CONTRIBUTION 10.5

National Report on the Status of Fisheries and Aquaculture in BELIZE

EXECUTIVE SUMMARY

In 2022, the Fishing Industry of Belize remained viable, healthy, and strong. The fishing sector continues to support Belize's socioeconomic growth by providing jobs, ensuring food security, export earnings and to the overall socio-economic development of Belize. This year, the Fishing

Industry provided direct employment to over 3,376 licensed fishers and directly benefited nearly 17,000 Belizeans. Under the leadership and guidance of the Ministry of Blue Economy and Civil Aviation, the Belize Fisheries Department, which has the legal mandate for the management, conservation and sustainable use of the fishery resources and the inland and marine ecosystems of Belize made good advancements despite resource constraints that prevent the full and efficient implementation of the annual work plans created by the various units of the Department.

The Caribbean Spiny lobster and queen conch continued to be Belize's top two fishery products. In 2022, export earnings for fishery products totaled US$26,133,959. This export value represents a slight decrease compared to 2021, when total exports of fishery products amounted to US$26,956,995.

In 2022, 977,940 pounds of market-clean queen conch meat were produced and exported, mostly to the United States. The total revenue was US$8,763,070, an increase of 11% from the revenue of $7,880,640.00 in 2021. Owing to the rise in demand following the lifting of COVID-19 restrictions in the United States of America, market prices for queen conch have marginally increased when compared to pre-COVID-19 market pricing.

Total lobster production was 783,470 pounds (tails). Lobster export revenue was US$17.18 million, a slight decrease from 2021 (US$17.72 million). While lobster tail export revenue decreased from $14,640,225.00 in 2021 to $11,383,505 in 2022, whole lobster export revenue increased from $3,084,225.00 in 2021 to $5,796,950 in 2022. An increase in demand for whole lobsters in the Asian and the EU markets is expected in the coming years. Preliminary analysis shows that fishermen are making more money harvesting and selling whole lobsters to processors and exporters, and thus the whole lobster production is likely to increase in the future.

To ensure the sustainability of the fishery, a national comprehensive stock assessment of spiny lobsters needs to be undertaken, which should also include fishing area 9 to have a better understanding of the deep-water resources. These studies should inform the revision of the management plan and the establishment of additional management measures such as a seasonal

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total allowable catch quota for the lobster fishery in the near future. Additionally, fishing efforts must be controlled, regulating the number of traps and shades allowed per fisher and per fishing area.

The fishing industry can anticipate rapid growth and sustainable development in the future as a result of the full implementation of the Fisheries Resources Act (FRA) of 2020's provisions as well as the proposed assessment of the commercially significant fishery resources in territorial waters with assistance from the Inter-American Development Bank. In addition, the assessment of the fishery resources within the Exclusive Economic Zone (EEZ) will be conducted with the assistance of the Government of the Republic of China (Taiwan); both of which are planned for 2024.

1. DESCRIPTION OF NATIONAL FISHING INDUSTRY

Belize's fishing sector continues to contribute to food security, employment, and to the national economy through fisheries product export revenues. Total revenues collected by the Fisheries Department for the period January 1, 2022, through December 31, 2022, amounted to $235,922.95. This represents a 46.7% increase when compared to the year 2021, when $160,875.00 was collected. In 2022, the marine capture fisheries exports amounted to US$26,133,959, which contributed 1% of Belize's gross domestic product (GDP), which shows a 3% decrease when compared to 2021 export earnings (US$26.13million). The decrease can be attributed to Tropical Storm Lisa, which made landfall in central Belize on November 2, 2022, and had a negative impact on Spiny lobster production. Additionally, no sea cucumbers were exported in 2022 since the fishery remained suspended in 2022, until a more in-depth assessment of sea cucumber be completed in 2023. The sea cucumbers assessment will be done in early 2023 in collaboration with the Environmental Research Institute, University of Belize.

Spiny lobster and queen conch remained as Belize's two most significant fisheries commodities. The production of spiny lobster for the fishing season 2021-2022 amounted to 783,470 lbs. tail weight, which represents a 4.1% increase when compared to the previous season (2020-2021 - 752,557 lbs). When production was compared to the 5-year seasonal average, the 2021-2022 season production performed above average. The 5-year seasonal average is an indicator used to determine the performance of the lobster fishing season as required under the adaptive management framework.

The annual conch production for 2022 was 1,045,234.5 lbs market clean conch which showed an increase of 14.2% when compared to 2021 annual production (915,547 lbs).

This significant increase was due not only to a greater conch national production quota for the 2021–2022 fishing season but also to high demand for queen conch meat in international markets because of restaurants returning to normalcy following the COVID-19 outbreak.

The marine capture fisheries sector continues to operate on an artisanal or small-scale scale. Fishers operate an artisanal fleet of 847 fishing vessels (including motorized skiffs, sailboats, and canoes ranging in length from 2 to 10 meters and powered by outboard motors up to 150 hp). There were 3,376 licensed fisherfolks (3,335 commercial fishermen,

2 aquarium, 22 commercial inland fishermen, 10 cooks, 7 fish catchers) and 847 vessels. Of the total number of licensed fishermen, 3,289 were male (97%) and 87 were female (3%). Of the 3,376 licenses issued in 2022, 2,830 were renewed, 113 were replaced, and 433 were newly issued. In addition, new entries in the fishing industry represent 12.8% of the total number of licenses issued in 2022. Monitoring and control of new entrants in the fishing industry requires a closer look to avoid excessive fishing effort, especially in the lobster and queen conch fisheries, which may lead to overexploitation in these fisheries.

All fishing activities are done in the shallow waters of the barrier reef lagoon and the shallow waters of the three atolls. ("FAO Fishery Country Profile – Belize") These fishing areas are delineated into nine areas. The deep-sea fishing sector is still in its early stages but given the current support for the development of this fishery, development is expected in the coming years. A proposal for a multimillion-dollar fisheries project that will aid in the growth of this industry is currently being prepared through the Inter-American Development Bank.

2. STATISTICS, RESEARCH AND RESOURCE ASSESSMENT

In 2022, the value of marine capture fisheries is US$26.1 million, a decrease of 3% compared to 2021, when export revenues were US$26.9 million (see Table 2). This decrease in export revenues was attributed to Tropical Storm Lisa, which made landfall in Central Belize on November 2, 2022, negatively impacting the production and export of spiny lobster. In addition, no sea cucumbers were exported in 2022 as the fishing season remained closed until a proper assessment of the entire population will be conducted in early 2023. Once the assessment is complete, the Fisheries Department will decide whether to open or close the sea cucumber fishery.

Table 2. Marine Capture Fisheries export values for period 2021-2022.

Export Values (USD)

COMMODITY	2021 (USD)	2022 (USD)
Lobster Tail	$14,640,225.00	$11,383,505
Whole Lobster	$3,084,225.00	$5,796,950
Conch Meat	$7,880,640.00	$8,763,070
King Crab Claws	$30,165.17	$94,894
Wet Gutted Sea Cucumber	$937,500.00	
Dry Sea Cucumber	$272,250.00	
Aquarium Fish (No.)	$97,990	$85,540.00
Shark	$14,000.00	$10,000
Grand Total	**$26,956,995.17**	**$26,133,959**

Spiny lobster and queen conch continue to be the most important export fishery commodities. Spiny lobster tails, whole lobster and queen conch meat had export earnings amounting to US$11,383,505, US$5,796,950, and US$8,763,070, respectively. In 2022, export earnings saw a decrease of 3% for Spiny lobster but there was 11% increase on Queen conch export earnings when compared to 2021.

Queen Conch National Survey (*Strombus gigas*)

In September 2022, the CFU carried out a national queen conch stock assessment. The abundance of legal-size animals (7 inches and larger in shell length) varied significantly over the surveyed sites and the highest abundance was observed in the 3 offshore atolls. The legal-size conch biomass was estimated at 1.3 million pounds and the Maximum Sustainable Yield was calculated at 1.06 million pounds. For the 2022/23 queen conch fishing season, the Total Allowable Catch (TAC) limit was estimated at 920,000 lbs. The TAC was adopted as the national catch quota, which was shared among 2 fishing cooperatives and 2 private companies.

Queen conch meat production

The production of market clean conch meat has been regulated by a catch quota system since 2003. The troughs and peaks in production volume throughout the years as seen in Figure 2 is a function of the result of the catch quota established based on scientific queen conch assessments conducted on an annual basis. Historically, there have been fluctuations in production; nevertheless, there is an overall increasing trend in production (see figure 2). Seasonal production has fluctuated from 564,000 lbs. in 2006/07 to 1,054,000 lbs. in 2012/13, which is the highest production volume observed in the 2012-2013 fishing season. In the 2021/2022 conch fishing season, production amounted to 977,940 pounds of market clean conch which is just slightly higher than the 2020/2021 season when 951,321 pounds was produced.

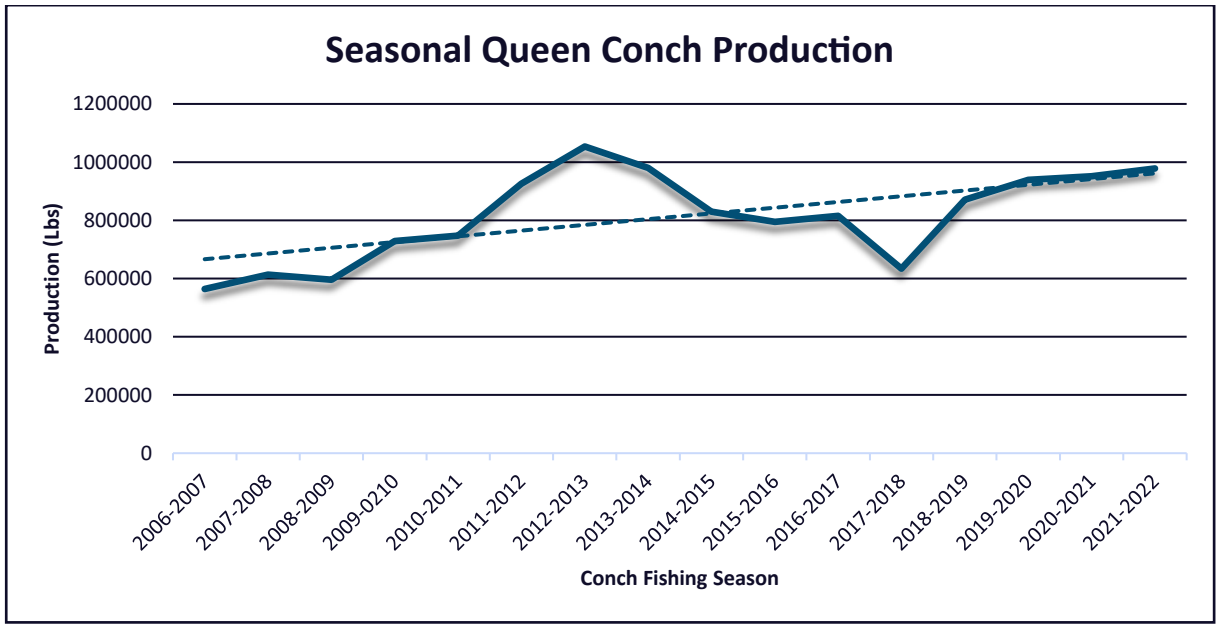

Figure 2. Conch seasonal production (lbs) for the fishing season 2006-2007 through 2021-2022.

Currently, there are four main establishments producing queen conch meat for export in Belize. The larger producers are Northern Fishermen Cooperative Society Limited and National Producers Cooperative Society Limited. Additionally, two private companies including Fein Catch Ltd and Rainforest Seafood (Belize) Limited also process and export queen conch meat but in smaller quantities.

In 2022, queen conch meat production amounted to 1, 045,234.5 pounds showing an increase of 14.2 % when compared to 2021 when 915,557 pounds produced. This significant increase was not only as a result a higher conch quota allocated for the 2021-2022 fishing season but also because there was a high demand for the product in foreign markets because of restaurants returning to normalcy after being affected by COVID-19.

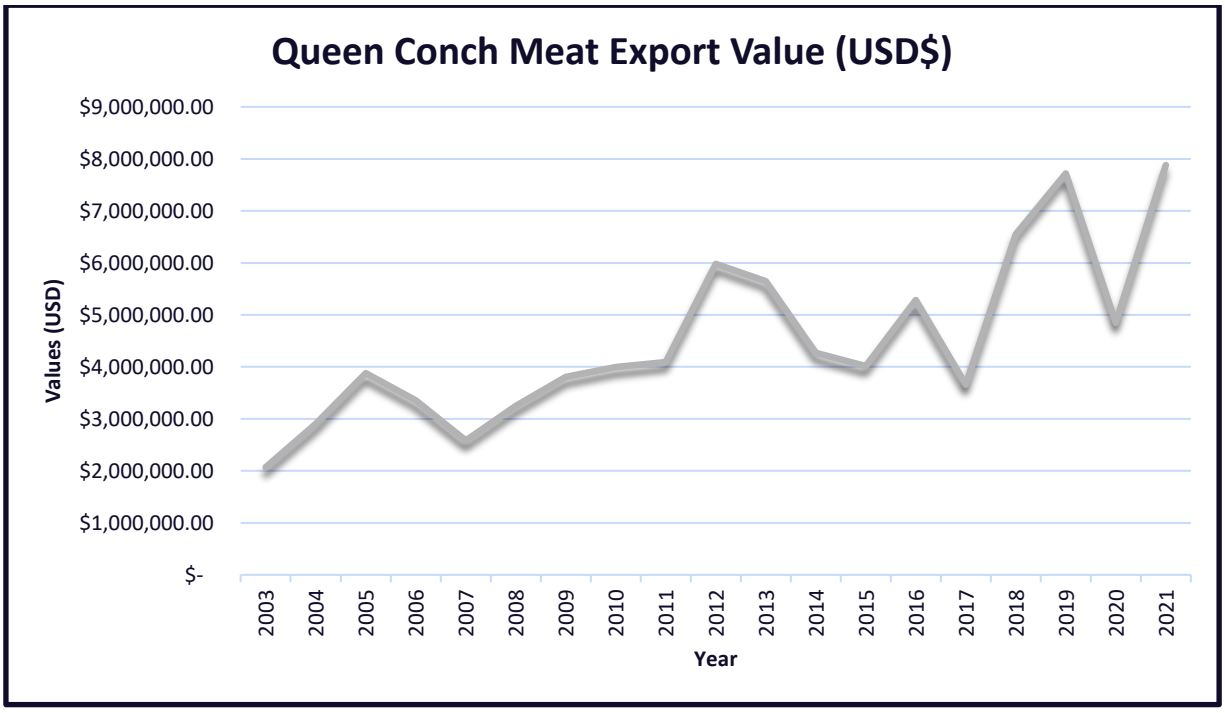

Figure 3. Conch Meat Export Value (USD$) for the Period 2003-2021

Queen Conch meat is usually exported to the United States market at an average price of US$8.00 per pound. In 2022, a total of 958,400 lbs. of market clean conch was exported, which yield a value of US $7.8 million (see figure 3) and in 2022 a total of 977,940 pounds were exported and earnings amounted to US$8,763,070. Prices of market queen conch have slightly increased when compared to pre COVID-19 market prices due to the increase in demand after COVID-19 restriction were lifted in the United States of America.

Spiny Lobster *(Panulirus argus)*

Spiny lobster continues to be the more lucrative marine capture fishery, whereby in 2022 a total of 530,690 lbs and 481,430 lbs of lobster tails and whole lobster were exported, respectively. This amounted to a total of US$17.2 million in foreign exchange earnings. When compared to 2021 exports value it showed a 2.8% decrease (US$17.7 million).

In the 2021/22 fishing season, a total of 783,470 lbs. of lobster tails was produced, which represented a 4.1% increase when compared to the 2020/21 fishing season (752,557 lbs). Production performance for the 2021-2022 season was above average as shown in figure 4. There was an 8.8% increase in lobster production when compared to a 5-year average. A comparison to the 5-year average production is an indicator of performance of season as prescribed under the adaptive management framework of the Spiny lobster management plan.

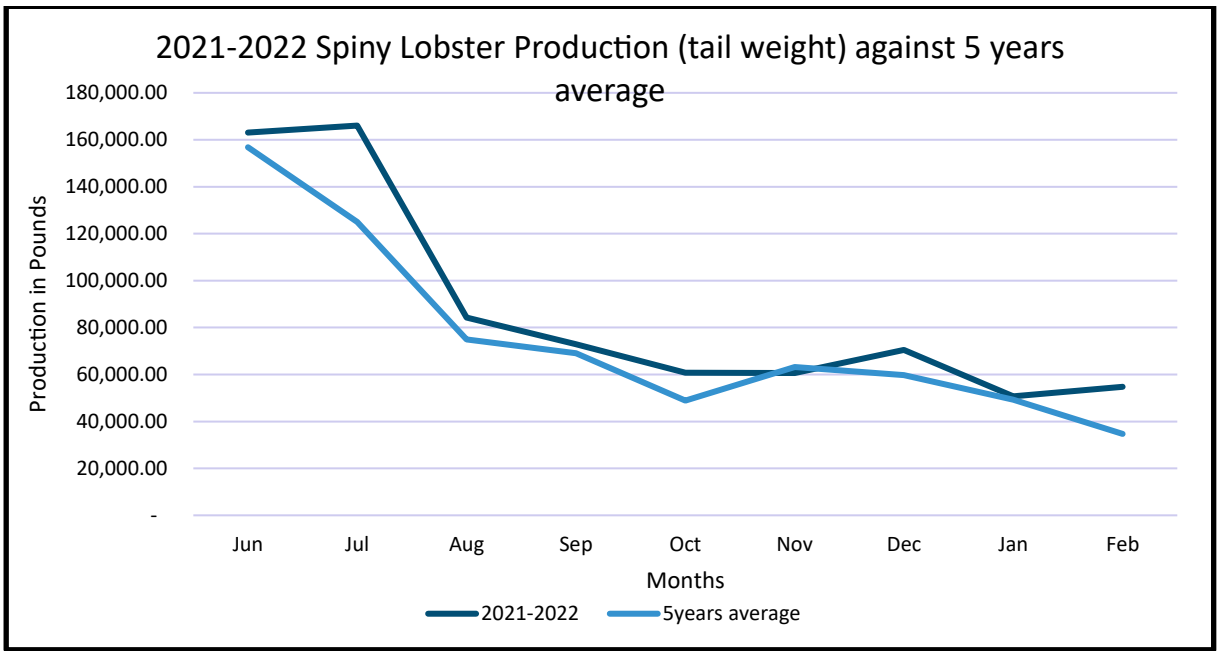

Figure 4. Spiny lobster production by month for the 2021-2022 fishing season compared to the 5-year average.

Lobster production has shown a positive trend over the years, increasing from 400,000 lbs. in 2006 to over 700,000 lbs. in 2022 751, 570 lbs. tail weight was produced (see figure 5).

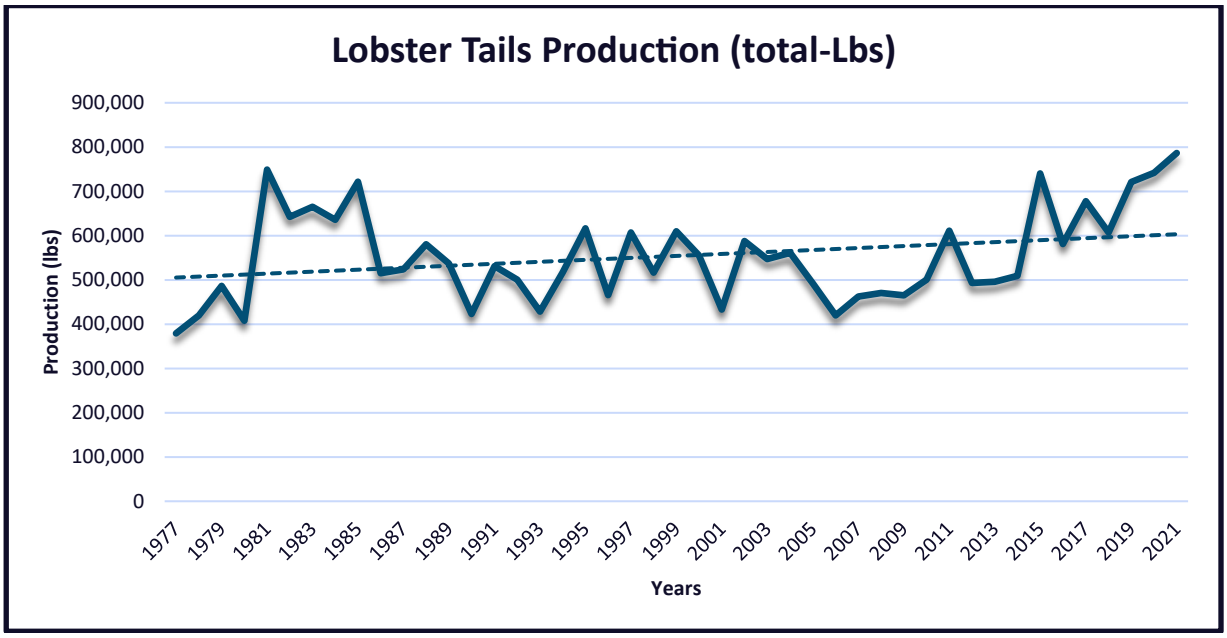

Figure 5. Spiny lobster production for the period 1977 to 2021.

Lobster Stock Assessment

In June 2022, the Fisheries Department assessed the status of Spiny lobster with the assistance of Environmental Defense Fund (EDF) and Centro de Investigaciones Pesqueras de Cuba (CIP). The data used in the analysis was national export data (tails) by weight classes. A virtual population analysis was carried out and trends in catches and fishing mortality were calculated. The fishery is operating close to its Maximum Sustainable Yield (MSY). Therefore, there is a need to move towards establishing a seasonal total allowable catch quota for the lobster fishery in the short term and consideration should be given to a reduction in the number of licensed fishers and there is need to regulate the number of traps and shades per fisher per fishing area.

Sharks

In July 2022, the Fisheries Department organized and executed a Shark Non-detrimental Findings (NDF) workshop for CITES-listed species fished in Belize. The workshop facilitators were Sarah Fowler and Daniel Fernando. The staff of the Fisheries Department and other workshop participants were trained in the preparation of electronic NDF (eNDF) using an online eNDF tool that recommended a "Positive NDF with conditions" for three shark species fished and exported out of Belize. These shark species included: Great hammerhead shark (*Sphyrna mokarran*), Scalloped hammerhead shark (*Sphyrna lewini*) and Silky shark (*Carcharhinus falciformis*).

Belize needs to comply with CITES international requirements to develop NDFs by November 2023 for all 18 Requiem shark species caught in Belize since they are now listed under CITES

Appendix II. In February 2023, a Shark Sensitization Workshop was held with government representatives of Customs and Excise Department and Belize Agriculture Health Authority and other to provide and update on CITES listed species, to introduce Shark Meat Export Protocol and new shark meat and fins export requirements. A refresher course on shark Identification guidelines and a shark fin identification and data entry protocol was done with the participation of the Capture Fisheries Unit staff.

Stone crab

Under the Fisheries Resources (Stone Crab) Regulations, Statutory Instrument No. 108 of 2022 new regulations were introduced for stone crab. The closed fishing season is from July 1st to September 30th of every year. The catch quota for the 2022/23 season was set at 15,000 lbs.

Licensing and Permits

In 2022, there were 3,376 licensed fishers (3,335 commercial, 2 aquarium, 22 ICF (inland commercial fishing), 10 cooks, 7 finfish) and 847 vessels. Of the 3,376 licensed fishers 3,289 were males and 87 were females. Out of the 3,376 licenses issued in 2022, some 2,830 were renewals, 113 were replacements and 433 were new entrants. It is noted that fishing areas 6,3 and 2 with 1332, 1170 and 902, respectively are the areas with the largest number of licensed fishers. Fishing area 5 had the smallest numbers of fishers with a total of 74 fishers.

For 2022 the special licenses issued by the Fisheries Department are as follows:

- Shark fishing license: 37
- Shark export license: 1
- Inland gillnet license: 5
- Aquarium fish collectors: 2
- Aquarium fish exporters: 3
- Fish export license: 7
- Fish Import License: 4
- Stone crab: 14

At the end of 2022, modifications of the fisheries regulations were made so that licenses can now be granted for up to 3 years. The Department provided information about its licensing and the licensing database to the project “Un Enfoque Regional Armonizando para el Registro de Pescadores Artesanales” by OSPESCA/RARE. From the 7 - 11 June 2022, Fisheries Department staff attended the workshop “Taller Regional para la Armonización de Registros Pesqueros de los países del SICA” held by OSPESCA and Rare in Tela, Honduras.

Research permits

Marine scientific research is internationally regulated by the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and is the premise of scientific research occurring within the waters of Belize. The Fisheries Resources Act no. 7 of 2020 entails provisions regulating the permitting of scientific research. Marine scientific research is carried out throughout the year by

various local and foreign researchers and teams interested in acquiring data among other activities in the fisheries waters of Belize to determine trends, concerns or progress occurring in the sea.

In 2022, the number of applications for marine scientific research permits has been growing and performed more often due to the removal of various Covid-19 restrictions implemented nationally and internationally. The Department issued 56 marine scientific research permits in 2022. The permits issued included 4 permits for shark research, 4 permits to study marine/freshwater fishes, 2 permits for potential mariculture operations, 4 permits for Hicatee research, 9 permits for coral reef research, 12 permits documenting the marine environment and resources, 3 permits were cancelled, and the remainder focused on other marine related activities.

Enforcement

In 2022, a total of $462,995.00 in fines and penalties were imposed by magistrates for two hundred and two infractions committed by fishermen and others. The infraction with the highest fine in 2022 was fishing for the new finfish species (Angel fish, Trigger fish and Parrott fish) protected under the Fisheries Resources Act of 2020. The individual was fined over one hundred fifty-three thousand dollars for being in possession of these protected fish species.

During the period from January 1, 2022, to December 31, 2022, CCU conducted 10 workshops on the Fisheries Act and Fisheries Regulations for marine protected area enforcement officers and Coast Guard officers. A total of one hundred sixty-two (162) patrols were conducted, including multi-day and joint patrols with other enforcement agencies. During these patrols, six hundred ninety-two (692) commercial fishing vessels and twenty (20) recreational vessels were searched, and one thousand nine hundred twelve (1,912) commercial fishermen were encountered. Of these fishermen, two hundred and two (202) infractions were committed, and two hundred and eighty-eight (288) individuals were brought before a magistrate's court to answer for fishing violations. There were some joint checkpoints and residential searches conducted with the assistance of the police, during which some individuals were brought to court. In addition, a total of three Guatemalans and six Hondurans were charged with various fishing violations of illegal fishing in Belizean waters.

3. POLICY AND LEGISLATION

The most recent and important overarching legislation is the Fisheries Resources Act (FRA) No. 7 of 2020, which is the main legislation for the conservation, management, and development of fisheries resources and marine ecosystems. The Fisheries Act Chapter 210 was repealed by this law when it took effect on February 14, 2020. The FRA provides the legal framework for the adoption of subsidiary regulations. This new overarching legislation is very comprehensive and consists of 94 sections and 19 parts. While making sure that the legislation is in compliance with local policies, national laws, and international obligations, the law contains current and pertinent principles of fisheries management. The establishment of a Fisheries Advisory Council, fines, and penalties to deter illegal, unreported, and unregulated (IUU) fishing, the designation of fish landing ports, modern measures to facilitate surveillance and enforcement, scientific research

and experimental fishing, improved enforcement, and prosecution procedures to achieve greater effectiveness in the application of the law, and management measures are among the key provisions of the new FRA. It also includes provisions for co- management of fishing areas, provisions for improved licensing of fishing activities and data collection, requirements for establishing fishery management plans, strengthening implementation of the managed access program, and support for building resilient livelihoods for fishing communities.

In February 2022, the Department met with fishing communities (Caye Caulker, San Pedro, Turneffe, Lighthouse, and Placencia) to sensitize them on the new lobster regulations (SI No. 105 of 2022). In the northern islands, fishermen expressed their disagreement with the new regulations, which include increasing the minimum weight of tails from 4 ounces to 4.5 ounces and establishing an escape gap in lobster traps. In Turneffe and Placencia, most fishermen stressed that the regulations would not directly affect them, but they believe other fishermen who rely on the smaller tails will be affected. In March 2022, fisheries officials presented the lobster regulations to fishermen from Sarteneja Village, Chunox Village, and Copper Bank Village, and again, fishermen expressed their disagreement with the implementation of the new regulations. The implementation of the new lobster regulations would allow Belize to align with the 2009 OSPESCA Regional Lobster Regulations (OSP-02-09). Because fishermen disagreed with the implementation of the new lobster regulations, the Minister of Fisheries signed another Statutory Instrument (SI No. 106 of 2022) to rescind certain sections (tail weight and lobster trap escape gap). Other sections, such as the number of lobster traps per person, per boat, and per area, remained in the regulations but were not implemented for the opening of the 2022–23 fishing season.

The mariculture sector in Belize is slowly developing through experimental designs and exploration of marine algae or seaweed, which have been identified as initiatives with high potential for development. To stimulate interest and create a prescriptive plan for the sector, a mariculture policy was developed and endorsed by the Cabinet in February 2022. This was followed by the development of terms of reference for the development of mariculture regulations to be prepared for 2023.

In November 2021, the Government of Belize and The Nature Conservancy announced the completion of a USD 364 million debt conversion for marine conservation that reduced Belize's debt by 12 percent of GDP, which will create long-term sustainable financing for conservation, and lock-in the commitment to protect 30% of Belize's ocean, in addition to a range of other conservation measures. One of Belize's major motivations for the project is the national commitment to the implementation of pre-defined and time-bound ocean conservation milestones:

- Increase in Biodiversity Protection Zones from 15.9% to 30% of ocean area by 2026—half in high protection areas (Replenishment Zones) and half in medium protection areas (Multi-use Zones)
- Completion of a Marine Spatial Plan by 2026 (initiated in 2022)
- Protection of the public lands within the Belize Barrier Reef Reserve System, a UNESCO World Heritage Site, as mangrove reserves

- Revision and implementation of Belize's Integrated Coastal Zone Management Plan to include marine and coastal biodiversity offsets. ("Belize Debt Case Study - The Nature Conservancy")
- "Application for three formally designated marine protected areas as International Union for Conservation of Nature (IUCN) Green List Areas" ("Belize Debt Case Study - The Nature Conservancy")
- Other (non-legally binding) conservation commitments, including creation of a national blue carbon policy framework, regulatory framework for high value, sustainable aquaculture, mariculture, as well as a governance framework for domestic and high seas fisheries consistent with transparent, science based, socially responsible international best practices.

In 2022, Belize achieved the expansion of High Protection for Biodiversity Zones to 11.63% of Belize's Ocean. Upon achievement of this Milestone, Belize will have 11.63% of its Ocean in High Protection for Biodiversity Zones and 9.0% of its Ocean under Medium Protection for Biodiversity Zones, for a total of 20.63% in Biodiversity Protection Zones for Marine Protected Areas. The implementation of a phased approach for the proposed expansion of biodiversity protection zones to achieve 30% will also take place and would include achievement of milestone 4 where 25% is protected 3 after years, and 30% protected 5 years after signing the Conservation Funding agreement. Milestone 6 is subsequently and similarly linked to objective one, which calls for the governance process and the establishment / enactment of 30% Biodiversity Protection Zones. In 2022, the Fisheries Department has submitted a proposal to the sum of $700,000 under the Government Strategic Allocation for consideration in the Fiscal Year 2023-2024. These funds will be used to support the achievements of the Conservation Targets.

Regional and International Commitments

Belize's participation in regional and international fora continued in 2022. At the regional level, the Fisheries Department continued to participate in various working groups, meetings and workshops organized and implemented by Caribbean Regional Fisheries Mechanism (CRFM) and Regional Fisheries and Aquaculture Organization for Central America (OSPESCA). The Department is committed to supporting the implementation of regional lobster regulations developed by OSPESCA, regional plan to combat IUU fishing, regional sharks and queen conch management and conservation plans and other regional initiatives.

At the international level, the Fisheries Department continues to collaborate with the Inter-American Development Bank and the Government of Republic of China (Taiwan) in the development of project proposals to assess the status of fishery stocks in the territorial waters and EEZ, respectively. The Fisheries Department also responded to fisheries information requests by FAO and UNCTAD. Through a cooperation with UNCTAD an Oceans Economy and Trade Strategy for Belize was successfully developed in 2022.

National and Regional Projects

Oceans Economy and Trade Strategy

Belize participated in the UNCTAD side event at the United Nations Ocean Conference in July 2022 which took place in Lisbon, Portugal. At the side event, a video highlighting the deliverables of the UN implemented project 'Supporting Developing Countries in analyzing and

implementing evidence-based and policy coherent oceans economy and trade strategies (OETS) was presented. The project is now closed but has delivered a strategy and a plan of action to support Belize in accessing the use of its marine resources in a sustainably diverse manner and has produced a multispecies management plan for the finfish sector of Belize.

World Trade Organization

Belize participated and contributed to the regional discussion and negotiations of the World Trade Organization (WTO) Fisheries Subsidies Agreement (endorsed in June 2022) which covers 3 main prohibitions:

i) Subsidies to illegal, unreported, and unregulated fishing (IUU) under Article 3.
ii) Subsidies to fishing on overfished stocks under Article 4.
iii) Subsidies to fishing on the unregulated high seas under Article 5.

Belize is yet to initiate its domestic acceptance procedures and deposit the instrument of acceptance to the WTO. [Challenges: Belize requires support for the development of policies relevant to fisheries subsidies and necessary resources (human, financial, technical, etc.) to successfully implement the WTO fisheries subsidies agreement.]

Port State Measures

In April 2022, Belize enacted regulations to designate all national lands within the WHS property as “forest reserves”. The FAO Port State Measures Agreement (PSMA) Regional Coordination meeting took place in Panama in July 2022. Interactive discussions were done with participants as various case scenarios where PSM would apply or not were presented. Participants were also separated into 4 groups to review and respond to the regional PSMA evaluation questionnaire, which directly relates to the PSMA. As a cooperating non-party to the PSMA, Belize continues to be embraced and encouraged to accede before MoP4. To assist with the use of the GIES data information system, Belize has been asked to provide a formal request at our earliest convenience. Belize is still not a party to the PSMA.

Development of the UNESCO State of Conservation Report for Belize which reflects national efforts and progress to the desired state of conservation target.

4. INDUSTRY AND INSTITUTIONAL DEVELOPMENT

Seaweed farming

The seaweed mariculture sector is slowly developing in areas near southern and central Belize, including Placencia and Turneffe Atoll. Much of the on-going efforts are performed under a scientific research permit, which aims to understand the necessary conditions that enable algae growth within these respective locations. In addition to this research, beneficiaries of the research

project are also engaged in the sustainable utilization of farmed seaweed to make domestic products / items – seaweed gel, seaweed soap, dried seaweed, seaweed beverages, etc. To discuss the successes and challenges of the growing sector, the seaweed working group meets on a quarterly basis or as needed. Under the Belize Seaweed Mariculture Cluster – Compete Caribbean Project, there have been multiple planning sessions with Beltraide and TNC regarding the reallocation request of US$177,000. This project focused on governance, research and development and awareness and outreach. Given the prioritization for governance of the sector and lengthy acquisition process by Compete Caribbean, TNC as a partner of the project agreed to complement the project by funding some areas of the governance component. The TOR for consultancy was prepared and advertised. In December 2022, a consultancy firm was selected to develop the mariculture regulations for 2023.

The regional project entitled 'Integration of the Chain of Value in Fisheries and Aquaculture (INCAVPESCA)' provided invaluable support to the growing seaweed mariculture sector in Belize and neighboring countries. The project is implemented by OSPESCA and the Belize Fisheries Department and supported by the Government of Taiwan. The project supported a Belizean beneficiary from the Turneffe Seaweed Growers, Mr. Cleveland Davis, with equipment for one small-scale farm. The farm design consists of 3 plots of 50 x 50 feet farm. Monitoring will commence through the hiring of the mariculture technician which is supported through a TNC grant.

Under the TASA implemented project entitled 'Fostering Capacity Building and Knowledge Transfer Towards a Sustainable Seaweed Mariculture Industry Empowering Women and Youth in Belize and Mauritius', the Belize Women Seaweed Farmers Association (BWSFA) from Placencia were key beneficiaries of the project. The project provided equipment, capacity building and support for farm development and maintenance. The Project Steering Committee held meetings to discuss important items including (i) Letter of Agreement with Brandeis University Students and BWSFA to help with organizational management, (ii) organizing their AGM and (iii) TNC will contract Changing Tastes and Chef Sean Kuylen to conduct experiments to develop a product from Seaweed for BWSFA.

The activities continue to showcase the on-going commitment to the development of the seaweed mariculture sector. The efforts range from scientific assessments and understanding of seaweed growth and production to development and management of farms to product development and transformation. It is expected that the development of regulations for the mariculture sector in 2023 will allow for the structured establishment of farms and the expansion of activities to commercial operations and standards.

Sargassum

Sargassum is brown floating algae that occurs naturally in the Atlantic Ocean. It serves as an important habitat for small marine life and a feeding ground for larger pelagic fishes and birds. Because of its asexual nature, it only needs the right conditions to grow and thrive. This includes higher ocean temperatures which is a direct impact of global warming; nutrient rich waters which is caused by pollution; and sea surface current and winds where nutrient move from the Brazilian

shelf (current) to the Equatorial Counter current, then move to the Atlantic current which feeds into the Gulf stream and Belize. It normally occurs from April to September, with higher presence in Belize from July to September (summertime). Sargassum has affected many coastal areas including Ambergris Caye, Caye Caulker, Placencia and Hopkins, among other smaller cayes and shorelines. Sea surface current, wind direction and tides also play a major role in the sargassum movement, and it may affect some coast more than others.

In 2022, the National Sargassum Task Force (STF) convened under the leadership of Ministry of Tourism to identify and discuss opportunities for sargassum management and utilization in Belize. The STF still does not have financial allocations to address the matter of collection, containment, disposal, and awareness. However, the STF had several meetings to discuss the impacts and actions taken at the 4 destinations, preparation for the CRFM Project mission, participation in the Playa del Carmen Trip on potential investments, update from BTB on Clean Up Campaign in San Pedro, and update from Meteorology Office on Sargassum Forecast. Sargassum continues to impact various coastal areas, specifically northern islands and Placencia.

Due to its growing concern and massive influx of Sargassum across the region, the Caribbean Regional Fisheries Mechanism (CRFM) entered into a 3-year collaborative agreement with the New Zealand Crown Research Institute in September 2020 to explore the creation of new technologies and value chains from marine biomass, particularly the Sargassum seaweed. The project is currently on-going but has produced a country-level report for Belize highlighting the outcomes of the trial exercise conducted and an executive summary disclosing the harmful properties contained within the sargassum plant (arsenic). The Second Phase of the project is expected to commence in 2023 and will test the technical and economic feasibility of a few product options that can be safely developed and utilized.

Marine Mammals/Manatees

During 2022, the Fisheries Department continued to coordinate and liaise with CMARI, Wildtracks and other members of the Belize Marine Mammal Stranding Network regarding manatee stranding and rescues/intake for rehabilitation. In April 2022, Clearwater Marine Aquarium Research Institute (CMARI) carried out a national aerial manatee survey (the last national survey was done in 2012). The Department provided a letter of support to CMARI and issued a marine research permit.

In June 2022, Jamal Galves, Celeshia Guy (from CMARI) and Nicole Auil Gomez (from WCS) released a publication on the last 23 years of manatee stranding in Belize “Analysis of a long-term dataset of Antillean manatee strandings in Belize: implications for conservation”.

In September 2022 the Department provided feedback on the draft manatee plan which was developed by Wildtracks for Port of Magical Belize. Currently, the Fisheries Department is liaising with CMARI as they will carry out a manatee health assessment and satellite tagging research expedition in April 2023.

5. PARTICIPATION IN CRFM

This section will provide details on the progress of activities so far implemented in accordance with CRFM and/or other internationally agreed management-level decisions.

CRFM/International Agreements	Country update
Castries Declaration on Illegal, Unreported and Unregulated Fishing [2010]	Belize maintains a multiagency (Belize Fisheries Department, Belize Police department and Belize National Coast Guard) approach to fisheries law enforcement along with the support of co-management partners that are responsible for the day-to-day management of three marine protected areas. These actions help to reduce IUU fishing particularly in southern Belize where illegal fishers originating from neighbouring countries plagues the fishery sector for a number of years. IUU fishing is not considered a serious threat to the sustainability of the fishery resources of Belize.
Regional Strategy, Action Plan, and Proposal for Climate Change Adaptation and Disaster Risk Management in Fisheries and Aquaculture in the CARICOM Region [2013]	The update for this item is shown below per goal: Goal 1: Access the vulnerability and risks associated with a changing climate. Goal 2: Reduce vulnerability to a changing climate Goal 3: Effectively access and utilize resources to reduce vulnerability to a changing climate Goal 4: Promote sound conservation practices in coastal and marine ecosystems **to shelter these resources from climate-induced damage**
Sub-Regional Fisheries Management Plan for Flying fish in the Eastern Caribbean and its accompanying Resolution [2014]	Not applicable to Belize
Regional Strategy for the Control of the Invasive Lionfish [2014] and application of associated Best Practice Manual for the Control and Mitigation of the invasive lionfish in the Wider Caribbean Region	Belize continues to implement the lionfish management strategy 2019-2023. A part of this strategy is the hunting and elimination of lionfish in the 8 fishing areas through a special license issued to individuals and organization by the Belize Fisheries Department. In not take areas within the marine protected areas it is more difficult to eliminate lionfish because fishers are not allowed to conduct any extractive activities in these zones. The fisheries department is exploring a mechanism on how to address this situation and it is expected that eradication of these species will commence in 2024.
Caribbean Community Common Fisheries Policy [by CRFM in 2011, and by COTED in 2014]	Belize continues to implement its fisheries policy, strategy and action plan which is aligned to the Caribbean Community Common Fisheries Policy developed by CRFM.
Regional Strategy on Monitoring, Control and Surveillance to Combat Illegal, Unreported and Unregulated Fishing in the CARICOM / CARIFORUM Region [2014] and application of associated Prosecution and Enforcement Manuals (Volume I -	Belize continues to implement its Fisheries Prosecution manuals, enforcement manuals and training modules. Fisheries Enforcement personnel recently participated in training for fisheries enforcement and prosecution offered by the United States Fish and Wildlife Service. These training workshops will further enhance the capacity of the specialize conservation and compliance unit of the Belize Fisheries Department that is charge with the primary responsibilities of enforcing the Fisheries Law

Fisheries Prosecution Manual, and (ii) Prosecution and Enforcement Manuals for CARIFORUM Member States, & Volume 2 - Fisheries Enforcement Standard Operating Procedures Manual	of Belize.
Improving the Outlook for Caribbean Coral Reefs: A Regional Plan of Action 2014 – 2019 [2014]	
St. George's Declaration on Conservation, Management and Sustainable Use of the Caribbean Spiny Lobster (*Panulirus argus*) [2015]	In 2021, Belize pass Statutory Instrument 128 of 2021 where it introduce new lobster regulation including new carapace length of 3.25" and tail weigh minimum of 4.5oz. another regulation establish the close season from 1 March to 30 June of every year and also established a minimum distance for the setting of lobster traps of 300 yards of the Barrier reef or any patch reef, a minimum escape gap of 2 1/8 inches and a biodegradable panel on the lobster trap was established. Under the same SI fishers are now required to obtained authorization from the Fisheries Administrator for the setting of lobster traps such authorization shall specify the number of traps per fisher, per fishing vessel, and fishing area where the traps are to be deployed. Subsequent to the signing of SI 128 of 2021 another SI was passed to revoke the 3.5" carapace length and 4.5 ounces tail weight.
Five-Year Work Plan for Aquaculture Development in the Caribbean [2016]	The Fisheries Department under the Fisheries Resources Act of 2020 is mandated to manage marine aquaculture activities only. Currently, the seaweed mariculture sector is slowly developing in areas near southern and central Belize, including Placencia and Turneffe.
Regional Queen Conch Management Plan [2016]	Belize continues to conduct annual queen conch field scientific surveys to determine the abundance and biomass of conch available to the fishery which in turn the establishment of a national catch quota that is shared among key stakeholders who purchase, process, package, and export queen conch in Belize. The Belize management plan is aligned with the Regional Queen Conch Management Plan and its 14 management measures. Belize is currently participating in the project that seeks to develop the queen conch NDF along with other queen conch producing countries such Nicaragua, Honduras and Jamaica and others. The project is being led by the Western Central Atlantic Fishery Commission with the support of the Gulf and Caribbean Fisheries Institute which is implementing the project.
The CRFM Fisheries and Aquaculture Research Agenda (2016-2018) [2016, extended for another year up to 2019]	The Fisheries and Aquaculture research priority areas of the CRFM have been incorporated since 2020 into Belize's National Fisheries and Aquaculture Research Program. These priority areas include research in the commercially important species such as queen conch, sea cucumber, sharks, spiny lobster, and finfish species. In addition, the program also considers priority research such as coral reefs and mangroves and seagrass beds

	particularly as it relates to the sequestration of carbon which should contribute to the National Carbon Sequestration Program that is being developed by the Ministry of Sustainable Development, Climate Change and Disaster Risk Management.
Model Protocol for the Management of Extreme Accumulations of Sargassum [2016]	In 2022, the National Sargassum Task Force (STF) convened under the leadership of Ministry of Tourism to identify and discuss opportunities for sargassum management and utilization in Belize. The STF still do not have financial allocations to address the matter of collection, containment, disposal, and awareness. However, the STF had several meetings to discuss the impacts and actions taken at the 4 destinations, preparation for the CRFM Project mission, participation in the Playa del Carmen Trip on potential investments, update from BTB on Clean Up Campaign in San Pedro, and update from Meteorology Office on Sargassum Forecast. Sargassum continues to impact various coastal areas, specifically northern islands and Placencia.
Fisheries Management Plans for FAD Fisheries [2018]	N/A
Sub-Regional Management Plan for Blackfin Tuna Fisheries [2018]	N/A
SPS project recommendations on legislation and coordinating mechanisms, so as to ensure a suitable enabling environment for commodity and industry development [Recommendation by COTED, 2018]	The mandate of the food safety - sanitary and phytosanitary roles and responsibility continues under the Belize Agriculture Health Authority (BAHA).
Eastern Caribbean Flyingfish Management Plan 2020-2025 [2019]	N/A
Draft Cooperation Agreement between CRFM and France (Martinique) for the Management of Living Marine Resources of the Eastern Caribbean	N/A
Data Policy	N/A
Flyingfish Sub-Project After-life Plan	N/A