in Africa, the Caribbean and the Pacific. FISH4ACP, is a European Union-funded program to invest in value chains to stimulate inclusive growth, bolster food security and minimize impacts on the marine environment (FAO, 2019).

The Organization of African, Caribbean and Pacific States (OACPS), formerly ACP, is in the process of concluding negotiations for a new OACPS Trade Partnership Agreement; this will be a successor to the Post Cotonou Agreement (2000–2020) which expired in February 2020 with an extension approved to December 2020. The Negotiating Mandate, approved by the ACP Council of Ministers in 2018, includes provisions for a Caribbean–European Union Protocol. Critical issues identified by the Caribbean OACPS negotiating team include the blue economy; environmental sustainability; climate change and sustainable management of natural resources; ocean governance and inclusive economic growth and development. Development cooperation in these areas will be beneficial to the fisheries sector.

Central American Integration System (Sistema de Integración Centroamericana, SICA) is the institutional framework of regional integration in the region established in 1991 by: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. Belize later

¹⁴ ITC and European Union, 2016, *Navigating Non-Tariff Measures: Insights from a business survey in the European Union*. Available at: https://trade.ec.europa.eu/doclib/docs/2016/december/tradoc_155181.pdf (accessed 26 September 2020).

joined as a member in 2013 along with the Dominican Republic. Its overall purpose is “to realize the integration of Central America in order for the Isthmus to become a Region of Peace, Freedom, Democracy and Development” (SICA, 2013). Belize is a member of SICA at a political level, but it is not a part of the Secretariat for Central American Economic Integration that supports economic integration of Central America.

Regarding trade agreements or trade negotiations with individual states, a Bilateral Partial Scope Agreement exists with Guatemala (DGFT, 2019).

Bilateral relation with Mexico: Belize is pursuing an agreeable General Framework for negotiation of a bilateral trade agreement with Mexico, which is yet to be concluded. Mexico is the largest economy, and a member of the Organisation for Economic Cooperation and Development (OECD), in the Caribbean and Mesoamerican region.

2.4 The institutional structure of fisheries management in Belize

The legal framework established under UNCLOS and other relevant multilateral agreements shape the institutional framework and the division of powers that oversee Belize’s marine sectors and activities (Usher, 2018). Several institutional bodies govern and regulate the activities; particularly related to marine fisheries within Belize’s EEZ and seafood processing, these institutions include the Fisheries Department, the Belize High Seas Fisheries Unit, the Belize Port Authority, the Coast Guard, the Coastal Zone Management Authority and Institute, Belize Agricultural Health Authority, and Belize Customs and Excise.

■ The Belize Fisheries Department

The BFD, under the Ministry of Agriculture, Fisheries, Forestry, the Environment and Sustainable Development and Immigration Services and Refugees (MAFFSD) is the main institutional body that regulates fisheries activities and enforces fisheries law within Belize’s territorial sea and EEZ. The Department was established in 1987 by the Fisheries Act. The mission of the Department is “to provide the country and people of Belize with the best possible management of its aquatic and fisheries resources, with a view to optimize the present and future benefits through efficient and sustainable management” (BFD, 2019).

The Fisheries Department’s key responsibilities are for the conservation and sustainable use of fishery resources, registration and licenses, fisheries research, education, liaising with fishing cooperatives, management of marine reserves, fisheries law enforcement, fisheries export and research permits within Belize’s territorial sea and EEZ.

These duties and operations are divided into five main units: the Capture Fisheries Unit (CFU), the Conservation and Compliance Unit, the Ecosystem Management Unit, the Policy and Planning Unit, and the Administrative and Licensing Unit.

■ The Belize High Seas Fisheries Unit

The Belize High Seas Fisheries Unit was established by the High Seas Fishing Act, 2013 within the Ministry of Finance; which is the primary authority responsible for the regulation and control of Belize-flagged vessels which engage in fishing or transshipment.

■ The Belize Coast Guard

The Belize Coast Guard was established by the Belize Coast Guard Service (Amendment) Act in 2016 and is primarily employed as a military service organization, being the naval force for the defense of Belize, the protection of its sovereignty and territorial integrity, as well as exercising its rights and fulfilling its obligations concerning the national maritime zones. Thus, while its main objectives are that of national security and military operations, the Coast Guard is also mandated to enforce fisheries law under s5 (6) of the Fisheries Resource Act No. 7 of 2020. In addition to members of the National Coast Guard Service, customs officers and police officers are also deemed fisheries officers under this section of the act. Therefore, joint patrols are conducted regularly with these agencies, particularly, the Coast Guard.

■ The Coastal Zone Management Authority and Institute

The Coastal Zone Management Authority and Institute (CZMAI) was established as an autonomous public statutory body by the Coastal Zone Management Act of 2000. The Authority is responsible for implementing and monitoring policies that govern the use and development of the coastal zone in Belize. The Institute's main functions are to conduct marine research, maintain a data centre, provide information as required by the Authority, organize training courses, support other agencies involved in integrated coastal zone management maintain coastal monitoring programs, and to assist in the development of the Integrated Coastal Zone Management Plan (2016) and to oversee its implementation.

■ Belize Agricultural Health Authority

The Belize Agricultural Health Authority (BAHA) has a mission to serve Belize by providing efficient, competent and cost effective professional animal health, plant health, quarantine and food safety services to protect human health, animal health and welfare, plant health and the environment, ensure safe and wholesome food, strengthen national food security and facilitate trade and commerce. In addition to adhering to fisheries regulations, seafood processing facilities and exporters, must also ensure proper health and safety standards, labelling practices, and export permissions. BAHA services include inspection, certification such as HACCP, investigation, risk analysis, laboratory support, and regulation.

■ Belize Customs and Excise Department

The Belize Customs and Excise Department's mission is to ensure safety and security and to contribute to the economic development of Belize by enforcing the customs and excise laws, assuring operational integrity, facilitating legitimate trade, collecting and safeguarding the revenue, protecting the environment, combating smuggling and illicit activities, and promoting and upholding fair trade practices through the efficient and effective use of modern tools and information, while fostering cordial relations with stakeholders, and valuing and respecting our human resources.

2.5 Relevant national policies, strategies, and action plans

There are several policies, strategies, and action plans that are in the implementation phase throughout different sectors in Belize and are often described as fragmented and sector specific. Many linkages to marine fisheries and seafood processing have been identified. It is important to identify these linkages to ensure that no conflicting policies or gaps exist, to reduce duplication, and to further synergize and create a cohesive vision for Belize's sustainable development and economic growth. Listed below are some linkages drawn from other national policies across different sectors and areas of focus.

■ The National Trade Policy 2019–2030

Launched in 2019 by the Directorate General for Foreign Trade (DGFT), the vision of the National Trade Policy (NTP) 2019–2030 is “to develop a competitive economy by utilizing trade as a significant driver for inclusive and sustainable socioeconomic development” (DGFT, 2019). With the following objectives outlined:

- Reduce the cost of doing business, enhance competitiveness and develop efficient production systems and capacities.
- Improve trade performance, diversify production and export basket and enhance value addition.
- Develop and enhance the growth of services trade and put in place an effective institutional and legal framework.
- Build and strengthen multilateral, regional and bilateral trade relations and enhance market access and entry.
- Build a strong and effective institutional and legal framework for trade development, with competent human capital and an entrepreneurial mindset.

In relation to the chosen OETS economic sectors, the policy has identified the opportunities for market expansion and diversification. Related specifically to marine fisheries, section 9.6 of the policy sets out the objective to promote investments within Belize's EEZ.¹⁵ Moreover, section 10.4 highlights the importance of linking trade and the environment to achieve sustainable development.¹⁶

Pertaining to socioeconomic aspects of the sectors chosen in the strategy, section 10.2: Gender and Disability Inclusiveness¹⁷ outlines policy prescriptions to integrate the gender and disability agenda into the trade and development process. Acknowledging the involvement of women in fisheries and seafood processing and recognizing the importance of mainstreaming gender and disability agenda, policy prescriptions listed were considered when formulating the action plan for this strategy.

■ Belize's 2016–2020 National Biodiversity Strategy and Action Plan

Divided into five main goals, the National Biodiversity Strategy and Action Plan recognizes the need for improved sustainable management of primary industries to reduce the direct and indirect pressures on biodiversity. One such target, B1, states that by 2020 primary

¹⁵ DGFT, 2019, *National Trade Policy 2019-2030*, pp.49-50.

¹⁶ *Ibid.*, p.57.

¹⁷ *Ibid.*, pp.54-55.

extractive natural resource use in terrestrial, freshwater and marine environments is guided by sustainable management plans, to improve biodiversity sustainability.¹⁸ Target B5 also addresses fishing pressure stating that “by 2025, Belize is addressing its trans-boundary issues, with 20 per cent reduction in terrestrial impacts and 50 per cent reduction in illegal fishing from trans-boundary incursions.”¹⁹

■ Integrated Coastal Zone Management Plan 2016–2020

Developed in 2016, the four-year plan’s main objective is “to support the allocation, sustainable use and planned development of Belize’s coastal resources through increased knowledge and building of alliances, for the benefit of all Belizeans and the global community”.²⁰ As the implementation of this plan nears its end, planned actions pertaining to fisheries management (section 1.6) have been or are currently being implemented.²¹

2.6 Regulatory framework of marine fisheries and seafood processing

The chosen OETS sectors are under the purview of the BFD. The Fisheries Department and its co-managers - Belize Audubon Society, Hol Chan Marine Reserve, Southern Environmental Association, Turneffe Atoll Sustainability Association, and Toledo Institute for Development and Environment have implemented fisheries management and marine conservation strategies to ensure sustainable livelihoods for fishers. Over the past 40 years, there have been many notable strides in fisheries management and conservation: the establishment of 10 marine reserves, the protection of 13 spawning sites, and the establishment of a territorial use rights in fisheries regime for all artisanal fishers in Belize.

In 2016, the department was successful in the transition of an open access fishery to implementing the Managed Access Program (the regime of territorial use rights in fishers know as TURFs). Divided into seven main components, this new regime was developed in response to illegal fishing, the decline in landings, and the increasing number of fishers in Belize. This regime aims to empower traditional fishers by enabling them to participate and contribute to the management of fishing areas. The territorial sea is now divided into eight closed fishing areas and a ninth area open for deep slope fishing where fishers can register for two areas (figure 1).

The newest legal framework for sustainable marine fisheries in Belize is the Fisheries Resources Act No. 7 of 2020 of the Laws of Belize. This act details the management provisions for subsistence and commercial fishing in the inland waters, territorial sea, and EEZ of Belize by way of licenses granted by the Fisheries Administrator; and now validates licensing for fishing areas under the managed access area system.

¹⁸ Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, 2016, *National Biodiversity Strategy and Action Plan*, p.14.

¹⁹ Ibid., p15.

²⁰ CZMAI, 2016, *Integrated Coastal Zone Management Plan 2016*, p4.

²¹ Ibid., p157.

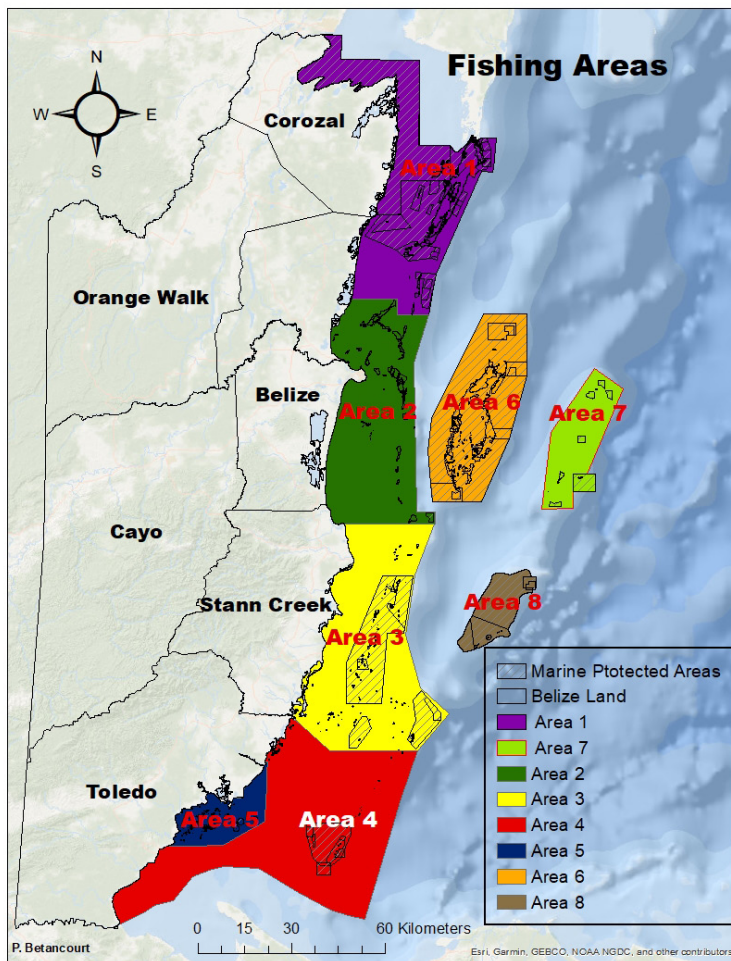


Figure 1. Map of Managed Access Program fishing areas

Source: Belize Fisheries Department, 2019.

2.6.1 Marine fisheries

Though the Fisheries Resources Act 2020 has repealed the previous Fisheries Act 2003, the Belize Fisheries Development Act 2011 s. 93(2) states that all regulations, by-laws, rules, orders, and other subsidiary legislations made under the revoked act remain in force until repealed by subsequent regulations, by-laws, rules, orders, and other subsidiary legislation made under the new Act. Therefore, the species regulations discussed hereafter remain in force.

■ Species regulations

Part II of the Fisheries Regulations concerns the criteria for fishing certain species within the waters of Belize. Species of focus in the seafood processing sector (spiny lobster and queen conch) have criteria pertaining to size limits, gear restriction, seasons, and total allowable catch.

Spiny lobster: regulations 3-5 concern the criteria for the possession of crawfish (*Panulirus argus*), which includes a size limit of 3 ounces cape or 4 ounces tail, and a closed season of 14 February-14 June. It is also illegal to possess a berried, molting, diced or fillet crawfish.

Queen conch: regulations 6-7 concern the fishing of queen conch (*Strombus gigas*) prescribe a size limit of 3 ounces or a shell length of 7 inches, and a closed season from 1 July-30 September. It is also illegal to possess fillet or diced conch meat. Regulation 7 restricts the use of scuba gear in the harvesting of fish. Biennial fishery independent surveys are conducted to determine the total allowable catch (TAC) for each fishing season.

Finfish species: are subject to minimal regulation where select species are protected, and certain gear restrictions are declared. There are also no specified laws to determine TAC or MSY of any finfish species in Belize.

In respect to whole fish, there are no specific regulations to size limits or seasons except for Nassau Grouper (Statutory Instrument No. 49 of 2009). The Fisheries (Species Designation and Protection) Regulations (Statutory Instrument No. 114 of 2009) prohibit any person or establishment, save and except in the act of catch and release, from having in possession any bonefish, permit fish or tarpon or any of its product forms (Reg. 3; 1 and 2). However, these species mentioned above are designated for sport fishing (Reg. 4).

Gear restrictions regarding finfish and other whole fish are focused on nets regulated by Statutory Instrument No. 78. of 2011 adopted under the now repealed Fisheries Act. All nets must be tagged and registered every year by the BFD. The minimum mesh size for nets is 3 inches, and the maximum length for gillnets is 100 metres (about 330 feet). There is a maximum possession length of 300 metres (about 985 feet) for gillnets on board of any vessel at any time.

Action has also been taken to stop environmentally destructive fishing practices, including by outlawing trawling. Statutory Instrument No. 10 of 2011 prohibits any person from engaging in any form of trawling in the internal waters, territorial seas and EEZ of Belize.

■ Licensing

Part VI of the Fisheries Resources Act, 2020 outlines the activities that require a license and the requirements for obtaining such license. A person engaging in commercial fishing in Belize must have a valid commercial fisherfolk license (s. 19 Fisheries Resources Act 2020). Moreover, part III, regulations 28-55, of the Fisheries Regulations concern the criteria for obtaining a license to conduct commercial or research activity within the boundaries of Belize's maritime areas.

Requirements to apply for a commercial fishing license are stipulated under regulation 37. These include being over 18 years of age, being a Belizean by birth or naturalization, or a permanent resident, and be residing in Belize. Commercial licenses (fisherfolk and vessel registration) issued by the Fisheries Administrator expire on 31 December of each year and may be renewed pending payment of a fee which is currently 25 BZD (\$12.50).

Implementing the Managed Access Program has also resulted in fewer fishers renewing commercial fishing licenses due to the vetting and selection process. Therefore, a slight decrease is expected in the revenue stream of the BFD. The program's implementation has also resulted in an upgrade of the fisherfolk database housed by the BFD.

There are, however, challenges in streamlining licensing protocol, consolidating data for statistical analysis, and information gathering for decision-making. Upon reviewing information provided by the database, the data backlog became apparent since fisherfolk profiles required updating. This backlog is caused by minimal licensing staff and the large volume of fishers re-registering at the beginning of the year and each fishing season for spiny lobster (15 June) and queen conch (1 October). This challenge hinders the monitoring and reporting process for the implementation of this strategy.²²

²² OETS interviews conducted in 2019.

To address this, the Department may consider implementing either a registration closing date, adding a 'late fee' for registration after a certain date, or giving a discount for early registration. If either of the proposed interventions are done, the resultant may be additional revenues collected and/or timely fisher information reporting.

■ Enforcement

The Conservation Compliance Unit is the enforcement component within the Department and their responsibilities primarily focuses on ensuring that the fisheries regulations of Belize are being upheld by fisherfolk and the public; and includes:

- Patrolling Belizean waters (fresh water and marine) to ensure that the fisheries laws of Belize are adhered by the public.
- Conducting regular searches or checks at various establishments (restaurants, fast food business, stores, etc.).
- Collaborating with enforcement partners to conduct searches at check points or roadblocks and partaking in joint operations with other partnering entities (Police Department, Gang Suppression Unit, Coast Guard, etc.).
- Collaborating with partners and the public to gather intelligence on illegal fishing activities.
- Make arrests and prosecute offenders. (BFD, 2018).

One main challenge the BFD faced is the limited resources available for the Conservation Compliance Unit to conduct patrols and enforce fisheries laws and regulations effectively. In addition to collaborating with other regulatory agencies, the BFD has sought the assistance of its co-managers to enforce fisheries laws.

This challenge has further been exacerbated due to the COVID-19 pandemic. For example, illegal fishing has been reported in San Pedro and the Belize City area. Among the reasons is that the delivery of licenses slowed since the closedown of government offices. These activities may be driven by subsistence purposes rather than commercial reasons.

■ Conservation

The BFD has declared marine reserves as fisheries management tools in accordance with section 14 of the Fisheries Resources Act 2020, which empowers the Minister responsible for fisheries to declare any body of water within Belize to be a fishery area, marine reserve, or inland water reserve. The Fisheries Resources Act 2020 list the main purpose of these marine reserves:

- To afford special protection to the aquatic flora and fauna of such areas.
- To protect and preserve the natural breeding and nursery grounds and habitats of aquatic life.
- To allow for the replenishment or restoration of aquatic life in areas where such life has been depleted.
- To promote scientific study and research in respect of such area.
- To preserve and enhance the biodiversity and natural beauty of the area.

The BFD has established a network of nine marine reserves enacted as fisheries management tools have been established under sec. 14 of the Fisheries Act. The marine reserves are multiuse and include a general use area (80 per cent), a conservation area (15 per cent) and a preservation area (5 per cent). The marine reserve network is managed by the Ecosystem Management Unit of the BFD which has as its specific goal, the "holistic ecosystems management of the aquatic resources through a marine reserve network and international commitments" (BFD, 2019).

Enforcement of the reserves regulations is primarily conducted by the reserve staff, specifically the rangers. To capitalize on human resources, all the reserves' staff are declared Fishery Officers including co-manager personnel and is trained intensively on enforcement procedures and protocols. To further strengthen the enforcement capabilities, the reserves' staff are established as Police Special Constables. To maximize results, patrols are prioritized, with a focus on illegal activity hotspots, and are designed to intercept marine products onboard fishing vessels and campsites.²³

2.6.2 Seafood processing

The criteria for seafood processing and export is regulated by Part IV, regulations 56-127 of the Fisheries Resources Act.

■ Export

Concerning exporting fisheries and seafood products, section 20(1) of the Fisheries Resources Act 2020 state that a person or entity wishing to export, attempting to export, or purchase with purpose to export any fish, must be the holder of a valid fish exporter's license. An export duty is paid by the exporter on all fish taken within the waters of, and exported from, Belize (Order 2 of the Fish -Export Duty- Order).

Any person engaged in the purchase of fish for export shall keep a record of purchases and disposals of such fish in such manner as the Fisheries Administrator may recommend. Such records shall be made available at all reasonable times for inspection by the Fisheries Administrator or any person so appointed (regulation 21).

The Belize Electronic License and Permit System, designed and launched in 2017, facilitates business and trade by providing a one-stop online application process for export permits (BELAPS, 2014). In addition to facilitating this application process, the system also requires applicants to upload export statistics to proceed with the permit process. All information collected through the system is sent to the relevant governmental bodies for processing and statistical purposes.

■ Seafood Processing

The Fisheries Regulations part IV outlines regulations pertaining to the processing of fish and fish products, including providing for quality assurance (section II); labeling requirements (section III); construction of and equipment for fish processing establishments (section IV); and operating requirements (section V).

Regulation 71 requires the establishments in which fish is dressed, packed, graded, or held in refrigerated storage must be registered. A Certificate of Registration is issued when the establishment meets the requirements of the Regulations (regulation 72). Quality assurance regulations (regulations 75 and 76) outline the requirements for proper fish transport.

Regulations 77-83 concern the labeling of fish and fish products. Every container of fish and every wrapper and label must be correctly and legibly marked in English in addition to any other language to indicate the local name of the fish or fish product. Additional details of the products to be included are the net weight of the fish or fish product, the grade,

²³ The effectiveness of such enforcement efforts and programs have yet to be quantified on a national level. It is widely acknowledged that the enforcement capacity is lacking and as such there are currently unquantified levels of IUU fishing. Many actions may be formulated to focus on improving enforcement efforts; however, this report focuses on the development of trade strategies for Belize. The acknowledgement of such collaborations may seek to prompt further investigation of its effectiveness and how it may be improved by developing a fishery enforcement strategy.

size and count of the fish or fish product, the name and address of the distributor and/or exporter, and the ingredients in each container. It is prohibited to mark, label or package any fresh, frozen or dressed fish or fish product in a manner that is false, misleading or deceptive (regulation 79). Such regulations are adhered to. However, by gathering information from local retail markets, labelling standards and regulations should be reviewed to improve and provide a streamlined domestic market approach.

The implementation of a multi-species traceability scheme should also be considered for export markets. Regulation 83 enumerates the requirements that must be adhered to for the export or attempted export of crawfish, dressed fish, fillet, market clean conch and whole or headless frozen shrimp. Regulations 84-102 provide for the construction requirements and equipment used in fish processing establishments and regulations 103-127 provides for the operating requirements that must be adhered to in processing fish or fish products.

The Cooperative Societies Act provides for the obligatory registration of fishing cooperatives in Belize (section 7 (1)). Each cooperative has its own receiving station and processing plant, where hired employees (usually women) wash, package, and freeze the delivered (fish and fish product). Operational decisions are made by the managing committee, who are fishers elected at each cooperative's annual meeting to oversee production. The managing committee negotiates with foreign buyers for prices and shipment schedules. This business model has existed for many years and has supported fishers and cooperative members to become financially stable. In recent years, the government began to license fishing companies to export select seafood products. There is a current shift in the market landscape where cooperatives are facing more intense competition.

More generally, a thorough review of the relevant domestic legislation could improve the quality of imported products and also contribute to making domestic products more compatible with foreign legislations easing de facto their access to international markets. Both the domestic and the international aspect should be dealt with coherently with a double policy objective.

2.7 Key issues identified

Table 2 summarizes the institutional challenges encountered by the BFD. Such issues may be addressed and could affect the implementation of this strategy. Particular attention should be given to actions related to bolstering the licensing and enforcement actions presented. Governmental services such as licensing should be considered using an e-governance approach to alleviate any restrictions in obtaining licenses caused by the pandemic.

Table 2. Summary of key institutional issues highlighted and proposed strategies and actions

Sector	Issue Code	Key issues highlighted	Proposed Strategy	Actions
Marine fisheries and seafood processing.	11	Limited regulations addressing finfish which may result in unselective fishing practices causing over-fishing and production of lower grade fish.	Develop regulations pertaining to finfish stock management.	Conduct (or validate) deep-sea fish stock assessment and research. Establish minimum size limits and TAC for finfish species (or species of importance to deep-sea fishing – e.g. <i>Lutjanus</i> sp.).
	12	Challenges in streamlining and accessing fisherfolk datasets for monitoring and reporting which results in the inability to access information in real time to make evidence-based decisions.	Streamline fisherfolk database to provide the most up-to-date information.	Assess the capacity of data management procedures. Develop a data entry and management protocols for fisherfolk dataset. Hire additional staff and conduct trainings in database management. Institute late fee and licensing deadlines.
	13	Limited resources for the enforcement of fisheries regulations.	Enhance collaborative approaches to enforcement monitoring to combat IUU fishing.	Conduct training with enforcement bodies on existing and additional regulations (i.e. finfish).

Source: Interview with BFD staff, 2019.



Photo: Jason Houston/Rare

OVERVIEW OF CHOSEN SECTORS: ECONOMIC AND TRADE ASSESSMENT



Photo: Belize Fisheries Department

This chapter identifies key strengths and weaknesses of marine fisheries and seafood processing sectors in reference to core economic and trade trends. The supply capacity and market access are evaluated taking into consideration the economic fact sheets and current production figures. This is guided by the components listed below (figure 2).²⁴

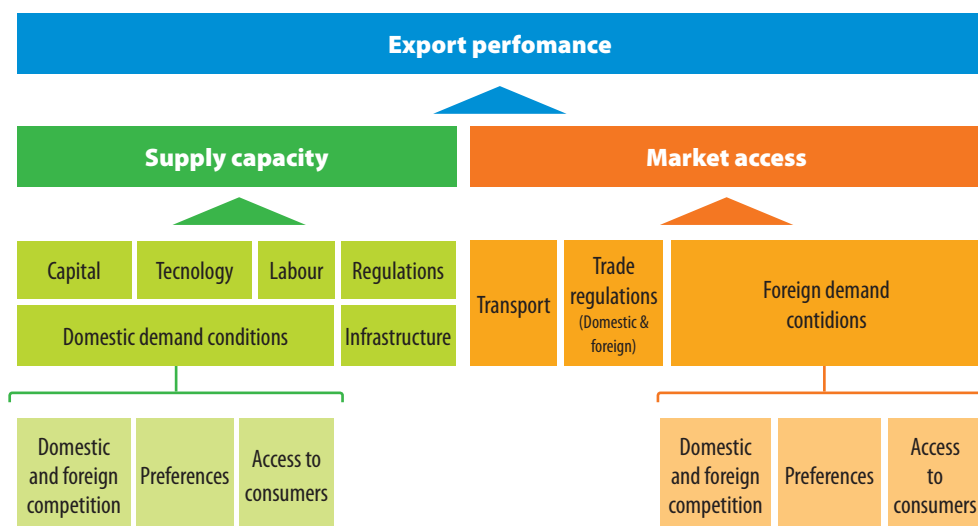


Figure 2. Breakdown of export performance

Source: UNCTAD, 2018a.

3.1 Supply capacity: marine fisheries and seafood processing

Historically, fisheries have represented a larger part of the GDP. In the 1970s, following the decline of finfish stocks, focus shifted to queen conch and spiny lobster which has led to a productive fishing sector directly supporting over 2,500 fishers, approximately 15,000 Belizeans indirectly, consistent production for the past 10 years (BFD, 2018). Now, as a leading entity in ocean conservation and small-scale fisheries management, the BFD manages two of its main fisheries - spiny lobster and queen conch - through close

3.1.1 Current fishery production trends in Belize fisheries

²⁴ The figures reported in this chapter are provided by the BFD and the Statistical Institute of Belize. Noting that the economic factsheets provided on the marine fisheries sector present an aggregate of domestic and foreign fishing vessel catch landings, this section will focus mainly on domestic fisheries and the species targeted in the chosen sectors.

3.1.2 Description and breakdown of fishing activity

monitoring and evidence-based decision-making thus resulting in stable yields for over 15 years. In 2017, it was estimated by the Statistical Institute of Belize (SIB) that agriculture and fisheries represented 1.2 per cent of the GDP (SIB, 2019).

Belize is an open registry State with about 60 registered vessels operating in the high seas (UNCTAD, 2019a). However, this report focuses on marine fisheries within the waters of national jurisdiction where fishing activity is classified as artisanal or small-scale. The number of fishers in Belize have remained under 3,000 individuals over the past three years (table 3). Since the launch of the Managed Access Program in the year 2016, the registration of fishers has declined due to the vetting process and area selection thus, resulting in the decrease of opportunistic fishers.

Table 3. Number of registered fishers and vessels, 2016-2018

	2016	2017	2018	2019
Number of fishers	2 752	2 710	2 525	2 550
Number of vessels	696	760	623	594

Source: Belize Fisheries Department, 2019.

There has also been an increase of women participating in the marine fisheries sector with a gender ratio of 1 female to 60 males in 2008, to 1 female to 44 males in 2018 (BFD, 2018). With this growing trend, strategies developed should reflect and promote such increase by offering gender-equitable opportunities to fishers.

The number of vessels in Belize's fishing fleet has remained between 600-800. Motorized skiffs are the main vessel type used by fishers (88 per cent), followed by sailboats (11 per cent). Other vessel types such as dories and canoes make up 1 per cent. All individuals aboard registered vessels are required by law to have a fisher folk license.

Fishers embark on registered fishing vessels for their fishing areas for roughly 5-6 days at a time. During this time, they harvest fish species and camp at night on islands (fishing camps) along the barrier reef. The vessel then disembarks at designated landing sites, cooperatives or fishing companies to sell their catch. Given the regulated seasons for spiny lobster (June-February of the following year) and queen conch (October-July of the following year) fishers have an opportunity to fish one of these two species without experiencing a gap in their income at any given point in the year. For example, the lobster season ends in February however, fishers are still able to fish conch until July.

Fishing activity for **queen conch** is done solely by free diving and collecting individuals on the seafloor in relatively shallow waters (6ft-30ft). A net bag may be used to collect multiple individuals at once.

Fishing activity for **spiny lobster** primarily consist of free-diving and using a hook stick while some fishers use trapezoidal-shaped lobster traps which are placed on sandy and relatively shallow areas to capture lobsters to be harvested some days later. Some fishers also use a shade (*casita*) to lure lobsters in the shaded area, where they will use a hook stick, snare, or net bag to harvest them.

Fishing activity **for finfish** species vary on gear types and are primarily conducted on skiff vessels. Handline fishing is used for subsistence fishing but may also be sold locally at landing sites and fish markets. Handlines may also be attached to a winch for deep slope fishing. Fishers target snappers, jacks, groupers, grunts and other fish. There is no gear registration requirements or regulations for handlines.

Other finfish gear includes long lines and gillnets; longline fishing targets pelagic species and sharks. No registration is needed for this type of equipment. Gillnets are large nets that are vertically suspended in the water column and are nonselective, though it is noted that they are used primarily by shark fishers. Gillnets are regulated by the BFD (Statutory Instrument No. 78. of 2011) mentioned in section 2.6 of this report.

The BFD currently has no regulations regarding TAC of finfish. Due to the focus by fishers and exporters on spiny lobster and queen conch fishing effort, the monitoring protocol on finfish species has not been fully defined. There is currently a TAC/Quota limit set for queen conch. Spiny lobster and finfish species do not currently have a TAC. The capture fisheries unit of the BFD conducts routine inspections at fish markets. It collects data on finfish in the following respect: species breakdown, gear type, number of fishers per vessel and number of days fishing, catch per unit effort, and biological data of fishers catch.

Capture fisheries have remained relatively stable with an upward trend over the last ten-year period ranging from about 1.8 to 2.4 million pounds over the period 2010–2019. The total value of wild caught fisheries exports has steadily increased, valuing \$18.6 million in 2018 (figure 3). More recent figures show a moderate upward trend for fisheries exports in volume and value in 2019, with Belize exporting 2.06 million pounds of seafood product valued at \$21.3 million.

The majority of marine exports are of spiny lobster (figure 5) and queen conch (figure 6). Prices for both products are steadily increasing whereas actual production and exports have remained steady. In 2014, exporters of spiny lobster diversified their product line by exporting the whole lobster. However, spiny lobster tails remain the main fishery export product. In 2018, the total export of spiny lobster products was approximately 955,000 pounds valued at \$11.9 million. The quota set by the BFD dictates queen conch exports

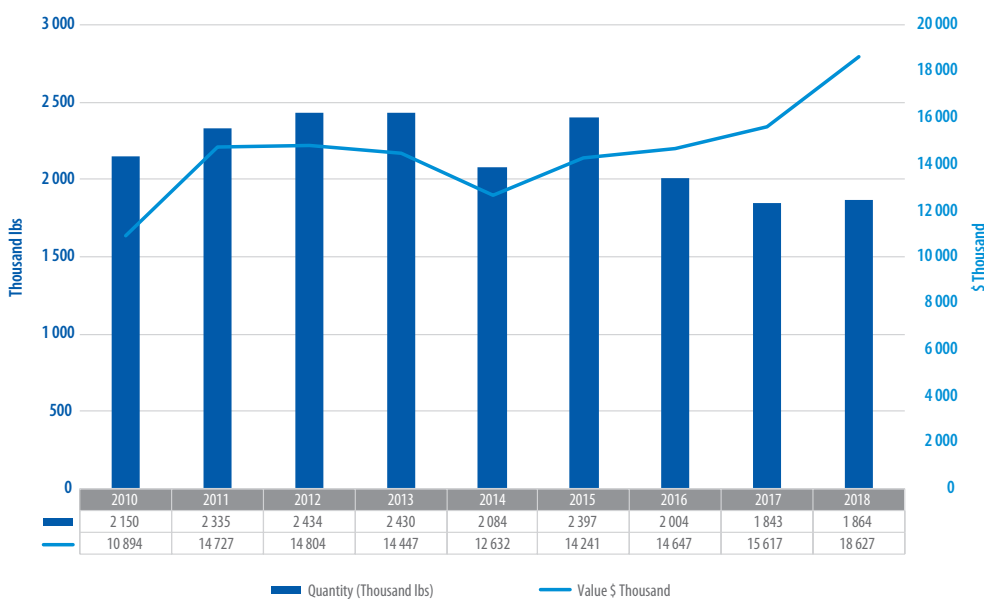


Figure 3. Total national exports in capture fisheries, 2010-2018

Source: SIB, 2019.

Notes:

- Aggregated: spiny lobster, queen conch, finfish, fish fillet, ornamental fish, and crab.
- Values were extracted from the export breakdown provided by SIB.
- Quantity and values reported exclude the shrimp and aquaculture sector.

and production. Exports for queen conch peaked in 2012, where a quota of over one million pounds was set. However, exports have since remained between 550,000- 900,000 pounds, and in 2018 were exported 882,000 pounds of queen conch valuing at \$6.5 million.

A small fraction represents finfish, where cooperatives and fishing companies export smaller quantities of product (figure 4). HS codes of finfish breakdown are listed in annex 5. As show in the figure 7, the main importers of Belizean’s finfish are Jamaica - specifically on whole fish (*Lutjanus* spp. and other finfish), and Guatemala (finfish, sharks, and other cartilaginous fish). Belize has regional or partial scope trade agreements (RTA and PSTA, respectively) with those countries. Though the trend in figure 4 illustrates a steady decline in exports, this does not imply that finfish stocks have decreased. Finfish are also sold in domestic markets, sales are closely linked to the tourism sector, fishers supply hotels, and restaurants in their communities.

Figure 4. Finfish export breakdown, 2010-2018

Source: SIB, 2019.
 Note: Finfish categories do not include farmed species such as tilapia. The HS codes in the legend have undergone two revisions within the timeframe reported; therefore, grouping and categories may change. See list of HS codes of finfish in annex 5.

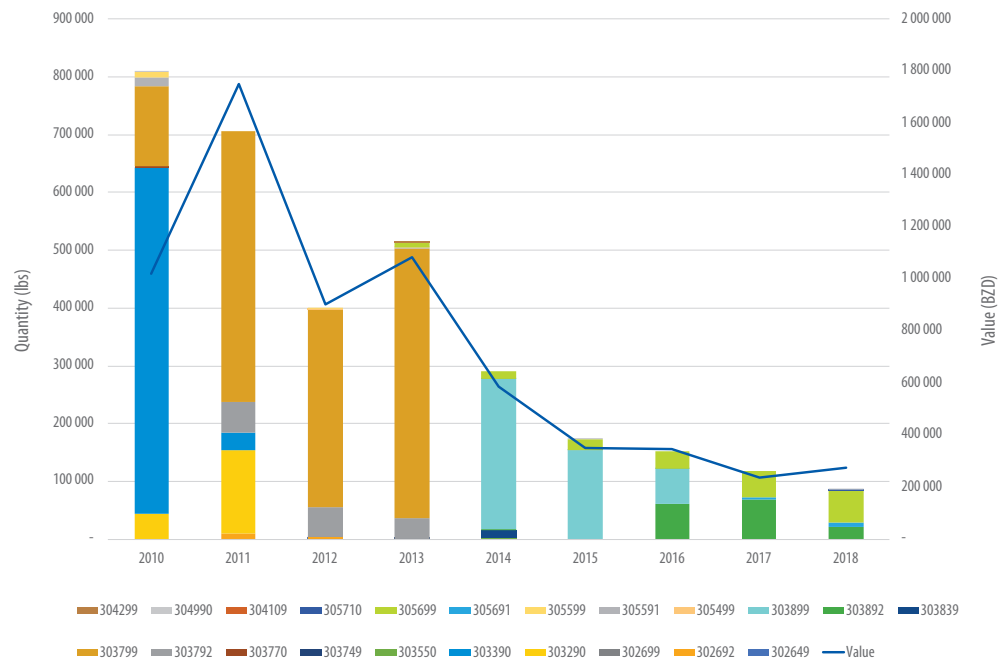
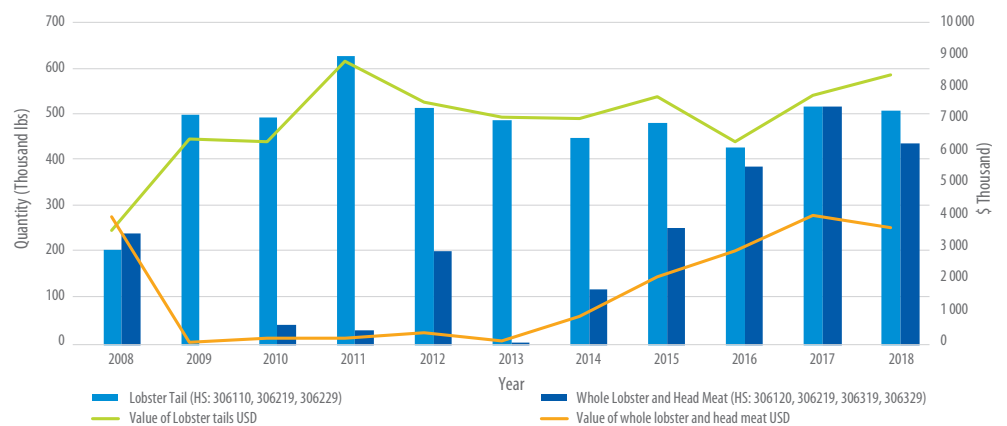


Figure 5. Spiny lobster products - export weights and values, 2008-2018

Source: SIB, 2019.



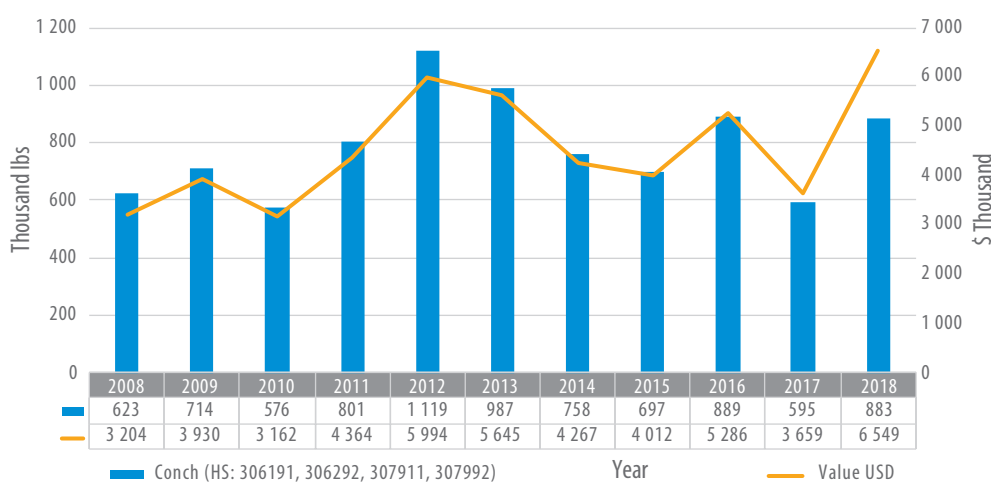


Figure 6. Queen conch products - export weights and values, 2008-2018

Source: SIB, 2019.

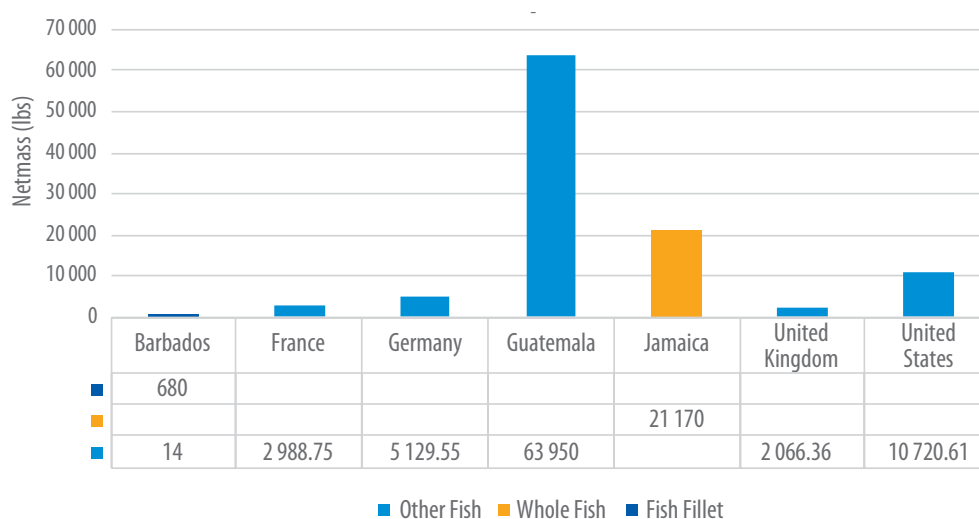


Figure 7. Belize's finfish importers in 2018

Source: BFD, 2018.

By reviewing the breakdown of marine exports, the decrease of finfish indicates that exporters have shifted focus to other lucrative species such as spiny lobster, queen conch, and sea cucumber.²⁵ There is a need to revitalize the finfish sector by diversifying species, identifying additional markets for finfish and, reducing fishing pressure on other species.

²⁵ The sea cucumber fishery has recently been opened in 2020 between 11 May and 30 June. This open season comes after a three-year moratorium set in 2017. There are currently no initial production figures to report.

Discrepancies have also been noted between Belize reported exports and data reported by import markets in a recent economic assessment (UNCTAD, 2019a).²⁶ Countries importing Belizean fish products have declared higher import numbers compared to the reported export figures in Belize. This difference in export and import values has also been noted in a previous value chain analysis conducted in 2015 by the Seafare Group. In its analysis, the difference may also be attributable to unit conversions and reporting which suggest that reporting of Belize exports by the relevant authorities may need revision. These discrepancies may also indicate a level of IUU fishing occurring in waters within the national jurisdiction of Belize. Therefore, relevant authorities should aim to collaborate with importing countries to properly track imports of seafood mainly to Guatemala and the United States.

■ COVID-19 pandemic impacts

It is estimated that due to the COVID-19 pandemic, fish and seafood production may have dropped by about 60 per cent.²⁷ The impact has varied among different fisheries:

- Lobster season closed before the pandemic (February 2020) and opened on 15 June 2020. As of this date, licensed fishers are allowed to continue fishing in their designated Managed Access areas.
- Conch season closed 27 March 2020. All exports were made before the lockdown and pandemic restrictions were put in place (BFD, 2020).
- Demand for finfish dropped by approximately 40-50 per cent, due to Belizean loss of incomes and finfish price increase (fuel prices are too high).

3.2 Market characteristics

3.2.1 Foreign demand: importers of seafood products

Belize exports seafood products mainly to the United States. In 2018, the country sold a total of 1.58 million pounds of marine products to this market alone, corresponding to approximately 73 per cent of the total capture of fisheries.²⁸ Of such total exports, 1.4 million pounds were of spiny lobster and queen conch seafood products (figure 8). Other importers of these seafood products range from North America to Asia and Europe (figure 9). Guatemala and Jamaica are the main importers of Belize finfish products. The primary exporter of finfish is Rainforest Seafoods.

The diversification of exporters may boost finfish exports to other countries such as Mexico, the United States, and other regions; it may also give fishers a better price for finfish catch. Therefore, the BFD may consider incentivized approaches to drive finfish exports.

As most fisheries and seafood products are exported to the United States, Belize has created a dependency on North American markets. This dependency increases risk and exacerbates Belize's vulnerability to sudden economic changes. In order to build a resilient oceans economy, it is needed to identify additional and niche markets for marine and seafood products.

²⁶ UNCTAD, 2019a, *Overview of economic and trade aspects of fisheries and maritime tourism sectors in Belize 2019*, pp. 31-32, table 11&12, available at <https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-04122019-belize-Economic-7.pdf>.

²⁷ Consultations with Belize Fisheries Department, Web conferencing: OETS and the challenges posed by COVID-19, 7 May 2020. See <https://unctad.org/en/Pages/DITC/Trade-and-Environment/Oceans-Economy-COVID19.aspx>.

²⁸ Note that this percentage does not include shrimp (aquaculture exports) to the United States.

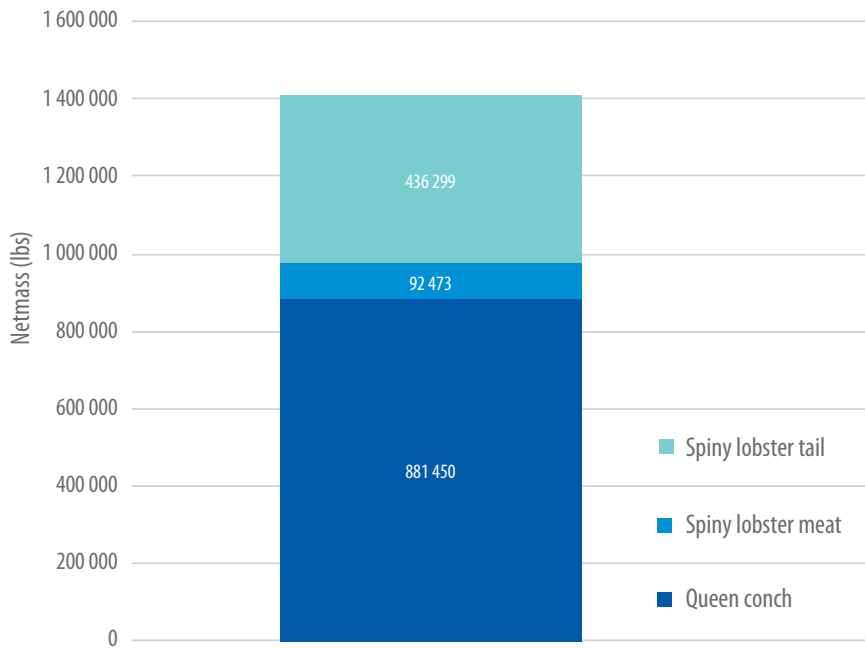


Figure 8. Breakdown exported to the United States, 2018

Source: BFD, 2018.

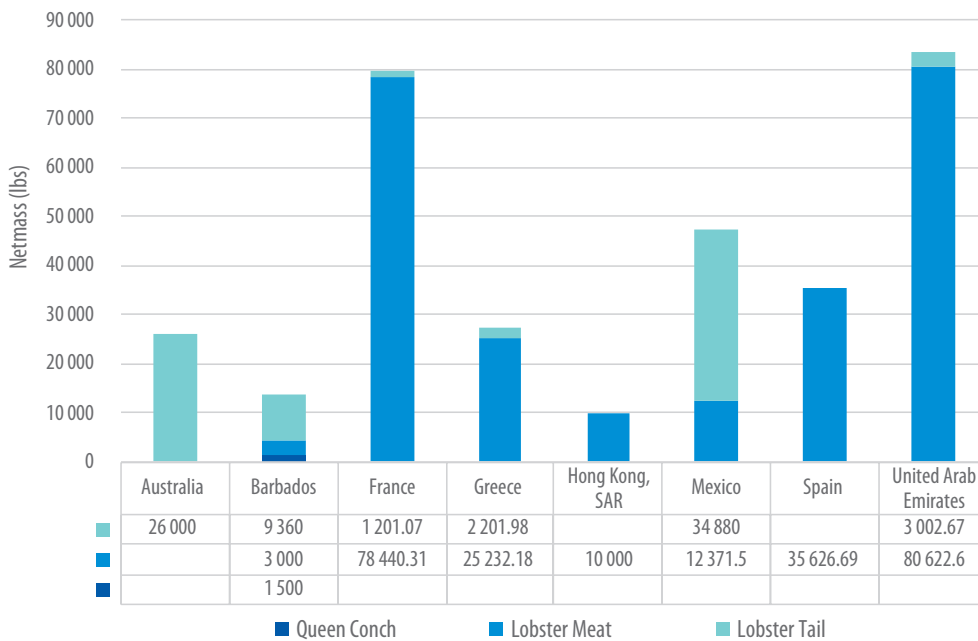


Figure 9. Importers of fish products breakdown, 2018

Source: BFD, 2018.

The majority of fisheries catch in Belize are purchased and processed by cooperatives and fishing companies (table 4). There are currently two seafood processors: Rainforest Seafoods and Fein Catch; and four active fishing cooperatives operating in Belize: Northern Fishermen Society Limited, National Fishermen Producers Cooperative Society Limited, Rio Grande Fishermen Cooperative, and Placencia Producers Cooperative Society Limited (who mainly undertake seaweed farming).

3.2.2 Major commercial players

Table 4. Summary of product exports by company

Capture fishery product	Cooperatives		Processors		Independent/ Fish Markets
	Northern	National	Fein Catch	Rainforest Seafoods	
Spiny lobster	X	X	X	X	X
Queen Conch	X	X	X		X
Finfish		X		X	X

Source: OETS interviews conducted in 2019 (annex 4).

■ Cooperatives

The two largest cooperatives are Northern Fishermen Cooperative Society Limited (the largest in operations and exports) and National Fishermen Producers Cooperative Society Limited. Each cooperative has its own receiving stations and processing plants, where employees process (wash, package, and freeze) seafood products. Operational decisions are made by the managing committees, whose members are elected by fishers at each cooperative's annual meeting to oversee production. They are in charge of negotiating with foreign buyers the prices and shipment schedules. Usually, a cooperative will establish a relationship with a particular buyer, working exclusively with him or her for several years, but the contract's renegotiation is each year. For example, Northern Fishermen Cooperative has sold its frozen lobster tails to the Red Lobster Hospitality LLC, an American restaurant chain since 1983 (Price, 1987; Usher, 2018). Main products exported by these cooperatives include: 75 per cent market clean conch, 95 per cent fillet conch, lobster tails, lobster head meat, whole live lobster, blanched lobster.²⁹

In addition to implementing management measures, such as size limits and season-based closures to the two fisheries, there are sanitary measures developed nationally under the WTO SPS Agreement and the HACCP certification which is an internationally recognized preventative risk management system for safety in food processing. The HACCP certification of certain commodity types is a pre-requisite for sanitary certification (BAHA, 2018). Additionally, to health and sanitary certifications, other sustainable seafood certification initiatives, such as Marine Stewardship Council (MSC), or Seafood Watch should be reviewed and considered for application, as such certifications may increase the competitiveness of cooperatives in the seafood sector and increase their market access.

An ongoing initiative being conducted by the National Fishermen Producers Cooperative Society Limited, and The Nature Conservancy (TNC) is the implementation of a traceability program with respect to spiny lobster. As a pilot initiative, the project has incorporated the "Tally" app - a software developed by ThisFish (ThisFish, 2018). This incorporation of technology presents an opportunity for value addition and increasing market access for spiny lobster.

■ Fisher processors

Fisher processors buy directly from fishers and export under a company name. Unlike fishing cooperatives, there is little to no fisherfolk representation on the managing board and little long-term benefits afforded to suppliers. Processors are able to buy fish at a higher price thus providing an immediate incentive to supply fish products to them rather than cooperatives. There are two processors of spiny lobster in Belize: Rainforest Seafoods and Fein Catch.

²⁹ OETS interviews conducted in 2019.

Rainforest Seafoods is a wholly owned Jamaican company with operations across the Caribbean (Rainforest Seafoods, 2019) and is currently one of the few exporters of whole fish products in Belize. Other products exported include shrimp and spiny lobster. Shipped primarily to Jamaica, whole fish is bought from fishers mostly in southern communities and shipped whole and gutted in containers to Jamaica. Rainforest Seafoods has recently shifted focus from whole fish to spiny lobster, which is bought whole, live, and shipped frozen to seafood importers. Very little processing occurs in Belize.

Fein Catch, a Belizean owned aquaculture-based tilapia company, is a part of the larger Feinstein Group of Companies (Fein Catch, 2015). Recently, Fein Catch has expanded its product base to export spiny lobster tails and market clean queen conch. Product is exported solely to the markets of Miami and New York in the United States.

■ Independent fishers

Independent fishers sell their catch, usually finfish species, to buyers in domestic markets. Fishers price their own fish, offer additional cleaning service (gutting, scaling, fillet, or steaking) at a cost to local buyers. Main fish markets include Conch Shell Bay in Belize City, Dangriga Fish Market in Stann Creek, and Punta Gorda fish market in Toledo. Fish markets are usually a subsection of larger produce markets, except for Conch Shell Bay. There are no sanitary or phytosanitary standards currently being enforced at fish markets.

3.3 Evolution of prices

Queen conch, spiny lobster, and finfish are all sold at different prices by domestic market players (table 5). The prices per pound for spiny lobster and queen conch have steadily increased over the past five years, while finfish prices have fluctuated depending on the time of the year, species, and size. Upon collecting the current pricing standards from fishing cooperatives and processors, many fisheries sector representatives identified the current price war as a threat to the cooperatives. With fish processors shifting focus to spiny lobster, competition has increased between processors and cooperatives, thus driving up the price per pound paid to fishers.

Table 5. Price range of seafood products

Seafood Product Price Change		Fishing Cooperatives		Fish Processors		Independent fisher	
		BZD/lb	\$/lb	BZD/lb	\$/lb	BZD/lb	\$/lb
Queen conch	Increase	7.50-10.00	3.75- 5.00	-	-	9.00	4.50
Spiny Lobster	Increase	30.00	15.00	23.00- 31.00	11.50-15.50	20.00	10.00
Finfish	Fluctuates	16.00*	8.00	1.00- 4.00	0.50-2.00	3.50-16.00	1.75-8.00

Source: OETS interviews conducted in 2019 (annex4) and Praxi5 Advisory Group, 2015.

Note*: Fish bought by the cooperatives are considered Grade A and includes species such as groupers, larger snappers, and hogfish.³⁰

There is a challenge to collect domestic price data due to the small-scale nature of the fisheries and fishers pricing on an individual basis. Fishers have their usual buyers who place orders or reserve quantities of fish to be sold later. Most fishers sell their catch on a first-come, first-served basis where pricing is negotiable, and fishers may not get the best price for their catch. Due to insufficient data collection, the amount of fish sold in domestic markets is unknown. There is an opportunity to establish more formal distribution channels in the domestic market.

3.4 Diversification efforts of fisheries

There have been efforts to diversify fishing products and provide alternative livelihoods to supplement fisheries income. Diversification into harvesting various species have been attempted:

- The sea cucumber fishery once hosted up to 70 fishers and have been fruitful in some respect.
- Seaweed farming is another avenue currently being investigated by fishers and fishing associations to diversify and create alternative income for fishers in Belize's southern regions. Opportunities currently exist to create and market seaweed products for cosmetic and consumption purposes (TNC, 2019).³¹

Two projects have been identified for alternative livelihoods and income diversification under the Marine Conservation and Climate Adaptation Project (MCCAP):

- Deep slope fisheries (DSFs) are currently being investigated as an alternative viable fisheries stock to be utilized. MCCAP in collaboration with BFD, has implemented the deep-sea development project. The outputs of this initiative include a Deep-Sea Fisheries Business Plan, and an Environmental Safeguards and Social Management Plan Deep Slope Fishing (ESSMP).
- MCCAP is also currently developing Standard Operating Procedures for conducting PESCA tourism in Corozal Bay Wildlife Sanctuary.

Both projects listed above will be discussed in more detail in chapter IV of this report.

■ Linkages to tourism: hotel and restaurant

Tourism is the highest contributor to GDP in Belize. Its contribution ranges from 20-25 per cent, as direct contribution to 40 per cent, as total contribution (UNCTAD, 2018a). As a popular destination for snorkeling, diving, and archaeology; tourists visit year-round with a notable high season between October and April. The Belize Tourism Board (BTB) is the prime regulatory body for marketing tourism in Belize and has stated in its latest report that the growth of the sector has been significant.

“The overnight tourist arrival sector continued in an upward trajectory in 2018 with record growth in every month compared to the corresponding month of the previous year. In fact, the overnight arrivals to Belize increased by over 62,000 visitors in 2018, which was the largest numerical increase in visitors year over year in over ten years. In addition to the annual percentage increase, there were 10 months in 2018 that had double digit percentage increases” (BTB, 2019:17).

³⁰ Grading relates to the size and quality assessment for sorting fish before or at sales. Grade A usually refers to the largest size and quality.

³¹ For example, seaweed (*Eucheuma isiforme*) is purchased from Placencia Producers Cooperative Society Limited to manufacture of natural skin cosmetics (see Angel Lisa project – <https://www.angel-lisa.com/>).

Though tourism was not a chosen sector for the OETS report, linkages with marine fisheries should be mentioned to present potential strategies to be employed. The fishers and seafood sector supply the tourism sector by directly selling to restaurant and hotel managers. This steady increase of tourist visits (figure 10) also indicates a demand for authentic Belizean food dishes including seafood products.

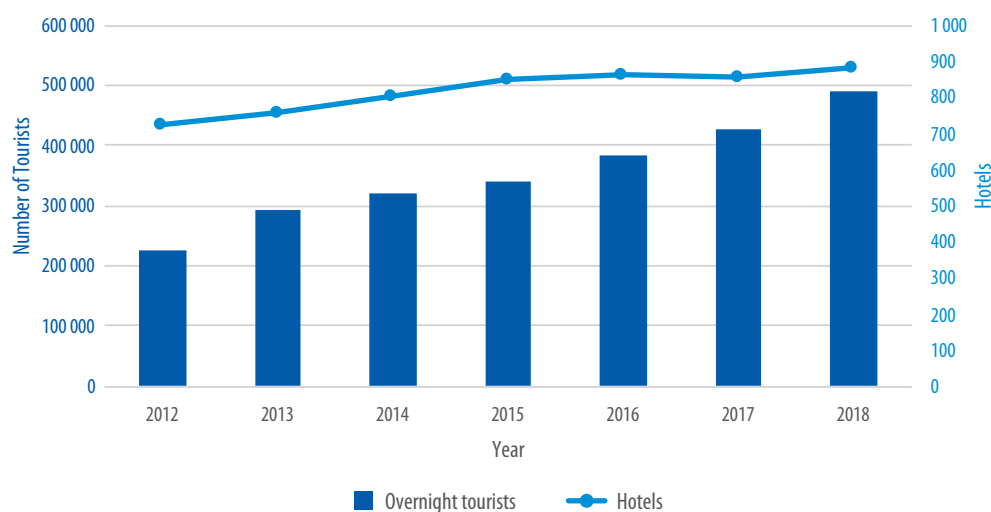


Figure 10. Registered hotels and overnight tourists, 2012-2018

Source: BTB, 2019.

Given the effects of the COVID-19 pandemic and the resulting halt of the tourism industry in Belize, action presented in this manner may also apply to domestic tourism. As it stands, hotels have begun to offer discounted rates to Belizeans in an effort to keep staff employed. Restaurants have also reopened their doors in accordance with social distancing restrictions. Actions linked to restaurants and hoteliers should still be considered; however, it may be of medium to lower priority given the drop-in demand.

3.5 Review of key strengths and concerns

The marine fisheries and seafood processing sectors have contributed approximately 3 per cent of Belize's GDP (SIB, 2019). Spiny lobster and queen conch capture fisheries have stable yields where the price per pound has steadily increased. These fisheries currently support 2,525 fishers. However, demand for those species has increased pressure on stocks and has yielded lower returns for fishers.

Finfish fishery has been in decline due to the shift in focus to spiny lobster and queen conch. It is imperative to identify new and niche markets to decrease the dependency and concentration of exports in a humble number of species and to the United States markets. It is also necessary to develop value addition strategies and use underutilized fish stocks to bolster the oceans economy of Belize. Careful attention must be paid in building legal and institutional capacity to sustainably manage these activities, as well as to ensure the largest possible returns are retained at the lower levels of the value chains.

The sector has made several significant steps in sustainable growth. Regarding fisheries sector's institutional and social aspects, implementing a managed access regime has placed rights-based fisheries at the forefront, as fishers assume management responsibilities to protect fisheries. There are many ongoing projects to diversify coastal communities' livelihoods, provide alternative income for families, and enable seafood processing institutions to access markets and become more competitive. Ongoing projects and efforts should be optimized by identifying linkages in order to increase effectiveness and prevent duplicate efforts. Table 6 provides a summary of the issues and potential strategies that may be implemented.

Table 6. Summary of highlighted key trade issues and potential responses

Sector	Issue Code	Key issued highlight	Proposed Strategy
Marine fisheries	14	Finfish exports have decreased in the past five years and fishing pressure on spiny lobster and queen conch has increased.	Support the increased exports of finfish (fresh and frozen fish) and finfish products to regional and international markets.
			Increase domestic consumption through tourism sector.
			Design and implement SPS measures at fish markets, and other landing sites selling finfish.
Seafood processing	15	Need to identify additional and niche markets for Belizean marine and seafood products.	Provide access to new and strategic niche markets with the assistance of BELTRAIDE and other government agencies.
			Support export-oriented seafood business establishments to increase revenue through the use of smart marketing techniques (market intelligence gathering, sale/export of fishery products during highest demand/highest tourism periods).
			Incorporate technological tools to increase market access for seafood products (i.e. multi-species traceability systems).
			Support the application to other certification programs to increase market access, innovation, and competitiveness in the seafood sector.
			To support increased domestic consumption of lobster head meat.
			To explore options for processing and export of currently discarded fishery by-products such as queen conch trimming, shell and pearls.

Source: BFD, 2019 and OETS interviews conducted in 2019 (annex 3).

IV.

OCEANS ECONOMY ASSESSMENT AND VALUE CHAIN ANALYSIS



Photo: Belize Fisheries Department

This chapter describes current standards and assesses the potential of the sectors under consideration in terms of the other four UNCTAD Oceans Economy pillars (annex 4), namely: sustainable use and conservation of marine resources, inclusive social development, increased scientific knowledge, and oceans and trade governance. A value chain analysis and SWOT analysis for each sector is presented. National priorities are identified and an overall goal for both sectors is formulated.

Mentioned briefly in the previous chapter, there are multiple projects and initiatives being conducted by stakeholders of the fisheries sector. Each of the chosen sectors are discussed in further detail hereafter. The sections below also highlight linkages and opportunities with other projects so that a cohesive strategy can be devised.

4.1 Marine fisheries

Harvesting of finfish was done mostly in the 1970s and 1980s, with production peaking in 1983 at 1 million pounds in weight. The fisheries transitioned to focus on crustaceans and molluscs thereafter. In 2010, Rainforest Seafoods established a station in southern Belize where its production of finfish has declined over the years from over 500,000 to 100,000 pounds in 2019 (Grant, 2019a).

Development of marine fisheries, particularly deep slope fisheries, has stemmed from the identification and development of alternative livelihood sub-projects of the MCCAP. A deep slope fishery exploratory project was carried out under this initiative with the objective of conducting exploratory fishing cruises in the fishing area 9 under the Managed Access Program³², to identify potential fishing grounds and the availability of commercial fish species (Grant, 2019b). Main activities for developing deep slope fisheries included: defining fishing areas beyond the barrier reef, selecting of deep slope fishers, training and capacity building, monitoring and assessing the sub-project's performance, and facilitating a market forum to connect fishers with buyers.

The MCCAP, through the assistance of other consultant firms, has also produced an ESSMP (Nextra Environmental and Engineering Consultants, 2019), and a Deep Slope Fishing Business Plan (Praxi5 Advisory Group, 2018).

³² The territorial sea of Belize is divided into eight closed fishing areas and a ninth area (area 9) open for deep slope fishing. See section 2.6.

The purpose of the ESSMP document is to outline the measures and an implementation plan to address potential adverse effects of developing DSF in Belize. In preparation of this, stakeholder engagement occurred where main outputs included community and fisher participation buy-in, and the development of a proposal and grievance mechanism (Nextra Environmental and Engineering Consultants, 2019).

The DSF Business Plan presents a market study and financial plan on launching deep slope fisheries in Belize. The Belize Federation of Fishers has been listed as the entity to work closely with fishers to develop and implement a DSF small business ventures in Belize. Both reports have highlighted key aspects to consider in the development of the present OETS report which will be highlighted below. This MCCAP is ongoing and completion is expected by the end of 2020 (Grant, 2019b).

4.1.1 Sustainable use and conservation of marine resources

The BFD conducts research and monitoring initiatives in accordance to its main responsibilities and mission (BFD, 2018). Most monitoring programs for capture fisheries target spiny lobster, queen conch, sharks, and sea cucumber. Data collected on finfish include production and export information from some processing companies, sample catch landing and catch per unit effort data from fish market inspections, and more recently catch logbooks from fishers registered under the Managed Access Program.

Catch logbooks can record total catch landings by boat, however, the paper-based system will require data entry by fisheries personnel thus resulting in a delay and lack of real-time information access. Therefore, the department should explore a means for immediate electronic data entry. For example, real-time data entry through electronic tablets whereby catch landing information may be accessible in real-time.

Such options are currently being investigated the Wildlife Conservation Society (WCS), through the testing and implementation of the Spatial Monitoring and Reporting Tool known as SMART (WCS, 2019). The Government of Belize may consider continuing research and investment into innovative and technological initiatives mentioned above.

The CFU of the BFD is guided by the precautionary principle and has adopted an adaptive management framework (AMF) for monitoring its two main fisheries: queen conch and spiny lobster (Martinez et al., 2018). Used in data limited fisheries, the framework incorporates selected indicators from fisheries dependent and independent sources to inform management decisions within the BFD (McDonald et al., 2017). With the development of deep slope fisheries, the BFD may consider establishing a robust data collection program for finfish where relevant and credible information streams are identified in order to adopt the framework for finfish as well.

4.1.2 Capacity development

The lack of effective infrastructure may constrain the development of a sector and hinder the ability to trade. Risks associated with inefficient infrastructure may result in reduced production, delay in the movement of goods, delay in the arrival, and additional costs that may be indirectly linked to infrastructure issues.

Mentioned above as one of the main activities under the MCCAP, capacity-building and training of selected fishers for DSF have taken place. The provision of equipment for deep slope fisheries is being made. Equipment such as conversion kits, manual and electric rigs, tool kits, and iceboxes were procured to assist fishers partaking.

Belize's fishing fleet consists mainly of skiffs and sailboats. Sailboat fishers target spiny lobster and queen conch. Sailboat vessels are not equipped for DSF. Though larger boats (30-40 ft) are ideal, smaller skiffs (23-28 ft) are the most common. Fishers can adapt smaller skiffs for DSF, a proven cost-effective measure. This may, however, limit their catch size and thus yield lower returns. The BFD may consider working with BELTRAIDE in identifying financial access to fishers for obtaining DSF equipment.

The current infrastructure for finfish processing is limited to local fish markets, and some seafood processing cooperatives and companies. To standardize DSF and subsequent fish processing, MCCAP has also facilitated training for fishers in quality control standards: sensory evaluation, proper icing, and value addition.

With this small start-up of DSF, MCCAP has undergone the application and selection process of beneficiaries for training and equipment (Grant, 2019b). Selection criteria included the level of experience and traditional knowledge of DSF. The project identified 64 beneficiaries, of which 2 per cent were women. The beneficiaries reside in Belize City, Dangriga, Hopkins, and Seine Bight.

Investing in DSF will yield positive results for the fisheries sector. Besides providing an alternative income source for fishers and coastal communities, investments will directly reduce fishing pressure in Belize's other fisheries and allow marketable products diversification. As the current regulations stand, there are no set seasons for finfish (except for the Nassau grouper). Therefore, fishers may use profits from catch to supplement income and secure livelihoods during closed seasons of the main fisheries such as those of lobster and conch.

The area of most concern is the environmental impact of deep slope fisheries. The Environmental Safeguards and Social Management Plan Deep Slope Fishing 2019 outlines impacts associated with the fishery including pollution, the threat of over-fishing, by-catch, harming protected or vulnerable species, and the risk of mechanical mishaps resulting in collision or damage to the reef.

As a result, the report outlines a list of mitigation measures and develops a list of best practices guidelines for the sub-project.³³ Guidelines developed by the ESSMP can also be reviewed and evaluated alongside global guidelines, including the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas (FAO, 2009), the United Nations Fish Stocks Agreement 1995, and the provisions of General Assembly resolutions 61/105, 64/72, 66/68, 69/109 and 71/123 addressing the impacts of bottom fishing on vulnerable marine ecosystems and the long-term sustainability of deep-sea fish stocks. In doing so, this would align Belize's DSF development with internationally recognized measures and facilitate knowledge transfer.

DSF is still in its early development phases. As monitoring continues, reports on catch landings, species caught (annex 6), challenges encountered, and potential risks are documented. Management authorities may seek to support its development by facilitating the advancement of investments in transport and processing infrastructure. Further financing of this fishery could be available through grants.

³³ Nextra Environmental and Engineering Consultants, 2019, *ESSMP* p. 18.

4.1.3 Improving market access

A supermarket survey was conducted³⁴ to identify price ranges of seafood as compared to imported seafood products (table 7).³⁵ Some of the survey findings include: finfish are packaged on foam trays with plastic wrap and frozen when displayed for consumers; there were no options for fresh or chilled seafood items; inconsistencies in labelling and identification of finfish species. The two products listed (labelled italicized unnamed) have no listed name of fish (common name, species, or fish type). Labels also do not provide information on origin and production methods, e.g. traceability. In addition, some labels were handwritten and did not specify a standardized price per pound. Salmon and tuna are assumed to be imported as the packaging is of higher quality though this is not explicitly stated on the label. Sourcing information for these two products is also missing.

Regarding the pricing of finfish, imported fish (of varying species of finfish, shellfish, and other invertebrates) are up to six times more expensive than locally sourced seafood. Therefore, there is an opportunity for value addition on local seafood while remaining below import pricing.

Fish markets and landing sites present in coastal communities and in Belize City have some infrastructure for scaling, gutting, and filleting finfish. The infrastructure of fish markets consists of a series of concrete table structures with or without a tiled surface for cleaning of fish. Yet, there is limited access to running water and ice therefore limiting fish display market

Table 7. List of fish products in Belizean supermarkets, 2019

Fish name as seen on label	Price per pound (BZD/lb)
Bait (Sprat)	2.95
Bait (unnamed)	5.00
Bay Snook	7.50
Scaled snapper	8.60
Fish fillet (unnamed)	9.99
Sea bass fillet	10.50
Scraped whole snapper	11.25
Basa fillet (assumed imported)	11.25
Snapper fillet	18.25
Grouper fillet	18.25
Rock fish fillet	19.20
Salmon portion (assumed imported)	31.95
Tuna portion (assumed imported)	31.95

Source: Survey applied in Belize supermarkets, 2019.

³⁴ The survey was conducted in June 2019 by the author of this report when three major supermarkets in Belize City were visited to observe price per pound of finfish products (Supermarkets visited: Save-U, James Brodie and Co (Brodies), Publix).

³⁵ Prices recorded were for finfish. Other seafood products for sale included lobster meat, lobster tail shrimps, scallops, tuna portions, sea crab, crab claw, baby octopus, swai fillet, greenshell mussels, salted pollock, and squid rings.

strategies. Marketing for finfish should be improved to increase the domestic consumption of high-quality finfish products. Opportunities to improve fish market displays and access may include providing access to ice, running water, cleaning/disinfecting material, and an effective drainage system.

■ Tourism sector as a consumer

A restaurant and retailer survey was also conducted by Praxi5 Advisory Group to determine the market demand of finfish procured from DSF and ascertain the viability of the business venture.³⁶ Results indicate that over 90 per cent of restaurants surveyed had a local fisher as their main seafood supplier. Fishers that supply hotels and restaurants directly earn about \$1-2 per pound more than selling to household consumers (Praxi5 Advisory Group, 2015).

Therefore, there is a greater incentive to supply hotels and restaurants directly for the higher price point. However, the reliability of seafood supply resulted in mixed responses with only 40 per cent stating the supplier was reliable. As mentioned in earlier chapters, the domestic market supply chains for finfish are informal. In researching the supply chain of the fishery, there were no figures uncovered to determine the consumption of finfish in domestic markets. Since finfish are landed and sold directly to consumers, hotels, and restaurants; the figures on the actual consumption of seafood products has not been recorded.

As highlighted in the business plan developed for DSF 2018, the current finfish fishery is a direct contributor to Belize's tourism sector and has listed restaurants and hotels in tourism hotspots as having high demand for finfish. Except for the restaurant and retail survey summarized above, little information is available about consumption and demand for finfish in the tourism industry. Naturally, it is assumed that seafood consumption is high in areas of increased coastal tourism.

Belize's annual seafood imports (table 8) suggest that domestic seafood consumption has increased. These figures show an increase in imports, thus an increase in seafood demand. There is, however, insufficient data to depict Belize consumption of domestic seafood products.

Strategies should be adopted to include monitoring and reporting on domestic seafood consumption. This can be achieved by DSF boats (alongside registered fishing fleet) maintaining proper managed access logbook records of catch landings. This additional data may be used to support the need for a high-value domestic market.

4.1.4 Fisheries and the tourism sector

Table 8. Belize marine product imports current prices, 2015-2018

Year	2015	2016	2017	2018
Belize marine product import (lb)	81 370.00	348 554.00	97 693.00	116 126.00
Value (BZD)	790 934.00	804 680.00	475 510.00	749 823.00
Value (\$)	395 467.00	402 340.00	237 755.00	374 911.50

Source: SIB, 2019.

³⁶ A total of 75 restaurants and five retailers participated in the survey for the DSF Business plan 2018.

■ The tourism sector as diversification (MCCAP sub-project PESCA tourism)

MCCAP has launched a sub-project PESCA tourism as an alternative livelihood opportunity, which has been introduced as a diversification project for reef dependent coastal communities. The project has recently produced a Sarteneja Beach Trap Pesca Tour Association Business Plan (Praxi5 Advisory Group, 2018), and the Environmental and Climate Change Safeguards: Sarteneja Village Fishers PESCA and SULFA Tourism and Sport Fishing Alternative Livelihood Sub-Projects Technical Report (Nextra Environmental and Engineering Consultants, 2019).

PESCA tourism involves traditional fishermen taking visitors on guided tours to experience a day-in-the-life of a traditional beach trap fisherman. A PESCA tour involves the following activities:

- Going out on a boat with an experienced boat captain and trained/licensed guide/s who are highly knowledgeable and skilled in the traditional practice of fishing using beach traps.
- Visit the designated beach trap.
- Observe the guide/s using a cast net within a beach trap to catch fish. On a day when the sea is not too turbid, the tourist/s may swim or snorkel inside of the beach trap to observe the fish.
- If fish are caught, take photos.
- Allow the trained guide to expertly, humanely and safely release the fish back to the sea.

Participants of this pilot require several licensing agencies to properly operate this venture. Such requirements include:

- Tour operator – Initially, the Sarteneja Tour Guide Association will provide its tours via an established tour operator. However, whenever the time comes that Sarteneja Beach Trap PESCA Tours Association is ready to set up its own tour operation, licensing for such will be done through the Belize Tourism Board.
- Tour guiding – done through the Belize Tourism Board.
- Vessel – done through Belize Port Authority.
- Boat Captain – done through Belize Port Authority.
- Fishing-done through Fisheries Department (Praxi5 Advisory Group, 2018).

While the project is in its implementation stages, challenges have been identified in obtaining standard tour operator licenses for the Association. Therefore, for this alternative livelihood opportunity to continue, fisheries and tourism authorities may aim to reinforce the linkage between fishing and tourism to optimize economic benefit and support alternative livelihoods in these northern communities. As it currently stands, the marine protected area zonation scheme already allows for this kind of activity within the general use (extractive) and conservation (non-extractive) zones. Other actions and marketing strategies may also be considered if positive results are yielded from the pilot.

4.1.5 International markets

Though historically finfish have been exported mostly to the Guatemala, Jamaica and the United States, there are untapped markets that may prove viable for Belize finfish fisheries. Currently, one potential regional market for Belizean finfish which has been identified by stakeholders is Mexico. Due to the geographic proximity, these markets provide an excellent opportunity to exports of finfish procured by DSF through air freight to maximize on market access, reduce spoilage, and provide the highest quality finfish products.

There is currently no free trade agreement between Mexico and Belize. However, exports to Mexico have increased by 41 per cent between 2012–2015 (SIB, 2019). In 2014, negotiations began for a partial scope agreement between the two countries and a general framework and a schedule for the negotiation is in the process of being established.

“The establishment of a PSA would allow domestic producers to trade an agreed set of goods on a less restrictive basis with Mexico. The DGFT has continuously engaged the private sector and taken into account their stated interests in the Mexican market in order to negotiate a mutually beneficial agreement” (DGFT, 2019).

Factors that should be considered when implementing the OETS strategy for the selected sectors are market access measures such as tariffs and non-tariff measures, and other barriers to trade. According to the WTO, tariff lines pertaining to fish, crustaceans and molluscs, fish products, fats and oils of fish, extracts of fish or crustaceans, and flours of fish or crustaceans are unbound (118 lines and 2 sub-lines) (WTO, 2017).

DSF development within Belize’s EEZ is also aligned with the NTP 2019–2030. Priority actions developed in this strategy should consider the policy prescriptions outlined in section 9.6, Economic Exclusive Zones of the NTP (box 1). Such section supports undertaking assessment of DSF within Belize’s EEZ, reviewing related legislation on finfish, and promoting investments on the development of DSF. Except for designated processing areas,³⁷ section 9.3 supports the seafood processing sector by outlining policy prescriptions to enhance product quality and support export diversification.

Box 1. National Trade Policy strategies pertaining to marine fisheries sector

Exclusive Economic Zones (Section 9.6, p. 49)

Policy Objective: Promote strategic investments in Belize’s EEZs.

Policy prescriptions:

1. Undertake an assessment of Belize’s resource endowment in the EEZ.
2. Undertake a comprehensive review and/or study of Belize’s disciplines and legislation regarding Belize’s EEZs and other relevant international maritime legislation.
3. Promote investment initiatives targeted at EEZ development of benefit to Belize.

Investment programs (Section 9.3, p. 46)

Policy objective: Enhance manufacturing and export development.

Policy prescriptions:

1. Engage relevant government agencies to harmonise investment and incentive programme legislation to bring them in conformity with WTO and other international regulations.
2. Support the development of export diversification programs.
3. Encourage technological transfers in Designated Processing Areas (DPAs) and value chain clusters.
4. Promote high standards and quality in production systems under these programs.



Source: National Trade Policy 2019-2030.

³⁷ Formally known as Export Processing Zones, they are a form of subsidy that is not supported by the government in the fisheries sector. Section 9.3, Policy Prescription 3.

4.1.6 SWOT analysis for the marine fisheries sector

The table 9 illustrates the SWOT analysis for the marine fisheries sector conducted in the stakeholder workshop and verified in the report. These results were used to elucidate actions and level or prioritization.

Table 9. SWOT analysis for marine fisheries sector

Strengths	Weaknesses
<ul style="list-style-type: none"> ■ Existing legal framework for fisheries is in development. ■ Underutilized stocks exist. ■ Presence of a management authority. ■ Manage access system exists. ■ Funding for pilot study available through the MCCAP subproject. ■ Research & Training capacity exists. ■ Best practices guidelines exist. ■ Trade Policy space exists. ■ Processing capacity and some infrastructure. ■ Logistics capacity to ship by land, air and water. ■ HACCP plans exist by all fishermen cooperatives and processors (availability for knowledge transfer and training independent fishers). ■ Stable environment conditions for six months of the year. 	<ul style="list-style-type: none"> ■ Minimal legislation regarding finfish. ■ SPS measures addressing finfish species. ■ Lack of access to appropriate fishing gear. ■ Limited capacity of current fishing fleet. ■ Traceability system lacking. ■ Informal distribution channels. ■ Lack of understanding of the market demand. ■ Lack of access to credit facilities. ■ Limited knowledge of supply of finfish in domestic markets. ■ Limited capacity to comply with sanitary standards at local retail markets.
Opportunities	Threats
<ul style="list-style-type: none"> ■ Market expansion (domestic, regional and international). ■ Diversification of fisherfolk income. ■ Harvesting from un-utilized fishery stock (species listed in annex 6). ■ High demand by tourists. ■ Proximity to markets. ■ Inputs readily and easily accessible (e.g. fish gears). ■ Current negotiations for preferential trade agreements are underway. ■ Use of fish waste, by-products and handicrafts for new product creation. ■ Job creation for fish processing. 	<ul style="list-style-type: none"> ■ Over-fishing and contribution to illegal fishing. ■ Tropical weather disturbances and climate variability. ■ Competition/importation from low-value foreign fish and fishery products. ■ Low level of political will. ■ Inconsistency of supply and quality.

Source: First National Stakeholder Workshop. UNCTAD, 2018e.

4.2 Seafood processing centres

Belize has had a successful queen conch and spiny lobster fishery for the past decade (section 3.1). The implementation of the Managed Access Program has also had positive effects on fishery management and fisher livelihoods of the pilot sites (the Port Honduras Marine Reserve and the Glovers Reef Marine Reserve). It is anticipated that the national rollout will produce similar outcomes. Establishing a marine reserve network and an adopted zoning scheme (replenishment, conservation, and general use zones) has also helped conserve biodiversity and proven to have a spillover effect into adjacent areas (BFD, 2013), including trans-border indirect effect from the large adjacent Mexican marine protected areas.

The BFD has established several management measures to oversee the performance of the queen conch and spiny lobster harvesting for each season. In addition to having regulations on the fishing season, minimum size limits, and establishing a TAC (for queen conch), the BFD monitors and tracks the fishery performance using the AMF strategy (McDonald et al., 2017). Guided by an ecosystem approach and the precautionary principle, the BFD has successfully managed the two main fisheries, resulting in steady yields of high-quality seafood production.

The BFD also has an established data collection and monitoring protocol for both species whereby catch per unit effort is collected, export inspections are conducted, and independent fishery data such as lobster morphometric data (seasonal) and national queen conch surveys (biennial) are conducted.

The current infrastructure of seafood processing facilities for spiny lobster and queen conch have long been established. There are currently four processing centres, over eight landing sites and receiving stations with docks, refrigerated rooms, and many transport vessels and vehicles to carry the product to main processing stations.

Additional infrastructure at main processing stations includes ice machines to facilitate cold storage of seafood products at sea, fuel station, holding rooms, chill rooms, and blast freezer rooms for final product storage. Some processing centres also include tanks for live lobster where whole live lobsters are stored.

Processing centres require a great deal of energy to run freezers, ice makers, and other machinery; therefore, the option for renewable energy sources can be taken into consideration. For example, the Development Finance Cooperation (DFC) is now offering renewable energy loans of up to \$300,000 to generate power for households, businesses, and agriculture ventures (DFC, 2019). The incorporation of green technologies could offset the production costs and further validate sustainability aspects in the seafood processing sector.

All product undergoes initial weighing and classification grading to determine total production and payment for fishers' catch. Total weight in pounds is recorded along with area fished and the number of days fished. The processor then pays according to the set price per pound. All information recorded by the processors are tallied to record total production and submitted to BFD.

The type of labour in processing facilities are classified under the following roles: screeners, cleaners, packers, and quality control personnel. According to the Overview of Economic and Trade aspects of fisheries and maritime tourism sectors in Belize; the number of personnel employed in other fisheries dependent activities is estimated at 1,000 (table 10). This estimate includes fish processor personnel, fish market cleaners (scale, gut, fillet fish), and other intermediary agents (UNCTAD, 2018a).

4.2.1 Sustainable use of marine resources

4.2.2 Labor characteristics at processing centres

Table 10. Employment in the fish sector, 2011-2013

Employed in capture production (No. of individuals)	Source	Employed in other fisheries dependent activities (No. of individuals)	Source	Total
2 500	CRFM, 2015 (estimate)	1 000	Gongora, 2012 (estimate)	3 500

Source: CRFM, 2014. Statistics and Information Report 2014.

Fish processing personnel in these facilities are estimated to be over 200 individuals, of which roughly 60-70 per cent of the processors within cooperatives are women. Income brackets of processing personnel range between BZD 3.30/hr–BZD 7.00/hr. The number of hours worked per week varies depending on the time of year, fishing season, and quantity of catch supplied by fishers.

For instance, the opening of conch or lobster season sees a surge of the product being supplied by fishers. Processing personnel work long hours to process fishers' catch. Typical working hours for cooperatives are 7 a.m. to 5 p.m. However, during the beginning of a season, opening hours may be as early as 5 a.m. and closing as late as midnight due to the bulk of product that needs to be processed. To further exacerbate this issue, fishing cooperative managers indicate that the working conditions are being increasingly negatively affected given the current price shift and market change.

Working conditions and social security for processing personnel should be of high priority when determining actions for value addition and accessing niche markets of seafood products. Particular attention must be given to women's roles in fisheries (pre-harvest, harvest, and post-harvest). Strategies and actions should aim to incorporate a gender-equitable aspects to improve women's livelihoods in fisheries (FAO, 2017b).

4.2.3 Improving market access: access to niche markets

Fish processors have explored several options to diversify their products for international markets. For example, cooperatives and exporters in the past have explored options tapping into sea crabs, sea cucumber, and other finfish species (BFD, 2018). Diversification also takes place within product lines; for example, fish processors have begun to process spiny lobster and export lobster tails, head meat, whole lobster, and cooked (blanched) lobster to different markets. However, challenges and barriers to access markets and seafood trading need to be addressed. These include establishing a traceability system and meeting certification standards (e.g. MSC).

In addressing traceability, the Nature Conservancy in collaboration with the BFD and National Fishermen Producers Cooperative Society Limited have established a spiny lobster traceability system as a fishery improvement project. The system was launched in June 2018 after the development, installation, and training of the Tally App. The app was developed by ThisFish and is now incorporated into the Cooperative's receiving station protocol for spiny lobster. Project activities also included the procurement of tablets, scanners, label printers, and the software server, as well as training of staff at the receiving station (National Fishermen Producers Cooperative, 2018).

Traceability is important to consider as a tool that contributes reinforcing the transparency of the seafood supply chain, thereby boosting brand confidence for consumers. As National Fishermen Producers Cooperative processes all three products, the pilot project jointly implemented by TNC can be streamlined to these species. Though this pilot was launched just over a year ago, results may yield positive outcomes for value addition strategies for seafood products. This tool may be further expanded to cover queen conch and, possibly, finfish to create a multispecies traceability system and provide an opportunity for value addition to seafood products.

Spiny lobster and queen conch are maturely regulated fisheries with established management measures, and steady production and exports. As highlighted in section 3.2, it is unlikely that production will increase drastically as both fisheries are considered to be at maximum capacity or mature, and most of exports from these fisheries go to the United States.

One method used to identify potential markets was by using the Export Potential Map from ITC. The Export Potential Map identifies products, markets, and suppliers with (untapped) export potential as well as opportunities for export diversification for 226 countries and territories and 4,377 products (ITC, 2019).

The supply of spiny lobster and queen conch in domestic markets is fairly similar to that of finfish. Yet most catches from fishers are landed at receiving stations of cooperatives and seafood processing companies. At the receiving stations, plant personnel inspect, weight, and class catch to determine the total value to pay fishers for their catch. In this process, a percentage of fishers' catch is classified as rejected according to the seafood processing centres' standards and is not bought from fishers. Most rejected, or substandard, meat enters the domestic market where fishers sell directly to consumers at a lower rate than the market value. This results in low-quality seafood entering domestic markets and hinders seafood processing companies and cooperatives to access domestic markets.

Rejected fisheries product for spiny lobster may be defined as individuals that meet the legal carapace length, but whose tail weight does not meet the standard weight limit. Other criteria for spiny lobster to be rejected include having a pierced tail (during capture by hook stick) or having a soft shell (post-molt life stage of spiny lobsters).

Fishers should be encouraged to use lobster traps to mitigate the entrance of spiny lobster rejected product into domestic markets. Using lobster traps allows fishers to be more selective in their catch. Using lobster traps may also result in an increase of whole lobster export where a better price per pound may be derived for Belize's spiny lobster product. Seafare Group (2015) has described this scenario: "Consider that exporters are currently selling whole frozen Caribbean spiny lobster to Asian importers at delivered prices averaging about \$35-\$45/kilogram (about \$16- \$20/lb). This compares with current United States prices for frozen Caribbean lobster tails of about \$16/lb. On a whole weight basis, using a 33 per cent tail weight yield, that is the equivalent of \$5.28/lb for a whole lobster turned into a tail product versus about \$18/lb selling whole to Asia after transportation costs. Hence, it's abundantly clear that exporting whole frozen lobster to Asia instead of lobster tails to the United States will return considerable additional revenue to the Belize industry".

To achieve better results, changes in fishing practices are needed as, few fishers use traps in the capture of spiny lobster. Lobster traps are also seen as an added cost for fishers since the equipment requires storage, upkeep and repair every year.

4.2.4 Domestic market

Another method of capturing and transporting the whole live lobster is to install a tank to hold the live catch on the vessel. However, the main challenge in shifting fishing behavior for spiny lobster include the boat type and size. Sailboats targeting lobster tails do not have space to hold tanks for the whole live lobster. Therefore, fishers that fish in skiffs and take daily trips closer to landing sites should be of main focus when formulating governmental action to increase whole lobster exports.

■ Opportunities within the tourism sector

Linkages to tourism, particularly hotels and restaurants, have been identified above (section 3.2). Opportunities for value addition exist and have been explored. For example, in an effort to target consumers of fisheries product, the WCS, Oceana, BTB, and the Belize Tourism Industry Association (BTIA), launched the Fish Right, Eat Right certification program to curb illegal fishing and to promote best fishing practices (Fish Right, Eat Right, 2016).

By creating this branding and certification strategy and providing incentivized approaches to sustainable seafood products, the program may then work with other internationally recognized certifications such as MSC, Fair Trade, and Seafood Watch. While the program currently targets restaurants and hotels. However, there is intention to expand to supermarkets, fish markets and seafood purveyors in the future.

Most restaurants currently under the certification scheme are in areas heavily trafficked by tourists in coastal communities, such as San Pedro and Caye Caulker. The opportunity to expand this branding and certification strategy and encourage restaurateurs to enroll in this scheme may drive the market to provide high-quality sustainably harvested seafood products.

Considering the potential developing of domestic market and value-added fisheries to the tourism sector (described above in section 4.1), potential next steps in improving domestic market access and niche markets for spiny lobster and queen conch are listed below. Interviews with the main fishing cooperatives revealed that supplying the domestic market has not been of primary interest because fishers supply restaurants and hotels with fresh catch. Both cooperatives have a small retail window where processed seafood is available for sale to the public. However, it is acknowledged that domestic demand outside the tourism industry is small, and therefore there is little interest in developing domestic marketing strategies. Possible actions to boost domestic demand are as follows:³⁸

- Fishing cooperatives and processing centres may consider developing smaller packaging for spiny lobster tails and queen conch meat (<5lb) (UNCTAD, 2018e).
- Develop a domestic branding strategy for Belize spiny lobster and queen conch to be sold in supermarkets, hotels, and restaurants (UNCTAD, 2018e).
- Establish linkages between fishing cooperatives, processing centres, and the Fish Right, Eat Right campaign which may enhance marketing in restaurants and areas of high tourism. (Fish Right Eat Right, 2016)
- Improve accessibility of seafood products to inland restaurants, supermarkets, and areas of high tourism as Cayo district. (Praxi5 Advisory Group, 2018).

³⁸ The discussion on the supply, demand, price ranges, and value chain characteristics will be reviewed below in section 4.4.

■ Spiny Lobster

As mentioned in chapter 3.2, spiny lobster diversification has taken the form of a variety of products such as lobster tails, whole lobster, and lobster head meat. By implementing a traceability system, value addition takes place in labelling and packaging of spiny lobster. Therefore, supporting and expanding this ongoing project will be beneficial for fishing cooperatives in Belize. In addition to implementing the traceability system and acknowledging that most spiny lobster exports go to the United States as tails and whole lobsters, other niche markets may be explored and expanded through secondary processing and bioprospecting and pharmaceutical research.

As the spiny lobster product is shipped frozen, there are no secondary processing facilities in Belize to develop other spiny lobster processed products. Noting that most exports are in tails, the carapace is discarded when lobsters are landed at fisher camps before reaching processing centres. In an effort to develop domestic value-added products within the lobster supply chain, and reduce waste, developing products which make use of the spiny lobster discards may be explored. Such products could include food ingredients and pharmaceuticals, among others.

Recent research shows that several by-products may be derived from the shell of multiple lobster species, including *Panulirus* spp (Vijayalakshmi et al., 2018; Nguyen et al., 2017). Extracted raw materials include lipids, chitin and astaxanthin; such materials may be used in the production of food flavors, fertilizers, or pharmaceuticals (Nguyen et al., 2017). Though Belize does not have facilities to conduct this type of research, these studies may serve as a precursor to further developing secondary processing for future reference.

Though little interest has been given to developing secondary processing facilities in Belize, governmental agencies and the private sector may consider conducting further research into such product development. Possible actions to oversee this development include:

- Developing a spiny lobster diversification program (e.g. conducting research in spiny lobster by-products such as pharmaceuticals or lobster flavouring).
- Conducting spiny lobster research and testing by-products derived from fishers' catch.

■ Queen Conch

Similar to spiny lobster, queen conch products are exported primarily to the United States. The three main products coming from this species include: market clean conch meat (75 per cent clean), fillet conch meat (95 per cent clean), and conch shells. Noting that the species is listed under CITES Appendix II, production is regulated by establishing a quota at the beginning of each fishing season (October 1). As the quota system is set primarily to export market clean conch, product diversification and identification of niche markets may be challenging. Conch exports may count towards the national quota thus discouraging exports of other queen conch products.

As stipulated in the Regional Queen Conch Fisheries Management and Conservation Plan (FAO, 2017a), all queen conch product exports should be regulated and reported as covered by CITES. In order to maintain the legality of exports, the BFD may consider limiting established quota to queen conch meat alone while monitoring and reporting on the exports of other queen conch products (i.e. exports of all queen conch products should be accompanied by the issuance of a CITES export permit).

Current by-products of the queen conch are mainly in the form of ornaments (shell), jewelry (shell and pearls), and shell-made bowls. Shells are also used by fishers as a landfill material in the cays (small sandy islands) to prevent wave action from eroding settled land.

As stated in the Regional Queen Conch Fisheries Management and Conservation Plan: “Queen conch pearls are rare, and their production and trade remain largely unknown across the region [...] Japan, Switzerland and the United States are the main queen conch pearl importers [...]. Little is known about the operculum trade, which has developed more recently. China is the major importer and it is believed to be used in traditional Chinese medicine. There is a limited exploitation of both queen conch shell and operculum as souvenirs in the tourism industry”.

The BFD may consider conducting a study on queen conch by-products and their value. In an effort to minimize waste and identify additional products and niche markets for queen conch, other by-products from harvesting and processing may be investigated. For instance, queen conch trimmings may be utilized for fish feed or bait with minimal processing capacity.

Acknowledging the current status of both fisheries, the identification of by-products may be of interest to stakeholders. Diversification can also incentivize key players to further invest in the development of the seafood processing sector. A possible strategy to adopt is to support increased domestic use (lobster head meat) and marketing, including export of currently discarded fishery by-products such as queen conch trimmings and pearls that can potentially generate additional and significant revenue to stakeholders. Finally, the linkages with the National Trade Policy and the environment are presented in the box 2.

Box 2. National Trade Policy strategies pertaining to seafood processing sector

Trade and the Environment (Section 10.4, p. 56)

Policy objective: To foster coherence between trade and environmental policies towards achieving sustainable development.

Policy prescriptions:

1. Promote the integration of environmentally safe and sustainable practices in the manufacturing, production and trading systems in accordance with the following SDGs: 6- Clean Water and Sanitation; 7- Affordable and Clean Energy; 9- Industry, Innovation and Infrastructure; 12- Responsible Consumption and Production; 13 - Climate Action; 14- Life Below Water; and 15- Life on Land.
2. Strengthen the consultative mechanism between the departments responsible for foreign trade and environmental protection, to improve cohesion and collaboration.
3. Conduct regular and joint reviews of Belize’s tariff and non-tariff measures with a view of promoting more eco-friendly economic activities.
4. Promote certification for sustainable agriculture and agro-processing.
5. Participate in international fora supporting environmentally conscious trade development.
6. Conduct regular legislative reviews aimed at strengthening policies that protect the environment.

Source: National Trade Policy 2019-2030.



The following table illustrates the SWOT analysis of the seafood processing sector that was conducted during the stakeholder workshop and verified in the report. These results were used to elucidate actions and level of prioritization.

4.2.5 SWOT analysis for the seafood processing sector

Table 11. SWOT analysis for seafood processing sector

Strengths	Weaknesses
<ul style="list-style-type: none"> ■ Sustained production volume under MSY (consistent supply and quality). ■ Stable market and access. ■ Primary processing capacity (fish fillets). ■ High reputation in the seafood market. ■ High quality standards (fisherfolks cooperatives). ■ Existence of fishing organizations (fishermen cooperatives). ■ Strong fishery management in place. ■ Availability of fishing fleet and manpower. ■ Good logistics channels. ■ Branding strategy exists for lobster and conch. ■ CITES compliance. ■ Stable currency. 	<ul style="list-style-type: none"> ■ Low potential to increase production for traditional species. ■ Low capacity for secondary manufacturing e.g. canned conch. ■ Insufficient capacity for product diversification. ■ Incomplete traceability system. ■ Inadequate central marketing system. ■ Inadequate working conditions for women.
Opportunities	Threat
<ul style="list-style-type: none"> ■ Potential for marine macro algae manufacturing. ■ Potential market expansion into niche markets (i.e. pharmaceuticals from spiny lobster shells). ■ Increase consumption by tourists. ■ Finance options exists for clean energy technologies through DFC renewable energy loans. 	<ul style="list-style-type: none"> ■ Illegal harvesting. ■ Input cost is relatively high in the region. ■ Correspondence banking challenges. ■ Income for fishers are not allowing them to retire early. ■ High dependency on few destination markets.

Source: First National Stakeholder Workshop. UNCTAD, 2018e.

4.3 Summary of key issues and potential actions

Table 12 provides a summary of the key issues identified and the issue code that is linked to the strategic actions in the subsequent action plan in chapter V.

Table 12. Summary of key issues and potential actions

Sector	Related Issue Code	Key issues highlighted
Marine fisheries	I2	Paper-based system requires data entry by fisheries personnel thus resulting in a delay and lack of real-time information access.
	I1	With the development of DSF, the BFD may consider establishing a robust data collection program for finfish and adopting the AMF for finfish as well.
	I4	The BFD may consider working with BELTRAIDE in providing financial access to fishers for obtaining DSF equipment.
	I4	Management authorities should seek to support its development by facilitating investors for the development of investment in transport and processing infrastructure.
	I4	Marketing for finfish should be improved to increase the domestic consumption of high-quality finfish products. Opportunities to improve fish market displays and access may include providing access to ice, running water, and an effective drainage system.
Seafood processing	I5	Improve the working conditions and social security for processing personnel.
	I5	Reduce the entry of 'rejected' seafood product into local markets.

4.4 Value chain of target species

A value chain analysis was conducted on the target species of this strategy to determine gaps in supply efficiency to consumers, areas for value creation, and areas in which value addition may increase equitable sharing of revenue for seafood suppliers along the value chain. The value chain methodology outlined for BioTrade involves identifying sectors with untapped potential, selecting targeted sectors and value chains, conducting a participatory assessment of those sectors and value-chains, formulating a sectoral or value-chain development strategy, and implementing, monitoring and revising this strategy (UNCTAD, 2018c). Figure 11 illustrates a simplified fisheries value chain format whereby each action along the supply chain adds value to the final product. This format is used in the targeted species below where actions to diversify products and increase supply capacity are proposed.

Figure 11. Simplified representation of fisheries value chain format



Source: Reprinted from "Blue Biotrade: harnessing marine trade to support ecological sustainability and economic equity". (UNCTAD, 2018c, p.20).

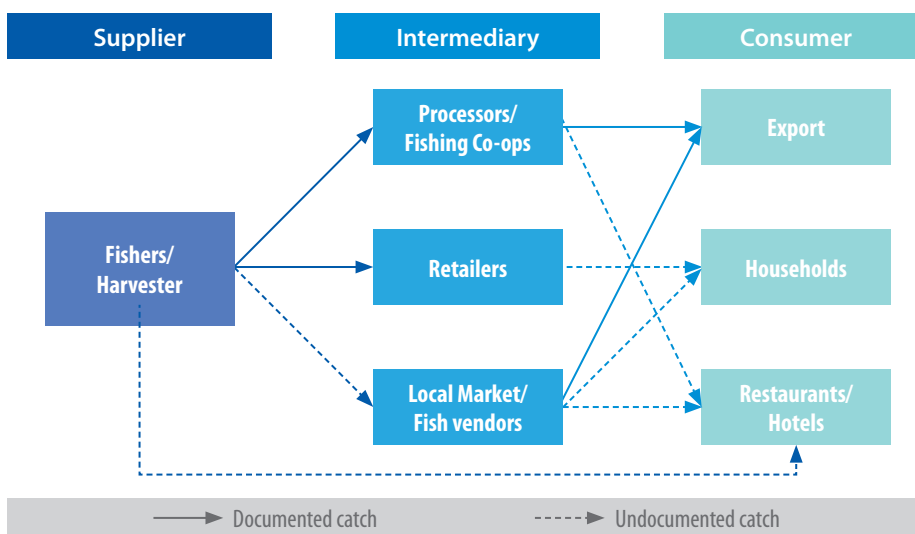
The Overview of economic and trade aspects of fisheries and maritime tourism sectors in Belize summarized the value chain situation as follows. “Although value addition is generated by the transformation of the raw product into a more processed product, the price per unit of weight of the raw product may be lower when processed than when sold in its raw form as a fresh/chilled product. Production costs are expected to be larger for processed products as they may require costly technology and specific inputs such as aluminum in the case of canned products. Distribution/transportation costs, however, may be much higher for fresh and chilled products characterized by extremely constraining storage and logistical requisites. Based on this set of basic considerations, that would necessarily require refinement, a very rough conjecture would suggest that the profitability of raw production relative to that of processed production varies with the level of production itself. In other words, small production levels may make raw products more profitable while higher levels may make processed products more profitable” (UNCTAD, 2019a).

Figure 12 illustrates the finfish supply chain for Belize for international and domestic markets. The solid lines represent documented catch landings that can be quantified and possibly traced back to fishers. Dashed lines represent unquantified supply chains, where it may be a challenge to determine supply capacity.

As noted in the previous section, exports for finfish have declined in the past five years and it is estimated that most finfish catch is sold in domestic markets. Therefore, in addition to focusing on strategies to export finfish to other international markets, the government may consider strategies to target local markets and develop a local sustainable brand in order to increase regularity of finfish supply.

■ Exporters

Rainforest Seafoods had been the main exporter of finfish; however, they are no longer exporting since 2017. There is not much processing of the product itself. Fishers land catch at the receiving station where fish is sorted and priced by species and size. Finfish are bought whole, gutted, and unscaled; and fishers were paid according to the pricing listed in table 13. Finfish were packed, frozen, and shipped in large freezers to Jamaica. Further processing and packaging of finfish take place outside of Belize.



4.4.1 Marine fisheries: finfish

Figure 12. Belize finfish supply chain illustration

Sources: BFD, 2019; PraxiS Advisory Group, 2018; and OETS interviews conducted in 2019 (annex 3).

Table 13. Category and price per pound of finfish species paid, 2017

Category	BZD/lb
Mutton Snapper	3.50
Snappers/groupers	3.00
Grunts/Jack/Shad	1.00
Mackerel/Snook	2.00
Yellowtail Snapper	3.75

Sources: BFD, 2019 and OETS interviews conducted in 2019.

Considering the last available finfish prices bought from fishers by one exporter, there is little opportunity to yield suitable revenue for fishers selling large quantities of finfish for export.³⁹ Therefore, when considering the export of finfish derived from DSF, the option of exporting fresh/chilled finfish by air freight may yield higher returns for fishers. However, drawbacks to this approach include higher costs of transportation depending on volumes and means of transport.

Given the reduction of finfish exports in recent years, an updated market analysis should be carried out to inform investors and policy makers on the further development of DSF for export. In addition to a market study, other possible recommendations include the development of a government operated dock-side facility where fishers may sell catch directly to exporters and negotiate a higher price per pound of deep-sea fish product caught.

■ Domestic

Regarding the unverified supply chain capacity (depicted by the dashed lines in figure 12), the Praxi5 Advisory Group conducted a restaurant survey Deep-Sea Fisheries Business Plan 2018 where 75 restaurants were surveyed on their seafood sales and consumption. The main findings of interest include:

- Restaurants' main finfish supplier were fishers, as 91 per cent of them purchase directly from fishers. It was stated that "this may be due to traditional purchasing of finfish at the landing sites as the perception is that these fish products are fresh and there is an opportunity to choose from a variety of finfish options."
- Roughly 34 per cent of the respondents stated that finfish supply was inconsistent.
- In terms of packaging, 67 per cent of the respondents said that they prefer unpackaged finfish, 25 per cent prefer packaged finfish, and 8 per cent had no preference.

Considering the survey results, the domestic markets in tourist areas demand a reliable provision of fresh finfish products where packaging is not a high priority. When comparing finfish export versus domestic market prices (section 3.2, table 5), fishers are more inclined to sell their catch for higher domestic market prices.

³⁹ This is no longer the case, as mentioned in previously (section 3.1), there are no finfish exports occurring. The fish price list is the last available information before the export of finfish ceased.

Proposed actions for the strengthening of finfish value chains may be:

- Encourage fishers and fisher associations to develop a local distribution centre.
- Promote the supply and transport (ease of access) of fresh seafood products to inland areas, particularly inland towns (e.g. Belmopan, San Ignacio, Benque Viejo).
- Investigate options for the export by air freight of fresh finfish to international markets of close proximity (e.g. Guatemala or Cancun, Mexico).⁴⁰

In 2015, a value chain analysis was conducted by Praxi5 Advisory Group (commissioned by the Environmental Defense Fund) for local markets, and the Sea Fare Group (commissioned by Rare) for international markets. The following is an overview of the analysis results and the outcome of implementations on the recommendations received.

4.4.2 Seafood processing

■ Spiny lobster

As noted in the above sections, most of Belize's spiny lobster is exported as frozen tails to the United States. Annex 7 shows the price evolution the spiny lobster along the value chain to the United States and to Hong Kong (China) markets as developed by the Sea Fare Group. In its assessment, the Sea Fare Group made one clear recommendation to increase the value of spiny lobster exports: for instance, by landing and exporting whole live lobster to Asian markets - particularly Hong Kong (China). The report has highlighted key changes that should be considered to increase value addition along the supply chain. These include:

- Behavioural change in fishing and lobster harvest practices: Dive and "casita" fisherfolk will have to switch to traps in order to produce a high-quality lobster that can be frozen whole or shipped live. Belize fishermen will have to stop using hooks to collect lobsters from casitas and harvest them by hand as the hooks used to extract lobsters can damage the carapace.
- Change in fishing and transport equipment at sea: Tanked well boats will also be needed to consolidate catches from boats that cannot deliver their catch live to plants.
- New market development: Getting exporters to develop new markets and change the way they do business, in particular by strengthening internal management and financial controls.
- Regulatory change: Larger lobster sells for more; therefore, value in the Belize lobster fishery could be increased by raising the minimum carapace length. This will also increase the number of spawning females and help rebuilding stocks (Sea Fare Group, 2015).

Figure 13 is an illustration developed by Praxi5 Advisory Group that depicts local market value chains where the majority of the spiny lobster sold comes directly from fishers: hotels (50 per cent), households (42 per cent), and restaurants (71 per cent).

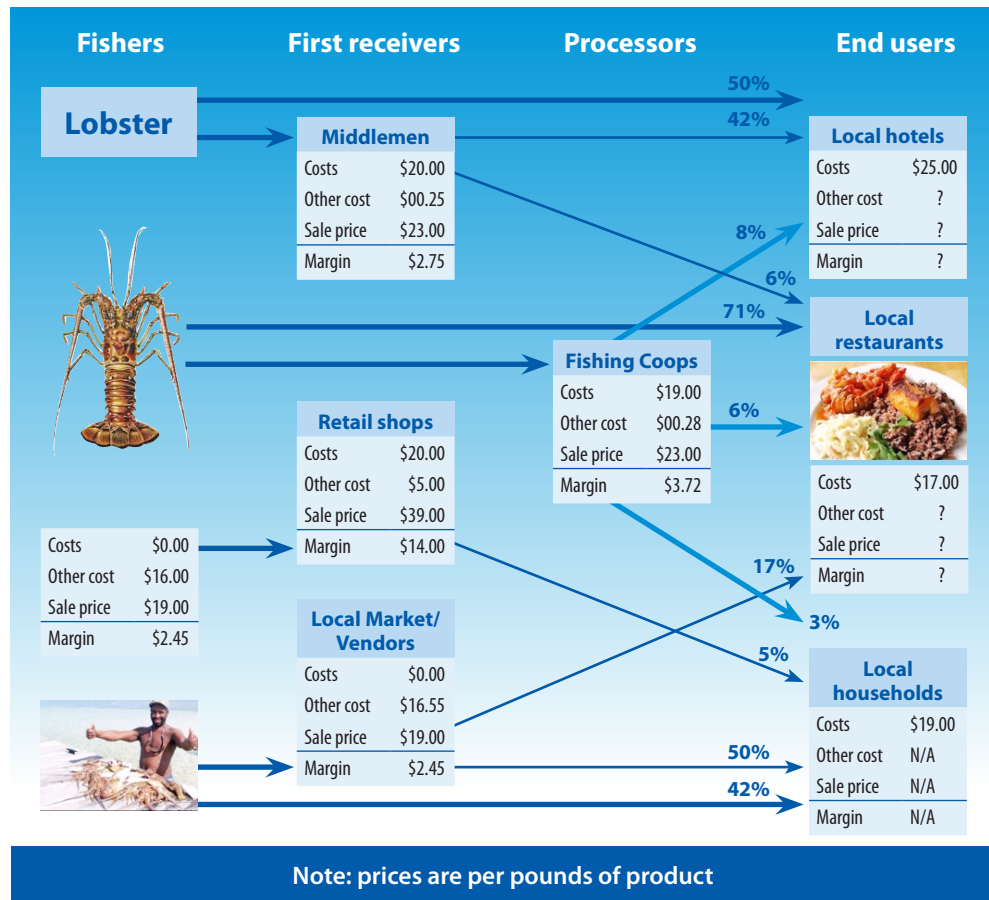
⁴⁰ Potential markets have been identified from interviews with exporters and fisheries officials for this report.

Figure 13. Local value chain estimates for spiny lobster product

Source: Praxi5 Advisory Group, 2015.

Notes:

- Based on the Analysis of Markets for Seafood in Belize, presentation by Praxi5. P. 14.
- Percentages in red depict the market share of suppliers to each end user. Therefore, Fishing Coops only supply 17 per cent of spiny lobster to domestic markets where the majority share is exported. Prices are in BZD.



Queen conch

Regarding the queen conch value chain, the analysis conducted by Sea Fare Group (2015) outlines that Belize’s main importer of queen conch meat will most likely continue to be the United States. In this view, actions to increase market value should include: “funding frontier sustainability research as conch from Belize is rated avoid by Seafood Watch. The Belize Government should open a dialog with Seafood Watch to see if an independent assessment could be conducted with a view improve this rating. Since conch worldwide is rated “avoid” by Seafood Watch, a better rating for Belize conch could improve its marketability and possibly its market price”.

The feasibility of such studies is of some concern. The return of profits yielded may not be very high by funding such research activities with the aim to change the avoid listing. Also, as mentioned above, the rating is worldwide therefore, research conducted only in Belize on the sustainability of the fishery may not result in a change of status.

The figure 14 below provides a value chain mapping developed by Praxi5 Advisory Group, which depicts local market value chains where the majority of queen conch is sold directly by fishers: hotels (50 per cent), households (42 per cent), and restaurants (71 per cent).

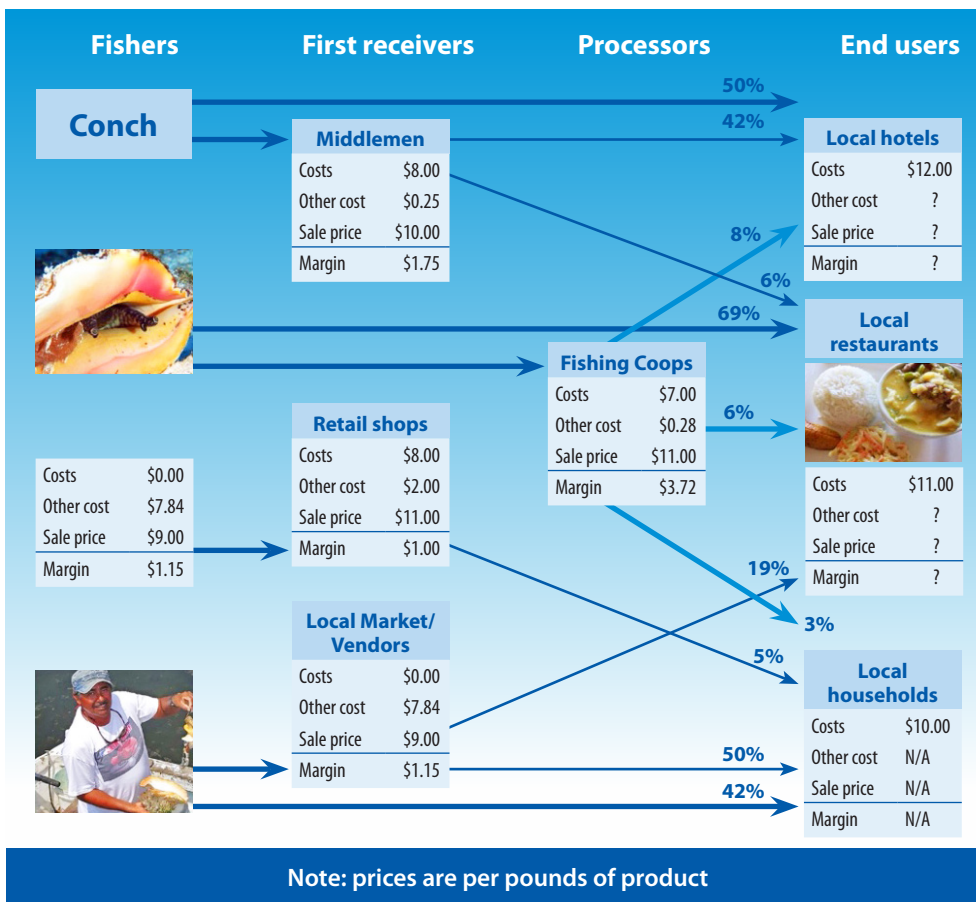


Figure 14. Local value chain estimates for queen conch product

Source: Praxi5 Advisory Group, 2015.

Notes:

- Based on the Analysis of Markets for Seafood in Belize, presentation by Praxi5. P. 15.
- Percentages in red depict the market share of suppliers to each end user. Therefore, Fishing Coops only supply 17 per cent of queen conch to domestic markets where the majority share is exported. Prices are in BZD.

The queen conch value chain is similar to that of spiny lobster, as it is common that retailers buy fisheries product together or in the same quantities. One potential action suggested by the Advisory Group is “by selling smaller volumes and investing in branding and marketing, Belize exporters could sell their production at a higher price. It would require more work, but without changing the way they do business they will not get as much value out of their limited resource as possible”.⁴¹

⁴¹ Queen conch and spiny lobster products are packaged and sold in 5lb, 10lb, and 20lb boxes whereas Belizean consumers buy smaller quantities at a time. Therefore, selling in smaller volumes may increase domestic consumption. Such options are explored in chapter 3.4 (Linkages to tourism: hotel and restaurant).



Photo: Jason Houston/Rare

V.

STRATEGIC DESIGN AND ACTION PLAN

This chapter proposes the strategic development recommendations and the action plan; designed to be implemented over a 5-year period (2020–2025), based on the findings from the following sections of this report:

- The overall strategic goal developed for each sector.
- The key issues and potential actions highlighted at the end of chapters II, III and IV.
- The SWOT analyses conducted for each sector.
- The value chain analyses.

Table 14 summarizes the potential strategies the BFD may adopt. The Strategy code listed is linked with the issue code and actions in the subsequent action plan.

Table 15 presents the action plan derived from the strategies listed above. The table goes in the order of issue code and related strategy code, the possible intervention and listed actions are described, followed by the level of priority, the leading and supporting agencies and the allotted timeframe. Anticipated outcomes and indicators for a measure of successful implementation are then suggested followed by the estimated cost. The first action (highlighted in green) gives an example of this.



Photo: Belize Fisheries Department

Table 14. Strategic development recommendations

Marine fisheries	
<i>Goal: Increase the capacity of fishers for the sustainable harvest of commercially important deep slope red snapper fish species.</i>	
Strategy Code	Strategies
MF1	Provide training and capacity building opportunities for fishers to develop the deep slope fishing sector.
MF2	Support the acquisition of suitable fishing vessels, gear and equipment to allow fishers access to the fishery resource within the scope of the WTO subsidies Agreement and any subsequent disciplines.
MF3	Support increased export of finfish (fresh and frozen fish) and finfish products to regional and international markets (i.e. United States and Mexico, etc.).
MF4	Implementation of HACCP standards for fish processing/handling facilities for fish and fish products for domestic consumption.
MF5	Promote domestic consumption (including through tourism) using national educational campaigns for fish consumption.
MF6	Strengthen linkages between fishing and tourism sectors to optimize economic benefits for both sectors (e.g. PESCA-tourism that is currently being tested in Sarteneja and northern communities).
Seafood processing	
<i>Goal: To add value to commercially targeted species, to access niche markets and to develop and implement smart marketing approaches for fishery products.</i>	
Strategy Code	Strategies
SP1	Support access to new and strategic niche markets with the assistance of BELTRAIDE and other government agencies.
SP2	Support export-oriented seafood business establishments to increase revenue generation through the use of smart marketing techniques (market intelligence gathering, sale/export of fishery products during the periods of highest demand/highest tourism).
SP3	Increase and expand marine product lines for domestic sale (marketing of small packages and increasing availability of high-quality seafood products in domestic markets).
SP4	Support increased domestic consumption of fishery products by the tourism sector through legal acquisition from BAHA and HACCP certified and licensed seafood business establishments.
SP5	Strengthen the linkages between fishing and tourism sectors to increase economic benefits to both sectors.
SP6	Promote the domestic use (lobster head meat) and marketing of marine products, including export of currently discarded fishery by-products such as queen conch trimming that can potentially generate additional revenue to stakeholders.
SP7	To support fisheries law enforcement through increased monitoring, control and surveillance.

Table 15. Action plan 2020-2025

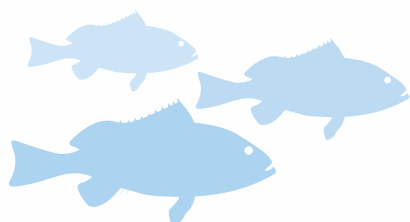
Sector	Issue Code	Related Strategy Code	Possible interventions/ strategies	Actions	Priority level	Leading agency	Supporting agencies	Related Policies & Projects	Timeframe					Output /deliverable	Indicator/ Impact	Cost Estimate (in \$)	
									Yr1	Yr2	Yr3	Yr4	Yr5				
Marine fisheries & seafood processing	I1-I5	MF1-MF6 & SP1-SP7	Develop a comprehensive and coherent OETS report and Action Plan.	Host workshop to present and validate findings and strategies for OETS-Belize and collect comments.	High	BFD, UNCTAD, DOALOS	All fisheries stakeholders		X					Completed OETS report.	Stakeholder buy-in and endorsement.	--	
				Host workshop to present status update of OETS, and way forward for chosen sectors.	High	BFD, DGFT	All fisheries stakeholders						X	Revised trade strategy for chosen sectors.	Increased market access; increased export values.	5 000.00	
	I1	MF1, MF2, MF3, MF4, MF5, MF6	Develop regulations for finfish to create a safeguard for fish stocks.	Conduct deep-sea finfish stock and other deep-water fisheries resources assessment.	High	BFD	Marine reserve co-managers	NTP (2019) section 9.6, p. 49, Policy Prescription 1 & MCCAP	X	X				Report of finfish stock assessment.	Increase in finfish size and quality.	100 000.00	
				Validate deep-sea finfish stock assessment.	High	BFD	Marine reserve co-managers	MCCAP	X	X				Finfish and deep-sea Management Plan.		25 000.00	
				Revise draft regulations to establish minimum size limits and possible TAC for finfish and other deep-water fisheries resources.	Medium (Contingent on the output of deep-sea stock assessment)	BFD	Marine reserve co-managers	NTP (2019) section 10.4, p. 56, Policy Prescription 6 & MCCAP.		X				Regulations establishing TAC, gear restriction and/or size limits.		5 000.00	
				Conduct revision of data collection methodologies, data inventory, and mapping of finfish (including ornamental fish and other deep-water fisheries resources) dataset.	High	BFD: CFU			X					Accessible finfish data.		Informed decision making and inputs to the AMF.	5 000.00
	I2	MF1-MF6 & SP1-SP7	Assess the capacity of data management procedures.	Conduct workshop with co-managers and stakeholders to select reliable data sets for the AMF.	Medium	BFD	Marine reserve co-managers				X			AMF for finfish.	Informed decision making to ensure productive finfishing industry; Increase in finfish size and quality.	5 000.00	
				Develop a data entry management protocol for managed access logbook data set.	High	BFD: Licensing Unit			X					Data collection protocol and methodologies for targeted species.	Improved accessibility to relevant information for decision making	25 000.00	
				Improve the data entry management protocol for fisherfolk dataset using technological methods such as the SMART app.	High	BFD	Central Information Technology Office, WCS, TNC, & Marine reserve co-managers		X							25 000.00	
				Hire additional staff for database management system.	Medium	BFD	MAFFSD		X	X						Trained staff.	24 000.00
				Conduct training in database management for fisherfolk database.	High	BFD	Central Information Technology Office, WCS		X	X	X	X	X			20 000.00	
	Institute late fee for licensing registration/ deadline for registration.	High	BFD	MAFFSD			X	X	X		Revenue collected by the Government of Belize.	Increase in revenue collection; decrease in data back log					
	I3	SP8	To support and strengthen fisheries law enforcement collaborations through increased monitoring, control and surveillance.	Conduct assessment to quantify volume of marine species extracted from IUU fishing within the EEZ of Belize.	High	BFD	Belize Port Authority, FAO, SIB, High Seas Fishing Unit		X	X	X	X	X	Report presenting estimated fisheries production and export figures derived from IUU assessment.		25 000.00	
				Analyze the discrepancy of national fishery export figures reported to external organizations & conduct assessment to consolidate volume of marine species extracted from databases.	High	BFD	Belize Port Authority, FAO, SIB, High Seas Fishing Unit, Customs, Central Bank		X	X	X	X	X	Verified and validated export figures.		2 000.00	
				Conduct assessment of vessel, staff, and equipment needs to reduce IUU fishing by half, over the next 5 years.	High	BFD	Marine reserve co-managers, Coast Guard, Police Dept, BDF		X					Audit report of enforcement activities and Recommendations to improve enforcement protocol.	Reduction in IUU fishing.	7 500.00	
				Training of enforcement officers and other agencies to continue collaborative enforcement of fisheries laws.	High	BFD	Marine reserve co-managers, Coast Guard, Police Dept, BDF, Customs, Port Authority of Belize		X	X	X	X	X	Strategic enforcement plan for target species.	Reduction in IUU fishing.	25 000.00	
				To accede to the PSMA.	High	BFD	Coast Guard, Police Dept, BDF, Customs, Port Authority of Belize, Ministry of Fisheries, and Ministry of Foreign Affairs of Belize (MFA)		X							2 500.00	
				Provide equipment to the BFD to carry out increased monitoring, control and surveillance.	Medium	BFD	Ministry of Finance, Donors		X	X	X	X	X	New boats, fuel and engines. Global positioning system.		200 000.00	

Sector	Issue Code	Related Strategy Code	Possible interventions/ strategies	Actions	Priority level	Leading agency	Supporting agencies	Related Policies & Projects	Timeframe					Output / deliverable	Indicator/ Impact	Cost Estimate (in \$)
									Yr1	Yr2	Yr3	Yr4	Yr5			
Marine Fisheries	14	MF2, MF3, MF6, SP1	Facilitate financial access to fishers for obtaining DSF equipment.	Conduct roundtable discussion with stakeholders and fishing associations to determine pathways and access small business finance programs for fisherfolk.	High	BFD & BELTRAIDE	BFD, Belize Federation of Fishers, Belize Credit Union League, DFC	MCCAP-DSF subproject		X	X	X		Acquisition of DSF equipment.	Increase in deep-sea finfish production	5 000.00
				Seek lending institutions to open credit lines that are affordable to fisherfolks, including particularly women and youth.	High	BFD & BELTRAIDE	International Financial Institute, CAF, Caribbean Development Bank, Ministry of Finance and MFA		X	X			Number of accessible credit lines for fishers.	Increased development of DSF fishery.	7 500.00	
				Follow-up with small business finance programs to evaluate the effectiveness of those loans.	High	BFD & BELTRAIDE	International Financial Institute, CAF, Caribbean Development Bank, Ministry of Finance, and MFA		X	X	X	X	Credit made available to fishers.		2 500.00	
		MF1, MF5, MF6	Increase access to finfish through supermarkets and other retail stores.	Consult with major retailers in Belize (e.g. James Brodies and Co. & Save U) to determine capacity to purchase and sell locally produced finfish.	Medium	BFD	BFD			X				Guidelines and report on the acquisition, sale, and distribution of seafood products in retail stores.	Increased recorded domestic sales.	15 000.00
				Assess the domestic consumption of locally produced finfish	Medium	BFD			X	X			Quantified value for domestic consumption.	7 500.00		
				Explore options to use tariffs and other legal trade measures to keep low value and low-quality farmed fish (e.g. pangasius) outside the CARICOM markets; within consolidated tariff ceilings under WTO in order to avoid unfair competition vis-a-vis locally produced marine fin fish species.	Medium	BFD	CROSO, CARICOM Secretariat, CRFM, Ministry of Fisheries, MFA, and Ministry of Foreign Trade		X	X				5 000.00		
				Develop and implement a seafood labelling standard.	Medium	Belize Bureau of Standards	BFD, Customs Dept.		X	X			Seafood label standards for domestic products.	5 000.00		
		MF1, MF5, MF6	Promote the supply and transport (ease of access) of fresh seafood products to inland areas, and promote increased domestic consumption through tourism sector	Host roundtable discussions with management bodies of the tourism sector to develop a protocol or guidelines on acquisition of marine and seafood products to these areas.	High	Belize Fishermen Cooperative Association, DSF Fishers	BTIA, BFD, WCS	Fish Right Eat Right		X				Protocol or guidelines on acquisition of marine and seafood products.	Steady supply of high-quality finfish to tourism sector.	5 000.00
				Conduct mapping of the distribution channel and develop strategy to readily supply marine finfish to hotels and restaurants.	Medium	Independent consultant, DSF Fishers	Belize Fishermen Cooperative Association, BTIA, BFD	MCCAP-DSF subproject			X	X		Procedures and guidelines on handling and transporting finfish and seafood products.	Increased recorded domestic sales.	25 000.00
		MF6	Strengthen linkages between fishing and tourism in order to optimize economic benefits for both sectors.	Assist in the development and implementation of the PESCA Tourism in Northern Communities.	High	MCCAP, Sarteneja Alliance for Conservation and Development, BFD	BTIA, BTB, Sarteneja Alliance for Conservation and Development, CZMAI	MCCAP PESCA Tourism Sub-project		X	X			TBD	TBD	TBD
				Consult with Belize Tourism Board, BTIA and CZMAI on developing a specialized tour operator license for fishers.	Medium	MCCAP, BFD, CZMAI	Sarteneja Alliance for Conservation and Development	MCCAP PESCA Tourism Sub-project		X	X			TBD	TBD	TBD
				Develop criteria for specialized tour operator licenses for fishers.	Medium	BTB, MCCAP, BFD, CZMAI	Sarteneja Alliance for Conservation and Development	MCCAP PESCA Tourism Sub-project			X			TBD	TBD	TBD
		MF1, MF3	Support the increase export of finfish (fresh and frozen fish) and other finfish products to regional and international markets.	Include the trade of fish products in trade negotiations with Mexico and other trade agreements negotiated by Belize and explore interest of Belize in adhering to UNCTAD's GTSP Agreement.	High	DGFT	BFD	NTP (2019) section 9.6, p. 49, Policy Prescription 1		X	X			Concluded and enforced trade agreement.	Increase volume of trade in fish and fish products.	
				Identify potential buyers so the trade is feasible (e.g. Hotel associations in Cancun).	Medium	BELTRAIDE	DGFT					X	X	Market study on potential buyers, feasibility, and projected figures.	Increased export of finfish.	10 000.00
				Investigate options to export fresh finfish by air freight to international markets of close proximity (e.g. Cancun, Mexico).	Medium	DGFT, Belize Chamber of Commerce and Industry	BFD, BELTRAIDE				X	X	X	10 000.00		
		MF1, MF4, MF5	Improve and standardize fish market displays (access to ice, running water, and an effective drainage system)	Conduct a fish market needs assessment in compliance with SPS Standards in all fish markets of Belize.	High	BAHA	BFD			X				Report on recommendations and plan to implement health and safety standards at fish markets in Belize.	Upkeep and compliance with health and safety standards.	5 000.00
				Implement appropriate sanitary standards and food handling for fish markets and stands.	High	BAHA, Ministry of Health, local municipalities	BFD		X	X				10 000.00		
				Establish a fish market use payment fee for sale of seafood product.	Medium	Local Municipalities	BFD					X	X	Revenue generated for upkeep of market facilities.	25 000.00	
				Upgrading of fish market facilities.	High	BFD, BAHA, local Municipalities			X	X	X			Sanitary fish markets.	100 000.00	
		MF4	Support the implementation of SPS measures in local fish markets.	Conduct stakeholder training sessions with independent fishers and fish handlers at fish market stations.	Medium	BAHA	BFD	MCCAP-DSF subproject		X	X	X	X	Trained independent fishers on seafood handling standards.	SPS measures are enforced at fish markets.	50 000.00

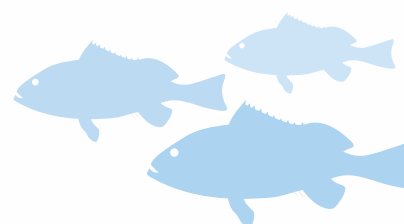
Sector	Issue Code	Related Strategy Code	Possible interventions/ strategies	Actions	Priority level	Leading agency	Supporting agencies	Related Policies & Projects	Timeframe					Output /deliverable	Indicator/ Impact	Cost Estimate (in \$)
									Yr1	Yr2	Yr3	Yr4	Yr5			
Seafood Processing	I5	SP2, SP6	To support access to new and strategic niche markets.	Hire consultant to conduct a feasibility assessment study of potential markets & to conduct an evaluation of niche market. (Other foods, décor, jewelry, cosmetics, ornaments, and other areas).	High	BDF, Independent Consultant	BELTRAIDE, DGFT, BTIA, BTB, BFD		X	X	X			Market Study and Feasibility Assessment. Branding campaign - GI registration. Bench marking products.	Increase access to international markets.	50 000.00
				Conduct workshop on queen conch export quota revision to account for by-products.	Medium	BFD, CITES committee	MFFSD		X					Revised quota system to include by-products.	Increase in number of queen conch products and queen conch exports.	10 000.00
				Conduct seafood market intelligence gathering for opportunities to Attract investment in Belize. (Must also determine if the supply is or can be consistent).	High	BFD, Independent Consultant	BELTRAIDE, DGFT, BFD, Customs Dept, BAHA		X					Investment opportunities established for the lobster and conch fishery.	Increase investment in lobster and conch fishery.	15 000.00
				Conduct assessment to determine competitiveness in lobster and conch fishery.	Medium	BFD, Independent Consultant	BELTRAIDE, DGFT, BFD, fishing cooperatives, fishing establishments		X					Framework for Competition of Lobster and Conch fishery established.	Increase competitiveness.	10 000.00
				Conduct research and identify diversification opportunities. (Identifying affordable financing and contribution to tourism).	High	Independent Consultant	BELTRAIDE, DFC, Credit Union League, BTB, BTIA, BFD		X					Access to affordable financing. Identification of fisheries contribution to tourism. Identification of fisheries contribution to tourism.	Increased access to affordable financing.	25 000.00
				Conduct queen conch pearl harvest and export assessment.	Medium	BFD	Fishing cooperatives, pearl exporters, conch fishers.		X	X				Report of the queen conch pearl niche market and export capacity and viability.	Increased information availability of queen conch pearl markets.	20 000.00
				Determine and institute queen conch pearl export criteria and regulations (linked to IUU).	Medium	BFD	DGFT, Customs Attorney General Ministry, fishing cooperatives.			X	X	X		Queen conch pearl export criteria and regulations.	Increased reporting on queen conch pearl exports.	20 000.00
		SP2	Incorporate technological tools to increase market access and value addition for seafood products.	Expand traceability system to include queen conch and other species (acquisition of software, tablets, label printing).	High	BFD, TNC, fishing cooperatives	BFD	Fishery Improvement Project	X	X			Improved data management system; & multispecies traceability system.	Increased market access; increased price per pound of seafood product.	100 000.00	
				Monitoring, upkeep of traceability system and reporting.	Medium	TNC, fishing cooperatives	BFD	Fishery Improvement Project	X	X	X	X			100 000.00	
		SP2, SP4	Support the application to other certification programs to increase market access, innovation, and competitiveness in the seafood sector.	Open dialogue with Seafood Watch and independent parties to conduct assessment on queen conch and spiny lobster fishery sustainability.	Medium	Independent consultant	BFD, MFA, fishing associations, fishing companies and fishing cooperatives			X	X		Report and action plan on removing Belize's seafood products from avoid category.	Increased market access.	15 000.00	
				Develop Fisheries Improvement Program for conch and its preparedness for certification including MSC.	High	FAO, CITES, UNCTAD	BFD, fishing associations, fishing companies and fishing cooperatives		X	X			Program to assist queen conch industry in addressing weaknesses in sustainable fisheries.		25 000.00	
		SP6	To support increased domestic use (lobster head meat) and marketing, including export of currently discarded fishery by-products such as queen conch trimming that can potentially generate additional revenue to stakeholders.	Conduct market study for queen conch to identify additional niche markets (e.g. by-products from pearls, trimmings, shells, operculum).	Medium	BFD, independent consultant	DGFT, BELTRAIDE, Customs, BAHA, BFD			X			Market analysis and recommended actions for market access; and markets for conch by-product identified.	Additional queen conch products and availability in local markets.	20 000.00	
				Conduct market study for spiny lobster to identify additional niche markets such as food flavouring and pharmaceutical.	Medium	BDF, Independent consultant	DGFT, BELTRAIDE, Customs, BAHA, BFD			X			Market analysis and recommended actions for market access; and markets for spiny lobster by-product identified.	Increased availability of lobster head meat in local markets.	20 000.00	
		SP3, SP4, SP5, SP6, SP7	Reduce the entry of reject/substandard seafood product entering local markets.	Conduct a fisheries knowledge exchange program with Cuban counterparts to conduct a fisheries knowledge exchange program with Cuban (and other) counterparts to evaluate and determine gaps and challenges in Belizean lobster trap fishery.	Medium	BFD, lobster trap fishers	Cuban Counterparts and successful spiny lobster trap fishers		X	X			Report and recommendations to improve spiny lobster trap fishery in Belize.	Increase whole lobster exports. Increase in lobster trap use.	25 000.00	
				Identify and evaluate market opportunities for lower or substandard lobster. Assess current substandard lobster market to determine a baseline. Test grading system using a structured pricing and packaging.	Medium	BFD, BAHA	DGFT, Customs, BELTRAIDE, BAHA, BBS, Belize Fishermen Cooperative Association, Coop. Department			X	X			Options/Grades of lobster product established.	Increase in earnings of lower/substandard lobster.	15 000.00
														TOTAL	1 258 500.00	

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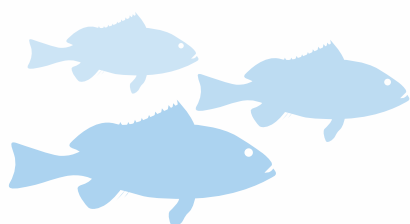
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Annex 1.

Stakeholders attendance of OETS Belize project field missions and workshops, 2018–2019

	No. of participants	Male	Female	Per cent of female
Field Missions	19	10	9	47
First National Workshops: Sector assessment & selection	25	16	9	36
Second National Workshops: OETS presentations	36	21	15	42
Total	80	47	33	41

Source: UNCTAD-DOALOS, 2020.



Photo: Belize Fisheries Department

Annex 2.

Summary of HS codes of the products and species considered in the two selected sectors

Sector	Description	Product name listed in trade data (2018)	HS	Previous HS	Value- 2018 (BZD)
Seafood processing	03.07 Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked molluscs, whether in shell or not, whether or not cooked before or during the smoking process; flours, meals and pellets of molluscs, fit for human consumption.	Conch (<i>Strombus</i> spp.)	307992000 307911000	306191000 306292000	13 097 216.60
	03.06 Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked crustaceans, whether in shell or not, whether or not cooked before or during the smoking process; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, fit for human consumption meals and pellets of crustaceans.	Spiny Lobster (Tails)	306110000	306110000 306219000 306229000	16 703 640.03
		Spiny Lobster (Whole lobster and Head meat)	306120000 306219000 306319000 306329000	306120000	7 163 451.66
Marine fisheries	03.03 Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	Fish-- Snapper, croaker, grouper, dolphinfish, bangamary	303892000	302649000 302692000 302699000 303290000	42 710.48
	03.04 Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	Fish- Other	304990000	303390000 303550000 303749000 303770000	10 975.20
		Fish- Other	305691000	303792000 303799000	25 600.00
	03.05 Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	Fish Fillets- Other	305699000	303839000 303899000	195 800.00
		Shark Fins	305710000	305499000 305591000 305599000*	1 000.00

Source: SIB, 2019.

Note: HS codes for finfish were extracted from the export data for the past ten years.

Annex 3.

List of interviews and information requests conducted for the OETS report

Organization	Name
Belize Fisheries Department	Ramon Carcamo
Belize Fisheries Department	Kenneth Esquivel
Belize Fisheries Department	Felicia Cruz, focal point
Marine Conservation and Climate Adaptation Project (MCCAP)	Dr. Sandra Grant, Nidia Chacon
The Nature Conservancy (TNC)	Dr. Julie Robinson
National Fishermen Producers Cooperative Society Limited Society Limited	Mrs. Barbara Bradley
Northern Fishermen Cooperative	Mr. Robert Usher
Rainforest Seafoods	Mr. John Sansone

Note: A request for interviews was sent to stakeholders via email and telephone. The interviews conducted in response to the email or telephone call are listed above.



Photo: Belize Fisheries Department

Annex 4.

UNCTAD's Oceans Economy pillars

UNCTAD's OCEANS ECONOMY PILLARS (based on trade related targets of SDG 14) A conceptual framework for Oceans Economy and Trade Strategies		
1	<i>Sustainable Economic development</i> (Economic and Trade pillar).	<ul style="list-style-type: none"> ▮ Promote sustainable economic growth in key oceans sectors. ▮ Sustainable trade and market access for oceans-based products and services. ▮ Seek to enable connectivity for people and markets ▮ Increase value addition. ▮ Strengthening value chains integration and forward and backwards linkages with relevant goods and services production.
2	<i>Sustainable use & conservation of marine resources</i> (Environmental pillar).	<ul style="list-style-type: none"> ▮ Sustainable access and use of living and non-living resources within safe ecological limits (MSY). ▮ Apply the precautionary and ecosystem approaches. ▮ Consider transboundary effects and impacts over ecosystems and species. ▮ Seek to address climate change mitigation and adaptation (e.g. use of renewable energy sources and measures to adapt to sea level rise and seawater acidification).
3	<i>Inclusive development with focus on coastal developing countries, SIDS & Least Developed Countries</i> (Social pillar).	<ul style="list-style-type: none"> ▮ Incorporate the maintenance of coastal populations livelihoods, specially of small scale and artisanal fisherfolk. ▮ Consider local employment sources. ▮ Include food security considerations. ▮ Respect access and tenure and rights over marine resources by local communities.
4	<i>Increased scientific knowledge and technological collaboration for productive capacity & sustainable resource management</i> (Scientific & technology pillar).	<ul style="list-style-type: none"> ▮ Incorporate low carbon activities and technologies. ▮ Promote investment in applied research and development. ▮ Seek to enable access to knowledge, transfer of technology and knowledge cooperative frameworks.
5	<i>Oceans Governance under UNCLOS and the Multilateral Trade and Fisheries Agreements</i> (Governance pillar).	<ul style="list-style-type: none"> ▮ Include regulatory and policy obligations under UNCLOS and other United Nations treaties and soft law. ▮ In compliance with Multilateral Trade and Fisheries Agreements (WTO, UNCTAD and FAO). ▮ In line with national development priorities/plans (including marine spatial planning). ▮ Promote interagency and intergovernmental cooperation (internal, regional or multilateral).

Source: UNCTAD-DOALOS, 2020.

Note: Reprinted from "Methodological note on the Oceans Economy Trade Strategies (OETS) report, by UNCTAD-DOALOS (2020). p. 3.

Annex 5.

HS codes for finfish species for exports in Belize

HS Code listed	Code Description
302649000	Other mackerel (<i>Scomber scombrus</i> , <i>Scomber australasicus</i> , <i>Scomber japaonicus</i>), fresh or chilled.
302692000	Snapper, croaker, grouper, dolphin, banga mary and sea trout, fresh or chilled.
302699000	Other fish, excluding livers and roes, fresh or chilled.
303290000	Other salmonidae, excluding livers and roes, frozen.
303390000	Other flat fish, excluding livers and roes, frozen.
303550000	Jack and horse mackerel (<i>Trachurus</i> spp.)
303749000	Other mackerel, frozen.
303770000	Sea bass (<i>Dicentrarchus labrax</i> , <i>Dicentrarchus punctatus</i>), frozen.
303792000	Snapper, croaker, grouper, dolphin, bangamary and sea trout, frozen.
303799000	Other fish, excluding livers and roes, frozen.
303839000	Other rays.
303892000	Snapper, croaker, grouper, dolphinfish, bangamary.
303899000	Other flying fish.
305499000	Other smoked fish, including fillets.
305591000	Mackerel, dried, whether or not salted, but not smoked.
305599000	Other dried fish, whether or not salted, but not smoked.
305691000	Mackerel, salted but not dried or smoked and in brine.
305699000	Other fish salted but not dried or smoked and fish in brine.
305710000	Shark fins.
304109000	Other fish fillets and other fish meat (whether or not minced), fresh or chilled.
304990000	Other Fish fillets and other fish meat, fresh, chilled or frozen.
304299000	Other flying fish fillets, frozen.

Annex 6.

List of commonly encountered species of fish

Species		Conservation Status	
Common Name	Scientific Name	IUCN Listing	National Status (Fisheries Act)
Yellow-eye Snapper	<i>Lutjanus vivanus</i>	-	-
Champagne Snapper	<i>Lutjanus purpureus</i>	-	-
Queen Silk Snapper	<i>Etelis oculatus</i>	-	-
Vermillion Snapper	<i>Rhomboplites aurorubens</i>	-	-
Black-fin Snapper	<i>Lutjanus buccanella</i>	-	-
Dog Snapper	<i>Lutjanus jocu</i>	-	-
Lane Snapper	<i>Lutjanus synagris</i>	-	-
Mutton Snapper	<i>Lutjanus analis</i>	Vulnerable (VU)	-
Red Snapper	<i>Lutjanus campechanus</i>	-	-
Cubera Snapper	<i>Lutjanus cyanopterus</i>	Vulnerable (VU)	-
Gray Snapper	<i>Lutjanus griseus</i>	-	-
Yellow-tail Snapper	<i>Ocyurus chrysurus</i>	-	-
Yellow-fin Grouper	<i>Mycteroperca venenosa</i>	Conservation Dependent (CD)	-
Yellow-mouth Grouper	<i>Mycteroperca interstitialis</i>	-	-
Nassau Grouper	<i>Epinephelus striatus</i>	Conservation Dependent (CD)	Size limit, closed season
Misty Grouper	<i>Hyporthodus mystacinus</i>	-	-
Red Hind Grouper	<i>Epinephelus guttatus</i>	-	-
Black Grouper	<i>Mycteroperca bonaci</i>	-	-
Tiger Grouper	<i>Mycteroperca tigris</i>	-	-
Coney	<i>Epinephelus fulvus</i>	-	-
Goliath Grouper	<i>Epinephelus itajara</i>	Conservation Dependent (CD)	Fully protected
Greater Amberjack	<i>Seriola dumerili</i>	-	-
Black Jack	<i>Caranx lugubris</i>	-	-
Queen Triggerfish	<i>Balistes vetula</i>	Vulnerable (VU)	-
Ocean Triggerfish	<i>Canthidermis sufflamen</i>	-	-
Dolphin Fish	<i>Coryphaena hippurus</i>	-	-
Barracuda	<i>Sphyrna barracuda</i>	-	-
White Grunt	<i>Haemulon plumieri</i>	-	-
Jolt Head Porgy	<i>Calamus bajonado</i>	-	-
Hog Fish	<i>Lachnolaimus maximus</i>	Vulnerable (VU)	-

Source: Reprinted from "Environmental Safeguards and Social Management Plan Deep Slope Fishing MCCAP Alternative Livelihood Sub-projects, by Nextra & Marine Conservation and Climate Adaptation Project (2019), p.41-42.

Annex 7.

Belize spiny lobster international value chain to the United States and China, Hong Kong SAR

Value Chain	Importer	Distributor	Regional Distributor	Retailer	Restaurant	Consumer
5oz Lobster tail to the United States						
Price \$/lb	\$15-16	\$16-17	\$17.50-18.50	\$18.50-20.00	\$20.00-22.00	\$29.00 (\$8.99 each)
6-7oz Lobster tail to the United States						
Price \$/lb	\$15.25-16.25	\$16.25-17.25	\$17.25-18.75	\$18.75-20.25	\$20.75-22.25	\$22.00 (10.99 each)
8oz Lobster tail to the United States						
Price \$/lb	\$15.55-16.55	\$16.55-17.55	\$17.55-19.05	\$19.05-20.05	\$21.05-22.05	\$34.95
<i>Notes</i>						
Distributor costs include standard 15 per cent-20 per cent markup.						
Regional Distributor costs include standard 10 per cent-15 per cent markup.						
Retailer markups range from 15 per cent-40 per cent.						
Restaurant markups average 50 per cent.						

Source: Reprinted from "International Market Analysis and Opportunities for Lobster and Conch from Belize", by Sea Fare Group (2015), p.35.

Value Chain	Ex-vessel	Dock	Exporter	China, Hong Kong SAR
Live Lobster to China, Hong Kong SAR				
Price \$/lb	\$8.00	\$10.50	\$16.00	\$25.00-35.00
Whole Frozen Lobster to China, Hong Kong SAR				
Price \$/lb	\$8.00	\$10.50	\$16.00	\$20.00
<i>Notes</i>				
Dock costs include grading, culling and packaging (estimated: \$1.50-\$2.00/lb).				
Exporter costs include health certificate, air freight and estimated 5 per cent dead loss (estimated: \$2.00-\$2.50/lb).				

Source: Reprinted from "International Market Analysis and Opportunities for Lobster and Conch from Belize", by Sea Fare Group (2015), pp.34-36.

Annex 8.

Belize queen conch international value chain

Value Chain	Importer	Distributor	Regional Distributor	Retailer	Consumer
Price \$/lb	\$6.00	\$6.75-7.00	\$7.50-8.00	\$8.95-10.95	\$10.95-12.95

Source: Reprinted from "International Market Analysis and Opportunities for Lobster and Conch from Belize", by Sea Fare Group (2015), p.33.

Notes:

- Distributor costs include standard 15-20 per cent markup. Include freight and delivery.
- Regional distributor costs include standard 10-15 per cent markup. Includes freight and delivery.
- Retailer target markup in 40 per cent (conch is often sold for less as a loss leader to drive traffic).

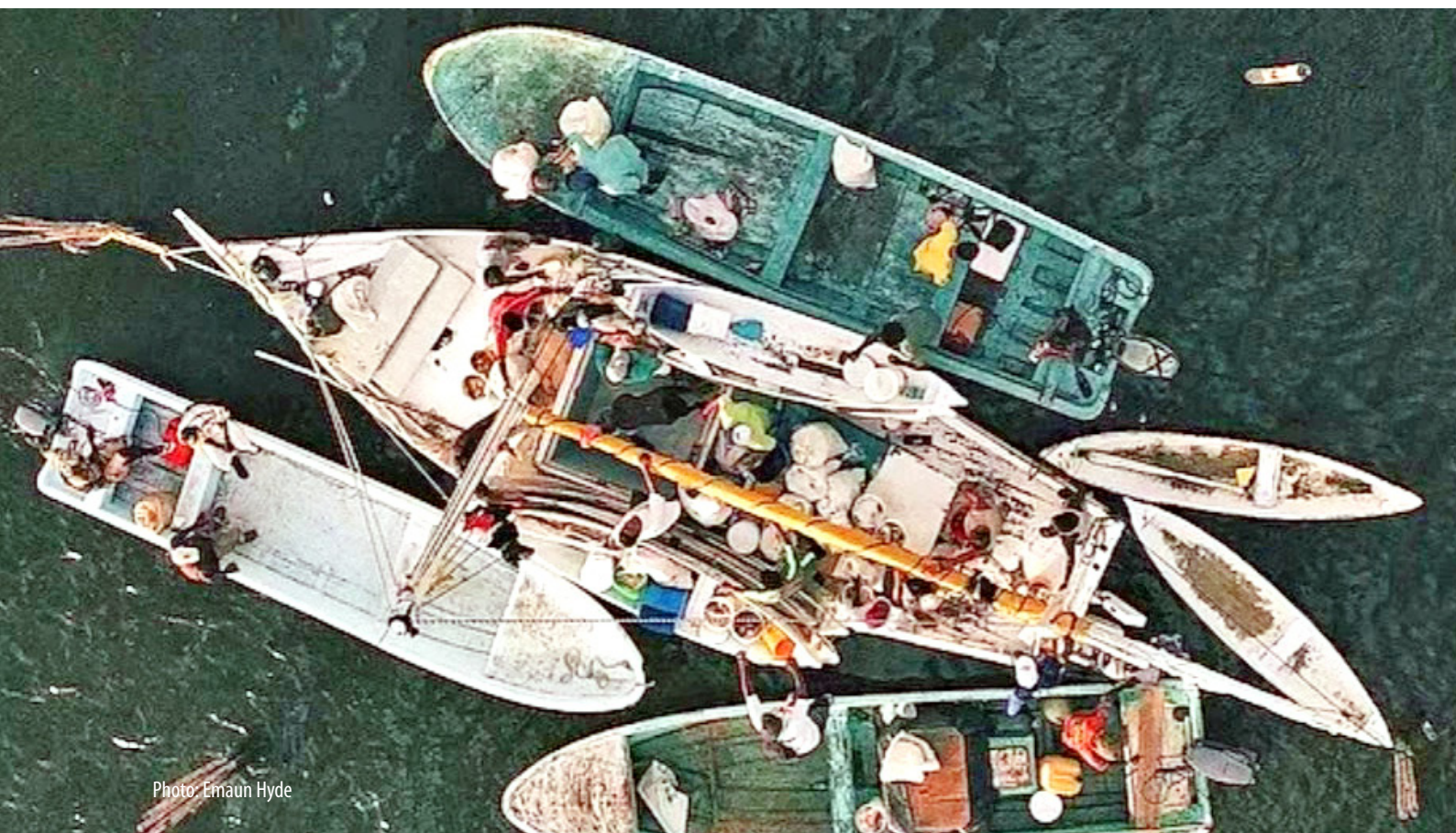


Photo: Emaun Hyde

