Oceans Economy and Trade Strategy: Belize

DRAFT Report prepared for UNCTAD and DOALOS

Version of 29 November 2019

Notes

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Acknowledgments

Oceans Economy and Trade Strategy (OETS) project is funded by the United Nations Development Account and implemented by the United Nations Conference on Trade and Development (UNCTAD) in cooperation with the Division for Ocean Affairs and the Law of the Sea (DOALOS) of the Office of Legal Affairs of the United Nations. This document was produced by Kalene Eck, Belize consultant to the OETS project. The document has benefited from comments and inputs from of David Vivas Eugui, Legal Officer; Marco Fugazza, Economic Affairs Officer; Lorenzo Formenti, Associate Economic Affairs Officer (UNCTAD secretariat), Michele Ameri, Legal Officer, UN DOALOS; Jodie Keane, Economic Advisor; Hilary Enos-Edu, research officer (Commonwealth Secretariat); the Belize focal points Denise Swan, Directorate General for Foreign Trade; Felicia Cruz, Fisheries Officer; and Mauro Gongora, Fisheries Officer (Belize Fisheries Department).

Explanatory notes

Reference to “dollar” and “$” indicate United States dollars, unless otherwise stated.

Use of a dash (–) between dates representing years, e.g. 2015–2017, signifies the full period involved, including the initial and final years.

To reflect the closest estimate for data, decimals and percentages are rounded off. Number in money is rounded to the nearest dollar, unless otherwise stated.

Decimals and percentages in this document do not necessarily add to totals because of rounding.

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List of Abbreviations

AMF: Adaptive management framework

BAHA: Belize Agricultural Health Authority

BELTRAIDE: Belize Trade and Investment Development Services

BAS: Belize Audubon Society

BFD: Belize Fisheries Department

BFF: Belize Federation of Fishers

BNN: Belize Network of NGOs

BTB: Belize Tourism Board

BTIA: Belize Tourism Industry Association

BZD: Belize dollar

CARICOM: Caribbean Community

CBD: Convention on Biological Diversity

CDB: Caribbean Development Bank

CFU: Capture Fisheries Unit

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora

CPUE: Catch per unit effort

CSME: CARICOM Single Market and Economy

DOALOS: Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations

DFC: Development Finance Cooperation

DSF: Deep slope fishery

EEZ: Exclusive economic zone

ESSMP: Environmental Safeguards and Social Management Plan Deep Slope Fishing

GDP: Gross domestic product

HACCP: Hazard analysis and Critical Control Point

HCMR: Hol Chan Marine Reserve

HS Code: Harmonized System code

IUU Fishing: Illegal, Unreported and Unregulated Fishing

MCCAP: Marine Conservation and Climate and Adaptation Project

MSY: Maximum sustainable yield

NTP: National Trade Policy

OETS: Oceans Economy Trade Strategy

PSA: Partial scope agreement

R&D: Research and development

SEA: Southern Environmental Association

SIDS: Small island developing States

SWOT Analysis: Strengths, weaknesses, opportunities and threats analysis

TAC: Total allowable catch

TASA: Turneffe Atoll Sustainability Association

TIDE: Toledo Institute for Development and the Environment

TNC: The Nature Conservancy

UNCLOS: United Nations Convention on the Law of the Sea

UNCTAD: United Nations Conference on Trade and Development

WCS: Wildlife Conservation Society

WTO: World Trade Organization

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Executive Summary

Belize's fisheries sector has supported over 2,500 fishers directly and over 15,000 Belizeans indirectly (BFD, 2019). The fisheries and seafood processing sector also support the ever-growing tourism sector in Belize by supplying the restaurant and hotel industry with finfish, spiny lobster, and queen conch in addition to exporting large volumes of these products. In 2018, Belize exported 1.8 million pounds of seafood product valuing at 18.6 million USD (SIB, 2019). Total production over the ten-year period has yielded 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 economic interests of the fisheries sector must be taken into account as we aim to maximize the benefits of Belize's ocean bounty while maintaining ecosystem health.

The Oceans Economy and Trade Strategy project was developed to assist developing countries in realizing 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 overall aim of the report is to assess the marine fisheries sector, particularly for finfish; and seafood processing sectors for queen conch and spiny lobster, so as to facilitate the preparation of an Oceans Economy Trade Strategy for two sectors selected by Belize during a stakeholder workshop held in November 2018. Legal & institutional, and economic studies were conducted prior to the aforementioned stakeholder workshop in November 2018 where results provided additional context for the development of strategies and action plan for Belize in this report. Table 1 provides a summary of the strategies considered in each sector devised by the participants of the workshop.

Additional interviews with key stakeholders revealed ongoing projects and initiatives such as a deep-sea fisheries subproject, a pesca tourism subproject, a traceability pilot project, and local sustainable seafood branding initiatives. These ongoing project and initiatives in addition to other actions developed through this report may be streamlined to achieve the intended outcomes of implementation.

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 (R&D).
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 section of the report outlines the current status of one of the covered sectors, issues to be addressed, and actions that may be undertaken by the Government of Belize and associated stakeholders under UNCTAD's 5 Oceans Economy Pillars to increase trade and boost economic

growth. With an expected cost of $920,000 USD, the action plan in part five of this report provides 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 ***Goal: to increase capacity of fishers for the sustainable harvest of commercially important deep slope fish species (E.g. red snapper).***
Proposed Strategies
To support training and capacity building opportunities for fishers to develop the deep slope fishing sector.
To support the acquisition of suitable fishing vessels, gear and equipment to allow fishers access to the fishery resource.
To support increased export of finfish (fresh and frozen fish) and finfish products to regional and international markets (i.e.: United States and Mexico, etc.).
To support the adoption of HACCP standards for fish processing/handling facilities for fish and fish products destines for domestic consumption.
To support increased domestic consumption (through tourism) through national fish consumption educational campaigns.
To cement the undeniable linkages between fishing and tourism with the goal of optimizing economic benefits for both sectors.
Seafood Processing ***Goal: to add value to commercially targeted species, to access niche markets and to develop and implement smart marketing approaches of fishery products.***
Proposed Strategies
To support access to new and strategic niche markets with the assistance of Belize Trade and Investment Development Services (BELTRAIDE) and other government agencies.
To support export-oriented seafood business establishments to increase revenue generation through use of smart marketing techniques (market intelligence gathering, sale/export of fishery products during highest demand/highest tourism periods).
To support and expand domestic sale (marketing of small packages and increasing availability of high-quality seafood products in domestic markets).
To support increased domestic consumption of fishery products by tourism sector through legal acquisition from BAHA and HACCP certified and licensed seafood business establishments.
To strengthen the linkages between fishing and tourism to increase economic benefits to both sectors.
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.

Source: Belize Stakeholder Workshop, 2018

PART I: Introduction

1.1 Belize's Oceans Economy

Belize's economy is heavily reliant upon its natural resources in many of its economic sectors. As such, the importance of developing sound management practices and policies to enhance growth and economic development for the nation is of great importance.

Belize has also recognized the importance of maintaining healthy marine ecosystems while maximizing benefits of harnessing the oceans bounty. This is 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 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, 2018)*

Barbados and Costa Rica were also selected as part of the OETS project to implement this project in relation to their chosen ocean-based economic sectors. This report was developed to initiate the second of this three phases of this project following the preliminary data analysis of four of Belize's oceans economy sectors, and the selection process of two sectors in which this strategy is based (UNCTAD, 2018). 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 may be identified and accessed to create sustainable economic growth while incorporating important social factors.

Like many other developing countries, including small island developing States (SIDS), Belize's economic growth is heavily linked with exports to trade partners in the region and in North America (CDB, 2018). It has long been recognized that Belize's main challenge is applying changes to marine sectors to address the high international trade standards (FAO, 2005). This is mainly attributed to the lack of resources (mainly 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, it is imperative that the country develops and implements robust strategies to build a resilient oceans economy to achieve sustainable growth.

Through this report Belize may identify pathways to achieve a balance of 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 (R&D).
- 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 mentioned above, the implementation of this strategy will enhance the ability for Belize to achieve its Sustainable Development Goals in particular, SDG14:– Conserve and sustainably use the oceans, seas and marine resources for sustainable development and its specific targets (UN, n.d.), which include, inter alia, the following targets:

> ***14.2*** *By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans*
>
> ***14.4*** *By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics*
>
> ***14.6*** *By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation*
>
> ***14.7*** *By 2030, increase the economic benefits to Small Island Developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism*

14.B *Provide access for small-scale artisanal fishers to marine resources and markets.*

14. C *Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want*

Other SDG Goals and 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 played 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 UNCLOS framework.

This project is divided into 3 phases of implementation: 1. Project formulation, 2. Validation and implementation phase, 3. Dissemination phase. Starting in January 2018, a legal study[i] was prepared to provide an overview of the ocean governance framework and the implementation of relevant provisions of the United Nations Convention on the Law of the Sea (UNCLOS) in Belize. An economic study[ii] on the status of four sectors under consideration to be chosen for the preparation of an oceans economy and Starting in January 2018, a legal study[iii] was prepared where the institutional and legislative aspects through which the project will be conducted was reported. An economic study[iv] on the status of four sectors under consideration to be chosen for the preparation of an oceans economy trade strategy under the OETS project was also conducted. These four sectors, identified during multi-stakeholder consultations in phase 1, were: Aquaculture, Coastal Tourism, Marine Fisheries, and Seafood Processing (UNCTAD, 2019).

Following the completion of these reports, a stakeholder workshop was conducted in November 2018 (UNCTAD, 2018). Stakeholders representing government, private sector, fisherfolk organizations, and regional bodies (Annex 1) met and were presented with an overview of each sector whereby both studies (legal and economic studies) were considered. There were representatives from each sector considered except for coastal tourism. After the two-day discussion and deliberation, two of the four sectors were chosen as priority, and next steps for developing the OETS report were discussed.

The two sectors chosen are:

Marine fisheries within the exclusive economic zone: Focusing on the sustainable use of deep slope, and underutilized finfish species[v]. finfish species[vi].

&

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.

These two sectors- being the focus of the OETS project- were further investigated by conducting an oceans economy assessment using the UNCTAD Ocean Economy Pillars (Annex 3), a trade assessment, a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis and value chain analysis 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 4) were also conducted with stakeholders from the fishing sector to determine current efforts and projects being implemented, highlight ongoing and potential challenges, and to identify linkages and areas for potential growth in the fisheries sector.

This report is divided into five parts. Part II describes the current institutional framework, Belize's international obligations, national policies, and regulations under which this strategy is set. It also outlines new policy developments and potential synergies within the chosen sectors. Part III outlines current environmental, social, and economic factors of each sector, and areas for improvement are highlighted. Part IV presents an oceans economy assessment, and value chain and SWOT analyses for chosen sectors to determine areas for prioritized action. Lastly, Part V presents the recommended actions for implementation for consideration and approval by the Government of Belize.

PART II: Institutional and legal framework of the Ocean Economy

This section describes the ways in which Belize has adopted regulations under UNCLOS 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 within which marine fisheries and seafood processing sectors operate. It also outlines the separation of governmental powers, regulations, policies, and current projects that may form linkages with the chosen sectors. Much of this information has been incorporated from the 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 powers of States to exercise sovereignty and jurisdiction over maritime areas, including the exclusive 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 UNCLOS.

Through a number of laws and regulations, the country has given effect to UNCLOS, for example by the demarcation of the maritime area zones (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 exclusive economic zone. Specifically related to the development of this strategy, articles 61 and 62 of UNCLOS, outline 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 development of the State's economy. To ensure this, many legislative instruments have been passed including the *High Seas Fisheries Act 2013*, *Fisheries Act 1987,* and the *Coastal Zone Management Act 1998.*

2.2 International and regional agreements and organizations related to marine fisheries and sustainable use of marine resources

Belize is a party to a number of international agreements and participates in various regional and international organizations in relation to fisheries management. Listed below are the main organizations and agreements to be considered that may assist in the implementation or are in favor of the development of the OETS and action plan for Belize.

International Organizations

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 national waters, inland waters and EEZs of its Member States, helping to strengthen the Central American integration process.

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 EEZs of member States, for the economic and social benefits of the current and future population of the region.

The International Commission for the Conservation of Atlantic Tunas (ICCAT) is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas.

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 national waters, inland waters and EEZs of its Member States and covers marine capture, inland capture and aquaculture fish stocks.

The Western Central Atlantic Fishery Commission (WECAFC) 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 work of the Commission is guided by the following three principles: 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.

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

International Agreements related to fisheries

Belize is also a signatory to a number of international agreements geared towards safeguarding biodiversity of marine resources. These include the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC), the Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region (WCR) (or the

Cartagena Convention) and its Protocol Concerning Specially Protected Areas and Wildlife (SPAW), 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 listed species that are critically endangered, and trade is only permitted in 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 BFD has established a season, size limits, quota system. A special export 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 status of the species.

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 WECAFC meeting. The plan addresses the need for coordinated management of the queen conch by fisheries scientists and managers in the Wider Caribbean Region. The abovementioned management and conservation plan details actions for implementation and indicators for monitoring which the Government of Belize may utilize and link with this strategy.

Other international agreements and guidelines that should be considered in relation to marine fisheries and seafood processing include: the United Nations Fish Stocks Agreement, the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (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, 2019).

The United Nations Fish Stocks Agreement (1995) 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, 2019). 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 on high seas fisheries; 64/72, 66/68, 69/109 and 71/123 on sustainable fisheries relating to the impacts of bottom fishing on vulnerable marine ecosystems and the long-term sustainability of deep-sea fish stocks.

The Nagoya Protocol 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, n.d.). Adopted on 29 October 2010 in Nagoya, Japan; its objective is the fair and equitable sharing of benefits arising from the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.

2.3 International and regional agreements and organizations related to trade in Belize

Belize is party to many international institutions and agreements for regulating and overseeing international trade. Highlighted below, these agreements are taken into consideration in developing this report and formulating potential strategies for the Government of Belize to undertake.

United Nations Conference on Trade and Development (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 (UNCTAD, 2018) to note are the following:

- Generalized System of Preferences (GSP): schemes of preference-giving counties, selected products originating in developing countries are granted reduced or zero tariff rates over the MFN rates. Belize is a beneficiary to eleven (11) of the thirteen (13) GSP schemes: Australia, Belarus, Canada, Japan, Kazakhstan, New Zealand, Norway, Russian Federation, Switzerland, Turkey, and the United States.

- Global System of Trade Preferences (GSTP, 1988): 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 southern markets and south-south cooperation.

World Trade Organization (WTO) is an organization aimed at helping trade flow as freely as possible for economic development and well-being. Established in 1995, the organization provides a forum for negotiating agreements aimed at reducing obstacles to international trade and ensuring a level playing field for all, thus contributing to economic growth and development. The WTO also provides a legal and institutional framework for the implementation and monitoring of these agreements, as well as for settling disputes arising from their interpretation and application operates a system of trade rules for governments to negotiate trade agreements and settle trade disputes. Belize has been a member of WTO since its establishment in 1995. Important WTO agreements that were considered in the development of this report include:

- General Agreement on Tariffs and Trade 1994(GATT) operating within the WTO framework, its purpose was to promote international trade by reducing or eliminating barriers such as tariffs or quotas.

- Technical Barriers to Trade (TBT) Agreement 1995 aims to ensure that technical regulations, standards, and conformity assessment procedures are non-discriminatory and do not create unnecessary obstacles to trade.

- Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) 1995 which sets out the basic rules for food safety and animal and plant health standards. The agreement allows countries to set their own standards and must be based on science. They should be applied only to the extent necessary to protect human, animal or plant life or health. And they should not arbitrarily or unjustifiably discriminate between countries where identical or similar conditions prevail.

Caribbean Community (CARICOM) is a grouping of twenty countries established in 1973. CARICOM is based on four pillars: economic integration; foreign policy coordination; human and social development; and security. The CARICOM Single Market Economy (CSME) is at the heart of economic integration for the community. CSME serves to provide the foundation for growth and development through the creation of a single economic space for the production of competitive goods and services. CARICOM has also negotiated a number of bi-lateral trade agreements with states in the wider Caribbean and Central America namely Columbia, Costa Rica, Cuba, the Dominican Republic and Venezuela.

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: Overcoming Technical Barriers to Trade (TBT) Programme 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 programme (FISH4ACP) to boost the development of sustainable fisheries and aquaculture in Africa, the Caribbean and the Pacific. FISH4ACP, is an EU-funded programme designed to invest in value chains to stimulate inclusive growth, bolster food security and minimise impacts on the marine environment (FAO, 2019).

CARIFORUM/European Union Economic Partnership Agreement (EPA) is another trade agreement to which Belize is party. The EPA is intended to stimulate greater investment between Europe and the Caribbean, through mutual removal of barriers to investment, as well as the enhancement of the attractiveness of the Caribbean economic space in respect of foreign investment opportunities. The Agreement is also intended to stimulate Caribbean exports of non-traditional products and services, encouraging and supporting diversification in these economies.

Recently, CARIFORUM Member States have signed an agreement on the governing of trade with the United Kingdom of Great Britain and Northern Ireland (UK) post its withdrawal from the European Union. This agreement replicates the EPA and will ensure continuity of the

Region's preferential trading relationship with the UK post its withdrawal from the European Union. The agreement is expected to come into effect in 2021 (CARICOM, 2019).

Central American Integration System (SICA) is the institutional framework of regional integration in Central America established in 1991 by the following States: Costa Rica, El Salvador, Guatemala, Hondurans, Nicaragua, and Panama. Belize later 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.* Belize is a member of the Central American Integration System (SICA) but is not a part of the Secretariat of Central American Economic Integration (SIECA) that supports economic integration of Central America.

2.4 The institutional structure of fisheries management in Belize

The above-mentioned legislation that has given effect to UNCLOS has also established the institutional framework and the division of powers that oversee different marine sectors and activities (Usher, 2018). A number of institutional bodies govern and regulate the activities of Belize's marine sectors. 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, and the Coastal Zone Management Authority and Institute.

The Belize Fisheries Department

The Belize Fisheries Department under the Ministry of Agriculture, Forestry, Fisheries, Climate Change, Environment and Sustainable Development 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 through 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 (Belize Fisheries Department, 2019).*

The Fisheries Department's main 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 (CCU), the Ecosystem Management Unit (EMU), the Policy and Planning Unit (PPU), and the Administrative and Licensing Unit.

The Belize High Seas Fisheries Unit

The Belize High Seas Fisheries Unit (BHSFU within the Ministry of Finance), established by the *High Seas Fishing Act, 2013* is the primary authority responsible for the regulation and control of

Belize-flagged vessels which engage in fishing or related activities on the high seas pursuant to the *High Seas Fishing Act, 2013*.

The Belize Coast Guard

The Belize Coast Guard was established by the *Belize Coast Guard Service (Amendment) Act, 2016* and is primarily employed as a military service organization, being the naval force for the defence of Belize and protection of its sovereignty and territorial integrity and rights in relation to the maritime areas of Belize. Though its main objectives are that of national security and military operations, the Coast Guard is also mandated to enforce fisheries laws and regulations. Therefore, joint patrols are conducted regularly with fisheries officers.

The Coastal Zone Management Authority and Institute

The Coastal Zone Management Authority and Institute was established as an autonomous public statutory body. The Authority is charged with the responsibility of implementing and monitoring policies that govern the use and development of the coastal zone in Belize. The Institute's main functions on the other hand 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 (ICZM), maintain coastal monitoring programmes, and to assist in the development of the Integrated Coastal Zone Management Plan (2016) and oversee its implementation.

2.5 Relevant national policies, strategies, and action plans

There are a number of policies, strategies, and actions plans that are in the implementation phase in different sectors in Belize and are often described as fragmented and sector specific. In reviewing these, many linkages to marine fisheries and seafood processing have been identified. It is important to identify these linkages to ensure that there are no conflicting policies, 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 (NTP) 2019-2030

Launched in 2019 by the Directorate General for Foreign Trade, the vision of the national trade policy is "to develop a competitive economy by utilizing trade as a significant driver for inclusive and sustainable socioeconomic development." With the following objectives outlined:

i. Reduce the cost of doing business, enhance competitiveness and develop efficient production systems and capacities;
ii. Improve trade performance, diversify production and export basket and enhance value addition;
iii. Develop and enhance the growth of services trade and put in place an effective institutional and legal framework;
iv. Build and strengthen multilateral, regional and bilateral trade relations and enhance market access and entry; and
v. 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 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[vii]. Moreover, section 10.4 highlights the importance of linking trade and the environment to achieve sustainable development[viii].

Pertaining to socioeconomic aspects of the sectors chosen in the strategy, section 10.2: Gender and disability inclusiveness[ix] outlines policy prescriptions to integrate the gender and disability agenda into 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 (NBSAP)

Divided into five (5) main goals, the National Biodiversity Strategy and Action Plan (NBSAP) 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 extractive natural resource use in terrestrial, freshwater and marine environments is guided by sustainable management plans, with improves biodiversity sustainability[x]. Target B5 also addresses fishing pressure stating that: By 2025, Belize is addressing its trans-boundary issues, with 20% reduction in terrestrial impacts and 50% reduction in illegal fishing from trans-boundary incursions[xi].

Integrated Coastal Zone Management (ICZM) Plan (2016-2020)

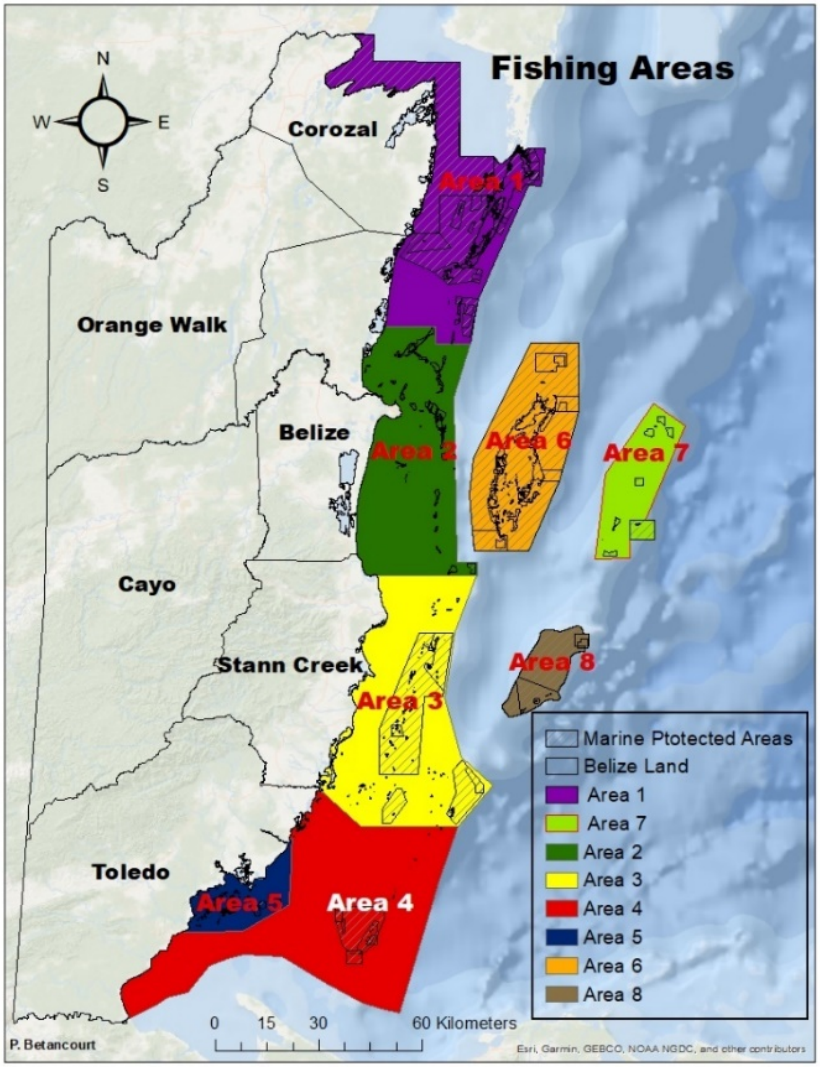
Developed in 2016, the four-year plan's main objective is "To support the allocation, sustainable use and planned development of Belize's coastal resources through increased knowledge and building of alliances, for the benefit of all Belizeans and the global community"[xii] (CZMAI, 2016). As the implementation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

2.6 Regulatory framework of marine fisheries and seafood processing

The chosen sectors are monitored closely by the Belize Fisheries Department (BFD). In the mid-1980s, the Fisheries Administration, the predecessor of the BFD, realized that fisheries were collapsing worldwide due to over exploitation, bad management strategies, habitat destruction and climate change and therefore decided that fisheries management in Belize should incorporate an ecosystems management approach. The BFD and its co-comanagers (Belize Audubon Society (BAS), Hol Chan Marine Reserve (HCMR), Southern Environmental Association (SEA), Turneffe Atoll Sustainability Association (TASA), and Toledo Institute for Development and Environment (TIDE) have implemented fisheries management and marine conservation strategies to ensure sustainable livelihoods for fishers. As such, 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 (territorial use rights in fishers (TURFs) regime). Divided into seven (7) 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 (8) closed fishing areas and a ninth area open for deep slope fishing where fishers can register for two areas (Figure 1).

Figure 1: Map of Managed Access Program fishing area (BFD, 2019)



The legal framework for sustainable marine fisheries in Belize is the *Fisheries Act* Chapter 210 of the Laws of Belize and subsequent *Fisheries Regulations*. Such regulations detail 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- the head of the BFD. Divided into four parts, the *Fisheries Regulations* outline the main aspects of all fishing activity in Belize.

Marine Fisheries

Species regulations

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

Regulations 3-5 concern the criteria for the possession of crawfish (Panulirus *argus*). Stating the size limit of 3 ounces cape or 4 ounces tail and a closed season of February 14-June 14 inclusive. It is also illegal to possess a berried, molting, dices or fillet crawfish. Regulations 6 and 7 concern the fishing of queen conch (Strombus *gigas*) stating the size limit of 3 ounces or a shell length of 7 inches; and a closed season from July 1-September 30 inclusive. It is also illegal to possess fillet or diced conch meat. Regulation 7 restricts the use of scuba gear in the harvesting of fish. Regulation 23 & 24 concern the quotas of crawfish and queen conch respectively.

Finfishes are subject to minimal regulation where particular species are protected, and certain gear restrictions are declared. There are also no specified laws to determine Total Allowable Catch (TAC) or Maximum Sustainable Yield (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 aforementioned species are designated for sport fishing (Reg. 4).

Gear restrictions regarding finfish and other whole fish are focused on nets which are regulated by Statutory Instrument No. 78. of 2011 of the *Fisheries Act.* All nets must be tagged and registered by the BFD. The minimum mesh size for nets is 3 inches and the maximum length is 100 meters. There is a maximum possession length of 300 meters on board of any vessel at any time.

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

Licensing

A person engaging in commercial fishing in Belize using a boat must have a valid commercial fisher folk license (sec. 7 *Fisheries Act*) and the vessel must have vessel license and a valid sea-worthy certificate issued by the Belize Port Authority (sec. 6 (1) *Fisheries Act*). Part III, regulations 28-55, of the *Fisheries Regulations* concern the criteria for obtaining 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 December 31 of each year and may be renewed pending payment of a fee which is currently $25 BZD ($12.50USD).

The implementation of the Managed Access Program has also resulted in less 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 implementation of the program 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. This is partly due to minimal licensing staff and a large registration backlog for fishers to obtain their licenses. This challenge hinders the monitoring and reporting process for the implementation of this strategy.***

Upon reviewing information provided by the database, the data backlog became apparent since fisherfolk profiles required updating. This backlog is caused by the large volume of fishers re-registering at the beginning of the year and at the beginning of each fishing season for spiny lobster (June 15) and queen conch (October 1)). ***To address this, the department may consider implementing a registration closing date or adding a 'late fee' for registration after a certain date. By instituting this late fee, the department can collect additional revenues to provide for database maintenance and updates thus resulting in timely data and information reporting.***

Enforcement

The Conservation Compliance Unit of the Fisheries Department (CCU) is responsible for prosecution and enforcement of the fisheries law in the internal waters, territorial sea and EEZ of Belize. The specific responsibilities include the enforcement of the fisheries laws and regulations throughout the country of Belize; conducting educational sessions with fisher folks in order to increase awareness on the responsible fishing practices and enhancing their ability to understand the disadvantages of unacceptable fishing practices; delivering lectures in educational institutions and other relevant organizations, in regards to fishing activities and fisheries legislation; suggesting amendments to certain regulations for improved fisheries management, which may include limited entry, species protection, seasonal closure of commercial stocks, fishing gear restrictions, regulating managed access areas of fishing licenses, and landing of products; working along with the managing units of all marine protected areas, and non-governmental organizations (NGOs) to discourage illegal harvesting of marine products from within the reserves; and assisting in the management and protection of the coastal zone and the reef system of Belize (Belize Fisheries Department, 2018).

The CCU provides support on joint patrols with other regulatory agencies such as the Belize Coast Guard, Police Department, Port Authority, Customs Department and the Belize Defence Force. Joint patrols have also assisted the BFD in enforcing fisheries laws and regulations and has become a strategy to combat IUU fishing within the waters of Belize.

One main challenge faced the BFD is the limited resources available for the CCU 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.

Conservation

The BFD has declared marine reserves as fisheries management tools in accordance with section 14 (1) of the *Fisheries Act* which empowers the Minister responsible for fisheries to declare any area within the fishing limits of Belize to be a marine reserve. The main purpose of these marine reserves was to afford special protection to the aquatic flora and fauna of such areas and to protect and preserve the natural breeding grounds and habitats of aquatic life; to allow for the natural regeneration of aquatic life in areas where such life has been depleted; to promote scientific study and research in respect of such area; and to preserve and enhance the natural beauty of such areas.

A network of nine marine reserves enacted as fisheries management tools have been established by the BFD under sec. 14 of the *Fisheries Act*. The marine reserves are multiuse having a general use area (80%), a conservation area (15%) and a preservation area (5%). The marine reserve network is managed by the Ecosystem Management Unit (EMU) 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*".

Enforcement of the reserves regulations is primarily conducted by the reserve staff specifically the rangers. In order to capitalize on manpower, all reserves staff is 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 especially on illegal activity hotspots and are designed to intercept marine products onboard fishing vessels and campsites.

Seafood Processing

Part IV, regulations 56-127 of the *Fisheries Regulations* concern the criteria for seafood processing and export.

Export

In relation to exporting fisheries and seafood product, Section 9(1) of the *Fisheries Act* state that person or entity wishing to export, attempting to export or purchasing with a view 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 of 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 *Fisheries Regulations*).

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 require that establishments in which fish is dressed, packed, graded or held in refrigerated storage must be registered, and a Certificate of Registration 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 to 83 concern the labeling of fish and fish product. 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. Other details of the product to be included are the net weight of the fish or fish product; the grade, size and count of the fish or fish product; the name and address of the distributor and/or exporter; 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 (reg. 79). Such regulations are adhered. However, by gathering information from local retail markets, labelling standards and regulations should be reviewed to improve and provide a streamlined approach in domestic market. 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 to 102 provides for the construction requirements and the equipment used in fish processing establishments and regulations 103 to 127 provides for the operating requirements that must be adhered to in processing fish or fish product.

In relation to fishing cooperatives, the Cooperative Societies Act provides for the obligatory registration of fishing cooperatives in Belize (Section 7 (1)).

Pending policies and legislation

The launch of the Managed Access Program in 2016 is also the impetus for drafting a fisheries bill "Fisheries Resources Act" to promote long-term conservation, management and sustainable use of fisheries resources. It is expected to be enacted by the end of 2019. When enacted, the bill will, help achieve the following objectives:

- Compliance with international laws;
- Establish principles of ecosystems management and a precautionary approach to resource
- management;
- Establish an advisory council;
- Provide a legal basis for co-management agreements;
- Strengthen the marine reserves;
- Provide for managed access in areas both within and outside the marine reserves;
- Increase fines and penalties;
- Provide for fisheries management plans; and
- Create a transparent and accountable process for the implementation of regulations.

The bill also has the support of fishing associations, stakeholders, and the Belize Network of NGOs as stated in a recent press release "Belize's Small-Scale Fishery Requires Urgent Government Action via Modernized Fisheries Act".

In addition to the current efforts on the passage of the fisheries bill, the Marine Conservation and Climate Adaptation Project (MCCAP)- a project being implemented by the Government of Belize in collaboration with the World Bank and the Adaptation Fund- has sanctioned the development of a national fisheries policy, strategy and action plan for Belize (BFD, 2019). The consultancy is expected to be completed in 2020 and the development of the OETS report may assist to inform and complement the overall scope of this wider policy.

Key issues identified

Table 2 summarizes and lists the institutional challenges encountered by the BFD. Such issued should be addressed and may affect the implementation of this strategy.

Table 2: Summary of key institutional issues highlighted and potential responses

Sector	Issue Code	Key issues highlighted	Proposed Strategy	Actions
Marine Fisheries & Seafood Processing	I1	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 possible total allowable catch (TAC) for finfish species (or species of importance to deep sea fishing (DSF)- eg Lutjanus sp.)
	I2	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 & management protocol for fisherfolk dataset

				Hire additional staff and conduct trainings in database management Institute late fee and licensing deadlines
	I3	Limited resources for the enforcement of fisheries regulations	Enhance and support collaborative approaches to enforcement monitoring to combat IUU fishing	Conduct training with enforcement bodies on existing and additional regulations (i.e. finfish)

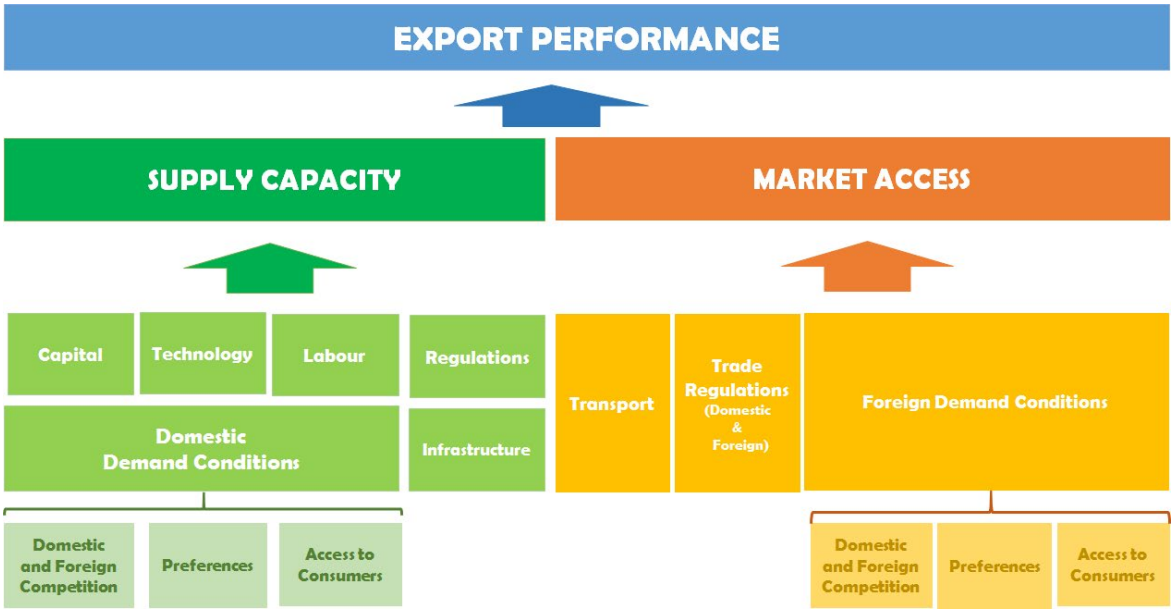
Source: Interview with BFD staff (2019)

PART III: Overview of chosen sectors (Economic and trade assessment)

This section identifies key strengths and weaknesses of marine fisheries and seafood processing sectors in reference to core economic and trade trends. Referencing the economic fact sheets and current production figures, the supply capacity and market access are evaluated. This is guided by the components listed below (Figure 2). The figures reported in this section are provided by the Belize Fisheries Department (BFD) and the Statistical Institute of Belize (SIB)[xiv].

Attention should be devoted to the factors that could hinder medium to long-run sustainability (social, economic and environmental) in the selected oceans-based sector

Figure 2: Breakdown of Export Performance



Source: UNCTAD, 2018

3.1 Supply Capacity: Marine fisheries and Seafood Processing

Current fishery production trends in Belize fisheries

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 stable fishing sector directly supporting over 2,500 fishers directly, and approximately 15,000 Belizeans indirectly in 2018 (Belize Fisheries Department, 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 monitoring and evidence-based decision-making thus resulting in stable yields for over 15 years. In 2017 it was estimated that agriculture and fisheries represented 1.2% of the GDP (SIB, 2019).

Description and breakdown of fishing activity

Belize is an open registry state with 60 registered vessels operating in the high seas flying its flag (UNCTAD, 2019). However, the OETS report has focused on marine fisheries within Belizean

territorial seas 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 3 years (Table 3). Since the launch of the Managed Access Program in 2016, the registration of fishers has decreased due to the vetting process and area selection thus resulting in the decrease of 'opportunistic' fishers. There has also been an increase in the number of women in marine fisheries sector with a gender ratio that was once 1 female to 60 males in 2008 now being 1 female to 44 males in 2018 (BFD, 2018). ***Noting this growing trend in women's participation in marine fisheries, strategies developed should reflect and promote this 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%), followed by sailboats (11%). Other vessel types such as dories and canoes make up the 1% minority. All individuals aboard registered vessels are required by law to have a fisher folk license.

Table 3: Number of registered fishers and vessels (2016-2018)

Year	2016	2017	2018
Number of fishers	2752	2710	2525
Number of vessels	696	760	623

Source: Belize Fisheries Department, 2019.

Fishers embark on registered fishing vessels for their fishing areas for roughly 5-6 days at a time. During this time fishers 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, 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 a few weeks 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 winch to do 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 gear. Gillnets are large nets that are vertically suspended in the water column. Gillnets 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 sections 2.6 of this document.

The BFD currently has no regulations regarding TAC of finfish. Due to the concentration on spiny lobster and queen conch, the monitoring protocol on finfish has not been fully defined. There is currently 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 and 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 has remained relatively stable with an upward tendency over the last ten-year period ranging from about 1,800 lbs to 2,400 thousand lbs over the period 2010-2018. The total value of wild caught fisheries exports has steadily increased now valuing $18.6 million USD (Figure 3) even though total catch has decreased.

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 whole lobster. However, spiny lobster tails remain the main fishery product. In 2018, the total export of spiny lobster products was 955 thousand lbs valued at 11.9 million USD. Queen conch exports and production quantities are dictated by the quota set by the BFD. Exports for queen conch peaked in 2012, where a quota of over one million lbs was set. However, exports have since remained between 550-900 thousand lbs where in 2018, 882 thousand lbs of queen conch valuing at 6.5 million USD were exported.

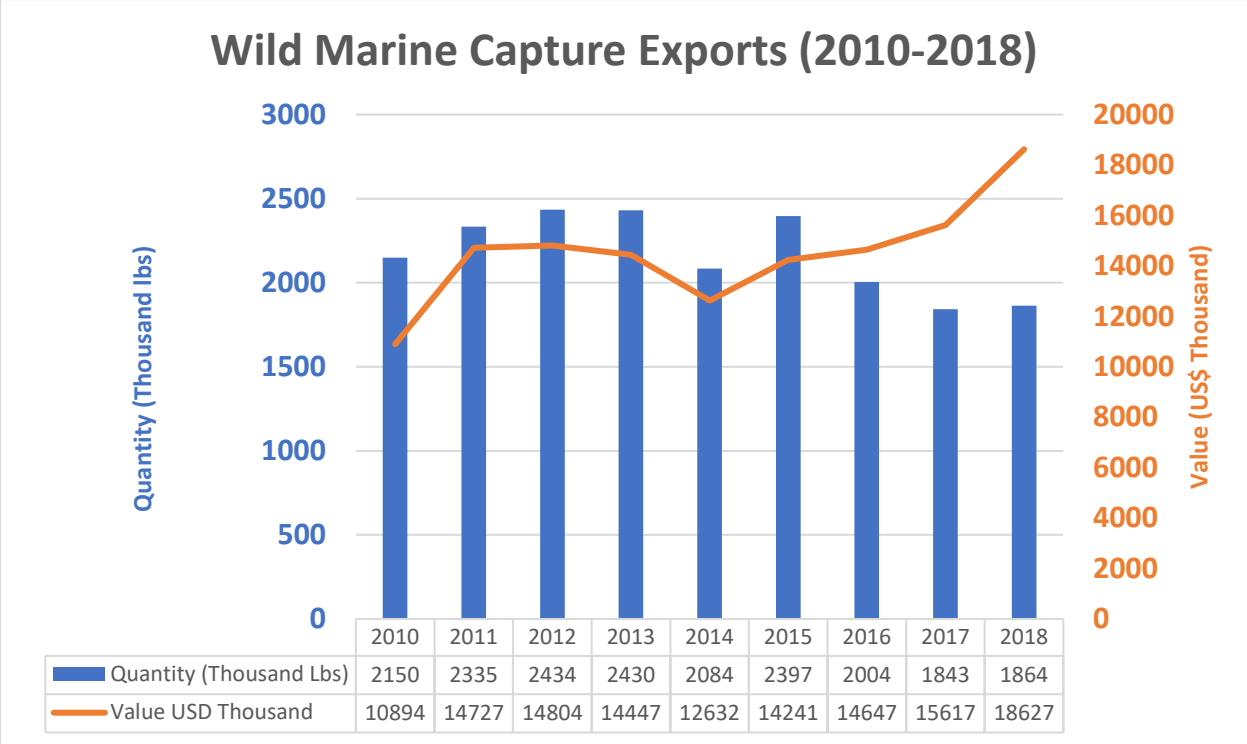
A small fraction represents finfish where cooperatives and fishing companies export smaller quantities of the product (Figure 4). Harmonized System (HS) codes of finfish breakdown are listed in Annex 5. Currently, the main importers of finfish are Jamaica- specifically on whole fish (Lutjanus spp. and other finfish) and Guatemala (Finfish, sharks and other cartilaginous fish) (Figure 7) where partial scope agreements (PSA) exist. Though the trend in Figure 4 illustrates a steady decline in exports, this does not imply that finfish stocks have decreased. Finfish are also mainly sold in domestic markets and are closely linked to the tourism sector where fishers supply hotels and restaurants in their communities.

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[xv]. ***There is a need to revitalize the finfish sector by diversifying species, identifying additional markets for finfish and, reducing fishing pressure on other species.***

Discrepancies have also been noted between Belize exports and mirror import data analyzed in the economic assessment[xvi] (UNCTAD, 2019). Countries importing Belizean fish products have declared higher mirror import numbers compared to the reported export figures in Belize. This

difference in export and mirror import values have also been noted in a previous value chain analysis conducted in 2015 by the Seafare Group (2015). 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 Belize territorial seas. Therefore, ***relevant authorities should aim to reach out and collaborate with importing countries to properly track imports of seafood mainly to the US and Guatemala.***

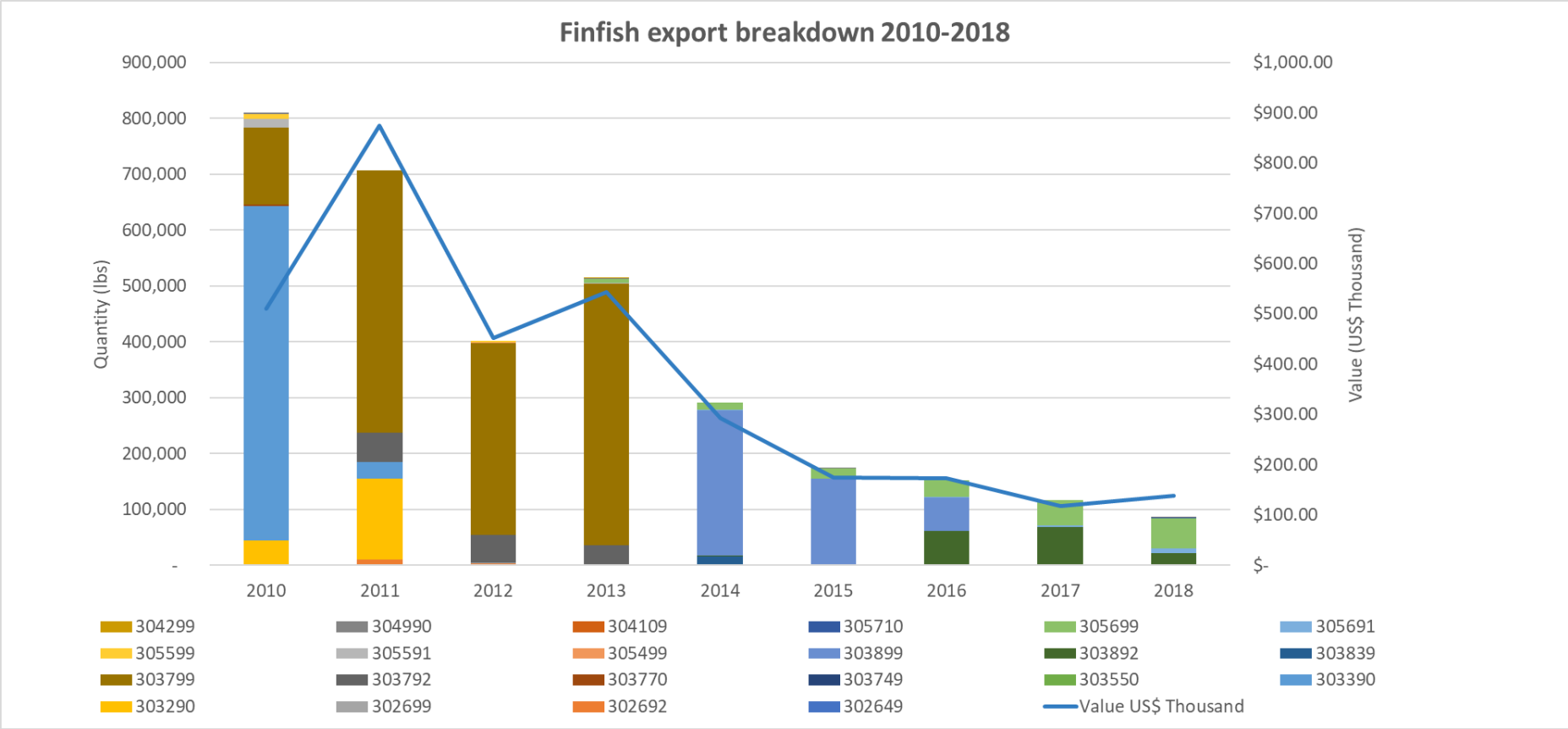
Figure 3: Total national exports in capture fisheries 2010-2018 (Aggregated: spiny lobster, queen conch, finfish, fish fillet, ornamental fish, and crab.



Source: SIB, 2019

Note: Values were extracted from the export breakdown provided by SIB. Quantity and values reported exclude the shrimp and aquaculture sector

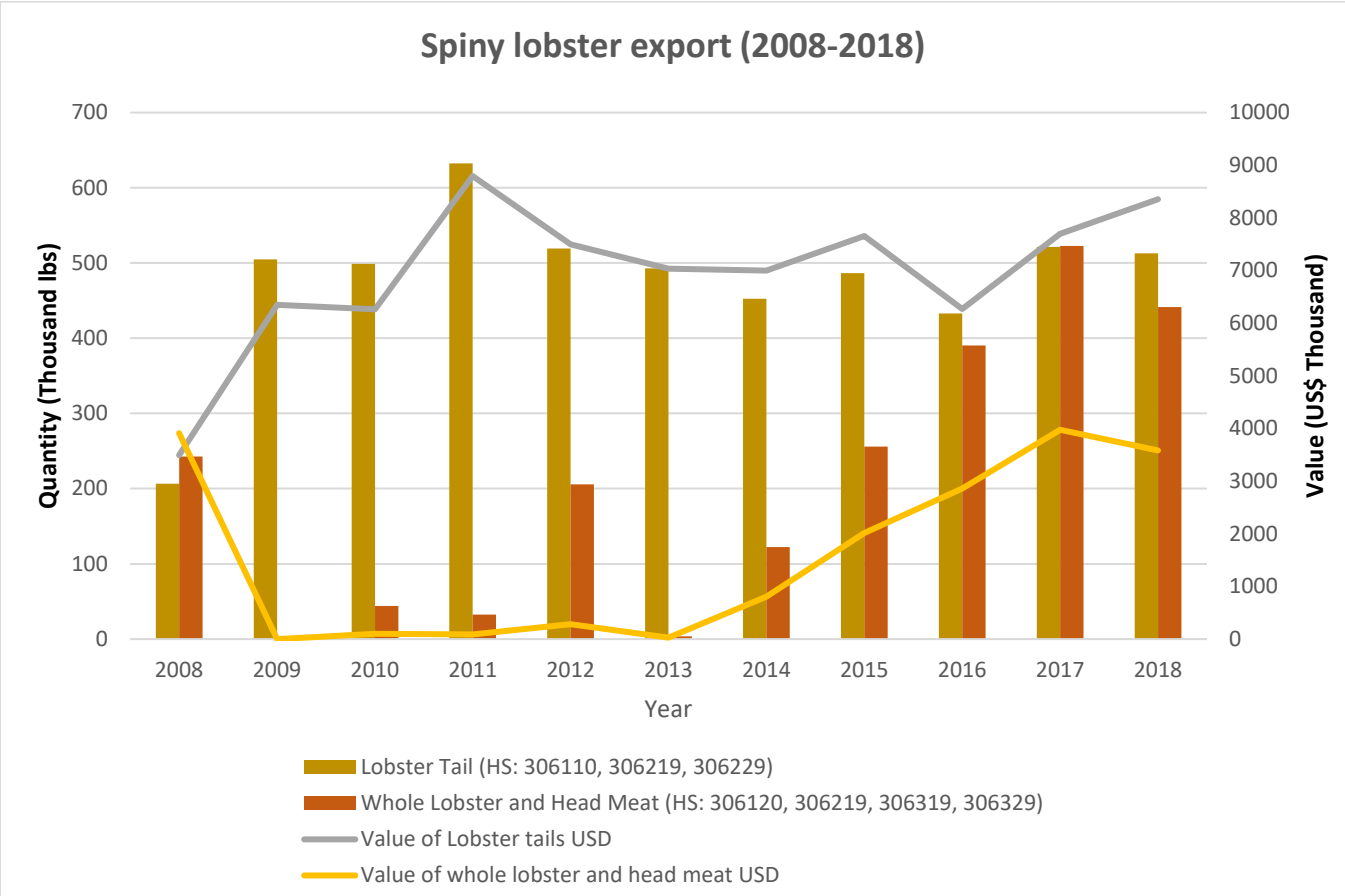
Figure 4: Finfish export breakdown 2010-2018



Source: SIB, 2019

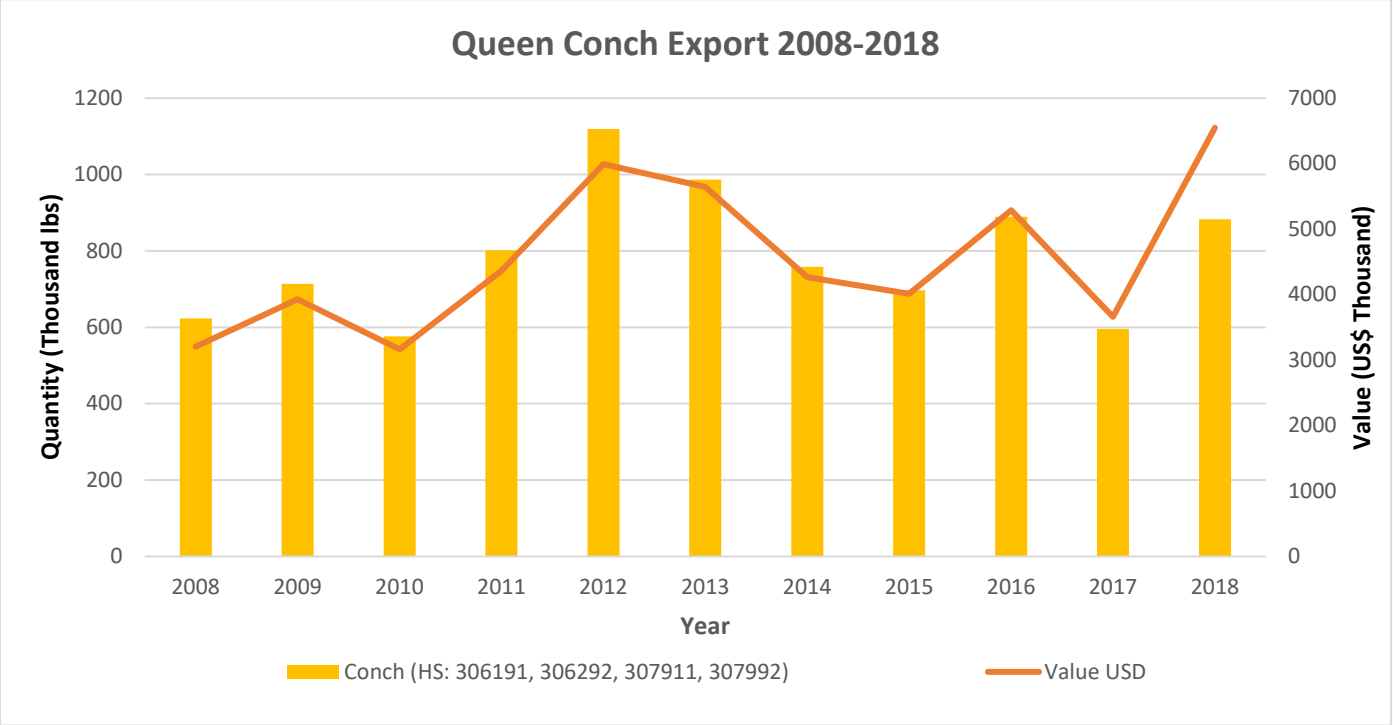
Note: Finfish categories do not include farmed species such as tilapia. The HS codes that are listed in the legend have undergone two revisions within the timeframe reported and therefore, grouping and categories may change.

Figure 5: Spiny lobster products and export values (2008-2018) (SIB,2019)



Source: SIB, 2019

Figure 6: Queen conch products and export values (2008- 2018)



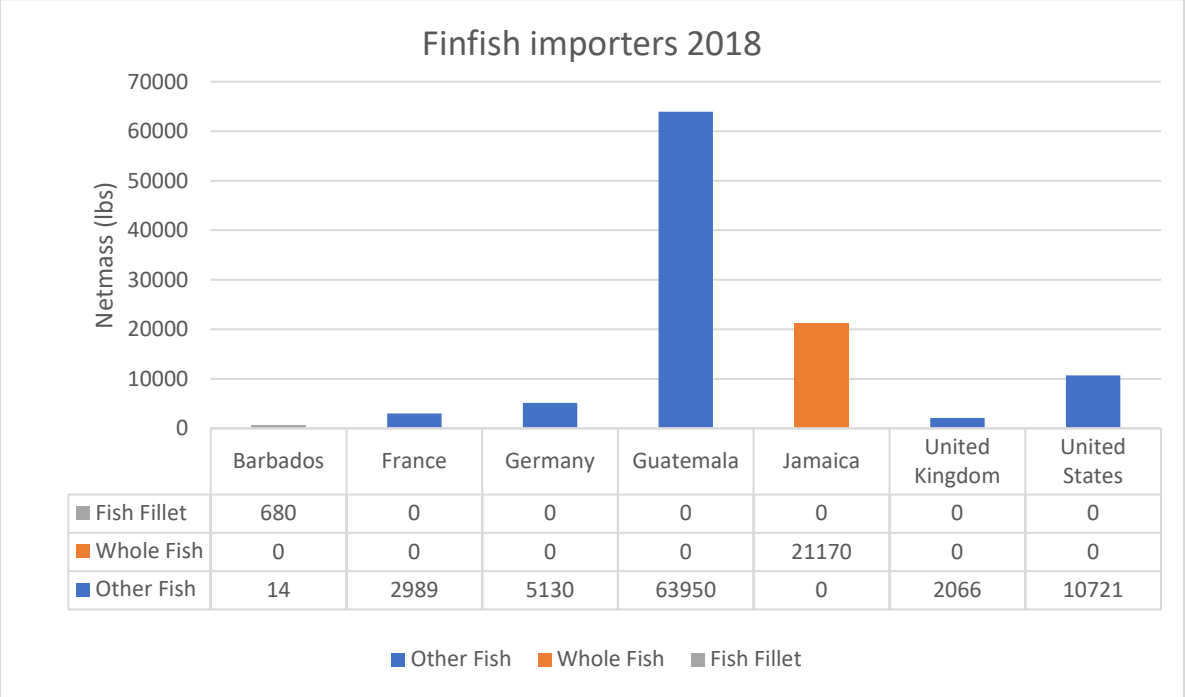
Source: SIB, 2019

3.2 Market characteristics

Forgein demand: Importers of seafood products

Belize exports seafood products mainly to the United States. In 2018, Belize exported a total of 1.58 million pounds of marine products to the United States alone, corresponding to approximately 73% of the total capture fisheries[xvii]. Of these, 1.4 million pounds were of spiny lobster and queen conch seafood products (Figure 9). Other importers of these seafood products include the Republic of China Taiwan, France, United Arab Emirates and Mexico among others (Figure 8). Main importers of Belize finfish products are Guatemala and Jamaica. 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. Exporter diversification may also give fishers a better price for finfish catch. Therefore, ***the BFD may consider incentivized approaches to drive finfish exports.***

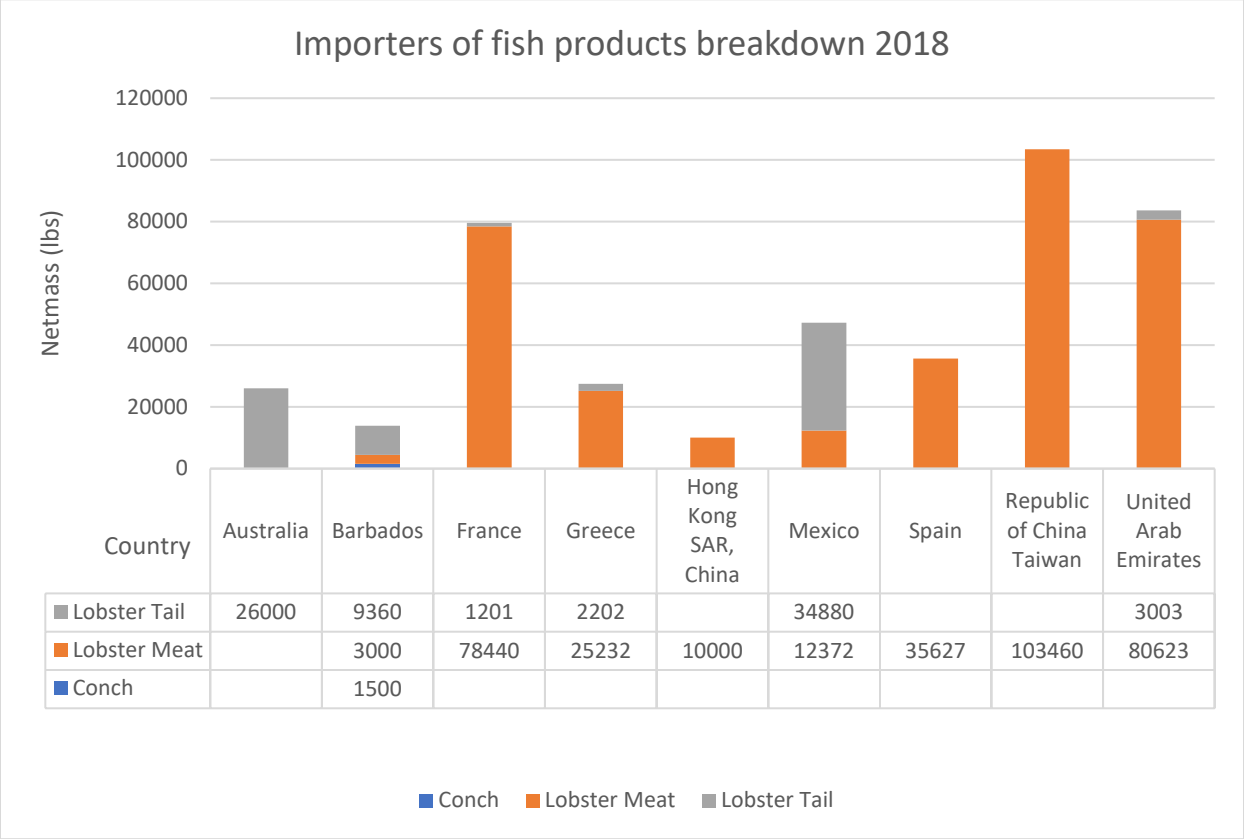
Figure 7: Graph and table of Belize's finfish importers in 2018



	Barbados	France	Germany	Guatemala	Jamaica	United Kingdom	United States
Fish Fillet	680	0	0	0	0	0	0
Whole Fish	0	0	0	0	21170	0	0
Other Fish	14	2989	5130	63950	0	2066	10721

Source: BFD, 2018

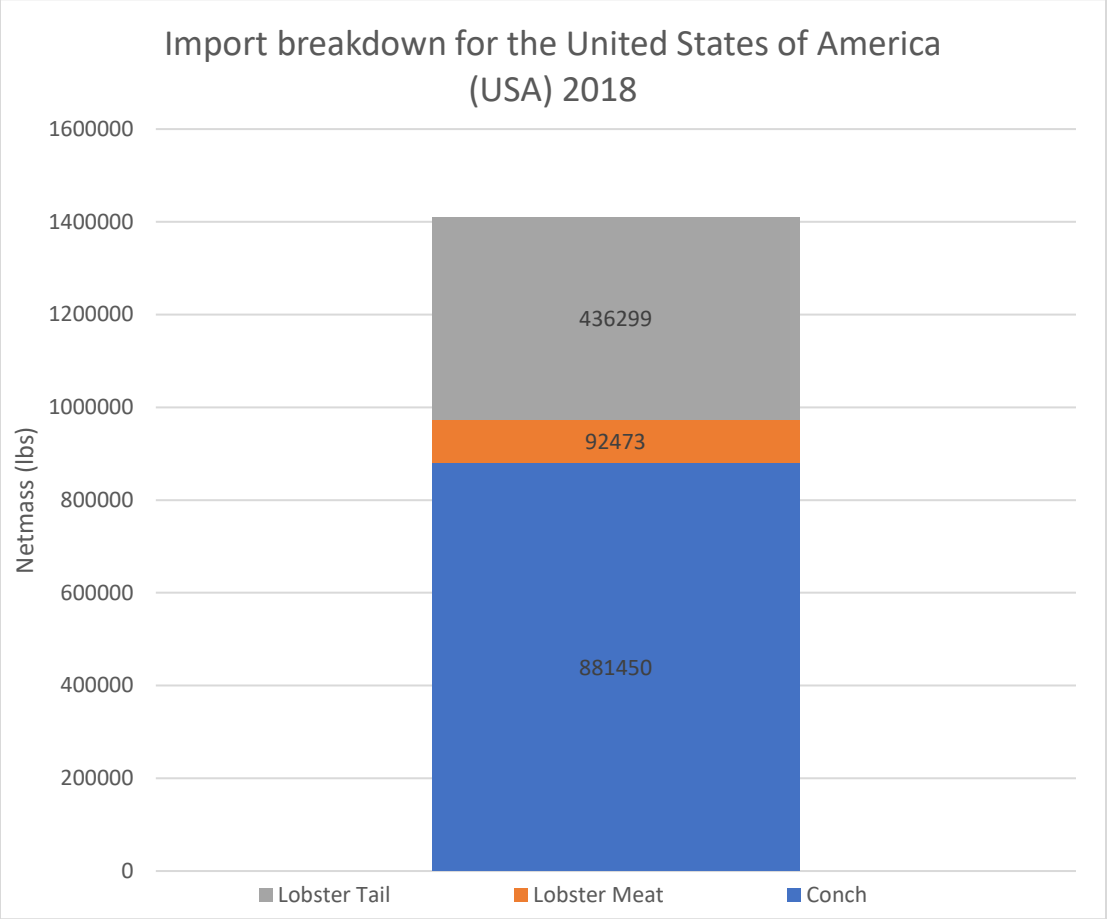
Figure 8: Graph and table of spiny lobster and queen conch importers



Country	Australia	Barbados	France	Greece	Hong Kong SAR, China	Mexico	Spain	Republic of China Taiwan	United Arab Emirates
Lobster Tail	26000	9360	1201	2202		34880			3003
Lobster Meat		3000	78440	25232	10000	12372	35627	103460	80623
Conch		1500							

Source: BFD, 2018

Figure 9: Graph of seafood breakdown exported to United States (2018)



Source: BFD, 2018

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, Belize ***needs to identify additional and niche markets for marine and seafood products.***

Major commercial players

The majority of fisheries catch in Belize are purchased and processed by cooperatives and fishing companies (summarized in Table 4). There are currently two (2) seafood processors (Rainforest Seafoods and Fein Catch) and four (4) active fishing cooperatives operating in Belize. The cooperatives are Northern Fishermen Society Limited, National Fishermen Producers Cooperative Society Limited, Rio Grande Fishermen Cooperative, and Placencia Producers Cooperative Society Limited (who are mainly linked to seaweed farming).

Cooperatives

The two largest cooperatives are Northern Fishermen Cooperative Society Limited (the largest in operation & 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. The managing committees negotiate with foreign buyers for prices and shipment schedules. Usually, a cooperative will establish a relationship with a particular buyer, working exclusively with him/her for several years, but the contract is renegotiated each year. Northern Fishermen Cooperative, for example, 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% "market clean" conch, 95% "market clean" conch, lobster tails, lobster head meat, whole live lobster, blanched lobster (Northern Fishermen Cooperative, 2019).

In addition to implementing management measures such as size limits and seasons to the two fisheries, sanitary measures developed nationally under the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Hazard Analysis and Critical Control Point (HACCP) certification which is an international recognized preventative risk management system for safety in food processing. HACCP certification of certain commodity types is a pre-requisite for sanitary certification (BAHA, 2018). ***In addition to health and sanitary certifications, other (sustainable seafood) certification programs (E.g. Marine Stewardship Council (MSC), or Seafood Watch) should be reviewed and considered for application as such certifications may. This increase the competitiveness of cooperatives in the seafood sector and increase their market access.***

An ongoing initiative being conducted by 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 program, the project has incorporated the "Tally" app- a software developed by ThisFish Inc. (National Fishermen Producers Cooperative Society Limited & The Nature Conservancy, 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 representation of fisherfolk on managing board and little long-term benefits afforded to fishers that supply processors. Processors are able to buy fish at a higher price thus providing an immediate incentive to supply fish product to processors rather than cooperatives. There are two processors of spiny lobster in Belize: Rainforest Seafoods and Fein Catch.

Rainforest Seafoods is headquartered in Jamaica with operations across the Caribbean (Rainforest Seafoods, 2019). The processor 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 primarily 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.

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

Independent fishers

Independent fishers sell their catch to buyers in domestic markets. Finfish species are usually sold. 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, Belize City; Dangriga Fish Market, Stann Creek; and Punta Gorda fish market, Toledo. Fish markets are usually a subsection of larger produce markets, except for Conch Shell Bay in Belize City. ***There are currently no sanitary or phytosanitary standards being enforced at fish markets.***

Table 4: Summary of product exports by company

	Cooperatives		Processors		Independent/Fish Markets
Capture fishery product	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 (Annex4), 2019

Evolution of prices

The three products are sold at different prices by domestic market players (Table 5).The price per pound for spiny lobster and queen conch have steadily increased over the past 4-5 years, while finfish prices have fluctuated depending on time of year, species, and size. Upon collecting the current pricing standards from fishing cooperatives and processors, many representatives of the fisheries sector 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 being paid to fishers.

Table 5: Price range of seafood products (Values expressed in price per pound)

Seafood Product	Price Change	Fishing Cooperatives		Fish Processors		Independent fisher	
		BZD/lb	USD/lb	BZD/lb	USD/lb	BZD/lb	USD/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 (Annex 4), 2019 & Praxi5 Advisory Group, 2015

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

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 that place orders or “reserve” quantities of fish to be sold later. Most fishers sell their catch on a first come first serve 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 distribution channels in the domestic market.

Diversification efforts of fisheries

It is recognized that most fishing pressure is focused on the main 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 respects. However, following stock assessment surveys conducted by the BFD, a moratorium is now placed on the species (BFD, 2018).
- Seaweed farming has been another avenue currently being investigated by fishers and fishing associations to diversify and create alternative income for fishers in southern regions of Belize. Opportunities currently exist to create and market seaweed products for cosmetic and consumption purposes (TNC, 2019).

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

- Deep slope fisheries (DSF) are currently being investigated as a viable fisheries stock to be utilized. MCCAP in collaboration with BFD, has implemented the deep-sea development project. The outputs of this project 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.

3.3 Review of key strengths and concerns

The marine fisheries and seafood processing sectors have contributed significantly to Belize's economy. 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, it is also recognized that the increased pressure on stocks has yielded lower returns for fishers.

It has also been recognized that the finfish fishery has been in decline due to the shift in focus to spiny lobster and queen conch. It is imperative that new and niche markets are identified to decrease the dependency and concentration of exports to the United States markets; value addition strategies are developed; and additional underutilized fish stocks are utilized to bolster the oceans economy of Belize.

The sector has also made several notable steps in sustainable growth. Regarding the institutional and social aspects of the fisheries sector, the implementation of managed access regime has placed right-based fisheries at the forefront as fishers assume management responsibilities to protect fisheries. There are many ongoing projects to diversify livelihoods of coastal communities, provide alternative income for families, and enabling 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 key trade issues highlighted and potential responses (BFD, 2019 & Interviews (annex4), 2019)

Sector	Issue Code	Key issued highlight	Proposed Strategy
Marine Fisheries	I4	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	I5	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 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.

PART IV: Oceans Economy Assessment and Value Chain Analysis

This section describes current standards and assesses the potential of the sectors under consideration in terms of the other four UNCTAD Oceans Economy pillars (Annex 4): 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 section, there are multiple projects and initiatives being conducted by stakeholders of the fisheries sector. Ongoing projects and initiatives in each of the chosen sectors are discussed in further detail where linkages and opportunities are highlighted to form complementary actions for a cohesive strategy.

4.1 Marine fisheries

Harvesting of finfish was done mostly in the 1970s and 80s where production peaked in 1983 with 1 million pounds. The fisheries transitioned to focus on crustaceans and mollusc hereinafter. In 2010, Rainforest Seafoods established a station in southern Belize where its production of finfish has declined over the years from over 500,000 lbs to 100,000 lbs in 2019 (Grant, 2019).

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

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

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. To prepare this plan, 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 DSF in Belize. The Belize Federation of Fishers (BFF) has been listed as the entity to work closely with fishers to develop and implement a DSF small business venture in Belize. Both reports have highlighted key aspects of developing DSF to consider in the development of this OETS report which will be

highlighted below. This project is ongoing and is expected to be completed in 2020 (Grant, 2019).

Sustainable use and conservation of marine resources

The BFD conducts research and monitoring programs in accordance with its main responsibilities and mission (BFD, 2018). Most monitoring programs for capture fisheries are targeted toward spiny lobster, queen conch, sharks, and sea cucumber. Data collected on finfish include production and export from some processing companies, sample catch landing and CPUE 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, a means for immediate electronic data entry should be explored by the department. For example, real-time data entry through electronic tablets whereby catch landing information may be access in real time.***

The Capture Fisheries Unit (CFU) of the BFD guided by the precautionary principle has adopted the adaptive management framework (AMF) for monitoring its two main fisheries (queen concha and spiny lobster) (Martinez,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 DSF, the BFD may consider establishing a robust data collection program for finfish where relevant and credible data streams are identified in order to adopt the AMF framework for finfish as well.***

Capacity development

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 DSF is being made. Equipment such as conversion kits, manual and electric rigs, tool kits, and ice boxes were procured to assist fishers partaking in DSF.

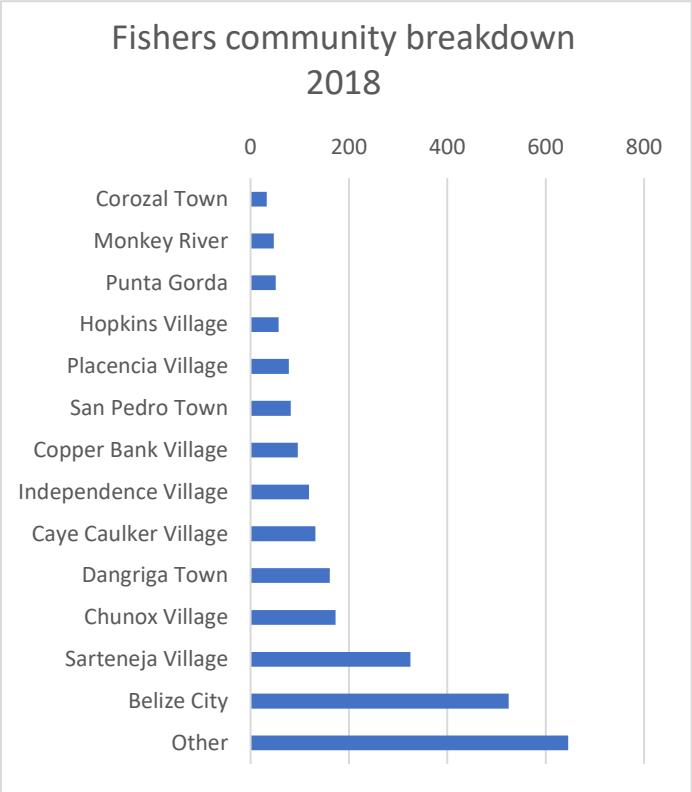
The lack of effective infrastructure may constrain the development of a sector and hinders the ability to trade. Risks associated with inefficient infrastructure may result in reduced production, delay in movement of goods, a delay in arrival of goods, and additional costs that may be indirectly linked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

Belize's fishing fleet consist 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 and have proven to be a 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.***

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 standard: sensory evaluation, proper icing, and value addition.

Figure 10: Number of fishers in coastal communities of Belize

Source: BFD, 2018



With this small start up of DSF, MCCAP has undergone the application and selection process of beneficiaries for receiving DSF training and equipment (Grant,2019). Criteria for selection included the level of experience and traditional knowledge of DSF. The project identified 64 beneficiaries of which 2% were women. Communities that beneficiaries live are Belize City, Dangriga, Hopkins, and Seine Bight Human and capital capacity.

The potential impacts of investing in DSF will yield positive results for the fisheries sector. In addition to providing an alternative income source for fishers and coastal communities, investments will directly reduce fishing pressure in Belize's other fisheries. As the current regulations stand, there are no set seasons for finfish (with the exception of the Nassau grouper). Therefore, fishers may use profits from catch to supplement income during closed seasons of the main fisheries such as those of lobster and conch.

The area of most concern is the environmental impact of DSF. The ESSMP (2019) outlines impacts associated with the fishery including pollution, threat of over-fishing, by-catch, harming protected or vulnerable species, and 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 (ESSMP, 2019, p. 18). Guidelines developed by the ESSMP can also be reviewed and evaluated alongside 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. In doing so, this This may align Belize's DSF development with internationally recognized measures and facilitate knowledge transfer.

DSF is still in its early development phases. As MCCAP continues to monitor and report on catch landings on species caught with some regularity (Annex 6), challenges encountered, and

potential risks, ***management authorities may seek to support its development by facilitating investors for the development of investment in transport and processing infrastructure.***

Improving Market access

A supermarket survey was conducted [xviii] to identify price ranges of seafood as compared to imported seafood product (table 7)[xix]. 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 with labelling and identification of finfish species were also spotted. 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 methods of production, 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 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.***

Table 7: List of fish products in Belizean supermarkets

Fish name as seen on label	**Price per pound ($/lb) BZD**
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: Publix Supermarket, Save-U, & James Brodie and Co. (2019)

Fish markets and landing sites present in coastal communities and in Belize City have some infrastructure for scaling, gutting, and filleting finfish. Infrastructure of fish markets consist 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 strategies. ***Marketing for finfish should be improved to increase 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.***

Domestic consumption and links to tourism

A restaurant (n=75) and retailer (n=5) survey were also conducted by Praxi5 Advisory Group (DSF Business plan, 2018) to determine the market demand of finfish procured from DSF and ascertain the viability of the business venture. Results indicate that over 90% of restaurants surveyed had a local fisherman as their main seafood supplier. Reliability of seafood supply however, resulted in mixed response with only 40% stating the supplier was reliable. As mentioned in earlier sections, 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 figure on, the exact 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 the tourism sector in Belize and has listed restaurants and hotels in tourism hotspots as having high demand for finfish. With the exception of the restaurant and retail survey summarized above, little information is provided as to the exact consumption and demand for finfish in the tourism industry. Naturally, it is assumed that seafood consumption is high in areas of high coastal tourism.

Belize's annual seafood imports (Table 8) suggests 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 product.

Table 8: Belize marine product imports from 2015-2018 (SIB, 2019)

Year	2015	2016	2017	2018
Belize marine product import (lbs)	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 ($ USD)	$ 395,467.00	$ 402,340.00	$ 237,755.00	$374,911.50

Source: SIB, 2019

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.

MCCAP sub-project Pesca tourism

Sustainable tourism requires the active participation in local communities and other stakeholders, as well as equitable benefit sharing (UNCTAD, 2018). MCCAP has launched a subproject "Pesca tourism as an alternative livelihood opportunity" which has been introduced as a diversification project for reef dependent coastal communities. The project has recently launched and has produced a Sarteneja Beach Trap Peasca Tour Association Business Plan (Praxi5 Advisory Group Ltd., 2018), and an Environmental and Climate Change Safeguards: Sarteneja Village Fishers "PESCA and SULFA" Tourism and Sport Fishing Alternative Livelihood Sub-Projects Technical Report (Nextera Environmental and Engineering Consultants, 2018).

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.* (MCCAP, 2018)

Participants of this pilot require several licensing agencies to properly operate this venture. Below, list the requirements are needed:

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 (SBTPTA) 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 with obtaining standard tour operator licenses for the SBTPTA. Therefore, for this alternative livelihood opportunity to continue fisheries authorities and tourism authorities may aim to ***cement this linkage between fishing and tourism to optimize economic benefit and support alternative livelihoods in these northern communities.*** Other actions and marketing strategies may also be considered if positive results are yielded from the pilot.

International markets

Though historically finfish have been exported mostly to the United States, Jamaica, and Guatemala, there are untapped markets that may prove viable for Belize finfish fisheries. As the current situation stands for the potential for market expansion into regional markets, two markets

have been identified for potential sale of Belizean finfish: Mexico and the Caribbean States. Due to the geographic proximity, these markets provide an excellent opportunity for the export 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% between 2012-2015 (SIB, 2019). In 2014, negotiations began for a partial scope a PSA between the two countries. A general framework and a schedule for the negotiation is in the process of being established for a PSA between Belize and the Mexico. (DGFT, 2019).

> *The establishment of a PSA would allow domestic producers to trade an agreed set of goods on a less restrictive basis with Mexico. The Directorate General for Foreign Trade (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 developing the OETS strategy include existing tariffs, Non-Tariff Measures (NTMs), 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 National Trade Policy 2019-2030. Priority actions developed in this strategy should consider the policy prescriptions outlined in Section 9.6, "Exclusive Economic Zones", of the National Trade Policy. Section 9.6 of the NTP supports undertaking assessment of DSF within Belize's EEZ, reviewing related legislation on finfish, and promoting investments on the development of DSF. With the exception of designated processing areas (DPAs)[xx] (Section 9.3, Policy Prescription 3), section 9.3 of the NTP 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 EEZ.

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; and
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; and
4. Promote high standards and quality in production systems under these programmes

Source: Taken from: National Trade Policy 2019-2030

4.1.1. SWOT analysis for marine fisheries sector

The following table illustrates the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis pf the marine fisheries sector that was conducted in the stakeholder workshop and verified in the report. These results were used to elucidate actions and level or prioritization.

Strengths	**Weaknesses**
• 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 practice guidelines exist • Trade Policy space exists • Processing capacity and some infrastructure • Logistic 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 6 months of the year	• Minimal legislation regarding finfish • SPS measures addressing fin fish sp. • 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**
• Market expansion (domestic, regional and international) • Diversification of fishermen 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 a Preferential Trade Agreements are underway • Use of fish waste, biproducts and handicrafts for new product creation • Job creation for fish processing	• 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: UNCTAD Belize stakeholder workshop (2018)

4.2 Sea-food processing centers

Sustainable use of marine resources

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 secured biodiversity and proven to a have a 'spillover' effect from these 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 fishing season, minimum size limits, and establishing a TAC (for queen conch), the BFD monitors and tracks the fishery performance using the adaptive management framework (AMF) strategy (McDonald et al., 2017). Guided by an ecosystem approach and the precautionary principle, the BFD has successfully managed the two main fisheries which has resulted in steady yields of high-quality seafood production.

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

Labor characteristics at processing centers

Current infrastructure of seafood processing facilities for spiny lobster and queen conch have long been established. There are currently four processing centers, over eight landing sites and receiving stations with docks, refrigerated rooms, and many transport vessels and vehicles to carry product to main processing stations. Additional infrastructure at main processing stations include ice machines to facilitate cold storage of seafood product at sea, fuel station, holding rooms, chill rooms, and blast freezer rooms for final product storage. Some processing centers also include tanks for live lobster where whole live lobster stored. Processing centers 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 cost of production 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 number of days fished. Fishers are then paid by the set price per pound by the processor.

The type of labor in processing facilities are classified under the following roles: weighters, cleaners, packers, and quality control personnel. According 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) (UNCTAD, 2018). This estimate includes fish processor personnel, fish market cleaners (scale, gut, fillet fish), and other intermediary agents.

Table 7: Employment in the fish sector, 2011-2013

Employed in capture production (#individuals)	Source	Employed in other fisheries dependent activities (#individuals)	Source	Total
2,500	*CRFM, 2015 (estimate)*	**1,000**	*Gongora, 2012 (estimate)*	**3,500**

Source: Caribbean Regional Fisheries Mechanism (CRFM) Statistics and Information Report, 2014.

Fish processing personnel in these facilities are estimated to be over 200 individuals. Of which roughly 60-70% of processors in cooperatives are women. Income brackets of processing personnel range between $3.30 BZD30BZD/ hr - $7.00 BZD00BZD/hr. Number of hours worked per week vary 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 product being supplied by fishers. Processing personnel work long hours to process fishers' catch. Typical working hours for cooperatives are 7AM- 5PM. However, during the beginning of a season, opening times may be as early as 5AM and closing as late as 12AM due to bulk of product that needs to be processed.

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 the livelihoods of women in fisheries (FAO, 2017).

Improving market access: access to niche markets

Fish processors have explored several options to diversify their product 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. There are opportunities to expand Belize's seafood market base. However, challenges and barriers to access markets and trading seafood need to be addressed. These include establishing a traceability system and meeting certain certification standards (e.g. MSC).

Other challenges to market access exist as Belize is not a party to trade agreements. Belize's relationship with the Republic of China Taiwan may also hinder its market access to mainland China, - a potentially lucrative market for spiny lobster in particular (Sea Fare Group, 2015).

In addressing traceability, The Nature Conservancy (TNC) in collaboration with the BFD and National Fishermen Producers Cooperative Society Limited Society Limited have established a

spiny lobster traceability system as a fishery improvement project. The system was launched last year (June 2018) when the development, installation, training, and use of the Tally App, a software developed by ThisFish Inc., was incorporated into the Cooperative's receiving station protocol for spiny lobster. Project activities 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 Society Limited Society Ltd, 2018).

Though this pilot was launched just over a year ago, results may yield positive outcomes for value addition strategies for seafood product. ***The tool may be further expanded to cover queen conch and, possibly, finfish to create a multispecies traceability system.*** Traceability is important to consider as a tool for adoption because it strengthens brand confidence and the integrity of seafood procured for consumers. On the operational level, traceability may be used to mitigate risk and reduce liability costs (UNCTAD, 2018). As National Fishermen Producers Cooperative Society Limited processes all three products, the pilot project jointly implemented by TNC can be streamlined to these species. ***The adoption of this technology is an opportunity to incorporate an innovative tool to provide value addition to seafood products.***

Domestic

The supply of spiny lobster and queen conch in domestic markets is fairly similar to that of finfish, although. Yet most catch from fishers are landed at receiving stations of cooperatives and seafood processing companies. At receiving stations, plant personnel inspect, weight, and class catch to determine total value to pay fishers for their catch. In this process, a percentage of fishers' catch is classified as 'rejected' according to the standards of seafood processing centers 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 of the current 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).

Lobster traps should be used in order 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. However, few fishers use traps in the capture of spiny lobster and change in fishing practice is needed in order to achieve better results. Lobster traps are also seen as an added cost for fishers where equipment requires storage, upkeep and repair every year.

Another method to capturing and transporting whole live lobster is to install a tank to hold 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 for holding tanks for 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.

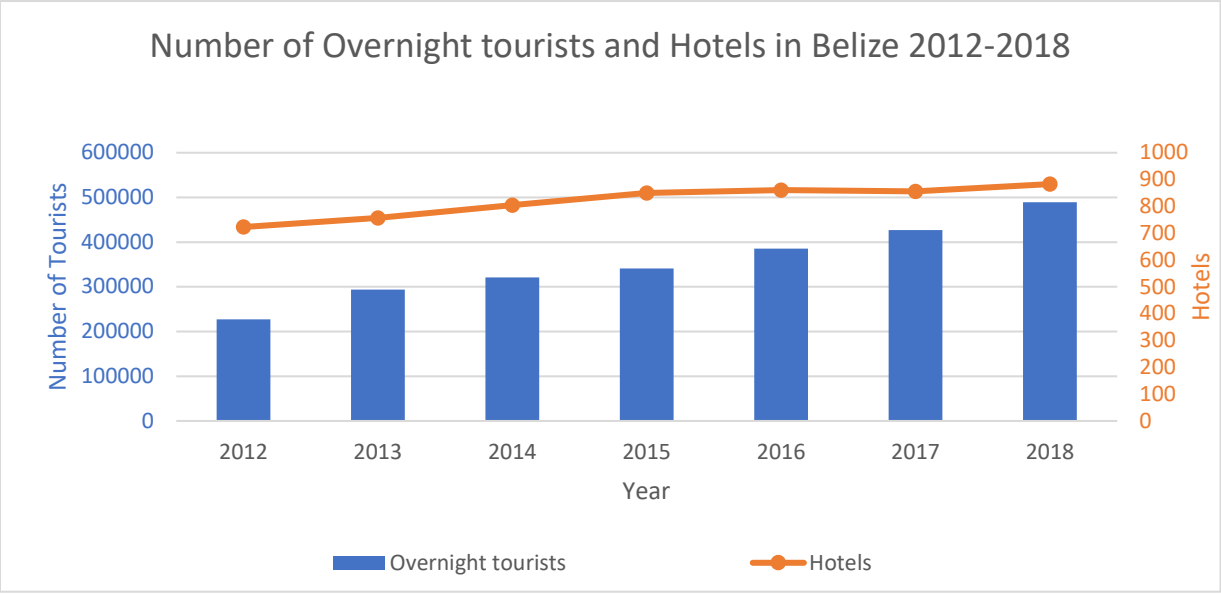
Linkages to tourism (Hotel & Restaurant)

Tourism is the highest contributor to GDP in Belize. Its contribution ranges from 20-25% (direct contribution) to 40% (total contribution) (UNCTAD,2018).[xxi] As a popular destination for snorkelling, 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)*

The fishers and seafood sector supply the tourism sector by directly selling to restaurant and hotel managers. This steady increase of tourist visits (Figure 11) also indicate a demand for authentic Belizean food dishes including seafood products.

Figure 11: Number of registered hotels and overnight tourists



Source: BTB, 2019

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 incentivised approaches to sustainable seafood products, the program may then work with other internationally recognized certification programs such as MSC, Fair Trade, and Seafood Watch. While the programme currently targets restaurants and hotels. However, there is intention to expand to supermarkets, fish markets and seafood purveyors in the future.

Most restaurants that are 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 activities described above, 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 to develop domestic marketing strategies. Possible strategies and actions to boost domestic demand are as follows:

- Fishing cooperatives and processing centers may consider developing smaller packaging for spiny lobster tails and queen conch meat (<5lbs). (UNCTAD-DOALOS OETS Belize workshop, 2018)
- Develop a domestic branding strategy for Belize spiny lobster and queen conch to be sold in supermarkets, hotels, and restaurants. (UNCTAD-DOALOS OETS Belize workshop, 2018)
- Establish linkages between fishing cooperatives, processing centers, 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 product to inland restaurants, supermarkets, and areas of high tourism (i.e. Cayo district). (Praxi5 Advisory Group, 2018)

Identifying niche markets, anticipated standards, & barriers

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

Spiny Lobster

As mentioned above, 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 lobster, other niche markets may be explored and expanded through secondary processing and bioprospecting and pharmaceutical research.

As 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 centers. In an effort to reduce waste, developing by-products of spiny lobster may be explored to generate additional products such as 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 which may be used in the production of food flavors, fertilizers or pharmaceuticals (Nguyen, 2017).

Though little interest has been given to developing secondary processing facilities in Belize, governmental agencies and 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 flavoring).
- 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. Three Main products coming from this species include: "are market clean" conch meat (75% clean), fillet conch meat (95% 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 for the export of "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 (2017), 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 still 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 cayes (small sandy islands) to prevent wave action from eroding settled land.

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 of America 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, as well as identifying 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.***

Linkages with the National Trade Policy: Trade and the Environment (10.4)

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; and
6. Conduct regular legislative reviews aimed at strengthening policies that protect the environment.

Source: Taken from: National Trade Policy 2019-2030

4.2.1. SWOT analysis for seafood processing sector

The following table illustrates the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis of the seafood processing sector that was conducted in the stakeholder workshop and verified in the report. These results were used to elucidate actions and level or prioritization.

Strengths	**Weaknesses**
• 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 (Fishermen Cooperatives) • Existence of fishing organizations (fishermen cooperatives) • Strong fishery management in place • Availability of fishing fleet and manpower • Good logistical channels • Branding strategy exists for lobster and conch • CITES compliance • Stable currency	• Low potential for 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	**Threats**
• 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	• 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: UNCTAD Belize workshop (2018)

4.3. Summary of key issues and potential actions

Table 8: 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. ***(I2)***
	I1	With the development of DSF, the BFD may consider establishing a robust data collection program for finfish and adopting the AMF framework for finfish as well. ***(I1)***
	I4	The BFD may consider working with BELTRAIDE in providing financial access to fishers for obtaining DSF equipment. ***(I4)***
	I4	Management authorities should seek to support its development by facilitating investors for the development of investment in transport and processing infrastructure. ***(I4)***
	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. ***(I4)***
Seafood Processing	I5	Improve the working conditions and social security for processing personnel. ***(I5)***
	I5	Reduce the entry of 'rejected' seafood product into local markets ***(I5)***

4.4 Value chain of target species

A value chain analysis was conducted on the target species of this strategy to determine gaps in the efficiency of supply 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 uptapped 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, 2018). Figure 12 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 12: Simplified representation of fisheries value chain format

Source: Reprinted from "Blue Biotrade: harnessing marine trade to support ecological sustainability and economic equity". United Nations Conference on Trade and Development (2018), p.20.

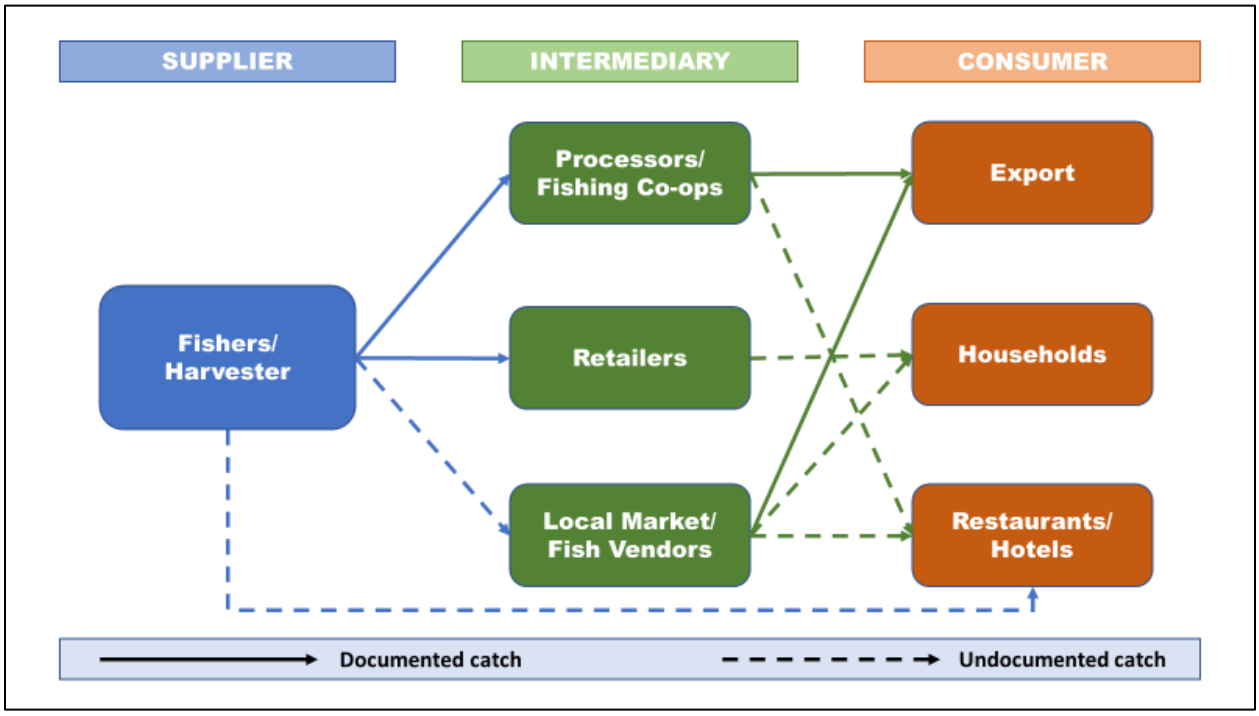
Summarized in the "Overview of economic and trade aspects of fisheries and maritime tourism sectors in Belize":

> *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 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, 2019)

Marine Fisheries: Finfish

Figure 13 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 decreased in the past 5 years and it is estimated that most finfish catch is sold in domestic markets. ***Therefore, in addition to focussing on strategies to export finfish to other international markets, the government may consider strategies to target local markets and developing a local sustainable brand in order to increase regularity of the supply of finfish.***

Figure 13: Belize finfish supply chain illustration



Source: BFD, 2019; Praxi5 Advisory Group, 2018; & OETS interviews (Annex 4))

Exporters

Rainforest Seafoods have been the main exporter of finfish. 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 are paid according to pricing listed in Table 12. Finfish are packed, frozen and shipped in large freezers. Further processing and packaging of finfish take place in the importing country.

Table 9: Category and price per pound of finfish species

Category	BZD $/lb
Mutton Snapper	3.50
Snappers/groupers	3.00
Grunts/Jack/Shad	1.00

Mackerel/Snook	2.00
Yellowtail Snapper	3.75

Source: BFD, 2019 & Rainforest Seafoods, 2017

Considering the prices of finfish bought from fishers by one exporter, there is little opportunity to yield suitable revenue for fishers selling large quantities of finfish for export. 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.*** Drawbacks to this approach include, however, higher costs of transportation.

Domestic

Regarding the unverified supply chain capacity (depicted by the dashed lines in figure 13), 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. Main findings of interest include:

- Restaurants' main finfish supplier were fish harvesters, as 91% of them purchase directly from fishers) where 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% of the respondents stated that finfish supply was inconsistent.
- In terms of packaging, 67% of the respondents stated that they prefer unpackaged finfish, 25% prefer packaged finfish, and 8% had no preference.

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

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

- Encourage fishers and fisher associations to develop a local distribution center.
- 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. Cancun, Mexico).

Seafood Processing

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

Spiny lobster

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

- *Behavioural change in fishing and lobster harvest practices: Dive and "casita" fishermen 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 in order to consolidate catches from boats that can't 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).

Annex 8 is an illustration developed by Praxi5 Advisory Group depicting local market value chains where majority of the spiny lobster sold comes directly from fishers (hotels (50%), households (42%), and restaurants (71%)).

Queen conch

Regarding the queen conch value chain, analysis conducted by Sea Fare Group (Annex 9) 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. Through funding such research activities with the aim to change "avoid" listing, the return of profits yielded may not be very high. Also, 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.

Annex 10 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%), households (42%), and restaurants (71%)). This 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.*

PART V: Strategic Design and Action Plan

This section proposes the strategic development recommendations and the action plan. The action plan is designed to be implemented over a 5-year period (2020-2025) using the findings from the sections of this report namely:

- the overall strategic goal developed for each sector,
- the key issues and potential actions highlighted at the end of section 2, 3, and 4,
- the SWOT analyses conducted for each sector, and
- the value chain analyses.

The table below 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.

Marine fisheries	
Goal: to increase capacity of fishers for the sustainable harvest of these commercially important deep slope red snapper fish species.	
Strategy Code	**Strategies**
MF1	To support training and capacity building opportunities for fishers to develop the deep slope fishing sector.
MF2	To support the acquisition of suitable fishing vessels, gear and equipment to allow fishers access to the fishery resources.
MF3	To support increased export of finfish (fresh and frozen fish) and finfish products to regional and international markets (the United States and Mexico, etc.)
MF4	To support the adoption of HACCP standards for fish processing/handling facilities for fish and fish products destines for domestic consumption
MF5	To support increased domestic consumption (including through tourism) through national fish consumption educational campaigns (media presentations on social media, radio and tv, posters, video clips, fliers, etc.)
MF6	To cement the undeniable linkages between fishing and tourism with the goal of optimizing economic benefits for both sectors (e.g. pesca-tourism that is currently being tested in Sarteneja and northern communities)
Seafood processing	
Goal: to add value to commercially targeted species to access to niche markets and to develop and implement smart marketing approaches for fishery products.	
Strategy Code	**Strategies**
SP1	To support access to new and strategic niche markets with the assistance of BELTRAIDE and other government agencies.

SP2	To support export-oriented seafood business establishments to increase revenue generation through use of smart marketing techniques (market intelligence gathering, sale/export of fishery products during highest demand/highest tourism periods).
SP3	To support and expand domestic sale (marketing of small packages and increase availability of high-quality seafood products in the domestic markets).
SP4	To support increased domestic consumption of fishery products by tourism sector through legal acquisition from BAHA and HACCP certified and licensed seafood business establishments.
SP5	To strengthen the linkages between fishing and tourism to increase economic benefits to both sectors.
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.
SP7	To support fisheries law enforcement through increased monitoring, control and surveillance.

Action Plan 2020-2025

Sector	Issue Code	Related Strategy Code	Possible interventions/ strategies	Actions	Priority level	Leading agency	Supporting agencies	Related Policies& Projects	Timeframe (year)					Output /deliverable	Indicator/Impact	Cost Estimate (USD)
									1	2	3	4	5			
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	$ 5,000
				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
	I1	MF1,MF2, MF3,MF4, MF5,MF6	Develop regulations for finfish to create a safeguard for fish stocks	Conduct deep sea finfish stock assessment	High	BFD	Marine reserve comanagers	NTP (2019) Section 9.6, p. 49, Policy Prescription 1 & MCCAP	X					Report of finfish stock assessment		$ 50,000
				Validate deep sea finfish stock assessment	High	BFD	Marine reserve comanagers	MCCAP	X					Finfish and deep-sea Management Plan		$ 5,000
				Fisheries regulation is drafted to establish minimum size limits and possible TAC for finfish species	Medium	BFD	Marine reserve comanagers	NTP (2019) Section 10.4, p. 56, Policy Prescription 6 & MCCAP		X				Regulations establishing TAC, gear restriction and/or size limits	Increase in finfish size and quality	$ 5,000

		MF1,MF2, MF3,MF4, MF5,MF6	With the development of DSF, the department should consider establishing a robust data collection program for finfish and adopting the AMF framework for finfish as well.	Conduct revision of data collection methodologies, data inventory, and mapping of finfish datasets	High	BFD: CFU			X					Accessible finfish data	Informed decision making and inputs to the Adaptive Management Framework	$ 5,000
				Conduct workshop with co-managers and stakeholders select reliable data sets for the AMF framework	Medium	BFD	Marine reserve comanagers			X				Adaptive Management Framework for finfish	Informed decision making to ensure productive fishing industry	$ 5,000
	I2	MF1-MF6& SP1-SP7	Assess the capacity of data management procedures.	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		$ 5,000
				Develop a data entry management protocol for fisherfolk dataset	High	BFD	CITO		X							$ 5,000
				Hire additional staff for database management system (1)	Medium	BFD	MAFFSD		X	X				Trained staff		
				Conduct training in database management for fisherfolk database	High	BFD	CITO		X	X	X	X	X			$ 20,000
				Institute licensing registration late fee and deadline for registration	High	BFD	MAFFSD			X	X	X		Revenue collected by GoB	Increase in revenue collection; decrease in data back log	

	I3	SP7	To support and strengthen fisheries law enforcement collaborations through increased monitoring, control and surveillance.	Conduct assessment to quantify volume of marine species extracted and exported from IUU fishing	High	BFD	Belize Port Authority, FAO, SIB		X		X		X	Report presenting estimated fisheries production and export figures derived from IUU assessment	Reduction in IUU fishing	$ 7,500
				Conduct assessment of vessel, staff, and equipment needs to reduce IUU by half over the next 5 years.	High	BFD	Marine reserve Comanagers, Coast Guard, Police Dept, BDF		X					Audit report of enforcement activities and Recommendations to improve enforcement protocol	Reduction in IUU fishing	$ 7,500
				Training of enforcement officers and other enforcement agencies to continue collaborative enforcement of fisheries laws	Medium	BFD	Marine reserve Comanagers, Coast Guard, Police Dept, BDF		X	X	X	X	X	Strategic enforcement plan for target species	Reduction in IUU fishing	$ 25,000
Marine Fisheries	I4	MF2, MF3, MF6, SP1	Facilitate financial access to fishers for obtaining DSF equipment.	Conduct round table discussion with stakeholders and fishing associations to determine pathways and access small business finance programs for fisherfolk	Medium	BELTRAIDE	BFD, BFF, Belize Credit Union League, DFC	MCCAP-DSF subproject		X	X	X		Acquisition of DSF equipment	Increase in deep sea finfish production	$ 5,000
		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 supply and sales of finfish in retail stores.	Medium	BFD	BFD,			X				Guidelines on the acquisition, sale, and distribution of seafood products in retail stores	Increased recorded domestic sales	$ 5,000

				Develop and implement a standardized seafood labelling protocol for domestic seafood	Medium	Belize Bureau of Standards	BFD		X	X				Seafood label standards for domestic products		$ 5,000
		MF1, MF5, MF6	Promote the supply and transport (ease of access) of fresh seafood products to inland areas, particularly inland towns (eg. Belmopan, San Ignacio, Benque Viejo) and, Support increased domestic consumption through tourism sector	Host roundtable discussions with management bodies of tourism sector to develop protocol or guidelines on acquisition of marine and seafood products	High	BFF, 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
				Develop and implement a distribution channel strategy to readily supply marine finfish to hotels and restaurants	Medium	Independent consultant, DSF Fishers	BFF, BTIA, BFD	MCCAP-DSF subproject		X	X			Procedures and guidelines on handling and transporting finfish and seafood products	Increased recorded domestic sales	$ 100,000
		MF6	To cement the undeniable linkages between fishing and tourism with the goal of optimizing 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 (SACD)	BTIA, BTB, SACD	MCCAP Pesca Tourism Sub-project	X	X				TBD	TBD	TBD
				Consult with Belize Tourism Board and BTIA on developing a specialized tour	Medium	MCCAP, BFD	SACD	MCCAP Pesca Tourism Sub-project	X	X				TBD	TBD	TBD

				operator license for fishers												
				Develop criteria for specialized tour operator licenses for fishers	Medium	BTB, MCCAP, BFD	SACD	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	High	DGFT	BFD	NTP (2019) Section 9.6, p. 49, Policy Prescriptio n 1	X	X					Increased Export of finfish	
				Identify potential buyers so the trade is feasible (eg. Hotel associations in Cancun)	Low	BELTRAI DE	DGFT					X	X	Market study on potential buyers, feasibility assessment, and projected figures	Increased Export of finfish	$ 10,000
				Investigate options for the export by air freight of fresh fin fish to international markets of close proximity (eg. Cancun, Mexico).	Low	DGFT	BFD, BELTRAID E				X	X	X		Increased Export of finfish	$ 10,000
		MF1, MF4,MF5	Improve and standardize fish market displays (access to ice, running water, and an effective	Conduct fish market needs assessment in compliance with SPS Standards in all fish markets of Belize	High	Belize Agriculture & Health Authority	BFD		X					Report on recommendations and plan to implement health and safety standards at fish markets in Belize		$ 5,000
				Review current and update or develop minimum sanitary	High	Belize Agriculture & Health Authority	BFD		X	X						$ 10,000

			drainage system)	standards for fish markets and stands												
				Establish a fish market use payment fee for sale of seafood product	Medium	Belize City Council	BFD					X	X	Revenue generated for upkeep of market facilities	Upkeep and compliance with health and safety standards	$ 25,000
		MF4	Support the implementation of SPS measure 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				Trained independent fishers on seafood handling standards	SPS measures are enforced at fish markets	$ 50,000
Seafood Processing	I5	SP2, SP6	To support access to new and strategic niche markets with the assistance of BELTRAIDE and other government agencies.	Hire marketing consultant to conduct market research and branding of seafood products	Medium	BELTRAIDE, DGFT	BFD	Fish Right Eat Right		X	X			Branding campaign	Increase access to international markets	
			To support export-oriented seafood business establishments to increase revenue generation through use of smart	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	$ 20,000
				Conduct queen conch pearl harvest and export assessment	Medium	BFD	Fishing cooperatives, pearl exporters			X	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

			marketing techniques (market intelligence gathering, sale/export of fishery products during highest demand/highest tourism periods)	Determine and institute queen conch pearl export criteria and regulations	Medium	BFD	MFFSD					X	X	Queen conch pearl harvest and export regulations	Increased reporting on queen conch pearl exports	$ 20,000
		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	TNC & Fishing Cooperatives	BFD	Fishery Improvement Project	X	X				Multispecies traceability system	Increased market access; increased price per pound of seafood product	$ 200,000
				Monitoring, upkeep of traceability system and reporting	Medium	TNC & Fishing Cooperatives	BFD	Fishery Improvement Project	X	X	X	X	X			$ 110,000
		SP2,SP4	Support the application to other certification programs to increase market access,	Open dialogue with Seafood Watch and independent parties to conduct assessment on Queen Conch and Spiny Lobster fishery sustainability	Medium	Independent consultant	BFD, Fishing Associations, Fishing Companies and Fishing Co-operatives			X	X			Report and action plan on removing Belize's seafood products from "avoid" category	Increased market access	$ 10,000

			innovation, and competitiveness in the seafood sector.	Develop Fisheries Improvement Programme for Conch and its preparedness for certification including MSC.	High	FAO, CITES and UNCTAD	BFD, Fishing Associations, Fishing Companies and Fishing Co-operatives		X	X				Program to assist queen conch industry in addressing weaknesses in sustainable fisheries		$ 25,000
				Conduct feasibility study on seafood certification programs such as MSC and FishChoice for spiny lobster and queen conch seafood certification	Low	Independent consultant	BFD, Fishing Associations, Fishing Companies and Fishing Co-operatives	Fish Right Eat Right		X	X			Report and recommendations on seafood certification programs that may add value to Belize's seafood brand		$ 25,000
		SP6	To support increased domestic use (lobster head meat) and marketing, including export of currently discarded fishery biproducts such as queen conch trimming that can potentially generate additional revenue to stakeholders.	Conduct market study for queen conch to identify additional niche markets (eg. By-products from pearls, trimmings, shells, operculum)	High	DGFT& Independent consultant	MFFSD			X				Market analysis and recommended actions for market access	Additional queen conch products and availability in local markets	$ 20,000
				Conduct market study for spiny lobster to identify additional niche markets such as food flavoring and pharmaceuticals	Medium	DGFT & Independent consultant	MFFSD			X				Market analysis and recommended actions for market access	Increased availability of lobster head meat in local markets	$ 20,000

		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 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	$ 50,000
				Conduct a lobster trap inventory and production status	Medium	BFD	BFF, Comanagers		X	X	X	X	X			$ 20,000
															TOTAL	**$ 920,000**

References

Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Retrieved from http://www.fao.org/fileadmin/user_upload/legal/docs/037t-e.pdf

Belize's 2016-2020 National Biodiversity Strategy and Action Plan (2016). Available at https://www.cbd.int/doc/world/bz/bz-nbsap-v2-p1-en.pdf; Retrieved 15th June 2019.

Belize Fisheries Department (2018). Conservation Compliance Unit. Retrieved from http://www.fisheries.gov.bz/units/conservation-compliance-unit-ccu-pg/; retrieved 31st July 2018.

Belize Fisheries Department (2019). Marine Climate and Adaptation Project STATEMENT OF CAPABILITY: Consultant to Develop a National Fisheries Policy, Strategy and Action Plan for Belize. Retrieved from http://www.fisheries.gov.bz/wp-content/uploads/2019/08/Fisheries-Strategic-Plan-_Advert-1-1.pdf

Belize Marine Turtle Report; Retrieved from https://drive.google.com/file/d/0B5CIdkJW1XLrNFllaHZFLTRxWk0/view

Belize Network of NGOs (2019, October 7). Belize's Small-Scale Fishery Requires Urgent Government Action via Modernized Fisheries Act [Press release]

Belize Tourism Board (2019). Statistics digest 2018. Retrieved from https://belizetourismboard.org/belize-tourism/statistics/

CARICOM (2019). CARIFORUM Member States sign Agreement to preserve trade with the United Kingdom after Brexit. Retrieved from https://caricom.org/media-center/communications/press-releases/cariforum-member-states-sign-agreement-to-preserve-trade-with-the-united-kingdom-after-brexit

CARICOM Thematic Group (2018). Technical Brief #1: Facilitating Intra-Regional Agri-Food Trade. Retrieved from https://caricom.org/documents/16578/ronnie.pdf

Caribbean Development Bank (2018). Financing the blue economy a Caribbean development opportunity. Retrieved from https://www.caribank.org/newsroom/news-and-events/blue-economy-caribbean

Caribbean Regional Fisheries Mechanism; Retrieved from http://www.fao.org/fishery/rfb/crfm/en

Castaneda, A. (2017). Presentation. Value Chain for spiny lobster in Belize. CRFM/UNU-FTP PROJECT CONCEPT: VALUE CHAIN APPROACH IN CARIBBEAN FISHERIES Fisheries Value Chain Workshop July 18th – 22nd 2016. Retrieved from http://www.crfm.int/~uwohxjxf/images/Belize_Presentation.pdf

Central America Fisheries and Aquaculture Organization (OPESCA); Retrieved from http://www.fao.org/fishery/rfb/ospesca/en

Coastal Zone Management Authority and Institute (2016). Belize Integrated Coastal Zone Management Plan (2016). Retrieved from https://www.coastalzonebelize.org/wp-content/uploads/2015/08/BELIZE-Integrated-Coastal-Zone-Management-Plan.pdf

Convention on the International Trade of Endangered Species of Wild Fauna and Flora; (Online) Available at https://www.cites.org/eng/app/appendices.php.; retrieved 13th June 2019.

Development Finance Cooperation (2019). Renewable energy loans. Retrieved from https://www.dfcbelize.org/loans/renewable-energy-loans/

Directorate General for Foreign Trade (2019). Belize: The National Trade Policy 2019-2030. Retrieved from https://www.dgft.gov.bz/national-trade-policy/

FAO (2009). The FAO International Guidelines for the management of Deep-sea fisheries in the High Seas; Retrieved from http://www.fao.org/fishery/topic/166308/en#targetText=The%20FAO%20International%20Guidelines%20for,vulnerable%20marine%20ecosystems%20(VMEs).

FAO (2005). Country Profile: Belize. Retrieved from http://www.fao.org/fi/oldsite/FCP/en/BLZ/profile.htm

FAO (2017). *Towards gender-equitable small-scale fisheries governance and development- A handbook.* In support of the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Foos Security and Poverty Eradication, by Nilanjana Biswas. Rome, Italy.

FAO (2018) The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals. Rome. Retrieved from http://www.fao.org/3/i9540en/i9540en.pdf

FAO (2019). EU provides €40 million to boost sustainable fisheries and aquaculture in Africa, the Caribbean and the Pacific. Retrieved from http://www.fao.org/news/story/en/item/1240838/icode/

Fein Catch (2015). Fein Catch Homepage. Retrieved from http://feincatch.com/

Fish Right, Eat Right (2018). Fish Right, Eat Right commitment to sustainable seafood. Retrieved from https://www.fishrighteatright.com/

Grant, S. 2019, A review of the Deepslope Demersal Fishery in Belize

Grant, S. (2019). Fisheries diversification sub-project: proposal and social safeguard action plan for exploratory deepslope fishing in Turneffe Atoll Marine Reserve and South Water Caye Marine Reserve. Marine Conservation and Climate Adaptation Project

International Commission for the Conservation of Atlantic Tunas; Retrieved from http://www.fao.org/fishery/rfb/iccat/en

Latin American Organization for Fisheries Development (OLDEPESCA); Retrieved from http://www.fao.org/fishery/rfb/oldepesca/en

Martinez, V; et al (2018). Managed access: a rights-based approach to managing small-scale fisheries in Belize. Food and Agriculture Organization. Retrieved from http://www.fao.org/3/CA2430EN/ca2430en.pdf

McDonald, G., Harford, B., Arrivillaga, A., Babcock, E., Carcamo, R., Foley. J., Fujita, R., Gedamke, T., Gibson, J., Karr, K., Robinson, J., & Wilson, J. (2017). An indicator based adaptive management framework and its development for data-limited fisheries in Belize. *Marine Policy.* 76, p28-37, Doi https://doi.org/10.1016/j.marpol.2016.11.027

Nguyen, T.T., Barber, A.R., Corbin, K. *et al.* Lobster processing by-products as valuable bioresource of marine functional ingredients, nutraceuticals, and pharmaceuticals. *Bioresour. Bioprocess.* **4,** 27 (2017) doi:10.1186/s40643-017-0157-5

National Fishermen Producers Cooperative Society Limited Society Ltd (2018). Strengthening traceability to meet market demand: Case study.

Nextra Environmental and Engineering Consultants (2019). Environmental Safeguards and Social management Plan Deep Slope Fishing MCCAP Alternative Livelihood Sub-Projects. Marine Conservation and Climate Adaptation Project.

Praxi5Advisory Group (2018). Deep Slope Fishing Business Plan 2018. Marine Conservation and Climate Adaptation Project

Price, M.D. (1987) Cooperatives and Development: The Lobster Fishermen of Belize; Yearbook (Conference of Latin Americanist Geographers), Vol. 13, 1987; University of Texas Press.

Prada, M. C.; Appeldoorn, R. S.; Van Eijs, S. & Pérez, M. M. 2017. Regional Queen Conch Fisheries Management and Conservation Plan. FAO Fisheries and Aquaculture Technical Paper No. 610. Rome, FAO. 70 pp.

Rainforest Seafoods (2019). Operations. Retrieved from https://rainforestseafoods.com/about/operations/

Rodney L., Maaz J. (2013), *Belize's Fisheries Act*, presentation. Retrieved from: http://www.rareplanet.org/sites/rareplanet.org/files/fisheries_act.pdf

Sea Fare Group (2015). International Market Analysis and Opportunities for Lobster and Conch from Belize.

The Commonwealth (2019). Effectively governing the oceans economy and boosting trade performance of small states. Retrieved from https://unctad.org/meetings/en/Contribution/ditc-ted-28112018-belize-ComSec-paper.pdf

The Nature Conservancy (2019). Sowing in the Seas: Aquaculture for Coastal Restoration in Belize. Retrieved from https://www.nature.org/en-us/about-us/where-we-work/latin-america/belize/sustainable-aquaculture-a-viable-economic-alternative-to-fishing/

The Summit Foundation (2017). Protecting Belize's reefs through fishing rights program from small fisheries. Retrieved from https://www.summitfdn.org/mesoamerican-reef/protecting-belizes-reefs-through-fishing-rights-program-for-small-fisheries/

The Western Central Atlantic Fishery Commission; Retrieved from http://www.fao.org/fishery/rfb/wecafc/en

ThisFish (2018). Fishery profile Belize spiny lobster by dive & trap. Retrieved from http://this.fish/fishery/belize-lobster-dive-trap/

UNCTAD (n.d.). About UNCTAD. Retrieved from https://unctad.org/en/Pages/aboutus.aspx

UNCTAD (2018). Blue BioTrade: Harnessing Marine Trade to Support Ecological Sustainability and Economic Equity. Retrieved from https://unctad.org/en/PublicationsLibrary/ditcted2018d11_en.pdf

UNCTAD (2018). Evidence-based and policy coherent Oceans Economy and Trade Strategies. Retrieved from https://unctad.org/en/Pages/DITC/Trade-and-Environment/Oceans-Economy-Trade-Strategies.aspx;

UNCTAD (2018). Belize charts sustainable, trade-led course for its fisheries. Retrieved from https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=1969&Sitemap_x0020_Taxonomy=UNCTAD%20Home;#1637;#Trade,%20Environment%20and%20Development;#2079;#Oceans%20Economy%20-%20Fisheries

UNCTAD (2018). Generalized system of preferences list of beneficiaries. Retrieved from https://unctad.org/en/PublicationsLibrary/itcdtsbmisc62rev7_en.pdf

UNCTAD (2019). Overview of economic and trade aspects of fisheries and maritime tourism sectors in Belize. Oceans Economy and Trade Strategy Project. Retrieved from https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-04122019-belize-Economic-7.pdf

United Nations Convention on the Law of the Sea (1982). Retrieved from https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

United Nations (n.d.). Sustainable Development Goals: SDG 14 Life Below Water. Retrieved from https://www.un.org/sustainabledevelopment/oceans/

Usher, M. A. (2018). The united nations convention on the law od the sea and Belize's legal and institutional framework for ocean affairs including Legal and Institutional Requirements for Sustainable Marine Fisheries, Sustainable Marine Aquaculture, Seafood Processing Marine, and Coastal Tourism. UNTAD & DOALOS

Vijayalakshmi,A.; Chakravarty, M.A.; Avuthu, M.R. & Rao, T.N.(2018). Isolation and quantification of catenoids in lobster species off Visakhepatnam coast, Andhra Pradesh. Indian Journal of Geo Marine Sciences. Vol. 47 (07), pp. 1435-1440. Retrieved from https://pdfs.semanticscholar.org/a701/997cd39139c086a4a5ab6edf077594ce3ce7.pdf

World Trade Organization (2017). Trade policy review report by the secretariat Belize. Retrieved from http://www.sice.oas.org/ctyindex/BLZ/WTO/ENGLISH/WTTPRs353_e.pdf

ANNEX I: List of Stakeholders attending workshop

ANNEX 2: Summary of HS code changes for chosen products and target species

Sector	Description	Product name listed in trade data (2018)	HS	Previous HS	Value- 2018 (BZD)
Seafood Processing	03.07 Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked molluscs, whether in shell or not, whether or not cooked before or during the smoking process; flours, meals and pellets of molluscs, fit for human consumption.	Conch (Strombus 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 Headmeat)	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 303390000 303550000	42,710.48
	03.04 Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	Fish- Other	304990000	303749000 303770000 303792000	10,975.20
	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- Other	305691000	303799000	25,600.00
		Fish Fillets- Other	305699000	303839000 303899000	195,800.00
		Shark Fins	305710000	305499000 305591000 305599000*	1,000.00

*HS codes for finfish were extracted from the export data for the past ten years (SIB,2019)

ANNEX 3: 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	*Sustainable Economic development* **(Economic and Trade pillar)**	• Promote **sustainable economic growth** in key oceans sectors • Sustainably 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	*Sustainable use & conservation of marine resources* **(Environmental pillar)**	• Sustainably 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	*Inclusive development with focus on coastal developing countries, SIDS & LDCs* **(Social pillar)**	• Incorporate the **maintenance of coastal populations livelihoods**, specially of small scale and artisanal fishermen • Consider **local employment sources** • Include **food security considerations** • Respect **access and tenure and rights over marine resources by local communities**
4	*Increased scientific knowledge and technological collaboration for productive capacity & sustainable resource management* **(Scientific & technology pillar)**	• Incorporate **low carbon activities and technologies** • Promote **investment in applied R&D** • Seek to enable **access to knowledge, transfer of technology and knowledge cooperative frameworks**
5	*Oceans Governance under UNCLOS and the Multilateral Trade and Fisheries Agreements* **(Governance pillar)**	• Include **regulatory and policy obligations under UNCLOS** and other Un 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 (2017)

Note: Reprinted from "Methodological note on the Oceans Economy Trade Strategies (OETS) report, by UNCTAD-DOALOS (2017). p. 3.

ANNEX 4: 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
MCCAP	Dr. Sandra Grant, Nidia Chacon
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 via email and telephone to stakeholders, listed above are interviews conducted in response to the email or telephone call.

ANNEX 5: All exports and HS codes for finfish exports in Belize illustrated in figure 4

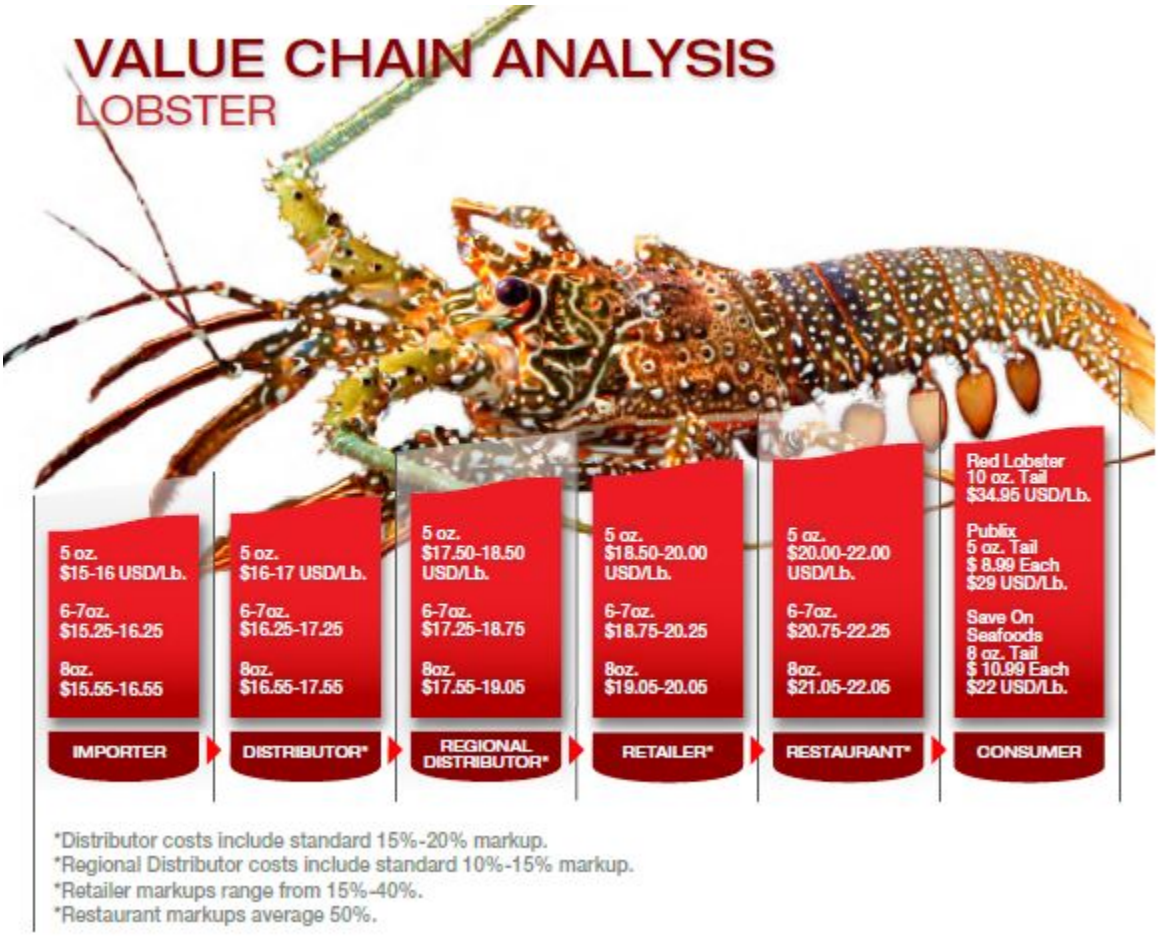
HS Code listed	Code Description
302649000	Other mackerel (Scomber scombrus, Scomber australasicus, Scomber japaonicus), fresh or chilled.
302692000	Snapper, croaker, grouper, dolphin, banga mary and sea trout, fresh or chilled.
302699000	Other fish, excluding livers and roes, fresh or chilled.
303290000	Other salmonidae, excluding livers and roes, frozen.
303390000	Other flat fish, excluding livers and roes, frozen.
303550000	Jack and horse mackerel (Trachurus spp.)
303749000	Other mackerel, frozen.
303770000	Sea bass (Dicentrarchus labrax, Dicentrarchus punctatus), 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

ANNEX 6: List of species encountered by fishers with some regularity

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

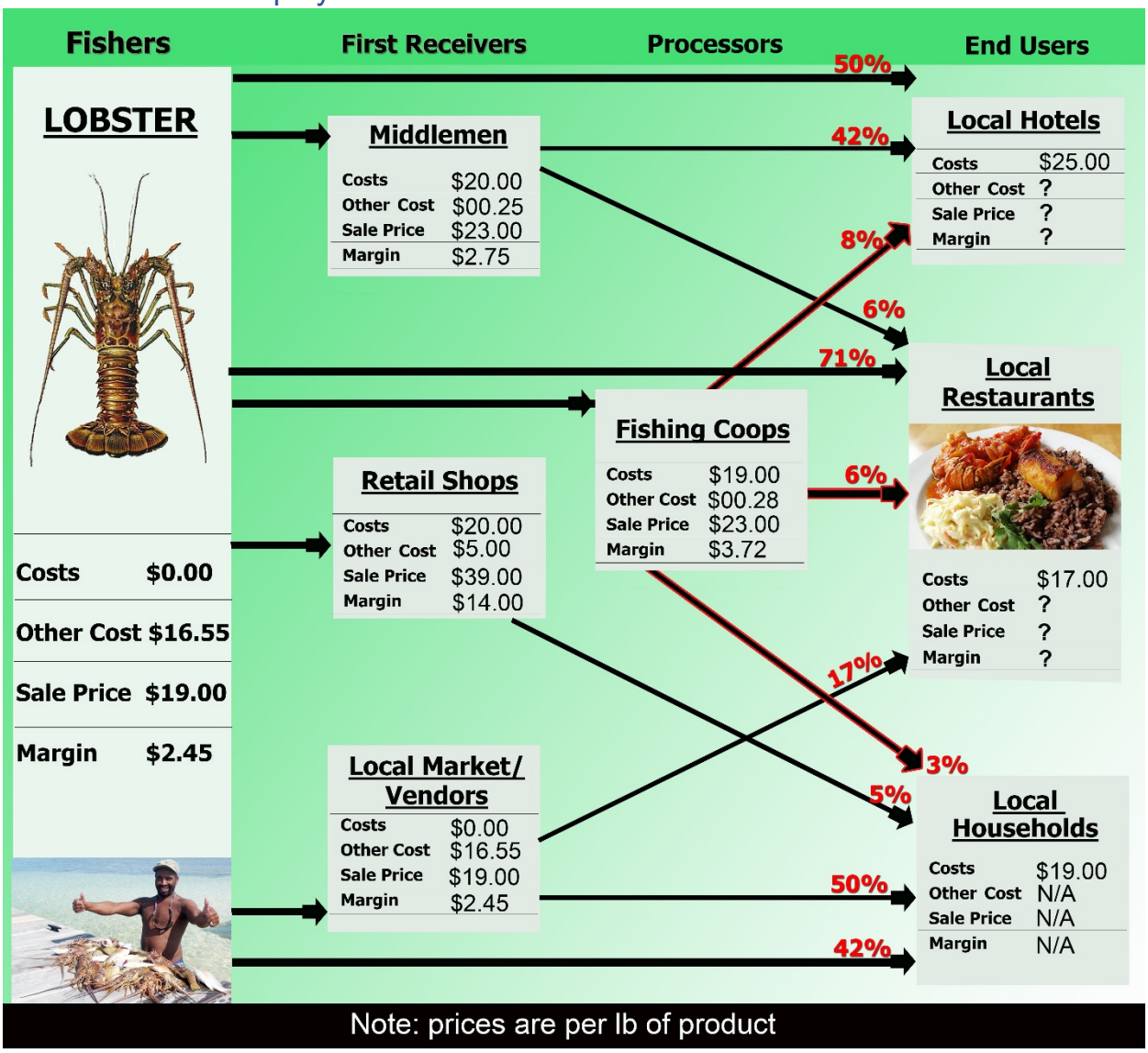
Note: Reprinted from **"**Environmental Safeguards and Social Management Plan Deep Slope Fishing MCCAP Alternative Livelihood Sub-Projects, by Nextra & Marine Conservation and Climate Adaptation Project (2019), p.41-42

ANNEX 7: Belize Spiny Lobster International Value Chain



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

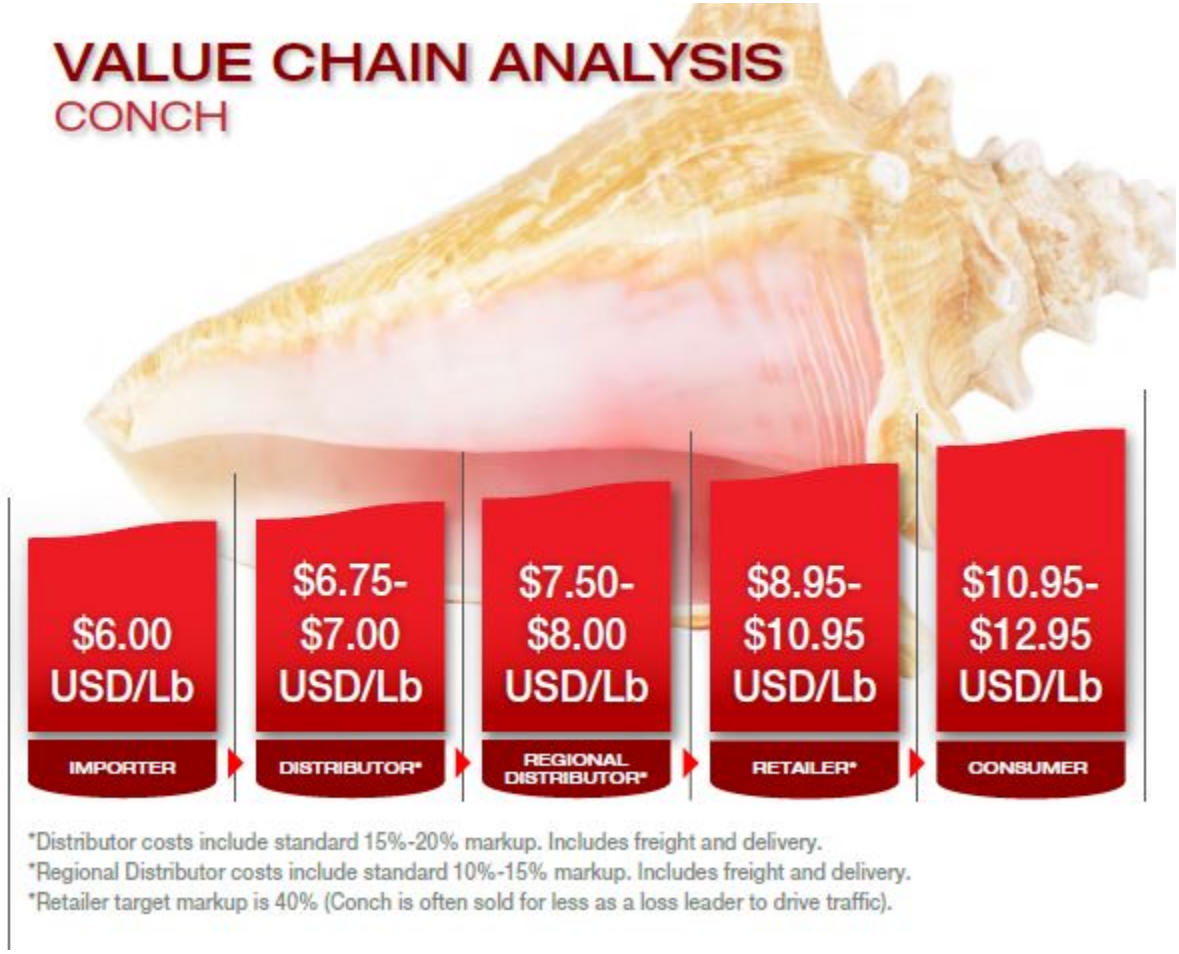
ANNEX 8: Belize Spiny Lobster Local Value Chain



Note: Reprinted from "Analysis of Markets for Seafood in Belize", Presentation by Praxi5 Advisory Group LLC (2015), p. 14.

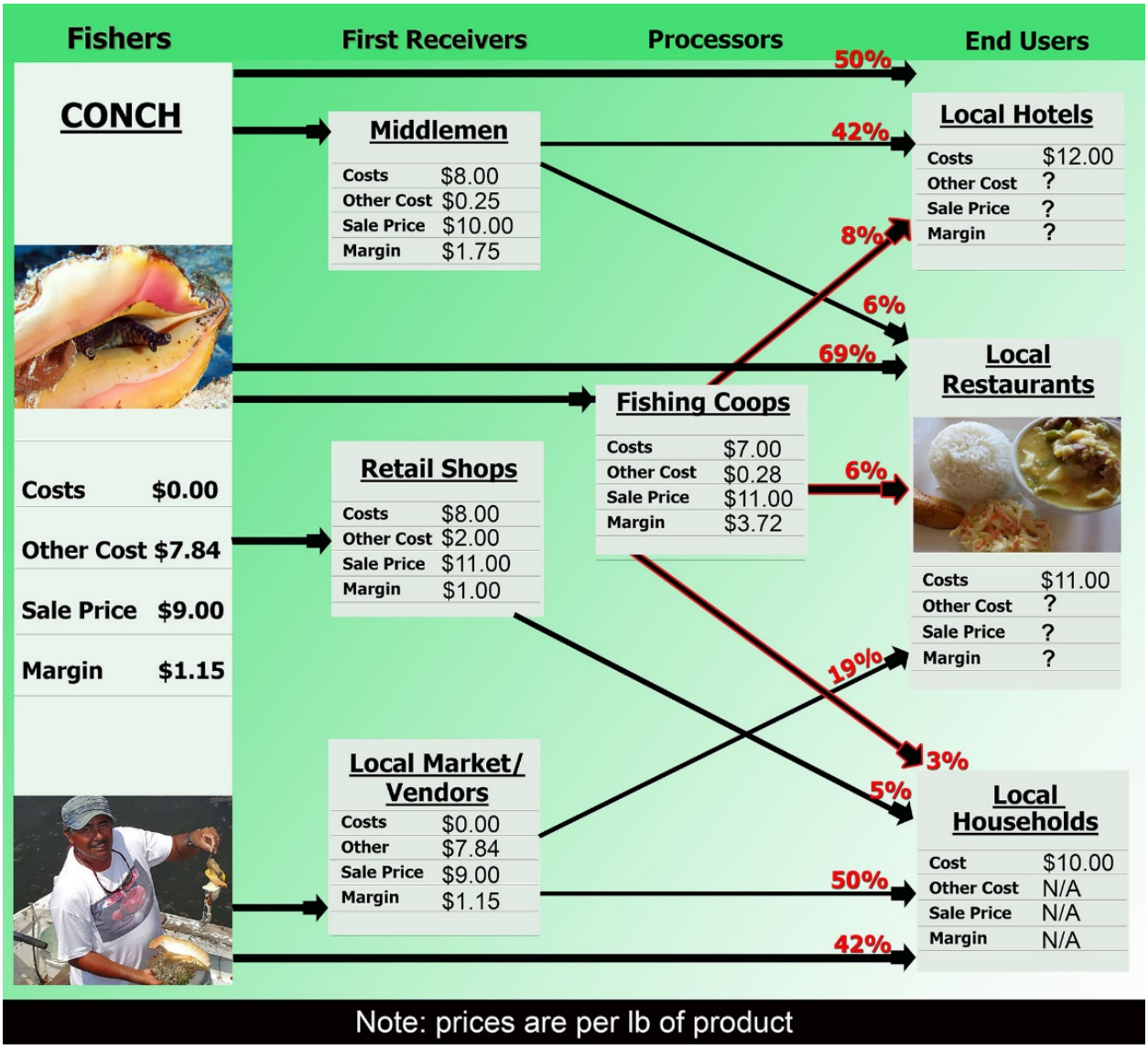
Note: Percentages in red depict the market share of suppliers to each end user. Therefore, Fishing Coops only supply 17% of spiny lobster to domestic markets where the majority share is exported. Prices are in BZD.

ANNEX 9: Belize Queen Conch International Value Chain



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

ANNEX 10: Belize Queen Conch Local Value Chain



Note: Reprinted from "Analysis of Markets for Seafood in Belize", Presentation by Praxi5 Advisory Group LLC (2015), p. 15.

Note: Percentages in red depict the market share of suppliers to each end user. Therefore, Fishing Coops only supply 17% of queen conch to domestic markets where the majority share is exported. Prices are in BZD.

[i] Produced by a consultant of UNCTAD and DOALOS to describe the relevant legal instruments (treaties, legislation, regulations, and policies) to which Belize is a party, in relation to four of Belize's ocean-based economic sectors.
[ii] Produced by the UNCTAD outlining the economic and social factors and statistics available for analysis.
Seafood Processing: https://unctad.org/meetings/en/Contribution/ditc-ted-Belize-28112018-Factsheet-III-seafood.pdf
Marine fisheries: https://unctad.org/meetings/en/Contribution/ditc-ted-Belize-28112018-Factsheet-1-fisheries.pdf
[iii] Produced by a consultant of UNCTAD and DOALOS to describe the relevant legal instruments (treaties, legislation, regulations, and policies) to which Belize is a party, in relation to four of Belize's ocean economic sectors.
[iv] Produced by the UNCTAD outlining the economic and social factors and statistics available for analysis.
Seafood Processing: https://unctad.org/meetings/en/Contribution/ditc-ted-Belize-28112018-Factsheet-III-seafood.pdf
Marine fisheries: https://unctad.org/meetings/en/Contribution/ditc-ted-Belize-28112018-Factsheet-1-fisheries.pdf
[v] HS codes and table of previous coding located in Annex 2.
[vi] HS codes and table of previous coding located in Annex 2.
[vii] National Trade Policy 2019-2030, p.49-50.
[viii] National Trade Policy 2019-2030, p.57.
[ix] National Trade Policy 2019-2030, p.54-55.
[x] National Biodiversity Strategy and Action Plan, 2016, p14.
[xi] National Biodiversity Strategy and Action Plan, 2016, p15.
[xii] Integrated Coastal Zone Management Plan 2016, p4.
[xiii] Integrated Coastal Zone Management Plan 2016, p157.
[xiv] 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.
[xv] Sea cucumber is currently not an active fishery in Belize due to the moratorium placed in 2017.
[xvi] Overview of economic and trade aspects of fisheries and maritime tourism sectors in Belize 2019, p31-32, Table 11&12: https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-04122019-belize-Economic-7.pdf
[xvii] Note this percentage does not include shrimp (aquaculture exports) to the US.
[xviii] Survey was conducted in June 2019 by the author of this report where 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).
[xix] Prices recorded were for finfish though 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, & squid rings.

[xx] Formally known as Export Processing Zone (EPZ) is a form of subsidy that is not supported by the government in the fisheries sector.
[xxi] UNCTAD Maritime and Coastal Tourism factsheet (2018): https://unctad.org/meetings/en/Contribution/ditc-ted-Belize-28112018-Factsheet-1V-tourism.pdf