CONTRIBUTION 10.17

National Report on the Status of Fisheries and Aquaculture in THE TURKS AND CAICOS ISLANDS

Ministry of Tourism, Environment, Fisheries and Marine Affairs, Culture and Religious Affairs, Turks and Caicos Islands, Department of Fisheries and Marine Resources Management

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1. FISHERIES AT A GLANCE

The Turks and Caicos Islands Government (TCIG) and Department of Fisheries and Marine Resources Management (FMRM) has been through significant changes from natural phenomenon (storms), economic effects (economic downturns COVID19), and inter-government department changes. FMRM and the Ministry have been actively reviewing priority areas in the fisheries sector; drafted proposed amendments to the fisheries legislation, sought stakeholder participation for alternatives and diversification for the commercial fishery, and collaborated with external agencies for internationally funded research/data collection for the fisheries. As the fisheries industry is evolving, the TCIG continues to develop alternative aspects of the fisheries. Alternatives include re-development of Aquaculture with guided legislation instruments, increase and strengthen the recreational fishing activities, investigate pelagic fishing activities and harmonize the various stakeholder needs of the fisheries including food security.

Both Caribbean Spiny Lobster and Queen Conch continue to be captured as commercially important fisheries for export. However, the domestic market has increased in both need and economic incentives for all marine fisheries including that of the Fin-fish fishery. The current Government has taken the approach to encourage and maintain food security from both the fisheries and agriculture sectors. With the assistance of internationally funded projects, TCIG has been able to obtain additional data for the Queen conch, development of Stakeholder landing sites and development of Fin-fish age & growth parameters.

2. Industry Operations

The Turks and Caicos Islands (TCI) primary fishing grounds include the shallow water banks, of the Turks Bank, Caicos Bank, Mouchoir and Silver Banks. Both the Turks and Caicos Banks are primary fishing grounds for the TCI for Spiny Lobster, Queen Conch, and various Fin-fish species. The Mouchoir Bank is considered within the Exclusive Economic Zone (EEZ) of the TCI, but require specific licensing for fishing activities, usually encompassing the capture of fin fish.

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2.1 Fishing Fleet

The number of fishermen and boats employed in TCI's fishing industry varies year after year, but has remained relatively stable. However, there has been a general increasing pattern in the number of fishermen from 2011 through 2016, representing an increase of 35%; and decreasing pattern from 2016 through 2020, 27%, and another increase from 2020 through 2022, 15% (fig 1). This recent large increase in the number of fishermen is attributed to more TC Islanders that were seeking employment due to unavailability of job opportunities and economic difficulties in other productive sectors, such as the tourism after Covid19. Foreign fishing assistants remained relatively constant as the Fisheries Advisory Committee (FAC) would review and recommended for a limit to be established on the assistant program to better provide financial security to the TC Islanders.

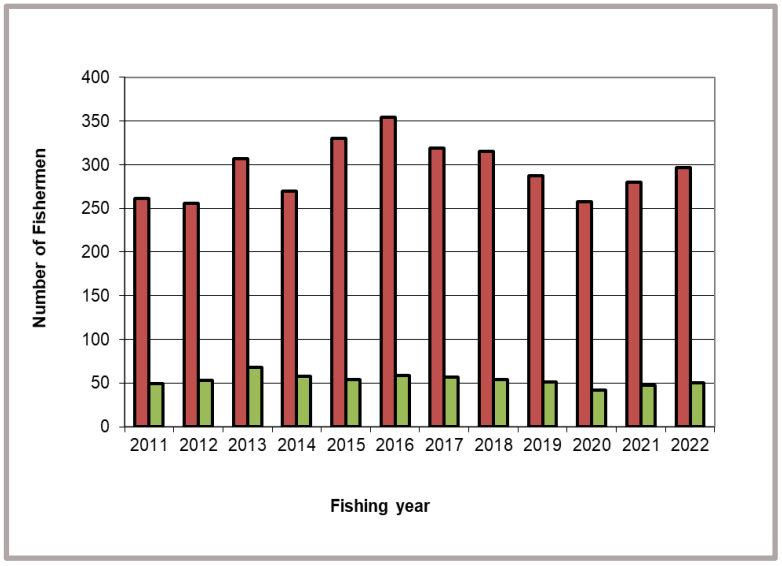

Figure 1. Number of licensed TCI Commercial fishermen (red) and Foreign Fishing Assistants (green) involved in the fishing industry during the period 2011 to 2022

Commercial fishermen often work multiple fisheries at one time, include Spiny Lobster, Queen Conch and Fin-fish as opportunistic catch. The opening of the Spiny lobster season catch consists primarily of Spiny Lobster landed whole. However, as the season progresses, fishers will take all opportunities to diversify to other fisheries including Queen Conch and Fin-fish. The majority of fishers use free diving methods ranging from 3 meters to 30 meters in depth with no underwater breather apparatus. One day's work involves departure between 7:00-8:00 a.m. and return between 4:00-5:00 pm. In the last five (5) years, fishers have sought alternative markets and sell product directly to the restaurants and hotels on the local market and have therefore reprioritized their catch to more actively work the fin fishery.

The number of fishermen involved in the fishing industry has decreased in most recent years. The number of boats has also showed signs of decrease from 2016 to 2022 (15%) (fig 2).

The main commercial fishing fleets of the TCI are small retrofitted V-hull boats ranging in length from 5 to 7 meters (18 ft-22 ft) with an outboard engine of 85-115 hp. A small number of trap vessels (< 3) are also utilized for trapping both Spiny Lobster and/or Fin-fish species. Finally, each commercial fishing vessel can only be licensed by a TC Islander and are required by the Fisheries Protection Regulations to have a commercially licensed "Turks Islander" on board.

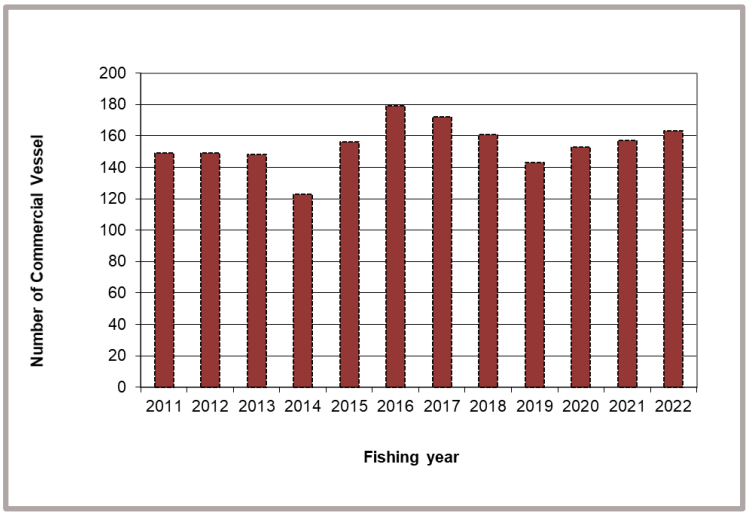

Figure 2. Number of vessels employed in the commercial fishing industry during the period 2011 to 2022

It should be noted that there have been significant changes in the Residential fishing licenses and Ordinary fishing vessel Licenses. These particular licenses are for people who have residential status in the TCI and are for recreational purposes. The number of residential fishing licenses have decrease from 2018-2021 by 36% (fig 3), of which there are no data regarding catch. Beginning in 2022 applicants for these licences were required to show some sort of status in support of their application, resulting in a reduced number of licensed resident fishermen.

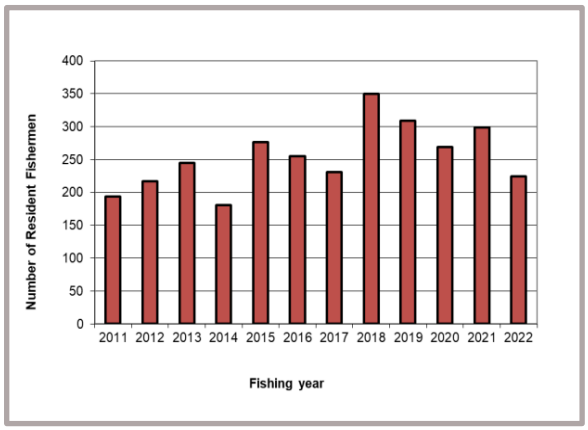

Figure 3. Number of Resident Fishing Licenses 2011-2022

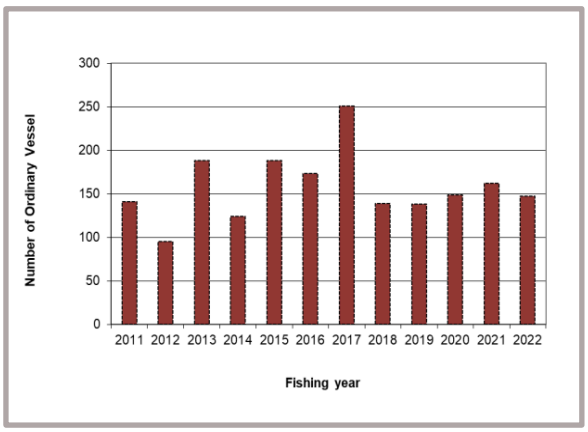

Figure 4. Number of Ordinary Fishing Vessels 2011-2022

3. PRODUCTION

3.1 Lobster Fishery & Conch Fishery

Data on the landings of both the spiny lobster and conch have been collected since 1947, but have only been validated back to 1974 because, unfortunately, storms destroyed paper records. The data collection currently consists of information, landings and effort obtained from the Class A Processing facilities in both South Caicos and Providenciales.

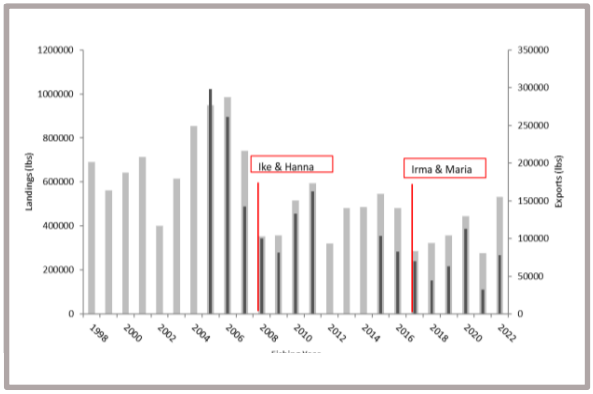

Figure 5. TCI Spiny Lobster Landings & Export

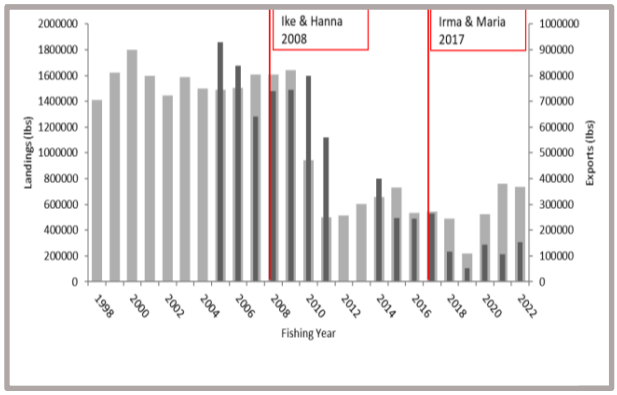

Figure 6. Historical Conch Landings*& Exports TCI

Note: In figures 16 and 6, landings are light grey and based against the left y-axis. Exports are dark grey and based against the right y-axis. Left graph Spiny Lobster, Right graph Queen conch.

Figure 7. Lobster Landings and Catch Per Unit Effort (CPUE)

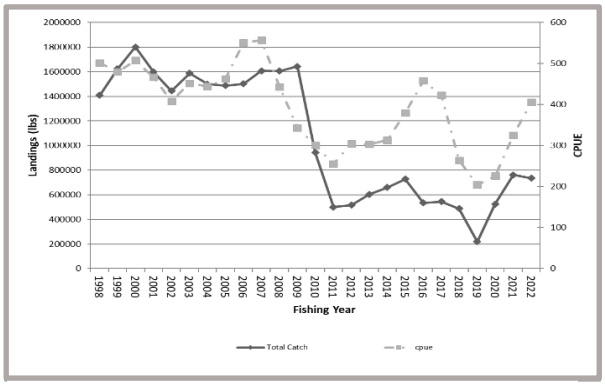

Figure 8. TCI Queen Conch Landings & Catch Per Unit Effort

Note: In figures 17 and 8, the dark grey lines are catch based against the left y-axis and the light grey lines are CPUE, based against the right y-axis. Documented landings & CPUE from the Class A Processing Facilities in the TCI. Some effort could be distorted with limited landings and changing of species.)

3.2 Morphometrics/Biological

Morphometric Measures at the dock landings

During season both Spiny lobster and Queen conch are measured for biological parameters. Figure 9 shows the average carapace lengths collected from 2004 to present. The average carapace lengths (CL) have remained well above the minimum CL of 83 mm. It should also be noted that usually there is a high percentage of the "undersized" lobster that fall within 3 mm of the minimum legal CL of 83 mm.

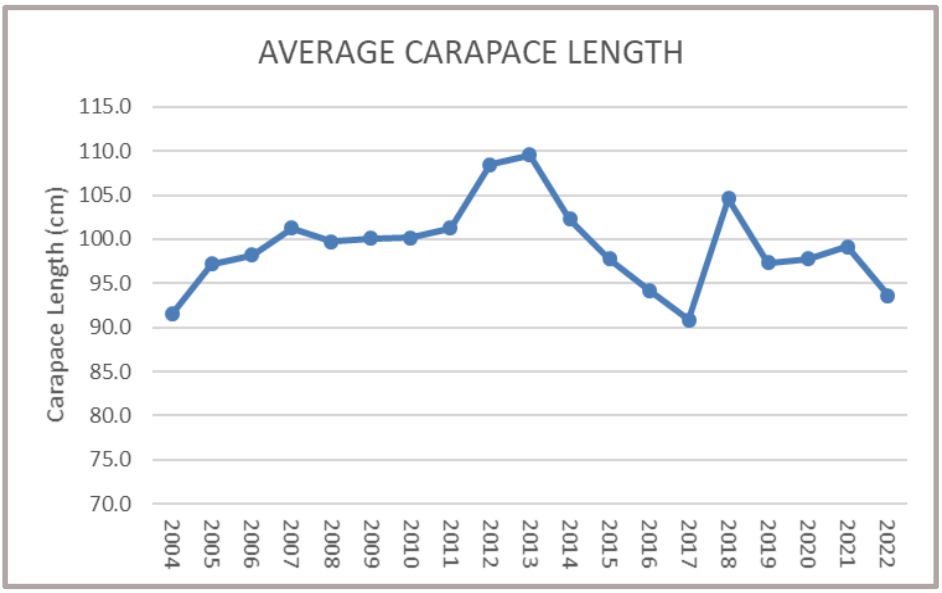

Figure 9. Average Carapace Length (mm) over the years

As the open season for lobster had changed due to requests for protection of breeding female lobster, it was suggested to standardize the data collection and determine the most active breeding months. Although there were some discrepancies, it should be noted that more sexually mature females were measured during the months of August through October. However, for the very few sexually mature females in March, there was a higher percentage of tar chested reproductively active individuals. Based on a few years of data, this indicated that most females have produced, have removed old spermatophore, and developed the new adhesions of spermatophore at the end of the fishing year near March and April. During the months of August and September, a larger number of female individuals (>50%) removed or exfoliated old spermatophore.

Morphometric Measures at the dock landings

The queen conch morphometric/biological measurements continue to be collected since 2019. The additional data collection was for clarification and compliance for the "clean meat weight" for data submission to FAO. For the conch 2020-2021, a size range of 60-611 grams was seen in the sample set across the South Caicos fisheries plants. An average cleaned conch fillet weighed an estimated 4.01 oz. (113.5877g), with an average unprocessed weight of 263.2919g (9.29oz). In 2019-2020 season, forty-six (46%) of processed samples were below minimum required size and the trend has continued into the 2020-2021 season with forty-seven (47%) of processed samples below minimum required size. Unfortunately, 2022-2023 fishing season provided less than 30 samples resulting in an unsuccessful analysis.

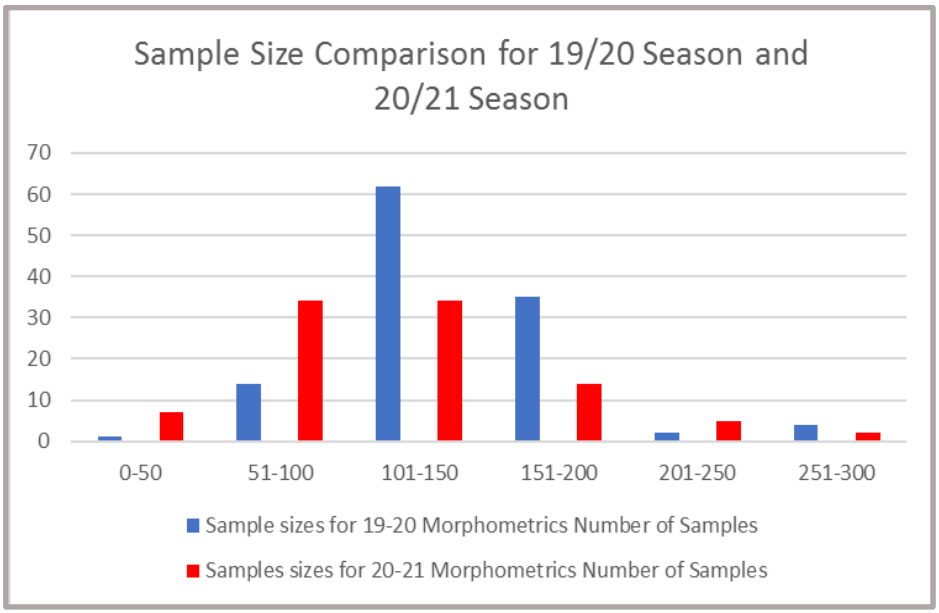

Figure 10. Queen conch morphometric sampling of processed meat weight ranges

3.3 Domestic Consumption

The Department of Fisheries and Marine Resources Management (FMRM) has limited capacity and therefore been unable to undertake a holistic data collection that includes the local consumption patterns. However, through anecdotal information it has been determined that often commercial fishermen have adapted to alternative marketing arrangements. Commercial fishermen obtained higher prices for direct sale of lobster, fish and conch to restaurants and/or the public. In order to collect domestic consumption data, the DECR conducted local consumption surveys of the "resident" population of the TCI in 2004 & 2005 and determined a domestic consumption rate of 9.9 lbs./per/year (K. Lockhart et al 2006) but in 2015, Ulman et al. 2016, estimated a domestic consumption rate of 16.5 lbs/per/year.

The domestic consumption analysis was able to determine that 50% of the domestic consumption continues to be undocumented. FMRM has re-initiated the collection of domestic consumption and purchase, abut with its limited capacity this is a slow growing initiative.

4. MANAGEMENT MEASURES

Although protection of fisheries resources is implicit in the overall development strategy of the TCI, the importance of the fisheries sector in present and future development and the fragility of the resource base warrant the revision of the established policy for the industry. The previous long-term vision of the Government included:

- Pursuance of well-informed strategic, economic and financial policies, which promote sustainable development and a decent standard of living for the people of the TCI.
- Achievement of greater functional and geographical diversification of economic activity, so as to reduce the TCI's economic vulnerability and to spread the benefits of economic growth more widely among its inhabitants.

- Implementation of policies and strategies to protect the interest of the TCI Islanders, thereby empowering them to derive optimum benefits from the development of the TCI.
- Initiation of measures contributing to the fusion of a dignified and confident nation at peace with itself and the world, a nation whose people believe in themselves and who, in their entrepreneurial, professional and other daily pursuits, and energized by dignity and national pride.
- Provision of sound health and educational services, which are available to all.
- To use our natural resources wisely, being fair to present and future generations.

The review/revision of the Fisheries Policy expects to continue to ensure the sustainable use of the living marine resources and ecosystems through increased cooperation and collaboration with all the stakeholders for the improved welfare of the people of the TCI. It was founded on the belief that all natural marine living resources of the TCI, as well as the environment in which they exist, are national assets and the heritage of all the people, and should be managed and developed for the benefit of present and future generations in the country.

The management objectives remain from the Fisheries Management Plan (FMP) that expired in 2010. However, the TCI Government is in the process to review and re-draft the FMP, but the currently utilized FMP remains with the below objectives.

- Ensure that the catch in any one-year does not exceed the Maximum Sustainable Yield.
- Restore and maintain populations of marine species to sustainable levels.
- Conserve local populations of endangered species and ensure sustainable harvesting and trade.
- Promote and enhance scientific research capabilities in order to obtain relevant information on the fisheries resources such as carrying capacity, stock status, etc.
- Enhance income generation by a factor of 15% by improving and creating market opportunities for fish and fish products at the national, regional and international levels.
- Ensure that the benefits from the exploitation of the fisheries resources are optimized by Belongers.
- Promote diversification in resource exploitation of the TCI fisheries.
- Streamline, monitor and regulate the importation of marine products.
- Establish mechanism to reduce overcapitalization in the fishing industry.
- Develop and seek opportunities for resource users to obtain financial assistance /credit from credit agencies.
- Achieve environmental and developmental awareness of marine resources in all sectors of society from primary school through adulthood.
- Ensure that post-harvest handling, processing and distribution of fish and fishery products is carried out in a manner that maintains quality, nutritional value.
- Develop and implement food processing and handling guidelines/regulations for quality assurance.
- Improve the manpower and resources of the Fisheries Division to ensure effective monitoring, control and surveillance of fishing activities.
- Promote and maintain a “Zero Tolerance” in enforcement of the legislations.
- Develop and Implement strategies to deter and combat Illegal, Underreported and Unreported (IUU) fishing in the waters of the Turks and Caicos Islands Improve stakeholder participation in the management of the marine resources.
- Achieve inter and intra-agency collaboration on the matters that may affect the fisheries resources and associate habitats.
- Improve relationship with other Overseas Territories in the management of the marine resources and the environment.
- Improve TCI’s collaboration and participation in regional and international initiatives in the management of the fisheries resources.

- Promote talks to delineate and conclude maritime boundaries discourse between the TCI and The Dominican Republic as well as The Bahamas.
- Develop and implement mariculture/aquaculture guidelines and regulations.
- Promote and encourage mariculture/aquaculture of indigenous species of invertebrates and fish as a means of diversifying income and diet.
- Achieve environmental and developmental awareness of marine resources in all sectors of society from primary school through adulthood.

5. INSTITUTIONAL AND LEGAL FRAMEWORK

A full and comprehensive review of the entire TCI Fisheries Protection Ordinance and Regulations last updated in 2018 has been commencing since 2020. This extremely important work has been carried out by the Fisheries Department with the assistance of the Fisheries Advisory Committee. With the assistance of the Blue Belt Initiative, a legal draftsman has been obtained for the Department of Environment and Coastal Resources (DECR) under the Ministry. This person along with the AG Chambers will review and provide the legal verbiage for the amendments to the Fisheries Protection Ordinance and Regulations.

At the end of the revision process it is anticipated that the amendments will be gazetted and establish for the foundation for updated fisheries management, fisheries research, international cooperation, conservation, marine reserves and law enforcement functions of the Fisheries Department.

Fisheries Protection Ordinance. Cap. 10.08: This is the main legislation which provides the legal basis and regulations for managing the fishery resources of the Turks and Caicos Islands. (Strongest Legislation based for monitoring, enforcement and surveillance) Updated in 2018.

Amendments already actioned to Fisheries Protection Ordinance cap. 10.08

- Fisheries Protection (Hawksbill Turtle) (Closed Season) Reg. 12(2) Legal Notice 20/2014
- Fisheries Protection (Sports fishing License holder can retain in any one day's catch ten (10 lbs.) in weight per day or one trophy fish) Legal Notice 2018
- Fisheries Protection (Number of fishing traps cannot exceed 500) Legal Notice 2018
- Fisheries Protection (Commercial fishing license, permits him to take finfish by means of Hawaiian sling) Legal Notice 2018
- Fisheries Protection (Conch fillet, a minimum weight of 4 ounces) Legal Notice 2018
- Fisheries Protection (Nassau grouper must have a minimum length of 21 inches and maximum length of 35 inches, for a holder of sports fishing license) Legal Notice 2018
- Fisheries Protection (Nassau group must have a minimum length of 17 inches for holder of commercial fishing license) Legal Notice 2018
- Fisheries Protection (Restrictions to queen conch: national harvest quota of 820,000 lbs., export quota of 500,000 lbs. and 320,000 lbs. for local consumption) Legal Notice 2018
- Fisheries Protection (All nets not made of polyurethane (gill nets) much have a mesh size of 1.25 inch or 3.25 inches or greater) Legal Notice 2018
- Fisheries Protection (Commercial Pelagic Fishing Vessels legalized) Legal Notice 2015)
- Fisheries Protection (No taking of shark or ray for export) Legal Notice 2015
- Fisheries Protection (No buy, sell or taking of sea cucumber (Legal Notice 2015)
- Fisheries Protection (No use of gill net for taking of marine product) Legal Notice 2015

Other Fisheries Related Legislation

- Fishery Limit. Cap. 105: Defines the Territorial Waters and Economic Exclusion Zones (EEZ) of the Turks and Caicos Islands.
- Coastal Protection Ordinance: This legislation combines several pieces of legislations, such as the national parks ordinance, fisheries protection ordinance and others to provide protection for the coastal zone.
- Wildlife Conservation and Trade Bill: This legislation is currently in draft form. On completion, it will provide the legal basis for protection for trade in the Turks and Caicos Islands. (Will provide the backing for monitoring of exports such as CITES)

6. RESEARCH, EDUCATION AND TRAINING

Darwin PLUS #0153

Based on the lack of documented fisheries scientific data, the TCI government in collaboration with the South Atlantic Environmental Research Institute (SAERI) received Darwin Plus funding. Darwin Plus Project # 0153, "Conserving tropical marine ecosystems in TCI through science-based fisheries management". This project effects a delicate balance between sustainable tropical marine ecosystems (TME) and Sustainable Small-scale Fisheries (SSSF). SSSF require robust evidence-based management, which in TCI is impeded by insufficient fish landings and life history data for stock assessments.

The project was initiated in 2000, with a successful project approval in 2021. Initially, the project was proposed by the Department of Environment and Coastal Resources in collaboration and partnership with the South Atlantic Environmental Research Institute (SAERI). Since the TCI government split the Department and placed the Fisheries Unit with Maritime, much of the physical involvement is now the responsibility of the new Department, Fisheries and Marine Resources Management (FMRM).

The project is to build fishers' capacity for participation in fisheries management; develop/propose centralize landing sites on Providenciales, South Caicos and North/Middle Caicos; train TCI Government staff (FMRM and DECR) in landing and biological data collection and management; provide equipment for the newly constructed Fisheries laboratory (in Providenciales DECR compound); and conduct stock assessments using data collected.

Two people were contracted under the project through SAERI for two (2) years, to facilitate the establishment of a laboratory, develop data collection protocol, assist with management recommendations and data analysis, and provide assistance with fishermen consultation for potential centralized landing locations. As capacity within both the FMRM and DECR is limited, data collection has been difficult and access to undesignated landing sites is sporadic.

FMRM is reviewing potential additional measures to obtain fin-fish data directly from commercial fishermen and collecting independent data from FMRM. SAERI in collaboration with FMRM has drafted a business proposal for 2024 fiscal year for the addition of personnel with technical abilities to be placed as field technicians.

RESEMBID. Sustaining Queen conch (Strombus gigas) fisheries and livelihoods in the Turks and Caicos Islands

Resilience, Sustainable Energy and Marine Biodiversity Programme (RESEMBID) is financed under the 11th European Development Funds 9EDF) Caribbean OCT Regional Programme and implemented by Expertise France with primary stakeholder in the 12 Caribbean OCTs. The overall objective of RESEMBID is to support the sustainable human development efforts of participating countries and territories, with the

thematic priorities being 1) Resilience; 2) Sustainable energy; 3) Marine biodiversity. In 2020, the Joint Nature Conservation Committee (JNCC) and the Department of Environment and Coastal Resources (DECR) initiated discussions on developing a proposal to review and examine *the Strombus gigas* (Queen conch) fishery. Because of the COVID-19 pandemic and the separation of the fisheries unit from the DECR, discussions were hindered in the Turks and Caicos Islands.

Fortunately, discussions continued regarding the potential for a Queen conch project through the RESEMBID funding. The Fisheries and Marine Resources Management eventually took the lead in the Turks and Caicos Islands to collaborate and partner with the JNCC and complete and submit the project, "Sustaining Queen conch (*Strombus gigas*) fisheries and livelihoods in the Turks and Caicos Islands".

The main objective of the project is to enhance the long-term sustainability and governance of the TCI queen conch fishery, enable compliance with the complex requirements of CITES and thus address unsustainable exploitation of marine ecosystems.

Two underwater visual surveys (UVS) were funded by the Turks and Caicos Islands Government, that assisted in knowing the viability of the Queen conch fishery on the Caicos Bank. The two UVS (20 sites and 38 sites) provided the same results; the queen conch fishery is not sustainable in the shallow waters of the Caicos Bank. Adult conch must have a population density $\geq$ 100 conch per hectare for spawning stock to be sustainable (Queen conch Expert Workshop by WECAF Queen Conch Working Group in the CoP16 resolution). Both UVSs indicated that there are Queen conch on the Bank, but the density of 42 conch per hectare of adult (breeding conch) is less than well below the density to maintain spawning stocks for sustainability, which hinders the reproductive growth.

Unfortunately, the TCI government UVSs were limited via safety dive guidelines for assessment (basically too deep for continued scuba diving assessment). Therefore, the RESEMBID project has looked to complement existing landings data with new abundance surveys: UVSs (shallow sites 15 meters or less), UVS with video towing and underwater drone technology (deeper sites 30 meters), assessing amounts of local harvest for domestic and tourist consumption and enhancing Convention of International Trade of Endangered Species (CITES) implementation through capacity building and producing a CITES non-detriment finding to determine sustainable trade levels. Ultimately, the aim is to secure livelihoods and maintain a steady source of income for TCI.

The project began work in mid-May 2022 with UVS based out of South Caicos, importation and training of the underwater video towing array and underwater drone technology. The project continues to be actively conducted with the expectation to have the project completed by 2023.

Fisheries research continues to be directed to the two main commercially important fishery resources: Spiny lobster (*Panulrius argus*) and Queen conch (*Strombus gigas*).

Finally, the Dept. of Fisheries and Marine Resources Management has also initiated more training for the officers of the department. Current training activities include:

- GRO-FTP.CRFM – Stock Assessment for Technical Unit
- Blue Belt Initiative- MMO Learning Management System (LMS) for enforcement activity
- STCW – Safety at Sea Trainings
- Project Management – Administrative Training
- In house – FMRM trainings for Customer Service and Licensing Protocol

7. KEY DEVELOPMENT TRENDS OVER THE LAST 20 YEARS

There have been limited developments with regards to technology, but it is expected in the near future to develop an on-line platform for data submission, licensing and enforcement cataloging. However there has been the development of a mobile app for landing information for recreational fishing activities. The mobile app "Caricatch" was proposed and developed under the Darwin Plus067. Unfortunately, funding restrictions did not allow for the continued development and active use of the mobile app. It is expected in 2023 and 2024, under the Blue Belt Initiative to develop a VMS tracking for the TCI commercial & recreational fishers. The FMRM is in the development stage of collecting and installing the proper equipment on the vessels to determine the most appropriate options for monitoring vessels in the Turks and Caicos Waters. It is expected to have multiple officers trained in observation and monitoring the program for both safety, enforcement and data collection.

In the past few years, the TCI Government has developed an agreement with the TCI Fishing Cooperative. The cooperative has been slow in its development and continues to obtain island support from the local stakeholders. As the Cooperative is a non-governmental agency, it must initiate open discussions with the stakeholders and obtain a buy-in from members. The Government is supportive of the initiative but awaits clarity in the growth of the cooperative that has been seeking the development of the legal framework for the operations.

8. PROJECTIONS FOR FUTURE ADVANCEMENT OF THE SECTOR AS WE TRANSITION TOWARDS A BLUE ECONOMY

The TCI Government is looking to encourage a diversification of the fisheries sector including aquaculture, pelagic fishing and recreational sport fishing. The current political platform has made a priority for food security based on previous years issues (Covid19 pandemic). Since the catch of spiny lobster and queen conch in the 2022-2023 fishing season was larger than in previous years, commercial fishermen have elected for domestic direct sales. Therefore, the Government has reviewed and revised some legislation to address the domestic sale and processing. However, there are other areas that the legislation needs to be updated and revised to encourage and promote diversification. These include:

- Development of Legislation for Aquaculture Management and which Department mandated
- Development of the Sport fishing Industry by promotion of Activity under the correct Business License
- Development of the Guidelines for the Pelagic Commercial Fishing Practices
- DECR development of Wildlife and Trade Bill to become signatory for CITES
- Increased data collection for Stakeholder driven landing sites
- Increased data collection for Fin-fish and other species to develop age and growth parameters
- Increased data collection for Domestic Consumption and Recreational Fishing

There are some expected challenges and constraints to the advancement of the sector. Primarily any legal instruments that are revised and updated take time to develop and be reviewed by Cabinet and finally Gazetted. All revisions should be reviewed by the local stakeholders as they could have an effect on their social and economic development. Then, after the revisions are developed and approved, there must be appropriate training of the officers in the amendments, followed by the distribution of officers on the chain of islands. The geographical positioning of each of the islands and access to them creates a challenge for management, enforcement and data collection.