CONTRIBUTION 6.5

Update on the Status and Management of the Caribbean Spiny Lobster Fisheries in the CARICOM Region

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Abstract

The Caribbean spiny lobster fishery is one of the most commercially important fisheries in the region. In 2011, a baseline review on the status and management of the spiny lobster fishery was completed for the CARICOM region. The baseline review identified a number of critical steps that need to be taken towards ensuring the long-term sustainability of Caribbean spiny lobster fisheries. These steps included: i.) Improved data collection and regional standardization of data types; ii) Harmonized regulations at the sub-regional level; iii.) Review and reform governance systems at local, national and sub-regional levels; iv.) Assess and control the illegal lobster fishery. This paper seeks to determine the extent to which the critical steps identified in the baseline review have been achieved and identify current gaps and opportunities for improving management of the spiny lobster resource. The paper also provides an update on the resource status, management objectives, and current regulations for the lobster resource in 17 CRFM Member States. Current landing trends, exports volumes and monetary values are also provided by CRFM Member countries.

KEYWORDS: spiny lobster, data, fisheries management, governance

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INTRODUCTION

The Caribbean spiny lobster fishery is one of the most commercially important fisheries in the region. In 2011, a baseline review on the status and management of the spiny lobster fishery was completed for the CARICOM region (CRFM 2011).

The baseline review identified a number of critical steps that need to be taken towards ensuring the long-term sustainability of Caribbean spiny lobster fisheries.

These steps included:

- Improved data collection and regional standardization of data types;
- Harmonized regulations at the sub-regional level;
- Review and reform governance systems at local, national and sub-regional levels;
- Assess and control the illegal lobster fishery.

This paper seeks to determine the extent to which the critical steps identified in the baseline review have been achieved and identify current gaps and opportunities for improving management of the spiny lobster resource.

Regional initiatives aimed at improving the management and conservation of the spiny lobster resource which have occurred since 2011 are also reviewed in the paper.

The St. George's Declaration on Conservation, Management, and Sustainable Use of the Caribbean Spiny Lobster is a regional agreement which was adopted on May 15, 2015, by the Ministerial Council of the CRFM. It is a comprehensive regional framework which aims to harmonize management measures across CRFM Member States to ensure the sustainable use of the Caribbean spiny lobster. The declaration emphasizes the need for enhanced cooperation and collaborative efforts among Caribbean nations to implement effective conservation strategies, standardize fishing practices, and enforce regulations that protect the spiny lobster stocks. It also acknowledges the socio-economic benefits derived from the spiny lobster fisheries, including contributions to export earnings, employment, and coastal livelihoods.

In line with the declaration, the CRFM has been working towards establishing appropriate measures for the conservation, management, sustainable use, and development of fisheries resources in the Caribbean.

The CRFM has also prepared, “A Practical Guide to Implementing the St. George’s Declaration on Conservation, Management and Sustainable Use of the Caribbean Spiny Lobster (*Panulirus argus*) (2017)”, to facilitate actions by government officials and industry stakeholders. In collaboration with OSPESCA, CRFM has also prepared the First and Second CRFM-OSPESCA Joint Action Plans and the Declaration on CRFM-OSPESCA Cooperation for Sustainable Development of Fisheries and Aquaculture Resources (2019).

Two meetings of the OSPESCA/WECAFC/CRFM/CFMC Working Group on Caribbean Spiny Lobster were convened in 2014 and 2018. These two Working Group meetings conducted technical reviews of stock assessment methodologies, national catch and effort data and a traceability system for lobster (FAO 2015, 2019). Two important recommendations for the management and conservation of the spiny lobster resource were also drafted during the two Working Group meetings for endorsement by WECAFC 16 and 17 respectively.

The CLME+ Strategic Action Programme (SAP) (2015-2025) is a major output from the first UNDP/GEF CLME Project which was implemented during 2009-2014. The CLME+ SAP sets

out agreed the priority strategies and actions required to improve the transboundary governance and management of shared living marine resources. As of June 3rd 2019, the CLME+ SAP was politically endorsed by a total of 35 Ministers representing 25 countries and 8 overseas territories. The Regional Caribbean Spiny Lobster (*Panulirus argus*) fishery management plan (MARPLESCA) was prepared by OSPESCA under the "Ecosystem Based Fisheries Management for the Caribbean Spiny Lobster (*Panulirus argus*)" (ECOLANGOSTA +) sub-project of the CLME + project. The general objective of the MARPLESCA Plan is the establishment of a systematic process for fisheries management in a sustainable use framework, promoting ecological balance and social and economic stakeholder benefits for range countries.

The Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (RPOA-IUU) Fishing in WECAFC Member Countries (2019-2029) is an output of the joint Regional Working Group on IUU fishing (RWG-IUU) of WECAFC which includes two sub-regional organizations, CRFM and OSPESCA (FAO 2020). The RPOA-IUU is relevant to the sustainable management of all fisheries including spiny lobster, which is one of the primary targets of IUU operators in the region.

The Regional Protocol under the Caribbean Community Common Fisheries Policy on the Principle of Sustainable Use of Marine Living Resources for Blue Economic Growth and Sustainable Development of CRFM Member States is another significant policy document that is applicable to the spiny lobster fisheries (CRFM, 2024). Sustainable use of the ocean resources and the marine living resources in particular, presents unprecedented opportunities for social and economic development to drive development, create wealth and to improve the living standards of the most vulnerable in Caribbean countries. The policy document, which is applicable to the spiny lobster resources, reaffirms and clarifies the commitment of the CRFM Member States to the principle of sustainable use of the marine living resources for human development while protecting and maintaining the health and productivity of the environment and its biodiversity.

METHODS

A literature review of regional management and governance efforts that occurred since 2011 was completed. Declarations, policy documents, joint working group reports, action plans, and recommendations related to spiny lobster fisheries management at the regional level were identified and reviewed.

Spiny lobster production data, exports volumes and monetary values were compiled and analysed from the FAO StatJ database for the periods 2000-2021. Trends in production and trade for the 2000-2021 period were also analysed as well as export markets.

A general review on the resource status, management objectives, and current regulations for the lobster resource at the regional level was also completed.

RESULTS

The key documents related to spiny lobster fisheries management at the regional level which were reviewed are identified in Table 1.

Review of regional management and governance efforts

Table 1. Key policy documents related to spiny lobster fisheries management at the regional level.

Document	Description
St. George's Declaration on Spiny Lobster Conservation and Management, 2015	The aim of the Declaration is "to ensure the long-term sustainable use of the spiny lobster resources through effective implementation of conservation and management measures for the stocks and their habitats based on the best scientific evidence available."
A Practical Guide to Implementing the St. George's Declaration on Conservation, Management & Sustainable Use of the Caribbean Spiny Lobster (*Panulirus argus*), 2017	The guide is intended to: • Promote understanding and awareness of the goals, objectives and conservation and management measures set out in the Declaration; • Assist in their implementation for the long-term sustainable use of the spiny lobster and their habitats for the benefit of present and future generations; • Serve both management and educational purposes and highlight the themes covered in each Article.
Report of the first meeting of the OSPESCA/WECAFC/CRFM/CFMC Working Group on Caribbean Spiny Lobster, 2014	The first meeting of the Working Group compiled and reviewed national catch and effort data, stock assessment methodologies and management measures for Caribbean spinylobster. The Working Group also drafted a Recommendation "On Spiny Lobster Management and Conservation in the WECAFC Area" which was subsequently adopted by the 16th session of WECAFC in 2016.
Report of second meeting of the OSPESCA/WECAFC/CRFM/CFMC Working Group on Caribbean Spiny Lobster, 2018	The second meeting of the working group reviewed an updated proposal of a regional management plan for Caribbean lobster under the CLME+ project. A harmonized system of data collection and evaluation of lobster stocks was also reviewed in addition to a traceability system for fishery products with a focus on lobster. The Working Group drafted a Recommendation "On the Management of Caribbean Spiny Lobster in the WECAFC Area" which was adopted by the 17th session of WECAFC in 2019.
Declaration on CRFM-OSPESCA Cooperation for Sustainable Development of Fisheries and Aquaculture Resources 2019	The Declaration among other things approves the second Joint CRFM-OSPESCA Action Plan 2020 to 2025 as a roadmap to guide collaborative programmes and activities between CRFM & OSPESCA and agrees that the Action Plan will give priority to addressing implementation of the regional plan for improved conservation and management of shared stocks such as spiny lobster.

Document	Description
First CRFM-OSPESCA Joint Action Plan	This first plan sought to have a gradual inclusion of CRFM countries in the regulatory framework for the regional management of the spiny lobster industry in cooperation with the countries of SICA. The Plan also proposed the development of a Regional Agreement on the management of Caribbean spiny lobster to address all aspects from harmonization of statistical systems and collaboration in research to conservation and management measures that serve to: promote an ecosystem approach to management and a precautionary approach, deter, reduce and eliminate illegal, unreported and unregulated fishing activities, protect juvenile, berried and very fecund lobsters. This regional agreement should also strive to guarantee internationally respected market and trade operations.
Second CRFM-OSPESCA Joint Action Plan Action	Following on from the first action plan, the second joint action plan indicates that the CRFM and OSPESCA will work towards supporting national and regional implementation of the St. George's Declaration, and the Regional Fisheries Management Plan for Spiny lobster in order to conduct activities including harmonization of statistical systems, collaboration in research, and implementation of conservation and management measures that serve to prevent, deter and eliminate illegal, unreported and unregulated fishing activities, to protect juvenile, berried and very fecund lobsters, and to guarantee internationally respected market and trade operations.
Recommendation WECAFC/ 16/2016/2 "ON SPINY LOBSTER MANAGEMENT AND CONSERVATION IN THE WECAFC AREA" v	This recommendation calls for a number of actions including: • Implementation of measures that are consistent with regulation OSP-02-09 on Regional Management of Caribbean Lobster Fisheries (*Panulirus argus*) and the St. Georges Declaration on Spiny Lobster, including legislation for a closed season; maximum number of lobster traps with escape gaps and biodegradable panels; removal of traps during closed seasons; inventory within 3 days of the closed season; minimum harvest size; prohibition of harvest and storage of lobsters in reproductive or molt stages. • Collection, generation and sharing of information on lobster resources and its fisheries on an annual basis and assess fisheries management performance. • Preparation of national level Spiny Lobster management and conservation plans by the end of 2016. • Adoption of the regional plan for the management and conservation of Spiny Lobster, development and implementation of a joint regional programme for the assessment of spiny lobster stock, taking into account resource connectivity and IUU fishing. • Standardization of data and information collection and reporting methods and involve the private sector in data collection as well as standardization of assessment methodologies and capacity building in their utilization. • Members make the best possible use of the resources available under the CLME+ project to support the aforementioned activities.

Document	Description
CLME+ Strategic Action Programme (2015-2025)	Specific strategies to spiny lobster are: • Strategy 4: "Enhance the governance arrangements for ecosystem-based management of reefs and associated ecosystems (e.g. seagrass beds, mangroves, reef slopes and coastal lagoons)." • Sub-Strategy 4A: Enhance the governance arrangements for implementing an ecosystems approach for spiny lobster fisheries." Identified Actions cover areas including: • Harmonization of the spiny lobster fishery governance and management throughout the CLME+ region through collaborative agreements amongst FAO-WECAFC, OSPESCA, UNEP-SPAW and CRFM. • Strengthening and achievement of full implementation of policy cycles.
MARPLESCA – The Regional Caribbean Spiny Lobster (*Panulirus argus*) fishery management plan	The MARPLESCA Plan has as general objective the establishment of a systematic process for the Caribbean spiny lobster fishery (*Panulirus argus*) range countries for fisheries management in a sustainable use framework, promoting ecological balance and social and economic stakeholder benefits. It specifically addresses: • Strengthening effective application of OSPESCA Regulation OSP-02-09 and CARICOM St. George's Declaration as well as WECAFC recommendations. • Management with regional scope in a coordinated and participatory way the Caribbean spiny lobster fishery under the SICA/OSPESCA, CARICOM/CRFM and WECAFC governance model. • Promotion of adequate organization for institutionalized key stakeholders' participation in the management of the fishery. • Provide conditions for the adoption and implementation of the Plan in the Caribbean spiny lobster (*Panulirus argus*) geographical distribution range in the framework of the CLME+ Strategic Action Program (SAP).
Recommendation WECAFC/ XVII/2019/9 "ON THE MANAGEMENT OF CARIBBEAN SPINY LOBSTER IN THE WECAFC AREA"	This recommendation calls for the following: • Implementation of scientific knowledge, methods and relevant measures, management measures agreed by the Caribbean spiny Lobster working group and actions under the Strategic Actions Program (SAP) of the CLME+ region; • Common methodologies for stock assessment. • Implementation of the updated Regional Management and Conservation Plan of Caribbean Spiny Lobster Development and implementation of Catch Documentation Schemes or traceability systems for fishery products, in order to improve the traceability of spiny lobster products through the value chain and to combat illegal, unreported and unregulated fishing, ensure food safety and data generation in support of decision making for fishery management.

Document	Description
Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing in WECAFC Member Countries (2019-2029)	The RPOA-IUU is meant to support implementation of the International Plan of Action to Prevent, Deter and Eliminate IUU Fishing (IPOA-IUU) and formulation of National Plans of Action to Prevent, Deter and Eliminate IUU fishing (NPOA-IUU) along with additional measures to combat IUU fishing. The plan will also contribute to effective implementation of the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA). The plan will allow harmonization of policies, encourage information sharing, identify capacity development needs, and improve implementation of international instruments and tools to prevent, deter and eliminate IUU fishing through effective regional and international cooperation as set out in the Caribbean Community Common Fisheries Policy (CCCFP).
Regional Protocol under the Caribbean Community Common Fisheries Policy on the Principle of Sustainable Use of Marine Living Resources for Blue Economic Growth and Sustainable Development of CRFM Member States (2023)	In October 2023, the CRFM adopted a Regional Protocol under the CCCFP setting out policy commitments and scope of application of the principle of sustainable use of the region's marine living resources. The document recognizes the vital importance and reliance of CRFM States on marine living resources for their economic growth, development and resilience. The Protocol provides a framework and pathway for regional cooperation to ensure sustainable use of marine resources, including spiny lobster, to support the economic growth and development of the countries, while maintaining long-term health of the marine ecosystems and marine biodiversity.

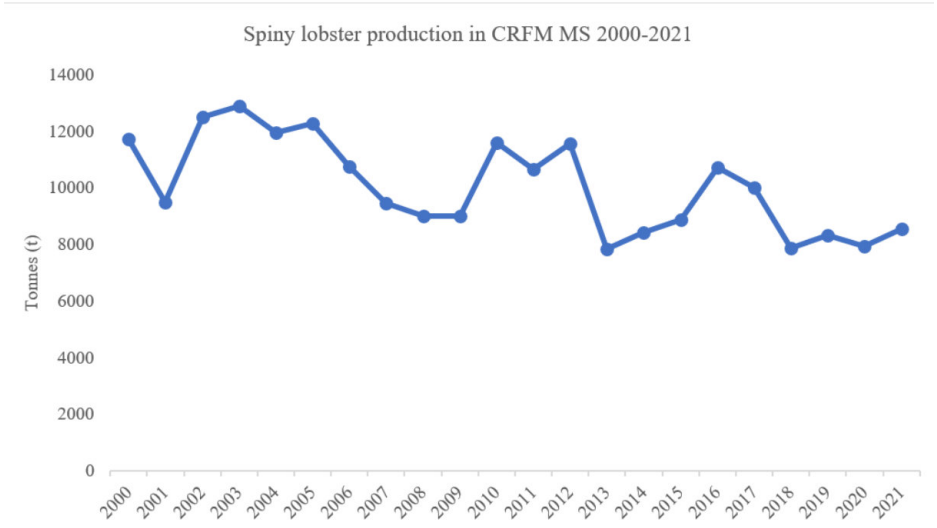

Figure 1. Spiny lobster production in CRFM Member States 2000-2021 (Source: FAO 2023a)

Within the period from 2000 to 2021, spiny lobster production in live weight ranged from 7827 t to 12,876 t (Figure 1). The peak in production occurred in 2003 and the lowest production occurred in 2013. Eleven countries reported lobster production during this period. These countries were: Anguilla, Antigua and Barbuda, The Bahamas, Belize, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Trinidad and Tobago and the Turks and Caicos Islands.

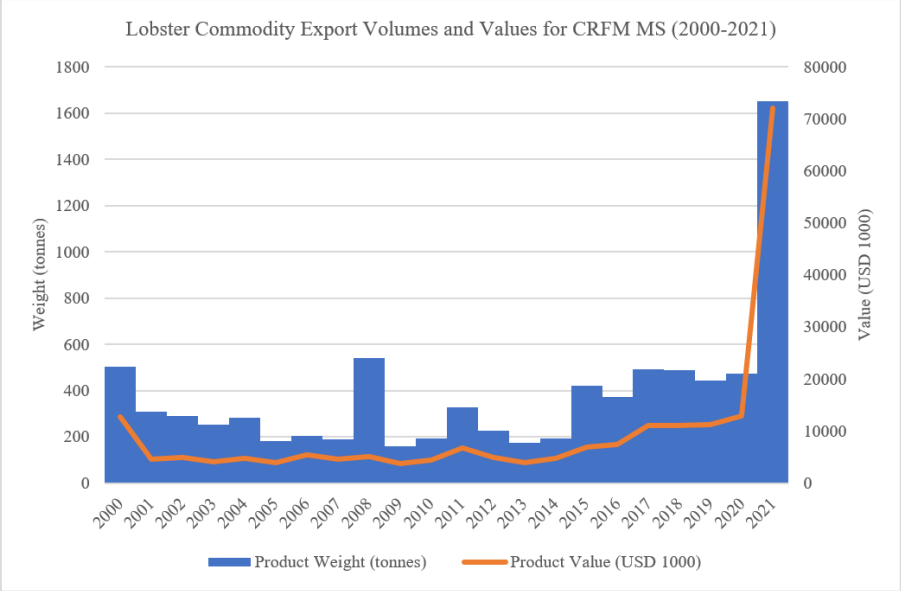

Figure 2. Lobster Commodity Export Volumes and Values for CRFM Member States for the period 2000 to 2021 (Source: FAO 2023b)

Exported lobster products were identified as: frozen; live; lobster tails or meat, prepared or preserved; dried; salted or in brine; and smoked.

Fifteen countries reported export of spiny lobster products during the period from 2000 to 2021. The countries were: Antigua and Barbuda; The Bahamas; Barbados; Belize; Dominica; Grenada; Guyana; Haiti; Jamaica; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Suriname; Trinidad and Tobago; and Turks and Caicos Islands.

Total lobster commodity export volumes ranged from 159 t valued at 3,744,000 USD in 2009 to 1651 t valued at 72,107,300 USD in 2021 (Figure 2). The peak in export volumes and values in 2021 represented a large increase from 2020 during which the export volume and value were 473 t and 12,854,050 USD respectively (Figure 2).

Country	Capture production in (tonnes)	Exports (tonnes)	Exports Value (USD)
Anguilla	20	0	0
Antigua and Barbuda	280	72.06	2,401,050.00
The Bahamas	6540.94	1052.54	51,704,360.00
Belize	850	7.37	236,670.00
Grenada	30	1.17	20,170.00
Haiti	250	111.68	2,922,030.00
Jamaica	300	365.35	14,112,720.00
Saint Kitts and Nevis	52.77	0	0
Saint Vincent/Grenadines	64.36	33.4	623,300.00
Trinidad and Tobago	21.32	7.62	87,000
Turks and Caicos Islands	138	0	0
Total	8547.39	1651.19	72107300

Table 2. Spiny lobster capture production, export volumes and values for 2021 by country.

The top three producers of spiny lobster in 2021 were The Bahamas (6540.94 t), Belize (850 t) and Jamaica (300 t) (Table 1). In terms of export volumes and values, the top three countries were The Bahamas (1052.54 t; 51,704,000.36 USD), Jamaica (365.35t; 14,112,000.72 USD) and Haiti (111.68 t; 2,922,000.03 USD) (Table 1). There was a discrepancy between Jamaica's capture production (300 t) and export volume (365.35 t). The major markets for lobster exports from the region were the United States of America (510.79 t), Belgium (430.88 t), and France (348.44 t) (FAO 2023 c).

Spiny lobster resource status and regulations

In terms of resource status, it was found that there was an overall need for updated stock assessments throughout the region for the spiny lobster. Management objectives are generally aimed at sustainable use of the resource and rebuilding depleted stocks. Current regulations for spiny lobster fall under the following categories:

- Fishing licences
- Closed seasons
- Landing regulations – types of products to be landed for e.g. whole animals vs tails
- Importation regulations
- Gear regulations
- Biological regulations
- Size regulations

DISCUSSION

Since the baseline study in 2011, a number of regional and sub-regional policy guiding documents, recommendations and initiatives have been made to improve the conservation, management and sustainable use of the spiny lobster resource. The regional organizations and partners such as CRFM, OSPESCA, CFMC, and WECAFC, and the CLME+ Project have collaborated and contributed to these efforts and continue to do so in their respective Member States.

The last meeting of the OSPESCA/WECAFC/CRFM/CFMC Working Group on Caribbean Spiny Lobster was held in 2018. It is therefore recommended that this Working Group should convene to discuss and agree upon future work for the spiny lobster resource and fisheries. While the CLME+ SAP (2015-2025), and the CRFM/OSPESCA Joint Action Plan and the Regional Caribbean Spiny Lobster (*Panulirus argus*) fishery management plan set out specific actions, there is still need to determine their implementation status at the national levels.

The observed fluctuations in production over the years could be influenced by many factors. including stock depletion, overfishing, spatial and seasonal changes in resource abundance, increased water temperature and rainfall which could affect recruitment and reduced fishing effort. The Sargassum influxes which began in 2011 have also been reported to affect lobster fisheries in some of the CRFM Member States by impacting retrieval of traps and changing the distribution of lobsters. These factors highlight the importance of regular data collection, monitoring and assessment of lobster stocks at both the national and regional levels. The nine

month larval pelagic larval stage of the resource and regional connectivity of the stocks also calls for a regional approach to management and the use of biophysical modelling.

The significant increase in trade of spiny lobster during 2021 could be attributed to a re-opening of markets and a spike in demand after the COVID-19 pandemic. The discrepancy between Jamaica's capture production and export volumes in 2021 could have been due to stockpiling of spiny lobster from previous years due to decreased trade during 2020 as a result of the COVID-19 pandemic. These changes in trade trends highlight the need for improved analysis and the CRFM/CARICOM Fisheries and Aquaculture Priority Commodity Working Group is well positioned to examine the trade of spiny lobster products. This is especially important given that spiny lobster is one of the region's most valuable marine living resources and a good understanding of its entire value chain is critical to ensuring that the fisheries are effectively managed and sustainable.

In terms of addressing IUU fishing, the Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing in WECAFC Member Countries identifies 28 measures and actions to combat IUU fishing. These measures fall under four main aspects: (1) policy and legal framework; (2) operations and monitoring, control and surveillance (MCS); (3) regional cooperation and information-sharing; and (4) capacity development.

These measures can be directly applied to the lobster fishery, for *e.g.* improved trade information- where Measure 11 calls for harmonized codes for classification of fish and fishery products, and Measure 12 which calls for a harmonized catch documentation scheme. In terms of assess the impacts of IUU fishing in the spiny lobster fishery, Measure 26 calls for improved data capture, data management and analysis for an estimation of fish taken through IUU fishing in the WECAFC region using appropriate methodologies and indicators for estimating the magnitude and impact of IUU fishing.

The need for updated national stock assessments and a regional assessment remains and is dependent on appropriate data being collected over time as well the capacity to conduct the assessments. The OSPESCA/WECAFC/CRFM/CFMC Working Group on Caribbean Spiny Lobster remains well placed to facilitate these assessments. The Regional Caribbean Spiny Lobster (*Panulirus argus*) fishery management plan sets out a methodology for stock assessment.

In addition to specific spiny lobster regulations, fisheries and biodiversity regulations covering marine management and protected areas which prohibit or regulate fishing and provide protection of critical spiny lobster habitat also support conservation of the resource. It is therefore important that marine spatial planning that takes these factors into account be upscaled in the region. Enforcement of these regulations is crucial in ensuring the sustainable use of the spiny lobster resource, however many Member States are still challenged with their enforcement due to limited human and financial resources.

To conclude, there has been a significant amount of progress at the regional level in terms of improving conservation and management of the spiny lobster resource. However, continued work is still needed for the following aspects:

- Improvement of catch and effort, and biological data collection
- Improvement of collection and analysis of trade and commodity data
- Development of regional traceability standards
- Regional collaboration regarding IUU fishing and improved enforcement of regulations
- Development of clear reporting procedures (tail vs weight) and product type for landing and trade data
- Updated stock assessments at the national and regional levels that take biophysical parameters into account
- Improvement in protection of critical lobster habitat through marine spatial planning

LITERATURE CITED

CRFM, 2011. *Baseline Review of the Status and Management of the Caribbean Spiny Lobster Fisheries in the CARICOM Region*. CRFM Technical & Advisory Document, No. 2011/ 5. 64p.

CRFM, 2024. Caribbean Community Common Fisheries Policy: Protocol under the Caribbean Community Common Fisheries Policy on the Principle of Sustainable Use of Marine Living Resources for Blue Economic Growth and Sustainable Development of CRFM Member States. CRFM Special Publication No. 26. 59p.

FAO. 2015. R*eport of the first meeting of the OSPESCA/WECAFC/CRFM/CFMC Working Group on Caribbean Spiny Lobster*, Panama City, Panama, 21–23 October 2014.

FAO. 2019. *Report of the second meeting of the OSPESCA/WECAFC/CRFM/CFMC Working Group on Caribbean Spiny Lobster*, Santo Domingo, Dominican Republic, 21–23 March 2018. FAO Fisheries and Aquaculture Report. No. 1264. Bridgetown. 68 pp.

FAO. 2020. *Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing in WECAFC Member Countries* (2019-2029). Rome.

FAO. 2023a. *Fishery and Aquaculture Statistics. Global capture production 1950-2021* (FishStatJ). In: FAO Fisheries and Aquaculture Division [online]. Rome. Updated 2023. www.fao.org/fishery/en/statistics/software/fishstatj

FAO. 2023b. *Fishery and Aquaculture Statistics. Global Aquatic Trade - All partners aggregated 1976-2021* (FishStatJ). In: FAO Fisheries and Aquaculture Division [online]. Rome. Updated 2023.
www.fao.org/fishery/en/statistics/software/fishstatj

FAO. 2023c. *Fishery and Aquaculture Statistics. Global aquatic trade - By partner country. 2019 - 2021* (FishStatJ). In: FAO Fisheries and Aquaculture Division [online]. Rome. Updated 2023. www.fao.org/fishery/en/statistics/software/fishstatj