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WESTERN CENTRAL ATLANTIC FISHERY COMMISSION
COMISION DE PESCA PARA EL ATLÁNTICO CENTRO-OCCIDENTAL

Report of the

FOURTH MEETING OF THE CFMC/OSPESCA/WECAFC/CRFM/CITES WORKING GROUP ON QUEEN CONCH

San Juan, Puerto Rico, 16–17 December 2019

Informe de la

CUARTA REUNIÓN DEL GRUPO DE TRABAJO DE CFMC/ OSPESCA/ COPACO/CRFM/CITES SOBRE EL CARACOL ROSADO

San Juan, Puerto Rico, 16 – 17 de diciembre de 2019

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Bridgetown, 2020

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Informe de la cuarta reunion del Grupo de trabajo CFMC/OSPESCA/OSPESCA/CRFM/CITES sobre el caracol rosado, San Juan, Puerto Rico, 16–17 de diciembre de 2019.
FAO Fisheries and Aquaculture Report/Informe de Pesca y Acuicultura. No. xxxx. Bridgetown, Barbados.

PREPARATION OF THIS DOCUMENT

This is the final report of the Fourth meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group on Queen Conch, which was held in San Juan, Puerto Rico, from 16 to 17 December 2019.

The meeting was kindly hosted and organized by the Caribbean Fishery Management Council (CFMC) with technical and financial support from the USA National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), and the Western Central Atlantic Fishery Commission (WECAFC).

This final and approved report provides a record of the meeting's proceedings as well as the adopted recommendations.

PREPARACIÓN DE ESTE DOCUMENTO

Éste es el informe final de la cuarta reunión del Grupo de trabajo conjunto CFMC/OSPESCA/COPACO/CRFM/CITES sobre el caracol rosado, que se celebró en San Juan, Puerto Rico, del 16 al 17 de diciembre de 2019.

La reunión fue amablemente albergada y organizada por el Consejo de ordenación de la pesca del Caribe (CFMC) -con el apoyo técnico y financiero del Servicio Nacional de Pesquerías Marinas (NMFS) de la Oficina Nacional de Administración Oceánica y Atmosférica (NOAA) de los Estados Unidos de América y la Comisión de Pesca para el Atlántico Centro-Occidental (COPACO).

Este informe final aprobado constituye un acta de la reunión, así como de las recomendaciones adoptadas.

ABSTRACT

The Fourth meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group on Queen Conch was held in San Juan, Puerto Rico from 16 to 17 December 2019. The following countries and regional partner organizations participated: Antigua and Barbuda, Belize, Brazil, the Dominican Republic, Guatemala, Haiti, Jamaica, Nicaragua, Panama, Saint Kitts and Nevis, Saint Vincent and the Grenadines, the United States of America, the Western Central Atlantic Fishery Commission (WECAFC), the Caribbean Regional Fisheries Mechanism (CRFM for its acronym in English), the Caribbean Fisheries Management Commission (CFMC for its acronym in English), the International Regional Organization for Animal Health (OIRSA), and the Organization for Fisheries and Aquaculture of the Central American Isthmus (OSPESCA for its acronym in English). The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES for its acronym in English), and the Caribbean Large Marine Ecosystem Project + (CLME + for its acronym in English) were unable to participate in person but provided remote presentations.

Discussions focused on strengthening national, regional and international efforts and uplifting responsibilities and commitments for the management and conservation and trade in queen conch and related or interacting species or fisheries in the Western Central Atlantic. Participants also considered how to strengthen the livelihoods of the people depending on these resources by following the Code of Conduct for Responsible Fisheries, and in accordance with management goals agreed in the **Regional Queen Conch Fisheries Management and Conservation Plan,** which remains a matter of priority.

The meeting adopted the following five recommendations on:

1. **Data Collection/Transparency** - Recommend that when countries conduct studies, the data be stored in hard copy and digital copy to have a good record of the work and guide any standardizations.
2. **Diver safety** - Recommend a regional study be conducted in select countries with regard to the status of diving technic in WECAFC region; this would capture the efforts that have been made and actions that have been taken on occupational safety in the region.
3. **Domestic consumption** – Recommend member countries document the level of domestic consumption of queen conch and support a study on this topic.
4. **Queen Conch Stock Assessment Manual –** Recommend that CFMC support an update and expansion of the methods presented in the queen conch stock assessment manual published by CFMC in 2008, particularly looking at sampling designs that include representation of their entire population and establishment of sustainability criteria when defining production and export quotas (e.g., adult density, 8 percent or less of exploitable standing biomass, etc.), provide a digital version of the manual, and provide training on use of the manual in English, Spanish, and French to be posted online in order to reduce the cost of having broad participation of key fisheries officers across the Caribbean.
5. **CITES Resolution on queen conch** – Recommend WECAFC and CITES work collaboratively on a draft CITES resolution that could be considered at the next meeting of the CITES Animals Committee and next meeting of WECAFC.

Additionally, the Scientific, Statistical and Technical Advisory Group of the Queen Conch Working Group (QCWG/SSTAG) offered several priority recommendations that were endorsed by the group:

6. WECAFC needs to increase efforts that would result in better country QC landings reports using the new Conversion Factor (CF) (dirty weight) by processing grades. They are invited to preferably use their own CF or the average reported here in the absence of

national CF. Countries still missing CF need to collect appropriate data for CF estimation and submit data to QC/SSTAG for statistical evaluation and CF estimation following common methods. Landings reports should include estimations of local consumption.

7. A proposal to determine the genomic connectivity across the Caribbean using the SNPs technique will be developed, capitalizing on the significant support already received from University of Rhode Island. Results from this work are expected to provide information useful to counteract illegal fishing, and so a pilot from countries exporting QC and sharing common grounds (Colombia, Jamaica, Honduras, Belize and Nicaragua) was recommended. Information will be also useful for understanding small-scale population structure needed for management.
8. Two sub-groups will continue addressing recommendations needed for simplifying the process of generating NDFs, integrating the 2012 QC Working Group recommendations. One will work with the update of the NDF flow chart, while the other group will develop and assess the merits of potential scientific criteria that could be used, with respect to developing simplified NDFs.
9. QC socio-economic and reproductive aspects are among the priority research areas recommended to be developed in the short term.

RESUMEN

La cuarta reunión del Grupo de trabajo conjunto CFMC/OSPESCA/COPACO/CRFM/CITES sobre el caracol rosado (GTCR) se celebró en San Juan, Puerto Rico, del 16 al 17 de diciembre de 2019. Participaron los siguientes países y organizaciones regionales asociadas: Antigua y Barbuda, Belice, Brasil, República Dominicana, Guatemala, Haití, Jamaica, Nicaragua, Panamá, Saint Kitts y Nevis, San Vicente y las Granadinas, los Estados Unidos de América, la Comisión de Pesca para el Atlántico Centro-Occidental (COPACO), el Mecanismo Regional de Pesca del Caribe (CRFM, por sus siglas en inglés), el Consejo de ordenación de la pesca del Caribe (CFMC, por sus siglas en inglés), el Organismo Internacional Regional de Sanidad Agropecuaria (OIRSA) y la Organización de Pesca y Acuicultura del Istmo Centroamericano (OSPESCA). Los representantes de la Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres (CITES) y del Proyecto CLME+ no pudieron participar presencialmente, pero intervinieron a distancia.

Las discusiones se centraron en el fortalecimiento de los esfuerzos nacionales, regionales e internacionales y la ampliación de las responsabilidades y compromisos para la ordenación, conservación y comercio del caracol rosado y las especies -o pesquerías- relacionadas -o con las que interactúa- en el Atlántico centro-occidental. Los participantes también estudiaron cómo fortalecer los medios de vida de quienes dependen de esos recursos, en consonancia con el Código de Conducta para la Pesca Responsable y los objetivos de ordenación acordados en el **Plan regional para la ordenación y conservación del caracol rosado,** que continúa siendo una cuestión prioritaria.

La reunion adoptó cinco recomendaciones sobre:

1. **Recopilación de datos/transparencia**: se recomienda a los países almacenar los datos de los estudios realizados en papel y formato digital para registrar adecuadamente el trabajo y orientar cualquier normalización.

2. **Seguridad de los buceadores**: se recomienda realizar -en determinados países- un estudio regional sobre el estado de las técnicas de buceo en la región de la COPACO; esto reflejaría los esfuerzos que se han realizado y las medidas que se han adoptado en materia de seguridad en el trabajo en la región.
3. **Consumo interno**: se recomienda a los países miembros documentar el nivel de consumo interno de caracol rosado y realizar un estudio sobre este tema.
4. **Manual para la evaluación de las poblaciones de caracol rosado**: se recomienda que el CFMC apoye la actualización y ampliación de los métodos presentados en su manual de evaluación de poblaciones de caracol rosado publicado en 2008, poniendo especial hincapié en diseños muestrales que incluyen una representación de todas las poblaciones y utilizan criterios de sostenibilidad al definir los cupos de producción y exportación (p. ej. densidad de ejemplares adultos, umbral de biomasa explotable igual o inferior al 8 por ciento, etc.); facilite una versión digital del manual; e imparta formación -en inglés, español y francés- sobre el uso del manual a través de Internet a fin de reducir los costes asociados al desplazamiento de oficiales de pesca por la región del Caribe.
5. **Resolución de la CITES sobre el caracol rosado**: se recomienda que la COPACO y la CITES trabajen conjuntamente en un proyecto de resolución de la CITES, que podría estudiarse en la próxima reunión del Comité de Fauna de la CITES y en la próxima reunión de la COPACO.

Además, el Grupo asesor científico, estadístico y técnico (GACET) del GTCR formuló varias recomendaciones prioritarias que fueron aprobadas por el grupo:

6. La COPACO debe redoblar los esfuerzos para mejorar la información proporcionada a nivel de país sobre los desembarques de caracol rosado (CR) utilizando los nuevos factores de conversión (FC) –sobre el peso en sucio- para los diferentes grados de procesamiento. Se les invita a utilizar -preferentemente- sus propios FC o, en su defecto, el promedio que figura en el presente informe. Los países que no dispongan aún de FC deben recopilar datos adecuados y enviarlos al GACET/CR para su evaluación estadística y la correspondiente estimación de los factores utilizando métodos habituales. La información sobre los desembarques debería incluir estimaciones del consumo local.
7. Se formulará una propuesta para determinar la conectividad genómica en todo el Caribe mediante técnicas de detección de polimorfismos de un solo nucleótido (SNP, por sus siglas en inglés), aprovechando la labor realizada por la Universidad de Rhode Island. Se espera que los resultados de este trabajo proporcionen información útil para combatir la pesca ilegal, por lo que se recomienda realizar un proyecto piloto en países que exportan CR y comparten territorios comunes (Colombia, Jamaica, Honduras, Belice y Nicaragua). La información también servirá para comprender la estructura necesaria a pequeña escala- de las poblaciones para su ordenación.
8. Dos subgrupos continuarán ocupándose de las recomendaciones necesarias para simplificar el proceso de formulación de dictámenes de extracción no perjudicial (DENP), incorporando las recomendaciones del GTCR de 2012. Un subgrupo trabajará en actualizar el diagrama de flujo de los DENP, mientras que el otro desarrollará y evaluará las ventajas de los posibles criterios científicos que podrían utilizarse para simplificar dichos dictámenes.
9. Las cuestiones socioeconómicas y reproductivas relacionadas con el CR son una de las líneas de investigación prioritarias que se recomienda impulsar a corto plazo.

CONTENTS

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ABBREVIATIONS AND ACRONYMS

AOL	America Online
CANARI	Caribbean Natural Resources Institute
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CF	Conversion Factor
CFMC	Caribbean Fishery Management Council
CLME+	Caribbean and North Brazil shelf Large Marine Ecosystem
CODOPESCA	The Dominican Council of Fisheries and Aquaculture
CPUE	catch per unit of effort
CRFM	Caribbean Regional Fisheries Mechanism
DDT	dichloro-diphenyl-trichloroethane
EAFM	Ecosystem Approach to Fisheries Management
EEZ	Exclusive Economic Zone
ESA	The Endangered Species Act
FAD	Fish Aggregating Devices
FAO	Food and Agriculture Organization of the United Nations
FMP	Fisheries Management Plan
GEF	Global Environmental Facility
ICM	Interim Coordination Mechanism
IGO	Intergovernmental organization
INPESCA	The Nicaraguan Institute of Fisheries and Aquaculture
IUU	Illegal, Unreported and Unregulated fishing
MARENA	Ministry of Environment and Natural Resources
NDF	Non-Detriment Findings
NEPA	National Environment Planning
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration (USA)
NTAC	National Total Allowable Catch
OIRSA	International Regional Organization for Animal Health
OSPESCA	Central American Fisheries and Aquaculture Organization
PCM	Permanent Coordination Mechanism
QC	Queen Conch
QCWG	Queen Conch Working Group
RGF	Regional Ocean Governance Framework
RPOA	Regional Plan of Action
SAG	Scientific Advisory Group
SAP	Strategic Action Programme
SICA	Central American Integration System
SNP	Single Nucleotide Polymorphisms
SOMEE	The State of the Marine Environment and Associated Economies
SSTAG	Scientific, Statistical and Technical Advisory Group
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
USA	United States of America
VMS	Vessel Monitoring Systems
WCS	Wildlife Conservation Society
WECAFC	Western Central Atlantic Fishery Commission

ABREVIATURAS Y ACRÓNIMOS

AOL	America Online
CANARI	Instituto de Recursos Naturales del Caribe
CITES	Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres
CFMC	Consejo de ordenación de la pesca del Caribe
CLME+	Grandes Ecosistemas Marinos del Caribe y de la Plataforma del Norte de Brasil
CODOPESCA	Consejo Dominicano de Pesca y Acuicultura
COPACO	Comisión de Pesca para el Atlántico Centro-Occidental
CPUE	Captura por unidad de esfuerzo
CR	Caracol rosado
CRFM	Mecanismo Regional de Pesca del Caribe
DCP	Dispositivos de concentración de peces
DDT	Dicloro difenil tricloroetano
DENP	Dictamen de extracción no perjudicial
EAM	Enfoque ecosistémico de la ordenación pesquera
EEUU	Estados Unidos de América
ESA	Ley de Especies en Peligro
FAO	Organización de las Naciones Unidas para la Alimentación y la Agricultura
FC	Factores de conversión
FMAM	Fondo para el Medio Ambiente Mundial
GAC	Grupo asesor científico
GACET	Grupo asesor científico, estadístico y técnico
GTCR	Grupo de trabajo sobre el caracol rosado
INDNR	Pesca ilegal, no declarada y no reglamentada
INPESCA	Instituto Nicaragüense de Pesca y Acuicultura
MARENA	Ministerio del Ambiente y los Recursos Naturales
NMFS	Servicio Nacional de Pesquerías Marinas
NOAA	Oficina Nacional de Administración Oceánica y Atmosférica
OIRSA	Organismo Internacional Regional de Sanidad Agropecuaria
OSPESCA	Organización de Pesca y Acuicultura del Istmo Centroamericano
MCP	Mecanismo de Coordinación Provisional
PAE	Programa de Acción Estratégica
PNMA	Planificación Nacional del Medio Ambiente
POP	Plan de ordenación pesquera
PNUD	Programa de las Naciones Unidas para el Desarrollo
RGF	Marco Regional de Gobernanza de los Océanos
SICA	Sistema de la Integración Centroamericana
SLB	Sistemas de localización de buques vía satélite
SNP	Polimorfismos de un solo nucleótido
SOMEE	Informe sobre el estado de los ecosistemas marinos y las economías asociadas
TNC	The Nature Conservancy
WCS	Sociedad para la Conservación de la Vida Silvestre
ZEE	Zona Económica Exclusiva

Background and objectives

1. The joint Working Group was first established by the 14th session of the Western Central Atlantic Fishery Commission (WECAFC) in February 2012. This meeting is being organized with support from the European Union, Caribbean Fishery Management Council (CFMC) and the USA (United States of America) National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service.

2. The Queen Conch Working Group (QCWG) last met 30 October – 1 November 2018 in Panama City, Panama response to a recommendation adopted at the 16th Session of the Western Central Atlantic Fishery Commission (Recommendation WECAFC/16/2016/1). This recommendation endorsed the *Regional Queen Conch Fisheries Management and Conservation Plan* and other actions to enhance regional cooperation in the sustainable management and trade of queen conch.

3. Discussions at the QCWG meeting focused on strengthening contributions to science, conservation and management of this species. The working group discussed the status of implementation of the Regional Queen Conch Fisheries Management and Conservation Plan, including management measures and regulations, conversion factors, the status of non-detriment findings (NDFs) required for the export of queen conch under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), traceability systems, achievements, challenges, and needs to improve species management. Common priorities were identified, including actions to improve data collection, trade monitoring, and the utilization of new conversion factors needed to improve the determination of their natural populations.

4. The QCWG initiated the operationalization of two of the three sub-groups that were recommended within the Regional Queen Conch Fisheries Management and Conservation Plan: (1) a Scientific, Statistical and Technical Advisory Group (SSTAG) and (2) an Outreach and Education Group. Reflecting on the requirement that CITES Parties develop NDFs in order to export queen conch, the QC Working Group recommended the development of simplified guidelines to facilitate NDF determinations. This task was suggested as a priority activity for the Scientific, Statistical and Technical Advisory Group, which can be later endorsed by the QCWG members, and presented to the CITES Secretariat and the Commission at the next meeting of WECAFC.

5. At the third meeting, the Terms of Reference for the QCWG were revised and a Work Plan for 2019–2021 was developed. Ms Maren Headley from CRFM was selected to lead this group. Several recommendations were adopted by the Working Group for consideration at the next meeting of the Commission related to improving compliance with trade measures for queen conch, conversion factors, and combating illegal, unreported and unregulated (IUU) fishing for queen conch.

Seventeenth session of WECAFC

6. At the 17th Session of WECAFC, which took place 15–18 July 2019 in Miami, Florida, the Commission took note of the latest developments in the conservation, management and trade of queen conch under the auspices of CITES. Outcomes of the meeting of the Scientific, Statistical and Technical Advisory Group of the QCWG, recent research findings on microplastics in queen conch, and progress towards the development of a Caribbean Education Program focused on queen conch were also reviewed by the Commission. The Commission adopted Recommendations WECAFC/17/2019/12 on Improved Compliance with Trade Measures for Queen Conch and WECAFC/17/2019/13 on Queen Conch Conversion Factor. The Commission also endorsed the revised Terms of Reference for the Working Group and its proposed Work Plan.

Eighteenth meeting of the conference of the parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora

7. Since the last meeting of the QCWG, a new set of decisions related to queen conch were adopted at the 18th meeting of the Conference of the Parties to CITES (CoP18). These decisions encourage range States to collaborate in priority activities, such as implementation of the *Regional Queen Conch Fisheries Management and Conservation Plan* (endorsed by WECAFC), data collection to improve regional conversion factors or develop national conversion factors, joint research programs to support the making of NDFs, and development of public education and awareness programs regarding the conservation and sustainable use of queen conch. Decisions were also adopted directing the Animals Committee to provide advice on NDFs; the Standing Committee to review traceability and enforcement issues and make recommendations; and the Secretariat to provide assistance to range States, report developments in traceability systems, and make recommendations as appropriate.

8. Following these developments and consistent with the Terms of Reference of the working group, the objectives and proposed outputs of the fourth meeting of the working group were:

    1. Report on the status of implementation of the *Regional Queen Conch Fisheries Management and Conservation Plan* and a timeline for implementation of any outstanding elements.
    2. Action plan and timeframe for national implementation of Recommendation WECAFC/17/2019/12 on Improved Compliance with Trade Measures for Queen Conch and Recommendation WECAFC/17/2019/13 on Queen Conch Conversion Factor were adopted at WECAFC17.
    3. Action plan for implementation of the recommendations developed by the Scientific, Statistical and Technical Advisory Group upon their review, revision and adoption by the Working Group.
    4. Action plan for education aspects regarding the QC fisheries management and conservation.
    5. Report on progress with implementation of relevant CITES and WECAFC decisions and outcomes of the Working Group for presentation at the 31st meeting of the CITES Animals Committee (2020).
    6. Recommendations as deemed appropriate to promote the sustainable management, legal trade (national consumption and exports), and traceability systems of queen conch.

Participation

9. The fourth meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES QCWG was attended by officers of national institutions, entities, and authorities responsible for implementation of policy, legal, and operational aspects of fisheries management and/or implementation of the Regional Queen Conch Fisheries Management and Conservation Plan in the WECAFC region. The following 14 countries and regional partner organizations participated: Antigua and Barbuda, Belize, Brazil, the Dominican Republic, Guatemala, Haiti, Jamaica, Nicaragua, Panama, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, the United States of America the Western Central Atlantic Fishery Commission (WECAFC for its acronym in English), the Caribbean Regional Fisheries Mechanism (CRFM for its acronym in English), the Caribbean Fisheries Management Commission (CFMC for its acronym in English), the Organization for Fisheries and Aquaculture of the Central American Isthmus (OSPESCA for its acronym in English). The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES for its acronym in English), and the Caribbean Large Marine Ecosystem Project + (CLME + for its acronym in English) were unable to participate in person but provided remote presentations. See Annex A for the list of participants.

Funding

10. The meeting was kindly hosted by the Caribbean Fishery Management Council (CFMC). The meeting also received support from the United States National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS).

Opening of the meeting

11. The meeting opened with introductory remarks from the Convener of the QCWG, Ms Maren Headley from CRFM; Yvette Diei-Ouadi from FAO/WECAFC; and Miguel Rolón, Executive Director of CFMC.

Election of chairperson for the meeting

12. Ms Maren Headley was selected as Chairperson. Ms Laura Cimo from NOAA's NMFS acted as rapporteur.

Introduction of the working group and adoption of the agenda

13. The Convener briefly introduced the QCWG and its objectives planned for discussion. These included monitoring implementation of the *Regional Queen Conch Fisheries Management and Conservation Plan*, further improvement and standardization of trade data and statistics, and strengthening regional collaboration to ensure the sustainable management and trade of queen conch. She informed the QCWG that the CITES Secretariat and CLME+ (Caribbean Large Marine Ecosystem Project +) would be providing their presentations remotely. She also provided several updates to the draft meeting agenda. The amended agenda shown in Annex B was then adopted by the participants.

14. The WECAFC Secretariat provided an overview of the work plan and the activities that were agreed upon at the third meeting of the QCWG in Panama.

15. The WECAFC Secretariat highlighted several accomplishments since the last meeting of the QCWG, including publication of the proceedings in 2019 and the operationalization of two sub-groups of the QCWG (SSTAG and Education/Outreach Group). She noted that WECAFC was able to support work in member countries and provide technical inputs through FAO.

16. A technical workshop on queen conch held in Belize provided an opportunity for information sharing and follow-up action will be taken, including stock assessment work. She emphasized that any recommendations developed will need to be shared with SAG and the Commission; they also need to be validated by OSPESCA, CRFM and other countries that are not members of these organizations.

17. The Secretariat highlighted despite its strong relationship with NOAA's NMFS and CFMC, there are limits on the use of funds for some select countries. The WECAFC Secretariat supported the attendance and participation of delegates from these countries at meetings of the QCWG and at the WECAFC 17 meeting.

18. In February 2019, the Secretariat committed to help raise the visibility of the *Regional Queen Conch Fisheries Management and Conservation Plan* by printing the plan in Spanish and French. She informed the QCWG that the plan has been translated into Spanish and will be made available in French.

19. She emphasized the collaboration on queen conch and explained that the work undertaken by WECAFC is done as a partnership with the member countries, sub-regional organizations, and other bodies in the region.

Queen conch fisheries management plan implementation status in member states of the Caribbean Regional Mechanism (CRFM)

20. Regional WECAFC capture production trends during 1997–2017 were reviewed based on FAO FishStat data in order to place the production of CRFM Member States within context. During the 20-year period, peak production of 38 809 t occurred in 1997 for the WECAFC area. For CRFM Member States, the peak production of 10 746 t occurred in 2016. Capture production from CRFM Member States accounted for an average of 57 percent of landings in the WECAFC area during the 20-year period.

21. The Regional Queen Conch Fisheries Management and Conservation Plan was approved by the 10th Ministerial Council Meeting on 15 June 2016 and it is recognized as a regional framework document from which countries can produce national management plans. Seven CRFM Member States provided feedback on the 14 management measures set out in the Management and Conservation Plan. These countries were: Antigua and Barbuda, Bahamas, Belize, Jamaica, Saint Vincent and the Grenadines, Saint Lucia and Turks and Caicos Islands. In general, given the commercial importance of queen conch, the CRFM Member States have made significant improvements in the management of their fisheries at the national levels.

22. It is recommended that all the stakeholders continue to work towards implementing the management measures while recognizing the national contexts and differences in human and financial resources. It is imperative that countries seek both financial and technical assistance through collaborative partnerships to improve the implementation of the management measures.

23. The following management measures remain as high priority:
    - Improvement of catch and effort monitoring programmes;
    - Development of national conversion factors;
    - NDFs for export of queen conch meat and its by-products;
    - Traceability of queen conch throughout the value chain.

24. At the conclusion of the presentation, the delegate from Saint Vincent and the Grenadines provided an update that their fishery policy has been adopted and is in place.

25. Martha Prada asked about reporting using dirty weights and conversion factors. CRFM explained that countries with national conversion factors provide data to FAO, but countries without national conversion factors are relying on the output of this meeting for guidance on regional conversion factors from dirty weight to live weight.

26. The WECAFC Secretariat raised the issue of NDFs, asserting the need to have the advice of the SSTAG reflected in the work of WECAFC member countries. She recommended inviting CRFM to coordinate within its membership to take account of the advice provided and make progress on implementation of the regional management and conservation plan. She emphasized the need to have responsible stewardship so that there can be continued exploitation in the next 10–15 years.

27. Martha Prada called attention to the need for more information on regional queen conch meat production. She noted the importance of habitat mapping to get important data and suggested that select countries come together to draft a proposal to advance the collection of habitat information. The QCWG agreed with this suggestion.

Queen conch fisheries management plan implementation status in member states of Central American Fisheries and Aquaculture Organization (OSPESCA)

28. Mr Manuel Perez on behalf of the OSPESCA Secretariat presented the Queen Conch Fishery Management Plan implementation status in OSPESCA member States. He made a short introduction of the OSPESCA and the SICA system (Central American Integration System in English) and its role for regional fisheries management. In OSPESCA countries there is on average low domestic consumption of queen conch and it is mainly exported as meat to the US. The export countries are Nicaragua, Belize and Honduras, while a permanent closed season is observed in Panama and Costa Rica. No exports countries are Guatemala and the Dominican Republic. Queen conch is exploited by industrial and artisanal fisheries and with scuba and free diving.

29. FAO capture statistics show that Nicaragua is the main country followed by Belize, Dominican Republic and Honduras although in some countries actual capture values can be distorted due to old conversion factors still utilized. In CITES trade exporter country and NOAA imports database, the trend is the same with Nicaragua, Belize and Honduras as the main exporter countries. Regarding conversion factors, all countries have their own national conversion factors but FAO statistics need to be updated in some cases by utilizing the proper national factor available.

30. The CITES scientific quota in Nicaragua and Honduras was revoked and exporting countries are in the process of preparing NDFs. A licensing system is in place for industrial fisheries and fishing permits are granted to artisanal fishers. In general, all countries have regulations for autonomous diving with scuba diving prohibited in most of the countries.

31. Fishery monitoring is implemented by collecting landings and export data, conducting surveys and some stock assessments. CITES export permits and controls also contribute to fishery monitoring. Nevertheless, trends of queen conch domestic market and local consumption are less known. Vessel monitoring systems (VMS) are compulsory for industrial fleets although the definition of industrial and artisanal boats is not equivalent among countries. National management plans are in place in exporting countries and stock assessments are conducted in several ways: field surveys (densities and distribution estimation, size, maturity and sex), catch and effort models although no species-specific stock assessment model is applied. All fishing countries have closed seasons but dates are not harmonized. A traceability system is under development for all fishery and aquaculture products.

32. Summary and recommendations of the presentation were:
    - There are no declining trends in landings/exports but some concerns on the actual status. Domestic market less known.
    - CITES and other national regulations in place.
    - Need for sampling/surveys standardization and quota estimation methodology. Actual fishing mortality, biomass or recruitment is unknown.
    - Persists the need to maintain coherent landings/trade databases and units.
    - Financial and human resources constraints persist.
    - Queen conch is a priority species under the CRFM-OSPESCA 2nd Joint Action Plan adopted by the fisheries ministers in October 2019.
    - Need to define user-friendly NDFs forms based on sustainability criteria linked to management objectives and reference points. NDFs should include a historical analysis.

33. To this purpose, an example for preparation of NDFs was provided:

Sustainability criteria	Management objective	Reference point
Ensure queen conch reproduction success	Maintain Queen conch reproduction at or above the levels necessary to ensure their continued productivity	• Density (animal/ha) that allows mating and reproduction success • Lip thickness • Dates of a closed season • Number of fillets 100% clean that make up 1 pound
Keep a data collection and analysis infrastructure	Generate and provide appropriate information for decision making	• Data reported to FAO, CITES or published. • Conversion factors data • Exports and domestic trade levels
Optimize fishing capacity according to queen conch abundance and availability	Keep a level of catch per unit of effort that is sustainable	• Catch quota calculation in weight and corresponding fishing effort • Applying 8% rule • CPUE levels (weight/ fishing effort)
Preserve diversity and trophic level	Establishment of responsible fishing areas/ marine protected areas	• Number and size of areas/reserves

34. There was a brief discussion of the importance of keeping paper records for purposes of transparency and record keeping.

35. The delegate from the Dominican Republic highlighted the problem with determination of conversion factors, noting that queen conch in different zones have different growth rates. She explained that there is a conversion factor at the national level, but noted that one can see differences if queen conch are not taken at the same time period.

36. Members of the QCWG joined the WECAFC Secretariat in commending OSPESCA for the helpful table and proposed consideration of the table during the discussion of NDFs.

37. The WECAFC Secretariat emphasized the issue of diver safety, noting that there is a ban on diving among OSPESCA member countries for lobster, but not for queen conch. The delegate from OSPESCA explained that lobster is now being exported to France; since they request whole lobster, there is a need to catch them live. He noted that there is a preference to catch lobster using traps rather than by diving. He explained that there is diving in queen conch in Honduras, but explained that there is a lack of data.

38. The delegate from Nicaragua explained that there is scuba diving for queen conch, noting that lobster and sea cucumber fishermen also catch queen conch. (He emphasized that few fishermen fish queen conch once the sea cucumber fishery opens.) He explained that diseases associated with scuba diving are worse in lobster and sea cucumber fisheries relative to queen conch; upon the receipt of high profits, fishermen expose themselves to danger. The delegate from Nicaragua noted that he has been working for two to three years to provide training to scuba divers to do more safely. The delegate from Barbados stated that fishermen are taking between five and eight dives in one day, demonstrating that divers are pushing themselves, leading to death. The WECAFC Secretariat suggested that data collection by select queen conch producing countries on safe diving techniques and progress towards improvement could capture the efforts that are being undertaken.

39. The delegate from Belize explained that he does not support a management recommendation for queen conch based on lip thickness since they do not fish for adults.

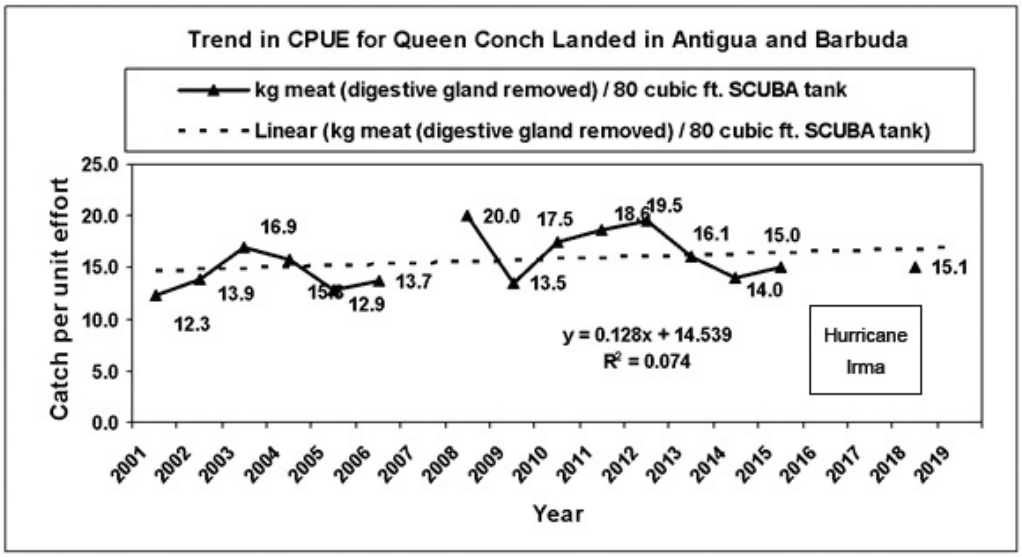
40. At the conclusion of the discussion, the QCWG developed several recommendations:
    - **Data collection** – Recommendation to collect data and store in hard copy for transparency.
    - **Diver safety** - Recommendation for a regional study in selected countries regarding the status of diving in WECAFC region; that would capture the efforts and actions that have been taken on occupational safety in the region.
    - **Domestic consumption** – Recommendation to document the level of domestic consumption of queen conch, noting that a study in this regard would be very welcome. Determining the level of domestic consumption was deemed to be very important for NDFs; in many OSPESCA countries, domestic consumption is not known.

Queen conch fisheries management plan implementation status in selected member states of the Western Central Atlantic Fishery Commission (WECAFC)

Antigua and Barbuda

41. In order to implement the *Regional Queen Conch Fisheries Management Plan*, the following series of measures were taken by Antigua and Barbuda:
    1. Development and implementation of conversion factors (CFs) for the following WECAFC proposed processing grades (Horsford *et al.,* 2012, Horsford *et al.,* 2013): dirty meat, 5.47; 50 percent clean meat, 6.77; and a conversion factor for 75 percent clean meat, 9.99, for the local market. Also CFs were developed for the different maturation stages (juvenile, sub adult, adult and old adult) since they differed significantly among maturation stages ($p < 0.001$).
    2. Improvement in the "resolution" of the catch per unit effort (CPUE) from kg meat (digestive gland removed) /day-trip to kg meat (digestive gland removed) / 80 cubic ft. SCUBA tank. Data on per capita consumption and allocation to the various consumers (housewives, middlemen, supermarkets, hotels and restaurants) were also collected.
    3. Development of other indicators of stock status to complement CPUE such as trend in the annual mean meat weight (digestive gland removed), depth dived, mean number of SCUBA tanks used per diver per day-trip and fishery independent survey of lip thickness by area.
    4. In terms of policy and legislation the *Fisheries Act, No.22 of 2006* and the *Fisheries Regulations, No.2 of 2013*, a) moved the conch fishery from an "open access" to a "limited entry" management regime through the requirement for a special permit, b) required mandatory training and/or certification of fishers (basic first aid, CPR for diver, diver safety, conservation measures, etc.), c) established a closed season from 1st July to 31st August of every year, d) established a minimum shell lip thickness of 5 mm for conch to be harvested [note: 15 mm lip thickness is currently under consideration based on histological studies, Avila-Poveda and Baqueiro-Cárdenas (2006)], and e) mandated increase fines for repeat offenders (a "three strikes" approach). The legislation also prohibited: harvest of conch with shell less than 180 mm; or conch whose meat weight was less than 225 g without digestive gland. Provisions were included for prohibited gears (e.g., hookah) and protected areas.
    5. The *Antigua and Barbuda Plan of Action to Prevent, Deter and Eliminate IUU fishing* made provisions to include a database of violations: to improve overall monitoring of illegal fishing; to readily identify repeat offenders and "hot spots"; and to guide overall monitoring, control and surveillance strategies. Other provisions such as catch certificate programme for exporters were implemented. In addition, a "pilot" vessel monitoring system (radar antennas, AIS receivers and handheld units) was launched in 2017.
    6. In terms of governance, Antigua and Barbuda has adopted a collaborative co-management approach to fisheries research and decision making. The participation of fishers in research allowed for greater "buy-in" with respect to management decisions and improved cost-effectiveness with regard to management (Horsford and Lay 2013).

7. Regarding occupational health and safety, dive boats were required to carry an emergency oxygen kit with manually triggered ventilator to support mandatory training.
8. In terms of the Non-Detrimental Findings (NDFs), the biennial fishery assessments were used to justify that conch exports originated from a sustainable resource. Currently, the model NDF presented at the Second Working Group Meeting on Queen Conch, is under review as a standard.



42. At the conclusion of the presentation, the WECAFC Secretariat suggested that the impact of climate change on queen conch deserves consideration. She noted that at the last WECAFC meeting there was mention that member countries should investigate the impacts of climate change and disasters on queen conch.

43. In response to inquiries, the delegate from Antigua and Barbuda noted that national conversion factors need to be developed. He explained that there is significant variability at the national level. Several QCWG SSTAG members encouraged delegates to share data for the development of national conversion factors and to inform scientific advice regarding trends. However, they stated that a regional conversion factor should be used in the interim before a proper assessment can be conducted and national conversion factors are developed.

44. The delegate from Antigua and Barbuda asked about a methodology to compare conch that are flash frozen from those that are harvested fresh, noting that there are differences. Nelson Ehrhardt explained there is a new methodology that has flexibility; each country may have regression and an estimate conversion factor.

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Belize

1. Country Name: Belize

2. Queen Conch FMP implementation status by Management Measure:
   i. Harmonized and simplified categories of queen conch meat conversion factors. A Conversion Factor of 13.7 for 85 percent processed conch meat is used by Belize.
   ii. Improvement of catch and effort monitoring programmes. Catch and Effort data collection is ongoing at landing sites (fishermen cooperatives) where 85–90 percent of conch meat is landed.
   iii. Closed season. The closed season is from officially from July 1 to September 30 of every year but the fishing season can be closed at any time when the catch quota is realized.
   iv. Non-Detriment Findings (NDF) for export of queen conch meat and its by-products. Even though a NDF has not been fully prepared, Belize has gathered sufficient information required to prepare a NDF. A NDF will be done in early 2020.
   v. Licensing of all queen conch fishers, processors and exporters. All Queen conch fishers, processors and exporters are licensed by the Fisheries Department.
   vi. Adoption of stricter regulations on autonomous diving techniques. SCUBA diving for commercial fishing is prohibited in Belize since 1977.
   vii Organized patrolling. Weekly patrolling is done by specialized Conservation Compliance Unit of Belize Fisheries Department. Enforcement of fisheries laws is also done by authorized staff of marine reserves posted out in the reserves managed directly by Belize Fisheries Department and those managed by co-management partners.
   viii. Extended use of satellite-based Vessel Monitoring Systems (VMS) for boats with a length exceeding 10 metres. Ninety-nine percent of Belize's domestic fishing fleet is less than 10 m in overall length and therefore the use f VMS is not a legal requirement. However, a cooperation project with WCS will outfit at least 70 fishing vessels (out of a total of 700+ vessels) in a first experimental phase of equipping vessels with VMS units.
   ix. Continuous education and outreach programmes for stakeholders. Education and outreach programmes are ongoing with departmental budget. Co-management partners and NGOs also assist in this continuous effort in their respective areas of operation.
   x. National level queen conch conservation and management plans. A national Queen conch management plan and Adaptive Management Framework has been prepared since 2015.
   xi. Traceability of queen conch throughout the value chain. A traceability program in the two major fishermen cooperatives is being developed for Spiny lobster by The Nature Conservancy (TNC). It is expected that this traceability program will be expanded to include Queen conch in 2020.
   xii. Develop collaborative arrangements needed to generate habitat maps at the scale needed for better fisheries management. A Queen conch habitat map has been prepared and is used in the national underwater surveys to assess the populations and to determine the Total Allowable Catch limit every two years by the Fisheries Department.
   xiii. Adoption of sub-regional mechanisms to evaluate the fishery potential of queen conch using fishery dependent and independent factors.
   xiv. Progressive inclusion of co-management strategies.

3. Degree of conch meat processing
   i. Processing grade: 85 percent processed conch meat (for 99 percent of Queen conch meat produced by Belize).
   ii. Processing definition:

Definitions:

1. **Unprocessed conch** means conch that has been removed from the shell with all organs attached and has a **minimum weight** of **7 ½ ounces or 213 grams**.
2. **Partially processed conch** (market clean conch) means conch that has been removed from the shell and from which the operculum, intestines, proboscis, head, eye stalks, ventral portion of mantle tissue and some thick-darkened skin on the foot have been removed and has a **minimum weight** of **3 ounces or 85 grams**.
3. **Fully processed conch** (conch fillet) means conch that has been removed from the shell and from which all body organs have been totally removed from the foot and has a **minimum weight** of **2 ¾ ounces or 78 grams**.
4. Status of national conversion factor development. Currently, Belize has adopted a Conversion Factor of 13.7 for 85 percent processed conch meat converted to nominal weight.

45. In response to inquiries regarding the training program in Belize for new fishers, the delegate from Belize explained that over the last 15 years, there was an increase in training. However, over the last five years, training has been stable. He noted that the government is targeting new fishers who are not familiar with the national regulations. He explained that the government has established places where fishers land their queen conch, and that most conch are landed with their shell.

46. Over the years, Belize noted there has been strong recruitment into the fishery that is sustained on an annual basis. However, they have not accessed the deep water adult stock (100–130 ft. depth). The delegate from Belize explained that they have not had funds to do this work and are urging a genetic study be conducted regarding the connectivity to conch in shallow waters and stocks that are exploited in Nicaragua and Honduras. The delegate stated that although he does not see Belize exploiting deep water stocks, there is a need to ensure that harvest levels do not put sustainability at risk. He clarified that the quota in 2019–2020 is 950 000 lbs (85 percent processed conch meat). A member of the QCWG pointed out that since the focus of harvest is on sub-adult conch, reproducing stock is impacted.

Dominican Republic

47. Queen conch fishery continues to be important for fisheries communities' livelihood in the Dominican Republic. Harmonized and simplified categories of queen conch meat conversion factors are not in place in the Dominican Republic due to local morphological differences in queen conch among several localities. Detailed analysis of conch catch is still very limited. Only total catch per trip is available at landing sites. Dominican fisheries authorities recognise that basic data on conch fishers' population is vital. Currently, the national fisheries census is 90 percent completed and its results will allow for better sampling.

48. Decree 499-09 establishes a closed-season for capture and commercialization of queen conch from 1 July to 31 October. The decree mandates that the conch vendors declare the amount of conch in storage before the initiation of the closed-season and allows 20 days for consumption and selling the conch meat. Any conch product commercialized between the 21 July and 31 October will be considered illegal. There still need to conduct a nation-wide study on Non-Detrimental Findings of conch meat and its by-products. However, since 2003 the country's fisheries and CITES

Administrative authorities has kept a moratorium on conch export following recommendations of the Convention Animals Committee. Conch fishers are included in the regular fishers licensing programme but less than 40 percent are licensed.

49. Fisheries law 307-2004, established the requirement of a No Objection Certificate from the National Fisheries Authority for export and import, however no imports and exports are allowed; prohibits fishing operations during closed seasons and no authorized exploitation of aquatic resources that are protected at national level or under international treaties where the Dominican Republic is Party. This law mandates CODOPESCA to determine catch limits or Total Allowable Catch of queen conch by size and/or meat weigh and reproduction season. It established minimum weigh (227 grams of meat 0,5 pounds) and/or total length 20 cm. Queen conch fishing exclusion zones were also decreed at Catuano and Beata channels, within the system of the Dominican Republic's national protected areas.

50. In terms of adoption of stricter regulations on autonomous diving techniques, the use of Hookah for queen conch fishery is prohibited by law, but is still taking place in several fishing grounds. Fisheries inspections are made by fisheries officers at landing sites, airports and fish vendors places. AOL satellite-based systems are installed in vessels exceeding a length of 20 meters in length, and controlled by the Dominican Army, but not used for fisheries purposes.

51. Education and outreach programmes for stakeholders is conducted mainly through social media. In terms of management plans, only basic fishery data and monitoring and surveillance of closed season is made. Traceability of queen conch throughout the value chain is not in place but there is interest to do so.

52. Conversion factor to nominal weigh in conch has been estimated to be 2.62. Independent study made in Jaragua National Park by Yvonne Arias showed an important variation in sex ratio in female/male queen conch through 2005 and 2014: 1:1 and 4:1, respectively. The study also indicated that Hookah diving in conch fishery was 50 percent higher in 2014 than in 2005.

53. In response to a suggestion from the delegate of the Dominican Republic that conversion factors be calculated for different areas, the delegate from OSPESCA raised a concern about having different conversion factors when there is an inability to discern where conch are landed to determine their origin.

54. The delegate from the Dominican Republic explained that legislation was passed that did not specify whether queen conch was fresh or processed. She noted that if you assume length, you could mistakenly mix up juveniles and adults.

Haiti

55. Queen conch is one of the most important fisheries providing employment for many fishers in Haiti. Queen conch are collected for their meat but cannot be exported since 2003 due to non-compliance with CITES trade measures; meat is locally consumed. Haiti is conducting a national census of queen conch that began last year. This will help provide a baseline for conservation measures for the fisheries, such as the right period for a fishing closure.

56. The delegation from Haiti indicated that there is legislation for a closed season from 1 April –30 September; however, they do not have the means to enforce this measure. It was noted that there were also changes in the fisheries related to climate change and more research is needed to determine if the close season corresponds to the reproductive season.

57. He emphasized the importance of working in cooperation with the Dominican Republic to help the two countries conserve their resources. The delegate from Haiti noted that more studies are needed to assess population densities as there is a lack of research on queen conch fisheries.

58. The delegation from Haiti noted that the government is seeking to promote Fish Aggregating Devices (FAD) fishing. He noted that FADs have been installed to help fishers fish further from the coast to reduce pressure. He asserted that most of the fishers did not have financial resources for a boat and motor and highlighted a co-financed program to help fishers. He noted the need to validate the program to see its impact on the fisheries in the coastal areas.

59. He emphasized the importance of sharing information and understanding the experience of other countries. He expressed interest in having the help of experts who have been working on queen conch conservation.

60. He explained that Haiti is trying to put a data collection system in place and is looking to the Dominican Republic and other countries in the Caribbean for guidance, noting that they cannot take conservation measures if data is not collected.

61. QCWG members offered to assist and support Haiti with data collection and analysis.

62. In response to an inquiry, the delegate from Haiti explained that queen conch fishers use small boats and SCUBA, and there are approximately 52 000 fishers in Haiti with around 900 divers. He explained that there is a co-financed program that promotes tuna fisheries, not queen conch.

Jamaica

63. Upon passage of new legislation, Jamaica's fisheries department has a new name – the National Fisheries Authority – with a compliance and legal unit. The delegate from Jamaica provided the following updates and information on the status of the queen conch fishery.

1. Country Name: Jamaica

2. Queen conch FMP implementation status by management measure:
   i. Harmonized and simplified categories of queen conch meat conversion factors:
      No updates
   ii. Improvement of catch and effort monitoring programmes:
      a. Boat side inspections upon landing.
      b. Biological Sampling at Processing Plants.
      c. An annual report on CPUE of the fishery.

   iii. Closed season.
      a. The queen conch close season is gazetted each year by the Minister.
      b. It generally extends from August 1 to February 28 of each year unless date is changed by the Minister as a result of lobbying by the industry members.
      c. Currently the fishery has been closed since 2019 as a result of poor results from the abundance survey done in 2018.

   iv. Non-Detriment Findings (NDF) for export of queen conch meat and its by-products.

COMPARISON OF MEAN BIOMASS & MSY FOR ALL SURVEYS: 1994-2018				
Year	**Biomass**		**Exploited Stock (mt)**	**MSY in mt 8% rule**
Total, 0-30 m Stratum, Area = 612 237 ha				
2018	**Mean**		9 267.787	741.423
	Lower 95% CI		3 561.079	284.886
	Upper 95% CI		13 678.137	1 094.251
2015	**Mean**	Strata A & B = 238 700 ha	12 438.543	995.083
	Lower 95% CI		9 174.700	733.976
	Upper 95% CI		15 274.977	1 221.998
2011	**Mean**		11 871.000	949.680
	Lower 95% CI		6 296.000	503.680
	Upper 95% CI		16 105.000	1 288.400
2007	**Mean**		7 421.780	593.742
	Lower 95% CI		3 637.992	291.039
	Upper 95% CI		12 498.873	999.910
2002	**Mean**		10 502.979	840.238
	Lower 95% CI		8 055.486	644.439
	Upper 95% CI		14 512.260	1 160.981
1997	**Mean**	Strata B & C = 571 700 ha	9 780.811	789.665
	Lower 95% CI		6 390.602	511.248
	Upper 95% CI		18 476.064	1 478.085
1994	**Mean**		11 652.040	923.163
	Lower 95% CI		7 527.990	602.239
	Upper 95% CI		21 810.750	1 744.860

v. Licensing of all queen conch fishers, processors and exporters.
   a. All industrial conch fishers are licensed to fish conch once they have been successful in their application for a conch licence.
   b. They each receive a portion of the National Total Allowable Catch (NTAC).
   c. This is calculated based on:
      1) Number of years in fishery
      2) Investments
      3) Performance
      4) Boat ownership
      5) Artisanal fishers are not licensed to fish conch although there was a pilot study to change this.

vi. Adoption of stricter regulations on autonomous diving techniques.
   a. Queen conch fishery is the only fishery where diving techniques such as hookah and SCUBA can be legally used.
   b. It is illegal to use hookah or SCUBA to fish any other fish species.

vii. Organized patrolling.
   a. National fisheries authority has been newly declared and under this entity a compliance branch is in existence. Albeit it is yet to be funded.

b. Coast Guard and Marine Police also assist in this exercise. Albeit fisheries issues are not their core mandate and so much effort is not made. Also our Exclusive Economic Zone (EEZ) is 25 times the size of mainland Jamaica.
c. As a result there is intense IUU fishing by vessels from countries such as Honduras, Dominican Republic and Nicaragua.

viii. Extended use of satellite-based VMS systems for boats with a length exceeding 10 metres.
a. The national fisheries authority has a VMS system however it is not in real time.
b. The information is downloaded from a data logger on-board the vessel after a fishing trip.
c. A vessel log is also submitted by the fishers which reflects:
1) Area fished (latitude, longitude and site description)
2) Number of crew
3) Depth
4) Dive time (start and end)
5) Processing level
6) Total catch

ix Continuous education and outreach programmes for stakeholders.
a. Since the closing of the conch fishery there has been an increase in this area.
b. Public awareness campaigns geared at educating the public of the harm of buying conch now that it is banned.
c. The newly gazetted Fisheries Act, 2018 has increased fines for perpetrators.

x. National level queen conch conservation and management plans.
a. As was said before there is a ban on all conch products as a result of the closure of the fishery.
b. There is a queen conch fishery management plan that was adopted in 2017.

xi. Traceability of queen conch throughout the value chain.
a. This is done by four (4) entities:
1) National Fisheries Authority (catch certificate).
2) Veterinary Services Division (Health and Transport Certificate).
3) Ministry of Health.
4) National Environment Planning (NEPA) (CITES-Export Certificate).

xii. Develop collaborative arrangements needed to generate habitat maps at the scale needed for better fisheries management.
a. Habitat maps have been purchased; however, they need further refinement (i.e., ground truthing).

xiii. Adoption of sub-regional mechanisms to evaluate the fishery potential of queen conch using fishery dependent and independent factors.

No updates

xiv. Progressive inclusion of co-management strategies.

No updates

3. Degree of conch meat processing.
   i. Processing grade
   ii. Processing definition

Processing grade	Tissue loss	Weight tissue (g)	% tissue lost	Jamaica Factor
Unprocessed ("dirty conch")	None; animal simply removed from shell	142.5	N/A	0.85
50% cleaned	Removal of the operculum ("claw") and víscera ("bag")	121.3	0	1
65% cleaned ("semi-fillet")	All of the above plus "head" (eyes, stalks and proboscis)	108.9	11.3	1.113
85% cleaned	All of the above plus verge, mantle and part of the skin	96.7	28.21	1.2821
100% cleaned ("fillet")	Only the pure while meat remains	72.1	42.86	1.4286

Fuente: Tewfik (1996) y Smikle (1997).

4. Status of national conversion factor development.
   i. Jamaica estimates its own conversion factor through its biological sampling programme.
   ii. A raising factor of 8.91 conch/kg was calculated in 2018 at 50 percent processing grade.
   iii. The limitation to this is that there was no inclusion of the shell weight. Stocks were seen to be too limited to extract the 2000 conch needed for this calculation. Jamaica is working to address this limitation at a later time.
   iv. Previous conversion factor which included shell weight was 7.46 conch/kg.

United States

64. Queen conch harvest is prohibited throughout its range in state and federal waters of the mainland United States. Harvest is allowed throughout state waters of the USA Virgin Islands (0–3 nautical miles from shore) and of Puerto Rico (0–9 nm from shore), but in federal waters only off the east coast of St. Croix in an area known as Lang Bank during the open season (Jun 1 – Oct 31). Total (state + federal) harvest is capped at 50 000 pounds (approximately 22 700 kilograms) of meat around each of St. Croix and St. Thomas/St. John each year and only during November through May, although queen conch are not a popular item in the St. Thomas/St. John region. There is no cap on annual harvest from Puerto Rico state waters, where roughly 335 000 pounds (approximately 152 000 kilograms) of meat were landed during 2015–2016, but harvest is constrained to November through July. In St. Croix, almost all queen conch are marketed as roughly 75 percent clean whereas in Puerto Rico they are marketed as roughly 80 percent clean. In neither area are meat grade conversion factors fully developed. NMFS has been petitioned to list queen conch as a threatened or endangered species under the USA Endangered Species Act (ESA), and that listing petition remains under review. Comments regarding this petition may be submitted through 4 February 2020 at: www.regulations.gov, search docket #NOAA-NMFS-2019-0141. The present status of USA management relative to the fourteen points of the *Regional Queen Conch Fisheries Management and Conservation Plan* were reviewed and discussed, and have been incorporated into the Queen Conch Working Group summary table.

65. In response to an inquiry about the USA ESA, the USA delegate clarified that the NMFS will look at the entire range of the species when making a decision about whether to list queen conch. The CFMC encouraged countries to provide information to Miguel Lugo (NMFS) to help inform the USA decision, including information on the status of the stock. He explained that it is important to provide information to ensure the best decision can be made.

66. Miguel Lugo (NMFS) offered to provide a copy of the Federal Register notice with the WECAFC Secretariat to share with the QCWG, which details the history and explains how to submit information.

67. The WECAFC Secretariat encouraged OSPESCA and CRFM to express concern to its member countries and support the provision of information to NMFS. She encouraged them to help raise awareness, noting that concerns were raised about a listing of queen conch under the USA ESA at the Second Joint CRFM and OSPESCA Ministerial meeting in October. The representative from CRFM explained that information was shared with its member States. The representative from OSPESCA offered to share information for circulation to its membership.

68. The delegate from Belize expressed concerns about a listing of queen conch under the USA ESA on behalf of producers and exporters. He asserted that businesses will look for alternative markets [other than the United States], which will have implications for management.

Nicaragua

69. Queen Conch FMP implementation status by Management Measure:

    a. Harmonized and simplified categories of queen conch meat conversion factors.

70. Conversion factors in Nicaragua were estimated in 2007, and have not been updated since then. Specific conversion factors have been published in the FAO, Fisheries and Aquaculture Circular 1042/2009 and it is entitled "Conversion factors for processed queen conch to nominal weight".

    b. Improvement of catch and effort monitoring programmes

71. From 2012–2019, The Nicaraguan Institute of Fisheries and Aquaculture (INPESCA) has been implementing the National Action Plan of the queen conch by conducting at least two annual surveys across the Nicaragua Caribbean waters. They collect and analyze landings and fishing effort information per fishing season. In addition, they sample several processing plants.

    c. Closed season.

72. The closed season in Nicaragua goes from 1 June to 30 September of each year, and it is of mandatory compliance; a week prior of the closed season, fishing inspectors conduct an inventory of stored conch.

    d. Non-Detriment Findings (NDF) for export of queen conch meat and its by-products.

73. INPESCA in coordination with the Ministry of Environment and Natural Resources (MARENA) as the CITES Administrative Authority, have established a coordinated process to plan, organize, and implement a series of actions to investigate and monitor existing legal and administrative instruments such as the establishment of a global export quota and its allocation to companies per fishing season. This information can be verified online at www.inpesca.gob.ni, thus safeguarding sustainability of the queen conch products in trade, in accordance with one of the CITES principles, that international trade is not detrimental to the survival of the species.

    e. Licensing of all queen conch fishers, processors and exporters.

74. All owners of industrial vessels (8 in total) engaged in queen conch fishery must have a fishing license issued by INPESCA, and must comply with a series of requirements to ensure the safety of fishermen. Among them are the certification of all diving gears and equipment issued by the

competent authority, and carrying a maximum of 26 divers among others. Any fishing vessels using divers leaving the fishery is not replaced.

f. Adoption of stricter regulations on autonomous diving techniques.

75. In 1993 the Hygiene and Safety Technical Standard applicable to workers at sea in Nicaragua was approved and published, and since 2005 INPESCA, the Ministry of Labor and the Ministry of Health have been given a series of trainings to lobster, conch and sea cucumber divers aimed to improve good practices and safety at sea. To date, a total of 846 fishermen divers have been trained. In 2006, the proposed Protection and Safety Law for persons engaged in diving activities, Law No. 613, was approved by the National Assembly of Nicaragua and came into force in 2007. This Law prohibits the use of autonomous diving for commercial purposes in the lobster fishing and any other marine resource, applicable to both oceans, however its application has been difficult due to the few alternatives offered to divers. In 2013, INPESCA issued the Executive Resolution-PA-No.004-2013 introducing additional regulations for diving in Nicaragua.

g. Organized patrolling.

76. As of this year 2019, a series of joint patrols between INPESCA and the navy personnel have been taken place, and it is expected to continue working together in 2020. Specifically, during September to November of this year, the surveillance activities have been carried out at the fishing banks, storage centers and processing plants.

h. Extended use of satellite-based VMS systems for boats with a length exceeding 10 metres.

77. In Nicaragua, through the Executive Resolution PA-No. 003-2010 of 19 August 2010, it is mandatory to use VMS for vessels larger than 15 meters in length. If the system is not installed or not working properly, the vessel is not allowed to go fishing. Currently, several collaborators are searching for funding to be able to install this VMS system on board of fishing vessels under 15 meters in length.

i. Continuous education and outreach programs for stakeholders.

78. We have educational and dissemination programs for the different stakeholders, including fishermen divers, ship owners and processing plants personnel, thus workshops and meetings are being held.

j. National level queen conch conservation and management plans.

79. We consider that the National Queen Conch Management Plan in Nicaragua is being implemented approximately at 98 percent, based on the following adopted measures:

80. Four months closed season (1 June to 30 September each year).

k. A minimum of 200 mm of conch shell total length and 9.5 mm of conch shell lip thickness are allowed. These measurements are equivalent to three conch fillets 100 percent clean to the pound.

l. Establishment of an export annual quota of 628 mt (1.5 million of pounds), and distribution of this quota among licensed enterprises.

m. Monitoring conducted from 2012 to 2019, both on conch densities and population abundance in the Caribbean region, the conch is not considered over-exploited. Conch yields are stable between 800 and 1 200 100 percent clean conch fillet/day/vessel.

n. Conch population densities show that reproductive capabilities are not being affected, because conch densities maintain densities of 70–109 individuals/ha in the surveyed areas (October 2016, March 2018 and October 2019).

o. Landings are comprised mostly by adult individuals.

p. Traceability of queen conch throughout the value chain.

81. A fishing inspector supervises the conch landings on industrial vessels, and the fishing patterns registered in requested logbooks, that indicate fishing areas and captures among other data. Monitor artisanal landings is difficult to monitor, however conch size is been sampled at the process plants. Artisanal conch is sold there.

q. Develop collaborative arrangements needed to generate habitat maps at the scale needed for better fisheries management.

82. Distribution maps of the different fishing resources have been developed approximately in the last two years. Those maps indicate yields by fishing areas, and course the queen conch is included.

r. Adoption of sub-regional mechanisms to evaluate the fishery potential of queen conch using fishery dependent and independent factors.

Not applicable

s. Progressive inclusion of co-management strategies.

Not applicable

83. In response to an inquiry as to whether CPUE is a good measure for reporting the state of the resource, the delegate from Nicaragua noted that their report uses individuals / hectare as indices to give an idea of how resource is doing.

84. He explained that artisanal fishers' numbers are much higher than those engaged in industrial fishing and are opportunistic. A prohibition on mixed catch is in place, but is difficult to enforce. Artisanal fishers sell to processing plant, including the shell. He noted that local consumption is low; there is some consumption on board but queen conch mostly goes to the private sector.

Barbados

85. The delegate from Barbados noted that there are 50 active conch divers, noting that they fish from July to October. There is both free diving and SCUBA used. Typically, fishers use small boats from shore and queen conch is sold directly to consumers. Shells are used as curios to tourists. He explained that juveniles make a large proportion of catch, which is approximately 5 000 conch/year. He noted that the catch per trip per fisher is 18 conch (average).

86. He explained that the queen conch is found in shallow habitat and distribution is highly patched, with 0 to 130 indivuals/hectare. The mean density is 1.2 individuals/hectare for mature animals. An estimate suggests there are 38 000 animals. There is no estimate available for deeper water conch (>15 meters).

87. With respect to the status of the *Regional Queen Conch Fisheries Management and Conservation Plan*, the delegate from Barbados asserted that they have a lot of work to do to improve catch and effort monitoring. He explained that there is currently no closed season, no NDF (conch are not

exported), and no organized patrolling. Most boats are smaller than 10 meters so they do not have VMS. Work is needed to develop conversion factors for queen conch. Fishers are registered, but not specifically for conch fishing. Since conch meat is sold directly to the consumer or is eaten by the fishers, traceability is a challenge. Conch fisheries were included in fisheries' regulations in 2009–2010, and there is hope to develop co-management.

Panama

88. In 2003, a study was done in Bocas del Toro, Panama. Based on the study results, closure was declared after December 2003 for 5 years (until 2008). An observation made in collaboration with Humboldt University showed that populations were still affected by illegal fishing, and the closure was extended another 5 years (until 2013). The closure was extended again and will end in 2020.

89. The delegation from Panama explained that research is being conducted to generate data since there is a lack of information about queen conch and there is interest in understanding the genetic structure (such as whether there is a single or several populations). The objective of the research is to understand densities, size/frequency distributions, habitat types, and define the capacity for fishing tolerance for various locations. Laws prohibit catch using diving equipment, so he noted that snorkeling equipment was used to examine 12 transects.

90. He noted that despite the closure in Panama, queen conch is still being fished. Fishermen were catching conch and populations were not recovering as they should. Researchers found average densities of 0.014/hectare, 0.013/hectare, and 0.05/hectare. During studies, they saw canoes with spiny lobster and queen conch that were minimum size; the fishermen would mainly search out for lobster but would grab conch regardless of size or legality. He noted that there is incidental fishing and subsistence (self-consumption); other fisheries are sold to restaurants and tourists.

91. Most of the queen conch sampled were found in sea grass beds of between 1–6 meters. He highlighted that mostly juveniles were found; there was a lack of adult conch found.

92. The following challenges were highlighted:
    - Lack of control and surveillance; no funds for surveillance or enforcement.
    - When boarding vessels, fishers did not know about the closure.
    - Lack of funds for research; brief study conducted for one year, did not find funds so we participated in a contest with institution that gives out funds for research.

93. The delegate indicated that Panama has a sustainable action plan in place with the objective of sustainable use of aquatic resources with an Ecosystem Approach to Fisheries Management (EAFM) and a participatory approach to management that involves the fishing sector. In 2020, a new management plan will have to be proposed. One of the proposed actions is outreach regarding the closure to create awareness to reduce catch. The administrative government is thinking about extending the closure, but there is a concern that the closure has been in place for 15 years without surveillance that has not led to progress.

94. During the QCWG discussion, he asserted that queen conch is a subsistence fishery in Panama; in contrast, lobster is more commercially viable so it is considered to be more important and there is more attention and focus on this species.

95. In response to an inquiry, he noted that the study conducted in 2003 used data strictly for the first closure and was only done in one area of Panama. A subsequent study covering other areas inhabited by indigenous populations found that the fishing equipment used was very similar (not much variation), but changes in densities were noted.

Progress of CLME+ Strategic Action Plan: Actions to enhance the governance arrangements for implementing an ecosystem approach for queen conch fisheries

96. The UNDP (United Nations Development Programme) Global Environment Facility (GEF)/ CLME+ Project 'Catalysing Implementation of the Strategic Action Programme for the Sustainable Management of shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems' is catalyzing the implementation of a Strategic Action Programme (SAP) to address key marine environmental problems (unsustainable fishing, habitat destruction, pollution) in the CLME+ region. Supporting this initiative are CLME+ countries as well as a number of relevant Intergovernmental Organizations (IGOs) including CRFM, FAO-WECAFC, and OSPESCA. These IGOs are members of the CLME+ SAP Interim Coordination Mechanism and are integral components of the Regional Ocean Governance Framework (RGF). A Permanent Coordination Mechanism (PCM) is also being developed as part of the RGF. This will be accompanied by a sustainable financing plan.

97. The Project is also supporting the development of a SAP monitoring and evaluation framework and a regional, institutionalized mechanism for assessment and reporting on the State of the Marine Environment and Associated Economies (SOMEE). A regional report and interactive online platform will be the main SOMEE products. A description of the SOMEE approach and the report outline are included in the presentation. The SOMEE report will be based on contributions from members of the RGF as well as from a range of other thematic partners and experts. The Joint Working Groups, including the Queen Conch Working Group, have an important role in the SAP Monitoring and Evaluation process as well as in the production of the SOMEE report (WECAFC Draft Resolution WECAFC/17/2018/9), which includes sub-chapters on queen conch and other important fisheries in the region.

98. An online tracking tool has been provided to WECAFC, CRFM, and OSPESCA and has been used to look at actions related to queen conch. The tool will provide an overview of the status of the resource in the region, including actions completed and progress that has been made.

99. In response to an inquiry about how the EAFM "top-down approach" called for fits into a bottom-up approach to fisheries management, Patrick Debels of CLME+ responded that the CLME+ project and SAP originates from the GEF; therefore, organizations should be acting on behalf of the countries (and should be part of a bottom-up approach). Patrick noted, however, that fisheries' input needs to be strengthened to inform priorities. He explained that there is a local SAP with the support of the Caribbean Natural Resources Institute (CANARI). There is a civil society groups' SAP. He explained that there is a hope to have a government-based SAP to adequately balance what is done top down with bottom-up actions. He expressed concern that there is need to have stakeholders included in an early stage of the project.

100. Patrick explained that the first project had some challenges and when the SAP was developed, resources and time were scarce. He asserted that the first SAP was an achievement, given its wide support. The next phase is also fully supported and will entail integration between civil society, government, and academics.

101. In the next phase, any concerns that are not immediately addressed should be flagged so that attention be given to these important aspects. Queen conch is not among the priority species but as the Regional Plan is slowly implemented, the programme has identified activities that can be undertaken, such as on monitoring.

102. When asked about whether queen conch would be included under the new CLME+ project to help monitor progress in implementation, Patrick reiterated that the CLME+ SAP is an umbrella project. Thus, no single project would not be able to fully implement the project. The new project

provides an opportunity to look at the feasibility of incorporating financing for queen conch; Patrick asserted his belief that the region should try and leverage financial contributions.

103. He noted that the next CLME+ is not only the project formulated under the GEF cycle. He explained that it may be good for the Working Group to convey the desire to include queen conch in the project to WECAFC, CRFM, and OSPESCA to take to the Interim Coordination Mechanism (ICM) and they can discuss where queen conch would be part of the project or if it should be part of another project. Patrick asserted that he is not in a position to commit financing but he noted that it is an important discussion to have among the ICM.

Occurrence of Illegal, Unreported and Unregulated (IUU) fishing of queen conch in the region: Enforcement issues and status update on regional and bilateral collaboration in fighting IUU fishing of queen conch

104. The Secretariat introduced this topic by recalling the significance of Illegal, Unreported and Unregulated (IUU) fishing in the region, with countries commonly alleging or reporting poaching in their waters or any form of malpractice by others. This has been the case since this topic has been tabled on the agenda of the QCWG in 2018.

105. She noted that the *Regional Queen Conch Fisheries Management and Conservation Plan* has been endorsed with references to IUU fishing, and the RPOA-IUU (Regional Plan of Action on Illegal, Unreported and Unregulated fishing) has also been endorsed. She suggested that the QCWG think about these aspects and whether there are measures in the management plan that need to be evaluated, such as the marking of fishing gears and other aspects.

106. The Secretariat of WECAFC expressed interest in having a baseline to assess progress in implementation of the RPOA-IUU that was adopted in July and a systematic review after three or five years to show where countries are with implementation of these measures.

107. During the deliberation following the presentation, there was a brief discussion regarding measures to combat IUU fishing that do not apply to small vessels. Specifically, the QCWG discussed that vessel marking does not apply to small-scale vessels (<12 meters in length) and noted that VMS is utilized for larger vessels. The QCWG expressed concern and highlighted this as a potential gap. The Secretariat of WECAFC reminded the group that a registry recommendation drafted at the last meeting of the QCWG was not endorsed at WECAFC 17, despite interest in this issue.

Status of implementation of the regional fisheries management and conservation plan for queen conch

108. At the suggestion of the QCWG, Martha Prada created a table with the regional measures of the *Regional Queen Conch Fisheries Management and Conservation Plan* and asked delegates which measures have been implemented. This was done to help demonstrate areas of progress and identify outstanding issues at the regional and sub-regional level.

109. Each country was asked to rank the status of implementation of each measure in the plan based on the following key:

0 – No

1 – Low

2 – Moderate

3 – Full

110. The WECAFC Secretariat suggested the table list the measures in the plan and actions under each measure as assessment indicators. The table was circulated to QCWG meeting participants for their input and will be circulated to countries who are not in attendance. The QCWG noted the challenge of using the key in the absence of criteria, but determined the table would provide a useful estimate.

Review of queen conch scientific, statistical and technical advisory group activities (QC/SSTAG), upcoming plans, and recommendations

111. On behalf of the QC/SSTAG group, Ms Martha Prada, Mr Nelson Ehrhardt and Mr Richard Appeldoorn presented the progress made by this advisory group, which was established at the third meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES QC Working Group held in Panama (29 October – 2 November 2018). The group was able to meet twice (April and November, 2019), and at this meeting the progress achieved was summarized, consistent with the report made at the 17th session of WECAFC held in Miami (July, 2019).

112. This collective presentation began by introducing the context and the first assignments the QC/SSTAG had received regarding the: a) guidance on regional conversion factors, b) basic information determining Non-Detriment Findings (NDF) analysis, c) identification of priority research, and d) agreements for its internal protocols on how it will operate.

113. Experts dedicated substantial effort in analyzing the situation regarding Conversion Factors (CF), in particular addressing the statistical data needs for estimating the new CF referring to the total weight without shell (dirty meat). The CF needs to be calculated for each of the various processing grades, which are the products on trade. In addition, and only for FAO fishery statistical purposes, CF for live weight (total weight plus the shell) from dirty weight were provided. In general, there is a consensus about the serious data gaps and severe lack of enforcement regarding QC catch statistical reporting, particularly on landings expressed by commercial processing grades (i.e., percent clean level categories). In this way, CFs do not have a purpose if landings data are not available.

114. Through a consultancy (Mr Nelson Ehrhardt and Mr Manuel Perez), existing data on percent commercial dressing categories were reanalyzed and validated by means of statistical comparisons of processing grades as a function of dirty weights among several countries. Updates of the CF were calculated utilizing statistically validated data from the Bahamas, Honduras, Nicaragua, Barbados, Martinique and Dominican Republic. Main results of this work indicated:

a) CF for 100 percent clean meat weight on dirty weight fell into two groups: Nicaragua-Honduras-Bahamas and Bahamas-Martinique. This suggests that CF, in some cases, be regionally comparable.

b) Recommended CF were estimated for 50 percent clean meat on dirty weight (3 countries), 85 percent on dirty weight (2 countries), and 100 percent clean meat on dirty weight (4 countries).

c) Dirty weight to live weight can be estimated with high precision among countries whose landings show similar size-structure, and so a regional CF (5.36) could be used by countries with the same landings size structure. Queen conch shell weight is not a good predictor of flesh weight, so a regional harmonized CF was not recommended in reconstruction of total catch.

115. The following are the updated values of the QC CF resulting from this consultancy:

50% clean to dirty weight	CF 95% Confidence interval		
Country	**Average CF**	**Lower**	**Upper**
Martinique	1.53	1.33	1.80
Bahamas	2.05	1.78	2.43
Nicaragua	1.86	1.78	1.96
Dominican Republic	1.69	N.A.	N.A.

85% clean to dirty weight	CF 95% Confidence interval		
Country	**Average CF**	**Lower**	**Upper**
Barbados	1.86	1.42	2.69
Honduras	2.41	2.17	2.73
Dominican Republic	2.11	N.A.	N.A.

100% clean to dirty weight	CF 95% Confidence interval		
Country	**Average CF**	**Lower**	**Upper**
Honduras	2.73	2.46	3.05
Bahamas	2.76	2.37	3.30
Nicaragua	3.06	2.84	3.31
Martinique	2.66	2.30	3.15
Dominican Republic	3.19	N.A.	N.A.

Dirty weight to whole weight	CF 95% Confidence interval		
Country	**Average CF**	**Lower**	**Upper**
Nicaragua	5.39	4.82	6.12
Honduras	5.63	4.82	6.76
Bahamas	5.60	4.41	7.68
Martinique	5.54	5.53	5.55
Barbados	4.66	3.87	5.17
Average	5.36	4.69	6.26
Dominican Republic	3.89	Samples with sub-adults only	

116. The QC/SSTAG also reported progress on training regarding methods to conduct QC density surveys, subsequent data analysis for recommending exploitation quotas, as well as ways to improve scientific collaboration. This was led by Ms Elizabeth Babcock from the University of Miami in collaboration with Belize Fisheries Department. The workshop was held in Belize City, 29 July – 2 August 2019 and had the participation of 16 participants: eight countries representatives, five experts, one regional fisher folk organization representative, two WECAFC representatives.

117. The QC/SSTAG has provided a total of 22 specific recommendations regarding conversion factors, surveys, updating the CFMC QC stock assessment manual, connectivity, NDF, socio-economics and other priority research. From these, a number of actions were recommended in this meeting as priority:

1) WECAFC needs to increase efforts that would result in better country QC landings reports using the new CF (dirty weight) by processing grades. They are invited to preferably use their own CF or the average reported here in the absence of national CF. Countries still missing CF need to collect appropriate data for CF estimation and submit data to QC/SSTAG for statistical evaluation and CF estimation following common methods. Landings reports should include estimations of local consumption.
2) Update and expand QC stock assessment methods presented in the 2008 QC Stock Assessment Manual, particularly looking at sampling designs that include representation of their entire population and establishment of sustainability criteria when defining production and export

quotas (e.g., adult density, 8 percent or less of exploitable standing biomass, etc.). To reduce the cost of having broad participation of key fisheries officers across the Caribbean, an online training program in English and Spanish should be encouraged regarding the updated stock assessment methods and quota estimation algorithms.

3) A proposal to determine the genomic connectivity across the Caribbean using the SNPs (Single Nucleotide Polymorphisms) technique will be developed, capitalizing on the significant support already received from University of Rhode Island. Results from this work are expected to provide information useful to counteract illegal fishing, and so a pilot from countries exporting QC and sharing common grounds (Colombia, Jamaica, Honduras, Belize and Nicaragua) was recommended. Information will be also useful for understanding small-scale population structure needed for management.
4) Two sub-groups will continue addressing recommendations needed for simplifying the process of generating NDFs, integrating the 2012 QC Working Group recommendations. One will work with the update of the NDF flow chart, while the other group will develop and assess the merits of potential scientific criteria that could be used, with respect to developing simplified NDFs.
5) QC socio-economic and reproductive aspects are among the priority research areas recommended to be developed in the short term.

118. The QC/SSTAG recommends to look for funding alternatives to conduct the recommended work, including the writing of a proposal among other possibilities.

119. The complete reports of the first and second workshops containing detailed information are available as APPENDICES C and D of this report.

120. The delegate from Belize expressed interest in the recommendation related to dive safety in the queen conch and lobster fisheries. He noted that over the years, a lot of time has been spent attempting to address this issue and incidents of accidents and deaths due to improper use of diving gear. Nevertheless, the issue remains of concern today and some governments have not taken this issue seriously. He expressed interest in a recommendation that no one is no longer in support of status quo and no one does support continued improper use of hookah gear for QC and lobster fisheries. He asserted that we cannot allow our fishermen to continue to be exploited and put their lives at risk.

121. Several QCWG members supported recommendations aimed at increasing diver safety but did not support a recommendation against the use of hookah. A suggestion was made to require diver training as a precondition for acquisition of a license.

122. Another issue related to socio-economics that was discussed was fishery closures. Specifically, the delegate from the Dominican Republic recommended that when there is a fishery closure, other alternatives could be provided to fishermen, such as recreational fishing or ecotourism to lower effort. The delegate from Nicaragua informed the group that during fishery closures, they authorize some vessels to fish for other species. Martha Prada cautioned that there is a need to be careful when considering options since some of the fisheries are already fully exploited and additional fishing pressure may not be possible.

Technical updates on queen conch: Updates on conversion factors

123. With respect to conversion factors, several QCWG members expressed support for the work presented and excitement to see some convergence on the way forward. A member noted the need for commitment of countries to provide data in order to have a better dataset. There was interest in consideration of a standardized protocol for conch removed from the shell using flash freezing versus those that are removed live, given the different weight losses. The delegate from Belize

informed the group that a conversion factor at 85 percent processed was established, but noted that some issues could not be resolved. Thus, another collection from the field is planned for 2020 to confirm the conversion factor that has already been established. Subsequent to the analysis, the delegate offered to share this information with WECAFC and CITES.

Technical updates on queen conch: Updates on traning in conch surveys and populations status determination

124. During discussion on the topic of queen conch surveys and stock assessments, the QC/SSTAG highlighted the queen conch assessment manual produced by CFMC in 2008 as a potential reference, noting that this methodology has been applied in Jamaica and Honduras. Several QCWG members noted the time, cost, and challenges of conducting surveys given the limited resources and capacities of countries. A recommendation to provide training on the use of the manual at the regional level was supported by the QCWG. The delegate from St. Vincent and the Grenadines explained that next year they will make efforts to undertake a stock assessment of the conch fishery, and the recommendation could assist them moving forward. He also emphasized the need for financial support and assistance.

125. The following specific recommendation was agreed by the QCWG:

- Update and expand methods in the queen conch stock assessment manual published by CFMC in 2008 (index of exploitation by shell weight converted catch curve);
- Implement as simple stock assessment software as possible to more effectively promote the use of the recommended methods; and
- Provide online training in English and Spanish regarding stock assessment methods and quota estimation algorithms to reduce costs of broad participation of key fisheries officers in the Caribbean.

126. CFMC agreed to hire the appropriate experts for putting together a training module after there is review of the manual; the plan would be to conduct this work in 2020 in English and Spanish, which then can be translated in French with supplemental funds. The Secretariat of WECAFC offered to help support translation into French and noted that if the manual is digitized, FAO can assist with publication.

127. A recommendation was made to have a digitalized version of the manual and put together training that can be disseminated via UTube. Dr Erhardt noted that there are different needs in the region, so there may need different methodologies that could be provided in the training.

Technical updates on queen conch: Updates on priority research

128. During the discussion on the research recommendations of Dr Richard Appledoorn and the QC/SSTAG, Martha Prada mentioned an offer from the University of Rhode Island to do genetic studies on queen conch. She explained that there have been advancements in genetics, and there is an opportunity to draft a proposal using new techniques and use data to make comparisons. Several QCWG members expressed interest in genetic studies to better understand connectivity and participation in the study, including delegates from Belize, Nicaragua, and Panama. QCWG members with interest in participating in the genetic studies were asked to contact Martha and Richard.

129. During the discussion on the research recommendations, the Secretariat of WECAFC suggested that the top five priorities be identified and then circulated with a deadline to other member countries so they can provide feedback. Subsequent to the identification of top priorities, she suggested that

action be taken by the QC/SSTAG. The QCWG endorsed these suggestions. They also expressed support for discussion of the NDF table presented by OSPESCA and the draft CITES resolution prepared for the group's consideration.

Queen conch education and outreach project

130. The queen conch, Strombus (Lobatus) gigas (Linne 1758), is an endemic gastropod widely distributed in the Caribbean. Queen conch stocks have declined significantly throughout the region over the past few decades and as a result of serious concerns for this species, it has been listed in Appendix II of the Convention on International Trade in Endangered Species (CITES). Various fishery regulations and management have now been implemented in most Caribbean countries for a sustainable use of queen conch (FAO–WECAFC2013). Many aspects of the biology and ecology of queen conch are relatively well studied. However, an understanding about larval supply, settlement and recruitment of this species, larval abundance studies and their distribution throughout the Caribbean are needed, particularly by examining density of veligers during their summer spawning period.

131. The increase in CO2 emissions during the last century has produced changes in the oceans, producing temperature increase and pH decrease. Temperature in this region could rise to 31° C by the year 2100 and acidification could drop from 8.1 to 7.6 by 2100 (Caldeira and Wickett 2003). These changes affect the dynamics of populations and the metabolism of organisms, especially calcifying organisms, where the larval phases are more susceptible (Sale, 2010).

132. Every day about one megaton of plastic is produced, enough to make almost 22 trillion water bottles and more than 90 percent of that will never be recycled. As much as 12.7 million metric tons of it ends up in the oceans. Today, plastic is the most prevalent type of marine debris, representing more than 60 percent of the debris swirling through the oceans. Most plastics in the ocean, however, break up into microplastics (≤5 mm) and these belong to a group considered as emerging pollutants (Andrady 2011, Baini *et al.,* 2018, Bosker *et al.,* 2018). The most serious, yet least documented, is the role of microplastics as accumulators and bio-magnifiers of persistent organic pollutants (Andersson 2014, Auta *et al.,* 2017, Hurley *et al.,* 2018) such as insecticides DDT (dichloro-diphenyl-trichloroethane) aromatic hydrocarbons and heavy metals.

133. The aim of this work was to show results of a scientific collaboration in the Caribbean with various Universities, showing the effect of climatic change on abundance of larvae in this region, in the process of shell calcification and concentration of pollution by microplastics in various sites from the Caribbean and information about outreach programs with the queen conch.

Results

134. Larval Density A total of 158 queen conch veligers were collected from July to September 2014. Most were collected at Barbados (60.13 percent of larvae) and 21.52 percent were collected at the Dominican Republic location. Larval density varied from 0.0 larvae/10 m3 at several locations to 6.02 larvae 10 m -3 in Barbados (July). Larval densities also varied with month from an average across all locations of 1.18 larvae 10 m-3 in July, to 0.45 larvae/10 m3 in August and 0.58 larvae 10 m-3 in September. The highest abundance was observed in Barbados during July (18.88 larvae/ 10 m3). Abundance of larvae was not significantly different among months. However, significant differences were found among locations. The high abundance of veligers in the Barbados samples suggests that the low-density conch population found there may still be capable of providing recruits for downstream populations.

135. A temperature of 30 °C resulted in the highest larval growth rate (mean ± SD 27.33 ± 2.96 µm day−1), significantly among treatments ($p \leq 0.05$). Development was fastest at 30 °C, where the first larvae settled by day 27 (49 percent) and the mortality rate was 76 percent. At 28 °C, day 29 was the first day where settlement was observed for 20 percent of the larvae.

136. The calcification process of *S. gigas* larvae was affected by the experimental temperatures tested. Percent Ca content of shelled larvae showed 25.44 ± 4.74 and 24.99 ± 0.74 percent w for larvae grown at 30 and 28 °C, respectively.

137. All conch analyzed from the four sites across the wider Caribbean had microplastics in their feces. These micro-plastic particles were different shapes and sizes. Conchs from the northwestern sites in the wider Caribbean (Florida Keys and Alacranes Reef) had the highest overall abundance of microplastics in their feces compared with those from the eastern Caribbean sites (Barbados and Guadeloupe). However, the most frequent microplastic particle types were the same across all sites, with fragments being the most abundant and sheets being the least abundant. The size of the fibers varied between 300 and 4 500 µm and fragments between 100 and 700 µm.

138. Dr Aldana took the opportunity to highlight the QCWG of the CFMC education program on queen conch in development that will be in the three languages of WECAFC to be adjusted for each country. She reminded members and participants to share information.

139. In relation to the information about outreach programs with queen conch, 207 digital documents were located; 61 percent without educational material. The final analysis was carried out with 80 documents containing educational materials. The distribution formats of the digital documents were web page, video, blog, news, newsletter, Facebook and radio). Seventy-seven percent of the material is in web page format, and the least used are the news bulletin and the radio. Non-governmental organizations, fisheries ministries, environmentalists, private initiative, museums and universities have participated in the educational programs. In countries like Barbados, Martinique and Puerto Rico, it is a single institution that carried out the educational material, while 21 institutions participated in the Bahamas.

140. The material generated has been in nine topics. Seventy-nine percent speak only of generalities of the queen conch as threatened and overfished species. The second block is about its biology. Information on specific management measures for sustainable use was only 10 percent. Only in the material generated by the Bahamas and the United States do they talk about fisheries management measures for sustainable uses (minimum size, lip thickness and closure) without explaining what part of the life cycle they affect and how they protect.

141. In conclusion, it is necessary to generate a specific educational program, which explained the fishing management measures for the queen conch, what part of the life cycle they protect and how they act. It was noted that this material will be made with the support of the CFMC by 2020.

142. Several QCWG members asserted that education and outreach is very important for fisheries. The Convener of the QCWG noted, however, there are education programs for queen conch which are conducted through the fisheries extension departments/divisons that are not systematically recorded. Dr Aldana acknowledged this gap and asked QCWG participants to share the information they have. She explained that her team would be looking for additional materials through a Google search using key words. She noted that there is a lot of information from Colombia, but everything is not digital and cannot be accessed.

143. Martha highlighted further work on reproduction as a priority since many processes are affecting reproduction. She reminded the group that reproduction is density dependent, and there is a lot of environmental information to discuss with respect to reproduction.

Draft Non-Detriment Findings template for queen conch

144. Manuel Perez (OSPESCA) was asked to re-present the draft Non-Detriment Findings (NDF) template for queen conch that was shown during his presentation the day before for consideration and deliberation. As background for the document, he noted challenge of using the NDF template that had been developed for the 2014 QCWG meeting. For development of the template, Manuel explained that he used the lobster and shrimp fishery in Nicaragua to see how this could be translated for queen conch. In his explanation of the NDF template, he highlighted the need to have criteria, management objectives, and reference points presented in a form that is simple and provides a benchmark towards sustainable harvest. He presented the template as a starting point to help the discussion.

145. Nelson Erhardt asserted that the template provides a useful initial instrument for discussion with many themes that can be evaluated. He noted that CITES is interested in species conservation versus the promotion of fisheries. The delegate from Antigua and Barbuda agreed, noting the different approaches and methodologies used by CITES and FAO for fisheries.

146. Richard Appledoorn expressed interest in seeing what numbers would be appropriate for inclusion in the NDF template (such as what lip thickness would be considered sustainable).

147. Several QCWG members congratulated Manuel for the excellent work and noted that the table provides a useful tool to build upon. The WECAFC Secretariat expressed her appreciation for the efforts and echoed support for further work to be conducted using the minimum sustainability criteria in the table. Furthermore, she recommended circulation to the CITES Animals Committee to get their feedback since they offered to provide guidance and feedback. Manuel reaffirmed CITES' offer to review and provide assistance. Nelson Erhardt expressed concern that the CITES Animals Committee lacks expertise in queen conch.

148. The delegate from Belize agreed to help to come up with ideas for NDF as part of the sub-group. He informed the QCWG that a subregional group comprised of Belize, Honduras, and Nicaragua plan to come up with an NDF framework that is simple, practicable, useful, and acceptable to the CITES Secretariat if resources become available.

Draft resolution of the Convention on International Trade in Endangered Species of Wild Fauna and Flora

149. The delegates from Belize (Mauro Gongora) and the United States (Laura Cimo) were asked to explain and present a draft CITES Resolution that was prepared for the QCWG's consideration. According to Daniel Kachelriess of the CITES Secretariat, Decisions adopted at CITES CoP18 are time-bound and expire. He advised the QCWG to consider that many decisions adopted do not need to expire since they are matters of importance on a long-term basis. He suggested Parties have an opportunity to continue to do the work that is needed and advised that a Resolution could be presented for endorsement by CITES. At his advice, the Decisions on queen conch adopted at CoP18 were put into the template for a CITES Resolution, and he had provided a significant number of suggested revisions and comments. Since the Resolution had not been circulated in advance for review and given the limited time remaining, there was agreement that the QCWG did not have enough time to review and comment on the draft resolution at the meeting. A suggestion was made that input be solicited from the Parties and compiled intersessionally.

150. The Secretariat of WECAFC informed the QCWG that the next CITES Animals Committee meeting is scheduled to take place in July 2020. She explained that it is feasible for the document to be reviewed by the CITES Animals Committee, but noted that are some tasks to be done.

151. She suggested that once finalized, the draft Resolution could be electronically submitted to the SAG as an intersessional proposal and considered for adoption within the framework of the Strategic Reorientation process scheduled for May 2020. The WECAFC Secretariat also reminded the group that any recommendation or resolution must be accompanied by a description of the proposal and a rationale/reason for its adoption. Thus, this documentation needs to be prepared.

152. The QCWG agreed to continue work on the CITES resolution. Miguel Rolón from CFMC suggested that if the Resolution is adopted, it should be presented at the next Animals Committee meeting by the Convener of the QCWG, and he offered to provide support. The delegate from Belize agreed with this recommendation and reminded the QCWG that he is a member of the CITES Animals Committee.

Future work

153. At the conclusion of the meeting deliberations, a list of tasks were identified for the period 2019-2020, most of which will be led by the QC/SSTAG as outlined in the *Regional Queen Conch Management and Conservation Plan*. These span from the finalization and publication of the proceedings of the 3rd QCWG meeting to the development of a project within the 2021-2025 cycle of CLME+. The detailed TORs and Workplan are shown in APPENDICES E and F.

Adoption of the summary report and recommendations for WECAFC

154. The Convener of the QCWG noted that the report of the meeting would be adopted intersessionally. She asked for summaries of presentations to be shared with the rapporteur, WECAFC Secretariat and CFMC. She informed the group that all documents would be uploaded into the Google drive that she had shared with the meeting participants.

155. The QCWG adopted several recommendations, which are listed below:

1. **Data Collection/Transparency** - Recommend that when countries conduct studies, the data be stored in hard copy and digital copy to have a good record of the work and guide any standardizations.
2. **Diver safety** - Recommend a regional study be conducted in select countries with regard to the status of diving techniques in WECAFC region; this would capture the efforts that have been made and actions that have been taken on occupational safety in the region.
3. **Domestic consumption** – Recommend member countries document the level of domestic consumption of queen conch and support a study on this topic.
4. **Queen Conch Stock Assessment Manual –** Recommend that CFMC support an update and expansion of the methods presented in the queen conch stock assessment manual published by CFMC in 2008, particularly looking at sampling designs that include representation of their entire population and establishment of sustainability criteria when defining production and export quotas (e.g., adult density, 8 percent or less of exploitable standing biomass, etc.), provide a digital version of the manual, and provide training on use of the manual in English, Spanish, and French to be posted online in order to reduce the cost of having broad participation of key fisheries officers across the Caribbean.
5. **CITES Resolution on queen conch** – Recommend WECAFC and CITES work collaboratively on a draft CITES resolution that could be considered at the next meeting of the CITES Animals Committee and next meeting of WECAFC.

156. The QCWG agreed that the draft NDF template and CITES resolution would be completed intersessionally. These documents will be circulated to the QCWG for review and comment upon completion.

157. Additionally, the QCWG/SSTAG offered several priority recommendations that were endorsed by the group:

1) WECAFC needs to increase efforts that would result in better country QC landings reports using the new CF (dirty weight) by processing grades. They are invited to preferably use their own CF or the average reported here in the absence of national CF. Countries still missing CF need to collect appropriate data for CF estimation and submit data to QC/SSTAG for statistical evaluation and CF estimation following common methods. Landings reports should include estimations of local consumption.
2) A proposal to determine the genomic connectivity across the Caribbean using the SNPs technique will be developed, capitalizing on the significant support already received from University of Rhode Island. Results from this work are expected to provide information useful to counteract illegal fishing, and so a pilot from countries exporting QC and sharing common grounds (Colombia, Jamaica, Honduras, Belize and Nicaragua) was recommended. Information will be also useful for understanding small-scale population structure needed for management.
3) Two sub-groups will continue addressing recommendations needed for simplifying the process of generating NDFs, integrating the 2012 QC Working Group recommendations. One will work with the update of the NDF flow chart, while the other group will develop and assess the merits of potential scientific criteria that could be used, with respect to developing simplified NDFs.
4) QC socio-economic and reproductive aspects are among the priority research areas recommended to be developed in the short term.

Date and place of the next meeting

158. The WECAFC Secretariat, supported by CFMC and the Convener, noted that the QCWG may need to meet again in 2021 before the next Commission meeting to ensure actions are taken before this meeting. She offered to help coordinate work and keep members abreast of any developments. The hope is for the QCWG to meet in 2021 to discuss the outcomes of the CITES Animals Committee meeting and the results of any relevant studies.

Closing session

159. The meeting came to an end on Tuesday, December 16, with the remarks from the convener, meeting host, and WECAFC Secretary.

160. The WECAFC Secretariat noted all the hard work that was done over the last several days and expressed gratitude to all the partners who have contributed to the deliberations. She congratulated the participants on a very productive meeting with useful updates since last meeting of the QCWG. She highlighted the assessment of the extent of implementation of measures in the management plan as an important output of the meeting.

161. She also expressed appreciation for the presentation from the SSTAG with comprehensive and useful recommendations and prioritized aspirations of the countries. The Secretariat also noted the agreement on priority issues, such as updating the manual on stock assessment methods and genetic studies. One very useful output was the table of sustainability criteria to assist with the making of NDFs, which was a valuable contribution as a result of discussion from the QCWG/SSTAG. Work that is being developed by Belize, Honduras, Nicaragua is ongoing and in need of funding.

162. She expressed her pride with the collaborative framework that links WECAFC, CRFM, OSPESCA and CFMC, given everyone's engagement and awareness that we have to ensure responsible conservation and management of queen conch fisheries.

Antecedentes y objetivos

1. El Grupo de trabajo conjunto se constituyó por primera vez en la decimocuarta reunión de la Comisión de Pesca para el Atlántico Centro-Occidental (COPACO) en febrero de 2012. Esta reunión se organizó con apoyo de la Unión Europea, el CFMC y el Servicio Nacional de Pesquerías Marinas de Oficina Nacional de Administración Oceánica y Atmosférica (NOAA) de los Estados Unidos de América.

2. El Grupo de trabajo sobre el caracol rosado (GTCR) se reunió por última vez del 30 de octubre al 1 de noviembre de 2018 en Ciudad de Panamá (Panamá), atendiendo a una recomendación adoptada en la decimosexta reunión de la Comisión de Pesca para el Atlántico Centro-Occidental (Recomendación COPACO/16/2016/1). Ésta aconsejaba implementar el *Plan regional para la ordenación y conservación caracol rosado* y otras medidas destinadas a mejorar la cooperación regional en materia de ordenación y comercio sostenibles del caracol rosado.

3. Las discusiones en la reunión del GTCR se centraron en fortalecer las contribuciones a la ciencia, conservación y ordenación de esta especie. El GTCR analizó el estado de la implementación del *Plan regional para la ordenación y conservación del caracol rosado*, incluidas las medidas y normas en materia de ordenación; los factores de conversión; el estado de los dictámenes de extracción no perjudicial (DENP), requeridos por la Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres (CITES) para exportar caracol rosado; los sistemas de trazabilidad; y los logros, desafíos y necesidades para mejorar la gestión de la especie. Se identificaron prioridades comunes, incluidas las medidas para mejorar la recopilación de datos, la vigilancia del comercio y la utilización de nuevos factores de conversión necesarios para identificar poblaciones naturales con mayor precisión.

4. El GTCR inició la puesta en marcha de dos de los tres subgrupos recomendados en el *Plan regional para la ordenación y conservación del caracol rosado*: (1) un Grupo asesor científico, estadístico y técnico; y (2) un Grupo de divulgación y educación. En relación al requisito -exigido a las Partes de la CITES- de formular DENP para exportar caracol rosado, el GTCR recomendó elaborar directrices simplificadas para facilitar dicha formulación. Se sugirió que esta tarea fuera una actividad prioritaria para el Grupo asesor científico, estadístico y técnico, pudiendo ser posteriormente refrendada por los miembros del GTCR, y presentada a la Secretaría de la CITES y a la Comisión en la próxima reunión de la COPACO.

5. En la tercera reunión se revisaron los Términos de referencia del GTCR y se elaboró un Plan de trabajo para 2019-2021. Maren Headley, del CRFM, liderará este grupo. El GTCR adoptó varias recomendaciones -relacionadas con la mejora del cumplimiento de las medidas comerciales para el caracol rosado, los factores de conversión y la lucha contra la pesca ilegal, no declarada y no reglamentada (INDNR) de esta especie- que serán estudiadas en la próxima reunión de la COPACO.

Decimoséptima reunión de la Comisión de Pesca para el Atlántico Centro-Occidental

6. En la decimoséptima reunión de la COPACO, celebrada del 15 al 18 de julio de 2019 en Miami (EE.UU.), la Comisión tomó nota de las últimas novedades en materia de conservación, ordenación y comercio del caracol rosado bajo la supervisión de la CITES. Los resultados de la reunión del Grupo asesor científico, estadístico y técnico del GTCR, los recientes hallazgos de las investigaciones sobre microplásticos en el caracol rosado y los avances en el desarrollo de un Programa de Educación para el Caribe centrado en dicha especie también fueron analizados. La Comisión adoptó la Recomendación COPACO/17/2019/12 sobre la mejora del cumplimiento de las medidas comerciales para el caracol rosado y la Recomendación COPACO/17/2019/13 sobre los factores de conversión del caracol rosado. La Comisión aprobó igualmente los Términos de referencia revisados del GTCR y su Plan de trabajo propuesto.

Decimoctava reunión de la Conferencia de las Partes en la Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres (CITES)

7. Desde que se celebró la última reunión del GTCR, se ha adoptado -en la decimoctava reunión de la Conferencia de las Partes en la CITES (CoP18)- un nuevo conjunto de decisiones relacionadas con el caracol rosado. Estas decisiones animan a los Estados del área de distribución a colaborar en actividades prioritarias, como la implementación del *Plan regional para la ordenación y conservación del caracol rosado* (aprobado por la COPACO); la recopilación de datos para mejorar los factores de conversión regionales o desarrollar factores de conversión nacionales; los programas conjuntos de investigación para contribuir a la formulación de DENP; y el desarrollo de programas públicos de educación y sensibilización sobre la conservación y uso sostenibles del caracol rosado. También se adoptaron decisiones dirigidas al Comité de Fauna para que proporcione asesoramiento sobre la formulación de DENP; al Comité Permanente para que examine las cuestiones relacionadas con la trazabilidad y el cumplimiento y formule recomendaciones; y a la Secretaría para que proporcione asistencia a los Estados del área de distribución, informe sobre los progresos realizados en los sistemas de trazabilidad, y formule recomendaciones cuando proceda.

8. A raíz de estos avances y, en consonancia con los Términos de referencia del GTCR, los objetivos y contribuciones propuestos de la cuarta reunión del grupo de trabajo fueron:
   1. Informar sobre el estado de la implementación del *Plan regional para la ordenación y conservación del caracol rosado* y proponer un calendario para la puesta en marcha de las cuestiones pendientes.
   2. Elaborar un plan de acción y un calendario para la implementación nacional de la Recomendación COPACO/17/2019/12 sobre la mejora del cumplimiento de las medidas comerciales para el caracol rosado y la Recomendación COPACO/17/2019/13 sobre los factores de conversión del caracol rosado.
   3. Diseñar un plan de acción para la implementación de las recomendaciones formuladas por el Grupo asesor científico, estadístico y técnico, una vez que hayan sido analizadas, revisadas y aprobadas por el GTCR.
   4. Elaborar un plan de acción para los aspectos educativos relacionados con la ordenación y conservación del caracol rosado.
   5. Informar sobre los avances en la implementación de las decisiones relevantes de la CITES y la COPACO y los resultados del GTCR para su presentación en la trigésima primera reunión del Comité de Fauna de la CITES (2020).
   6. Formular todas aquellas recomendaciones que se consideren apropiadas para promover la gestión sostenible, el comercio legal (consumo nacional y exportaciones) y los sistemas de trazabilidad del caracol rosado.

Participación

9. A la cuarta reunión del Grupo de trabajo conjunto CFMC/OSPESCA/COPACO/CRFM/CITES sobre el caracol rosado (GTCR) asistieron oficiales de instituciones, entidades y autoridades nacionales encargadas de la implementación de los aspectos normativos, jurídicos y operacionales de la ordenación pesquera y/o la aplicación del Plan regional para la ordenación y conservación del caracol rosado en la región de la COPACO. Participaron los siguientes países (14) y organizaciones regionales asociadas: Antigua y Barbuda, Belice, Brasil, República Dominicana, Guatemala, Haití, Jamaica, Nicaragua, Panamá, Saint Kitts y Nevis, San Vicente y las Granadinas, los Estados Unidos de América, la Comisión de Pesca para el Atlántico Centro-Occidental (COPACO), el Mecanismo Regional de Pesca del Caribe (CRFM)), el Consejo de ordenación de la pesca del Caribe (CFMC) y la Organización de Pesca y Acuicultura del Istmo Centroamericano (OSPESCA).

Los representantes de la Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres (CITES) y del Proyecto CLME+ no pudieron participar presencialmente, pero intervinieron a distancia. En el Apéndice A se incluye la lista de participantes.

Financiación

10. La reunión tuvo lugar en la sede del Consejo de ordenación de la pesca del Caribe (CFMC). Para la organización, el CFMC contó con el apoyo del Servicio Nacional de Pesquerías Marinas (NMFS) de la Oficina Nacional de Administración Oceánica y Atmosférica (NOAA) de los Estados Unidos de América.

Apertura de la reunión

11. La reunión comenzó con las observaciones preliminares de Maren Headley (CRFM), Convocante del GTCR; Yvette Diei-Ouadi (FAO/COPACO); y Miguel Rolón (Director Ejecutivo del CFMC).

Elección del presidente de la reunión

12. Maren Headley fue elegida Presidenta. Laura Cimo (NMFS, NOAA) ejerció las funciones de relatora.

Introducción del Grupo de trabajo y aprobación de la agenda

13. La Convocante presentó brevemente el GTCR y sus objetivos previstos para la correspondiente discusión. Entre ellos se incluía el seguimiento de la implementación del *Plan regional para la ordenación y conservación del caracol rosado*; la mejora y normalización de los datos y estadísticas comerciales; y el fortalecimiento de la colaboración regional para garantizar la ordenación y comercio sostenibles de la especie. Asimismo, la Convocante informó al GTCR de la participación -a distancia- de la Secretaría de la CITES y el Proyecto CLME+. También anunció diversas modificaciones en el borrador de la agenda de la reunión. Los participantes aprobaron la nueva versión de la agenda, incluida en el Apéndice B de este informe.

14. La Secretaría de la COPACO realizó una descripción general del Plan de trabajo y las actividades acordadas en la tercera reunión del GTCR, celebrada en Panamá.

15. La Secretaría de la COPACO destacó diversos logros alcanzados desde la última reunión del GTCR, incluida la publicación de las actas en 2019 y la puesta en marcha de dos subgrupos (GACET y Grupo de divulgación y educación). Señaló que la COPACO contribuyó a la labor en los Estados miembros y prestó apoyo técnico a través de la FAO.

16. Un seminario técnico sobre el caracol rosado -celebrado en Belice- ofreció la oportunidad de intercambiar información. Se realizará un seguimiento, incluida la evaluación de las poblaciones de esta especie. La Secretaría de la COPACO hizo hincapié en la necesidad de compartir cualquier recomendación con el Grupo asesor científico (GAC) y la propia Comisión; así como de que éstas sean validadas por la OSPESCA, el CRFM y otros países que no son miembros de estas organizaciones.

17. La Secretaría destacó que, pese a su estrecha relación con el NMFS de la NOAA y el CFMC, el uso de los fondos está limitado en algunos países seleccionados. La Secretaría de la COPACO contribuyó a la asistencia y participación de los delegados de dichos países en las reuniones del GTCR y la decimoséptima reunión de la COPACO.

18. En febrero de 2019, la Secretaría se comprometió a dar mayor visibilidad al *Plan regional para la ordenación y conservación del caracol rosado* publicándolo en español y francés. Se informó al GTCR de que dicho plan se ha traducido al español y se traducirá al francés.

19. Destacó la colaboración en los asuntos relacionados con el caracol rosado y explicó que el trabajo desarrollado por la COPACO se realiza en asociación con los países miembros, las organizaciones subregionales y otras entidades de la región.

Estado de la implementación del Plan regional para la ordenación y conservación del caracol rosado en los Estados miembros del Mecanismo Regional de Pesca del Caribe (CRFM)

20. Se analizó la producción de la pesca de captura en la región de la COPACO durante el período 1997-2017 en base a los datos del sistema FishStat de la FAO, a fin de situar en contexto la producción de los Estados miembro del CRFM. Durante este período de 20 años, la producción máxima en la zona de competencia de la COPACO se alcanzó en 1997 y ascendió a 38 809 toneladas, mientras que en el caso de los Estados miembros del CRFM se registró en 2016 con un total de 10 746 toneladas. La producción de la pesca de captura de los Estados miembros de la CRFM supuso -por término medio- un 57 por ciento de los desembarques en la zona de competencia de la COPACO durante este período de 20 años.

21. El *Plan regional para la ordenación y conservación del caracol rosado* fue aprobado el 15 de junio de 2016 en la décima reunión del Consejo Ministerial y se considera un documento regional de referencia a partir del cual los países pueden elaborar planes nacionales de ordenación. Siete Estados miembro del CRFM -Antigua y Barbuda, Bahamas, Belice, Jamaica, San Vicente y las Granadinas, Santa Lucía e Islas Turcas y Caicos- proporcionaron información sobre las 14 medidas de ordenación establecidas en el *Plan regional para la ordenación y conservación del caracol rosado*. En general, dada la importancia comercial del caracol rosado, los Estados miembro del CRFM han mejorado -de manera significativa- la ordenación de sus pesquerías a nivel nacional.

22. Se recomienda que todas las partes interesadas continúen trabajando en la implementación de las medidas de ordenación, reconociendo al mismo tiempo los contextos nacionales y las diferencias en recursos humanos y financieros. Es imprescindible que los países busquen asistencia financiera y técnica por medio de asociaciones de colaboración, a fin de mejorar la implementación de las medidas de ordenación.

23. Las siguientes medidas de ordenación continúan siendo de máxima prioridad:
    - Mejorar los programas de vigilancia de capturas y esfuerzo;
    - Desarrollar factores de conversión nacionales;
    - Formular DENP para la exportación de la carne de caracol rosado y sus subproductos;
    - Fortalecer la trazabilidad del caracol rosado en toda su cadena de valor.

24. Al final de la presentación, el delegado de San Vicente y las Granadinas actualizó la información sobre la política pesquera de su país, indicando que ya ha sido adoptada y está en vigor.

25. Martha Prada preguntó por la utilización del peso de la carne sucia y los factores de conversión para proporcionar información sobre los desembarques de caracol rosado. El CRFM explicó que los países que disponen de factores de conversión nacionales facilitan datos a la FAO. Sin embargo, aquellos países que carecen de estos parámetros dependen de los resultados de esta reunión para obtener orientación sobre los factores de conversión regionales, que les permiten determinar el peso en vivo a partir del peso de la carne sucia.

26. La Secretaría de la COPACO planteó la cuestión de los DENP, reafirmando la necesidad de que el asesoramiento del GACET se vea reflejado en la labor de los países miembros de la COPACO. Recomendó que el CFRM se coordine con sus miembros para tener en cuenta estos consejos y avanzar en la implementación del *Plan regional para la ordenación y conservación del caracol rosado*. Destacó la necesidad de contar con una administración responsable para poder seguir explotando esta especie en los próximos 10-15 años.

27. Martha Prada puso de relieve la necesidad de recopilar más información sobre la producción regional de carne de caracol rosado. Destacó la importancia de cartografiar su hábitat para obtener datos importantes y sugirió que algunos países seleccionados se unan para redactar una propuesta destinada a promover la recopilación de información sobre dicho hábitat. El GTCR aceptó esta sugerencia.

Estado de la implementación del plan de ordenación pesquera en los Estados miembros de la Organización de Pesca y Acuicultura del Istmo Centroamericano (OSPESCA)

28. Manuel Pérez, en representación de la Secretaría de la OSPESCA, informó a los delegados sobre el estado de la implementación del *Plan regional para la ordenación y conservación del caracol rosado* en los Estados miembro de la OSPESCA. Realizó una breve presentación de la OSPESCA y el SICA y su función en la ordenación regional pesquera. En los países de la OSPESCA el consumo interno de caracol rosado suele ser bajo, exportándose -en su mayor parte- como carne a los Estados Unidos de América. Los países exportadores son Nicaragua, Belice y Honduras, mientras que Panamá y Costa Rica tienen una veda permanente. Guatemala y República Dominicana no exportan caracol rosado. Esta especia es explotada mediante pesca industrial y artesanal, así como la pesca por buceo, ya sea autónomo o en apnea.

29. Según las estadísticas de la FAO, Nicaragua lidera la producción de la pesca de captura, seguida de Belice, República Dominicana y Honduras. Sin embargo, las cifras de algunos países pueden estar distorsionadas debido a que aún se utilizan factores de conversión obsoletos. En la base de datos de comercio de la CITES y de importaciones de la NOAA, la tendencia es análoga: Nicaragua, Belice y Honduras son los principales países exportadores. En lo que respecta a los factores de conversión, todos los países tienen sus propios valores, si bien las estadísticas de la FAO deben actualizarse -en algunos casos- utilizando los factores nacionales correspondientes.

30. El cupo de exportación -aconsejado por una autoridad científica- de la CITES fue revocado en Nicaragua y Honduras y los países exportadores están preparando los DENP. Se ha establecido un sistema de licencias para la pesca industrial y se conceden permisos de pesca a los pescadores artesanales. En general, todos los países tienen reglamentos para el buceo autónomo, prohibido en la mayoría de ellos.

31. La vigilancia pesquera se lleva a cabo recopilando datos sobre desembarques y exportaciones, realizando encuestas y evaluando poblaciones. Los permisos y controles de exportación de la CITES también contribuyen a la supervisión de la actividad pesquera. No obstante, las tendencias del mercado interno y el consumo local del caracol rosado son menos conocidas. Los sistemas de localización de buques son obligatorios en las flotas industriales, si bien la definición de embarcaciones industriales y artesanales no es equivalente en todos los países. En los países exportadores existen planes nacionales de ordenación y se realizan evaluaciones de las poblaciones de diferentes maneras: encuestas sobre el terreno (estimación de la densidad y distribución, tamaño, madurez y sexo) y modelos de captura y esfuerzo, aunque no se utiliza ningún modelo de evaluación de poblaciones específico para una determinada especie. Todos los países pesqueros tienen temporadas de veda, pero las fechas no están armonizadas. Se está desarrollando un sistema de trazabilidad para todos los productos pesqueros y acuícolas.

32. El resumen y recomendaciones de la presentación fueron los siguientes:
    - No se aprecia una tendencia decreciente en los desembarcos/exportaciones, pero sí existe cierta preocupación por la situación actual. El mercado interno es menos conocido.
    - La CITES y otros reglamentos nacionales están en vigor.
    - Es necesario estandarizar los muestreos/encuestas y la metodología de estimación de cupos. La mortalidad real debida a la pesca, la biomasa o el reclutamiento se desconocen.
    - Continúa siendo necesario mantener bases de datos y unidades coherentes de desembarques/comercio.
    - Persisten las limitaciones financieras y en materia de recursos humanos.
    - El caracol rosado es una especie prioritaria en el marco del segundo Plan de Acción Conjunta CRFM-OSPESCA, adoptado por los ministros de pesca en octubre de 2019.
    - Es necesario diseñar DENP que sean fáciles de utilizar y estén basados en criterios de sostenibilidad vinculados a objetivos de ordenación e indicadores de referencia. Los DENP deben incluir un análisis histórico.

33. A tal efecto, se proporcionó un ejemplo para la formulación de DENP:

Criterios de sostenibilidad	Objetivo de ordenación	Indicador de referencia
Asegurar que la reproducción del caracol rosado sea exitosa	Mantener la reproducción del caracol rosado igual o superior al nivel necesario para asegurar su productividad de forma ininterrumpida	• Densidad (animal/ha) que permita sean exitosos el apareamiento y la reproducción • Grosor del labio • Calendario de la temporada de veda • Número de filetes 100% limpios con un peso total de 1 libra
Mantener una infraestructura para la recopilación y análisis de datos	Generar y proporcionar información apropiada para la toma de decisiones	• Datos proporcionados a la FAO o a la CITES, o datos publicados • Datos de factores de conversión • Niveles de exportación y comercio interno
Optimizar la capacidad pesquera en función de la abundancia y disponibilidad de caracol rosado	Mantener un nivel de captura por unidad de esfuerzo que sea sostenible	• Cálculo de la cuota de captura (en peso) y esfuerzo de pesca correspondiente • Aplicación de la regla del 8% • Niveles de CPUE (peso/esfuerzo de pesca)
Preservar la diversidad y el nivel trófico	Establecer zonas de pesca responsable/áreas marinas protegidas	• Número y superficie de áreas/reservas

34. Hubo una breve discusión sobre la importancia de almacenar los documentos en papel en aras de una mayor transparencia y a modo de registro.

35. La delegada de la República Dominicana puso de relieve el problema de la determinación de los factores de conversión, señalando que el caracol rosado tiene tasas de crecimiento diferentes en diversas zonas. Explicó que se dispone de un factor de conversión a nivel nacional, pero indicó que éste varía en función del momento en que se captura el caracol.

36. Los miembros del GTCR se unieron a la Secretaría de la COPACO en sus elogios a la OSPESCA por la tabla anterior y propusieron se tenga en cuenta para la discusión sobre los DENP.

37. La Secretaría de la COPACO hizo hincapié en la seguridad de los buceadores, haciendo notar que los países miembros de la OSPESCA tienen prohibido el buceo para la pesca de langosta, pero para el caracol rosado. El delegado de la OSPESCA explicó que la langosta se exporta actualmente a Francia y, dado que se demanda entera, es necesario capturarla viva. Señaló que se prefiere pescar la langosta utilizando trampas que buceando. Explicó que, en Honduras, se está capturando caracol rosado mediante el buceo, pero se carece de datos.

38. El delegado de Nicaragua explicó que el caracol rosado se está capturando por buceo autónomo en el país. Añadió que los pescadores de langosta y pepinos de mar también capturan el caracol, si bien destacó que pocos de ellos lo hacen una vez que se abren las pesquerías de pepinos de mar. Explicó que las enfermedades asociadas al buceo son peores en las pesquerías de langosta y pepinos de mar que en las de caracol rosado; al obtener cuantiosos ingresos, los pescadores se exponen al peligro. El delegado de Nicaragua señaló que ha estado trabajando durante dos o tres años para capacitar a los buceadores a fin de mejorar su seguridad. El delegado de Barbados afirmó que los pescadores están realizando entre cinco y ocho inmersiones al día, demostrando que llevan sus esfuerzos al límite y ponen en peligro sus vidas. La Secretaría de la COPACO sugirió que la recopilación de datos -por parte de determinados países productores de caracol rosado- sobre técnicas seguras de buceo y las mejoras en este ámbito podrían reflejar los esfuerzos que se están realizando.

39. El delegado de Belice explicó que no respalda una recomendación de ordenación para el caracol rosado basada en el grosor del labio ya que en su país no se capturan ejemplares adultos.

40. Al final de la discusión, el GTCR formuló varias recomendaciones:
    - **Recopilación de datos**: se recomienda recopilar datos y almacenarlos en papel en aras de una mayor transparencia.
    - **Seguridad de los buceadores**: se recomienda realizar un estudio en países seleccionados sobre la situación del buceo en la región de la COPACO. Dicho estudio reflejaría los esfuerzos y medidas que se han adoptado en materia de seguridad en el trabajo en la región.
    - **Consumo interno**: se recomienda documentar el nivel de consumo interno de caracol rosado, destacando la conveniencia de realizar un estudio sobre el particular. La determinación del nivel de consumo interno se consideró muy importante para los DENP; en numerosos aíses de la OSPESCA el consumo interno se desconoce.

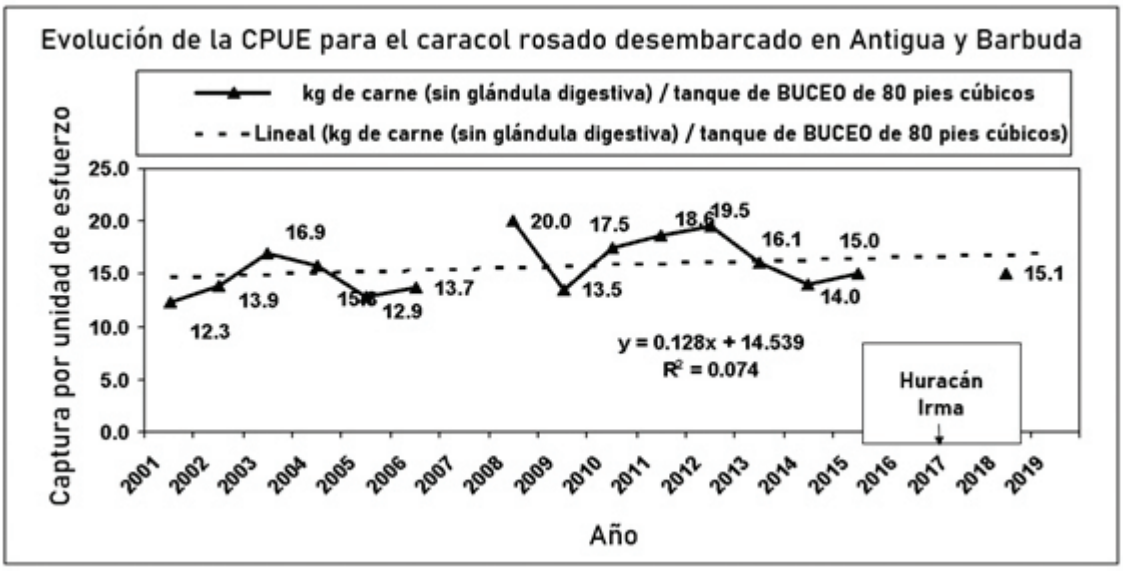
Estado de la implementación del plan de ordenación pesquera en Estados miembro seleccionados de la Comisión de Pesca para el Atlántico Centro-Occidental (COPACO)

Antigua y Barbuda

41. Para implementar el *Plan regional para la ordenación y conservación del caracol rosado*, Antigua y Barbuda adoptó el siguiente conjunto de medidas:
    1. Desarrollo e implementación de factores de conversión (FC) para los siguientes grados de procesamiento propuestos por la COPACO (Horsford *et al*., 2012, Horsford *et al*., 2013): 5,47 para carne sucia; 6,77 para carne limpia en un 50 por ciento; 9,99 para carne limpia en un 75 por ciento, para el mercado local. También se desarrollaron FC para los diferentes estados de madurez (juvenil, subadulto, adulto y adulto mayor), ya que diferían significativamente ($p < 0{,}001$).
    2. Mejora de la "resolución" de la captura por unidad de esfuerzo (CPUE): de kg de carne (sin glándula digestiva)/jornada a kg de carne (sin glándula digestiva)/tanque de BUCEO de 80 pies cúbicos. También se recopilaron datos sobre consumo per cápita y distribución entre los diferentes consumidores (amas de casa, intermediarios, supermercados, hoteles y restaurantes).
    3. Desarrollo de otros indicadores del estado de las poblaciones para complementar el CPUE, como la evolución del peso medio anual de carne (sin glándula digestiva), la profundidad de las inmersiones, el número medio de botellas utilizadas por cada buceador por jornada y la encuesta independiente sobre el grosor del labio en las diferentes zonas.
    4. En materia de política y legislación, la *Ley de pesca N.º 22 de 2006*, y el *Reglamento pesquero N.º 2 de 2013* introdujeron los siguientes preceptos: a) modificaron el régimen de ordenación de la pesca del caracol rosado, que dejó de ser una actividad de "libre acceso" para convertirse en una de "entrada limitada" sujeta a la obtención de un permiso especial; b) exigieron la

capacitación y/o certificación obligatoria de los pescadores (en primeros auxilios básicos, reanimación cardiopulmonar para los buceadores, seguridad de los buceadores, medidas de conservación, etc.); c) establecieron una temporada de veda desde el 1 de julio al 31 de agosto de cada año; d) prohibieron pescar caracoles rosados con un grosor de labio inferior a 5mm [nota: actualmente se está estudiando fijar un grosor *mínimo de labio de 15mm en base a* estudios histológicos, Avila-Poveda y Baqueiro-Cárdenas (2006)]; y e) establecieron multas más cuantiosas para los infractores reincidentes (un enfoque de "tres avisos"). La legislación también prohibía: la captura de caracoles cuya concha tenga una longitud inferior a 180 mm; o de caracoles cuya carne (sin glándula digestiva) pese menos de 225 g. Se incluyeron disposiciones sobre artes de pesca prohibidas -p. ej. el *hookah* (compresores de superficie)- y áreas protegidas.

5. El *Plan de Acción de Antigua y Barbuda para prevenir, desalentar y eliminar la pesca INDNR* incluye disposiciones para crear una base de datos de infracciones; mejorar la vigilancia general de la pesca ilegal; identificar fácilmente a los infractores reincidentes y los "puntos conflictivos"; y orientar las estrategias generales de seguimiento, control y vigilancia. Se implementaron otras disposiciones, como el programa de certificados de captura para los exportadores. Además, en 2017 se puso en marcha un sistema "piloto" de localizaci*ón de buques (antenas de radar, s*istemas *de identificación a*utomática (AIS) y unidades portátiles).
6. En lo que respecta a la gobernanza, Antigua y Barbuda ha adoptado un enfoque colaborativo de gestión conjunta en la investigación pesquera y la toma de decisiones. La participación de los pescadores en las investigaciones permitió una mayor "aceptación" de las decisiones en materia de ordenación y una mejor relación coste-eficacia en la gestión (Horsford y Lay 2013).
7. En materia de salud y seguridad en el trabajo, los barcos de buceo deben llevar un equipo de oxígeno de emergencia dotado de un ventilador que pueda activarse manualmente, a fin de poder recibir la capacitación obligatoria.
8. En lo que respecta a los dictámenes de extracción no perjudicial (DENP), se utilizaron las evaluaciones semestrales de la pesca para justificar el origen sostenible de las exportaciones de caracol rosado. Actualmente, se está revisando -como si de una norma se tratara- el modelo de DENP presentado en la segunda reunión del GTCR.



42. Al final de la presentación, la Secretaría de la COPACO sugirió tener en cuenta los efectos del cambio climático en el caracol rosado. Señaló que en la última reunión de la COPACO se mencionó que los países miembros deberían investigar los efectos del cambio climático y los desastres naturales en dicha especie.

43. En respuesta a las preguntas formuladas, el delegado de Antigua y Barbuda manifestó la necesidad de desarrollar factores de conversión nacionales. Explicó que la variabilidad a nivel nacional es significativa. Varios miembros del GACET del GTCR animaron a los delegados a intercambiar datos a fin de desarrollar factores de conversión nacionales y orientar el asesoramiento científico sobre la evolución de la situación. No obstante, sugirieron utilizar los factores de conversión regionales hasta que se pueda realizar una evaluación adecuada y se desarrollen los factores de conversión nacionales.

44. El delegado de Antigua y Barbuda preguntó por una metodología para comparar caracoles que han sido ultracongelados tras haber sido capturados vivos con aquéllos que no han sido congelados, señalando que existen diferencias. Nelson Ehrhardt explicó que existe una nueva metodología flexible: cada país puede tener un coeficiente de regresión y un factor de conversión estimado.

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Belice

1. Nombre del país: Belice

2. Estado de la implementación del POP del caracol rosado desglosado por medidas de ordenación:
   i. Categorías armonizadas y simplificadas para los factores de conversión para la carne de caracol rosado. Belice utiliza un factor de conversión de 13,7 para carne limpia en un 85 por ciento.
   ii. Mejora de los programas de seguimiento de capturas y esfuerzo. Se están recopilando datos de capturas y esfuerzo en los puntos de desembarque (cooperativas de pescadores), donde se descarga el 85-90 por ciento de la carne de caracol rosado.
   iii. Temporada de veda. Oficialmente, la temporada de veda se extiende del 1 de julio al 30 de septiembre, pero la temporada de pesca puede concluir en cualquier momento, una vez que se haya alcanzado la cuota de captura.
   iv. Dictámenes de extracción no perjudicial (DENP) para la exportación de carne de caracol rosado y sus subproductos. Aunque aún no se han completado todos los preparativos, Belice ha recopilado suficiente información para formular un DENP, previsto para principios de 2020.
   v. Concesión de licencias a todos los pescadores, procesadores y exportadores de caracol rosado. El Departamento de Pesca se encarga de conceder licencias a todos los pescadores, procesadores y exportadores de caracol rosado.
   vi. Adopción de normas más estrictas para regular el buceo autónomo. El buceo autónomo para pescar con fines comerciales está prohibido en Belice desde 1977.

vii. Patrullaje organizado. El patrullaje semanal lo realiza la Unidad especializada de cumplimiento de la conservación del Departamento de Pesca de Belice. El personal autorizado desplegado en reservas marinas gestionadas directamente por el Departamento de Pesca de Belice -y por asociados en la ordenación conjunta- también se encarga de garantizar el cumplimiento de las leyes de pesca.

viii. Extender el uso de los sistemas de localización de buques vía satélite (SLB) a las embarcaciones de más de 10 metros de eslora. El 99 por ciento de la flota pesquera de Belice tiene menos de 10 metros de eslora y, por tanto, no está obligada legalmente a utilizar los SLB. Sin embargo, un proyecto de cooperación con la Sociedad para la Conservación de la Vida Silvestre (WCS, por sus siglas en inglés) equipará con SLB a al menos 70 embarcaciones pesqueras -de un total de más de 700- en una primera fase experimental.

ix. Programas continuos de educación y divulgación para las partes interesadas. Diversos programas de educación y divulgación –financiados por el Departamento de Pesca- están en marcha. Los asociados en la ordenación conjunta y las ONG también colaboran en este esfuerzo continuo en sus respectivas zonas de operación.

x. Planes nacionales de conservación y ordenación del caracol rosado. Desde 2015 se está preparando un plan nacional de ordenación del caracol rosado y un marco adaptable de ordenación.

xi. Trazabilidad del caracol rosado en toda la cadena de valor. The Nature Conservancy (TNC, por sus siglas en inglés) está elaborando un programa de trazabilidad para la langosta común del Caribe en las dos principales cooperativas de pescadores. Se espera que este programa de trazabilidad se amplíe en 2020 para incluir al caracol rosado.

xii. Establecer acuerdos de colaboración para generar mapas de hábitats a la escala necesaria a fin de mejorar la ordenación pesquera. Se ha elaborado un mapa del hábitat del caracol rosado y el Departamento de Pesca lo utiliza en los estudios submarinos nacionales para evaluar las poblaciones, así como para determinar la captura total permitida cada dos años.

xiii. Adoptar mecanismos subregionales para evaluar el potencial pesquero del caracol rosado utilizando factores dependientes e independientes de la pesca.

xiv. Incorporación progresiva de estrategias de ordenación conjunta.

3. Grado de procesamiento de la carne de caracol rosado

i. Grado de procesamiento: carne limpia en un 85 por ciento (para el 99 por ciento de la carne de caracol rosado producida en Belice)

ii. Definición de procesamiento:

Definiciones:

1. **Caracol no procesado**: caracol extraído de la concha con todos sus órganos y con un **peso mínimo** de **7,5 onzas (213 gramos)**.
2. **Caracol parcialmente procesado** (caracol limpio comercializable): caracol extraído de la concha -y del cual se han retirado el opérculo, los intestinos, la probóscide, la cabeza, los tallos oculares, la porción ventral del manto y parte de la piel gruesa y oscura del pie- con un **peso mínimo** de **3 onzas (85 gramos)**.
3. **Caracol totalmente procesado** (filete de caracol): caracol extraído de la concha -y de cuyo pie se han retirado todos los órganos corporales- con un **peso mínimo** de **2,75 onzas (78 gramos)**.

4. Nivel de desarrollo de los factores de conversión nacionales. Actualmente, Belice utiliza un factor de conversión de 13,7 para calcular el peso nominal de la carne de caracol limpia en un 85 por ciento.

45. En respuesta a las preguntas sobre el programa de capacitación de Belice para nuevos pescadores, el delegado del país explicó que en los últimos 15 años la formación había aumentado. Sin embargo, en los últimos 5 años, la capacitación se ha mantenido estable. Señaló que el Gobierno se está centrando en formar a nuevos pescadores que no están familiarizados con la normativa nacional. Añadió que el Gobierno ha establecido determinados lugares para que los pescadores desembarquen las capturas de caracol rosado, y la mayoría de los ejemplares descargados conservan su concha.

46. A lo largo de los años, el reclutamiento en la pesca se ha mantenido en niveles elevados. Sin embargo, no se ha accedido a poblaciones de ejemplares adultos de aguas profundas (con una profundidad de 100-130 pies). El delegado de Belice explicó que no han tenido fondos suficientes y que están pidiendo que se realice un estudio genético sobre la conectividad con el caracol en aguas poco profundas y las poblaciones que se explotan en Nicaragua y Honduras. Si bien no prevé que Belice explote poblaciones de aguas profundas, el delegado trasladó la necesidad de garantizar que los niveles de captura no pongan en peligro la sostenibilidad. Aclaró que la cuota en 2019-2020 asciende a 950 000 libras (carne de caracol limpia en un 85 por ciento). Un miembro del GTCR apuntó que, como el caracol rosado subadulto es el principal objetivo, la población reproductora se ve afectada.

República Dominicana

47. La pesca del caracol rosado continúa siendo importante para los medios de vida de las comunidades pesqueras de la República Dominicana. No existen categorías armonizadas y simplificadas para los factores de conversión para la carne de caracol rosado en el país debido a diferencias morfológicas locales en esta especie entre varias localidades. El análisis detallado de la pesca del caracol rosado es aún muy limitado. Solamente se conoce la captura total por jornada de pesca en los puntos de desembarque. Las autoridades pesqueras dominicanas reconocen es vital contar con los datos básicos sobre la población de pescadores de caracol rosado. Actualmente, se ha completado el 90 por ciento del censo de pesquerías nacionales y sus resultados permitirán mejorar el muestreo.

48. El Decreto 499-09 establece una temporada de veda para la captura y comercialización del caracol rosado del 1 de julio al 31 de octubre. Este decreto obliga a los vendedores de caracol rosado a declarar la cantidad almacenada antes del comienzo de la temporada de veda y da un plazo de 20 días para consumir y vender la carne de esta especie. Cualquier producto del caracol rosado comercializado entre el 21 de julio y el 31 de octubre se considera ilegal. Continúa siendo necesario realizar un estudio a nivel nacional sobre los dictámenes de extracción no perjudicial (DENP) de la carne de caracol rosado y sus subproductos. Sin embargo, las pesquerías del país y las autoridades administrativas de la CITES mantienen -desde 2003- una moratoria para la exportación del caracol rosado, siguiendo las recomendaciones del Comité de Fauna de dicha convención. Los pescadores de caracol rosado están incluidos en el programa ordinario de concesión de licencias de pesca, pero menos del 40 por ciento de ellos cuentan con una.

49. La Ley de Pesca 307-2004 estableció como requisito para la exportación e importación disponer de un Certificado de No Objeción de la Autoridad Nacional de Pesca -si bien no se permiten las importaciones y exportaciones-; prohíbe las operaciones de pesca durante las temporadas de veda y la explotación no autorizada de recursos acuáticos protegidos a nivel nacional o en virtud de tratados internacionales en los que la República Dominicana es Parte. Esta ley estipula que el CODOPESCA debe determinar los límites a la captura o la captura total permitida de caracol rosado por tamaño y/o peso de la carne y época de reproducción. Fija un peso mínimo de 227 gramos de carne (0,5 libras) y/o una longitud total mínima de 20 cm. Los canales de Catuano y Beata -dentro del sistema de Áreas Protegidas de la República Dominicana- se decretaron zonas de veda para la pesca de caracol rosado.

50. En cuanto a la adopción de normas más estrictas para regular el buceo autónomo, la ley prohíbe el uso de compresores de superficie (*hookah*) para la pesca del caracol rosado, si bien se sigue utilizando en varios caladeros. Los oficiales de pesca realizan inspecciones en puntos de desembarque, aeropuertos y lugares en los que se vende pescado. Se instalan sistemas satelitales de AOL -controlados por el ejército dominicano- en buques de más de 20 metros de eslora, pero no se utilizan para la pesca.

51. Los programas de educación y divulgación para las partes interesadas se desarrollan principalmente a través de las redes sociales. En cuanto a los planes de ordenación, sólo se recopilan datos básicos sobre la pesca y se realiza seguimiento y vigilancia de la temporada de veda. No hay un sistema de trazabilidad del caracol rosado en toda la cadena de valor, pero existe interés en desarrollarlo.

52. Se ha estimado que el factor de conversión para determinar el peso nominal del caracol rosado es de 2,62. El estudio independiente realizado por Yvonne Arias en el Parque Nacional de Jaragua reveló una variación importante en la proporción de caracoles rosados femeninos/masculinos entre 2005 y 2014, pasando de la paridad a una ratio de 4 hembras por macho. El estudio también indicó que el buceo por medio de compresores de superficie (*hookah*) para la pesca del caracol rosado aumentó un 50 por ciento entre 2005 y 2014.

53. En respuesta a una sugerencia del delegado de la República Dominicana de calcular factores de conversión para diferentes áreas, el delegado de la OSPESCA expresó su preocupación ante esta propuesta al considerar que se carece de la capacidad necesaria para discernir dónde se desembarca el caracol rosado y determinar así su origen.

54. La delegada de la República Dominicana explicó que la legislación no especifica si el caracol rosado es fresco o procesado. Señaló que usar la longitud como parámetro de referencia no permite distinguir -en ocasiones- entre ejemplares jóvenes y adultos.

Haití

55. La pesquería de caracol rosado es una de las más importantes y da empleo a muchos pescadores en Haití. Esta especie se captura por su carne, pero dado que ésta no puede exportarse desde 2003 al no cumplir las medidas comerciales de la CITES, solo se consume localmente. Desde el año pasado, Haití está elaborando un censo nacional del caracol rosado. Servirá de base de referencia para formular medidas de conservación de las pesquerías, como la elección de un periodo adecuado para la veda.

56. La delegación de Haití indicó que la temporada de veda se extiende del 1 de abril al 30 de septiembre; sin embargo, el país carece de los medios necesarios para hacer cumplir esta medida. También hizo notar los cambios que están experimentando las pesquerías debido a los efectos del cambio climático y trasladó la necesidad de intensificar la investigación para determinar si la temporada de veda coincide con la temporada de reproducción.

57. Destacó la importancia de trabajar conjuntamente con la República Dominicana para conservar los recursos pesqueros de ambos países. El delegado de Haití expresó la necesidad de realizar más estudios para evaluar la densidad de las poblaciones de caracol rosado, ya que no se ha investigado lo suficiente sobre estas pesquerías.

58. La delegación de Haití señaló que el Gobierno estaba intentando promover la pesca con dispositivos de concentración de peces (DCP). Señaló que se habían instalado para ayudar a los pescadores a faenar a mayor distancia de la costa y así reducir la presión. Afirmó que la mayoría de los

pescadores no disponen de los recursos financieros necesarios para adquirir un barco y un motor, y destacó la existencia de un programa cofinanciado para ayudarles. Se indicó la necesidad de validar este programa para evaluar sus efectos en las pesquerías de las zonas costeras.

59. Destacó la importancia de intercambiar información y comprender la experiencia de otros países. Expresó su interés en contar con la ayuda de expertos que han estado trabajando en la conservación del caracol rosado.

60. Explicó que Haití está intentando poner en marcha un sistema de recopilación de datos necesarios para la adopción de medidas de conservación- y que espera recabar asesoramiento de la República Dominicana y otros países del Caribe sobre esta materia.

61. Los miembros del GTCR se ofrecieron a ayudar -y dar su respaldo- a Haití en la recopilación y análisis de datos.

62. En respuesta a una pregunta, el delegado de Haití explicó que los pescadores de caracol rosado utilizan embarcaciones pequeñas y equipos de buceo. Indicó que en Haití hay unos 52 000 pescadores y 900 buceadores. Explicó que existe un programa cofinanciado que promueve las pesquerías de atún, pero no de caracol rosado.

Jamaica

63. Tras aprobarse la nueva legislación, el Departamento de Pesca de Jamaica ha pasado a denominarse Autoridad Nacional Pesquera, dotada de una unidad jurídica y de cumplimiento. El delegado de Jamaica dio información actualizada sobre la situación de la pesca del caracol rosado.

1. Nombre del país: Jamaica

2. Estado de la implementación del POP del caracol rosado desglosado por medidas de ordenación:
   i. Categorías armonizadas y simplificadas para los factores de conversión para la carne de caracol rosado:

      No se ha producido ninguna novedad

   ii. Mejora de los programas de seguimiento de capturas y esfuerzo:
      a. Inspecciones junto al barco en el momento del desembarque
      b. Muestreo biológico en plantas de procesamiento
      c. Informe anual sobre la CPUE

   iii. Temporada de veda.
      a. El Ministro de Pesca decreta oficialmente la temporada de veda del caracol rosado cada año.
      b. Habitualmente se extiende del 1 de agosto al 28 de febrero de cada año, a menos que el Ministro modifique las fechas a petición de los representantes de la industria pesquera.
      c. Desde 2019 no está permitida la pesca del caracol rosado como consecuencia de los malos resultados de la encuesta de 2018 sobre abundancia.

   iv. Dictámenes de extracción no perjudicial (DENP) para la exportación de carne de caracol rosado y sus subproductos.

COMPARACIÓN DE BIOMASA MEDIA Y RMS DE TODAS LAS ENCUESTAS: 1994-2018				
Año	**Biomasa**		**Población explotada (t)**	**RMS (t) Regla del 8%**
Total, estratos 0-30 m, superficie = 612 237 ha				
2018	**Media**		9 267,787	741,423
	Límite inferior del intervalo de confianza del 95%		3 561,079	284,886
	Límite superior del intervalo de confianza del 95%		13 678,137	1 094,251
2015	**Media**	Estratos A y B = 238 700 ha	12 438,543	995,083
	Límite inferior del intervalo de confianza del 95%		9 174,700	733,976
	Límite superior del intervalo de confianza del 95%		15 274,977	1 221,998
2011	**Media**		11 871,000	949,680
	Límite inferior del intervalo de confianza del 95%		6 296,000	503,680
	Límite superior del intervalo de confianza del 95%		16 105,000	1 288,400
2007	**Media**		7 421,780	593,742
	Límite inferior del intervalo de confianza del 95%		3 637,992	291,039
	Límite superior del intervalo de confianza del 95%		12 498,873	999,910
2002	**Media**		10 502,979	840,238
	Límite inferior del intervalo de confianza del 95%		8 055,486	644,439
	Límite superior del intervalo de confianza del 95%		14 512,260	1 160,981
1997	**Media**	Estratos B y C = 571 700 ha	9 780,811	789,665
	Límite inferior del intervalo de confianza del 95%		6 390,602	511,248
	Límite superior del intervalo de confianza del 95%		18 476,064	1 478,085
1994	**Media**		11 652,040	923,163
	Límite inferior del intervalo de confianza del 95%		7 527,990	602,239
	Límite superior del intervalo de confianza del 95%		21 810,750	1 744,860

v. Concesión de licencias a todos los pescadores, procesadores y exportadores de caracol rosado.
   a. Todos los pescadores industriales de caracol rosado están autorizados a pescar esta especie una vez que su solicitud es aceptada.
   b. Cada uno de ellos tiene derecho a una parte de la captura total permitida en el país
   c. Este cupo se calcula en base a:
      1) Número de años faenando en la pesquería
      2) Inversiones
      3) Rendimiento
      4) Propiedad de la embarcación
      5) Los pescadores artesanales no están autorizados a pescar caracol rosado, aunque se realizó un estudio piloto para cambiar esta disposición

vi. Adopción de normas más estrictas para regular el buceo autónomo.
   a. La pesquería del caracol rosado es la única en la que está permitido el uso de compresores en superficie (*hookah*) y equipos autónomos de buceo.
   b. El uso de *hookah* y equipos autónomos de buceo para capturar cualquier otra especie de peces es ilegal.

vii. Patrullaje organizado.
   a. La Autoridad Nacional Pesquera recientemente creada cuenta con una unidad de cumplimiento, si bien carece aún de financiación.
   b. El Servicio de Guardacostas y la Policía Marítima contribuyen también a esta labor. Sin embargo, las cuestiones relacionadas con la pesca no son su cometido fundamental y,

por tanto, no realizan grandes esfuerzos. Además, la zona económica exclusiva (ZEE) de Jamaica ocupa una superficie 25 veces mayor que su propio territorio continental.

c. Como consecuencia de lo anterior, la pesca INDNR en buques de países como Honduras, la República Dominicana y Nicaragua es intensa.

viii. Extender el uso de los sistemas de localización de buques vía satélite (SLB) a las embarcaciones de más de 10 metros de eslora.

a. La Autoridad Nacional Pesquera tiene un SLB, si bien no proporciona información en tiempo real.

b. La información se descarga de un registrador de datos a bordo del buque tras concluir la jornada de pesca.

c. Los pescadores presentan además un cuaderno de bitácora en el que anotan:

1) Zona en la que faenan (latitud, longitud y descripción del lugar)
2) Número de tripulantes
3) Profundidad
4) Tiempo de inmersión (inicio y fin)
5) Nivel de procesamiento
6) Captura total

ix. Programas continuos de educación y divulgación para las partes interesadas.

a. Desde que se prohibió la pesca de caracol rosado, se ha intensificado la actividad en este ámbito.

b. Las campañas de concienciación se han orientado a educar a la población sobre el perjuicio que supone comprar caracol rosado, ahora que está prohibida su pesca.

c. La nueva Ley de Pesca de 2018 ha incrementado las multas para los infractores.

x. Planes nacionales de conservación y ordenación del caracol rosado.

a. Tal y como se mencionó anteriormente, está prohibida la pesca de todos los productos del caracol rosado.

b. En 2017 se adoptó un Plan de ordenación de la pesquería de caracol rosado.

xi. Trazabilidad del caracol rosado en toda la cadena de valor.

a. Cuatro (4) entidades encargadas:

1) Autoridad Nacional Pesquera (certificado de captura)
2) División de Servicios Veterinarios (Certificado de Salud y Transporte)
3) Ministerio de Sanidad
4) Planificación Nacional del Medio Ambiente (PNMA) (Certificado de exportación de la CITES)

xii. Establecer acuerdos de colaboración para generar mapas de hábitats a la escala necesaria a fin de mejorar la ordenación pesquera.

a. Se han adquirido mapas de hábitat; sin embargo, deben perfeccionarse (es decir, han de verificarse sobre el terreno).

xiii. Adoptar mecanismos subregionales para evaluar el potencial pesquero del caracol rosado utilizando factores dependientes e independientes de la pesca.

No se ha producido ninguna novedad.

xiv. Incorporación progresiva de estrategias de ordenación conjunta.
No se ha producido ninguna novedad.

3. Grado de procesamiento de la carne de caracol rosado
   i. Grado de procesamiento
   ii. Definición de procesamiento

Grado de procesamiento	Pérdida de tejido	Peso del tejido (g)	% de tejido perdido	Factor para Jamaica
Sin procesar (“caracol sucio”)	Ninguna; caracol extraído de la concha	142,5	N/A	0,85
Limpia en un 50%	Retirada del opérculo (“garra”) y las vísceras (“bolsa”)	121,3	0	1
Limpia en un 65% (“medio-filete”)	Todo lo anterior más la “cabeza” (ojos, pedúnculo y probóscide)	108,9	11,3	1,113
Limpia en un 85%	Todo lo anterior más el manto y parte de la piel	96,7	28,21	1,2821
100% limpia (“filete”)	Solo queda la carne blanca	72,1	42,86	1,4286

Fuente: Tewfik (1996) y Smikle (1997)

4. Nivel de desarrollo de los factores de conversión nacionales
   i. Jamaica estima su propio factor de conversión mediante su programa de muestreo biológico.
   ii. En 2018, se calculó un factor de conversión de 8,91 caracoles/kg para un grado de procesamiento del 50 por ciento.
   iii. La limitación de este factor es que no tiene en cuenta el peso de la concha. Para calcular un factor más preciso que considere dicho peso, es necesario extraer 2 000 conchas. Sin embargo, las poblaciones de caracol rosado se consideran muy exiguas para realizar esta operación. Jamaica está trabajando para corregir esta limitación en el futuro.
   iv. El factor de conversión anterior -que incluía el peso de la concha- era de 7,46 caracoles/kg.

Estados Unidos de América

64. La pesca del caracol rosado está prohibida en aguas estatales y federales del territorio continental. La captura de esta especie está permitida en aguas estatales de las Islas Vírgenes (a 0-3 millas náuticas de la costa) y Puerto Rico (a 0-9 millas náuticas de la costa), mientras que en aguas federales sólo en una zona de la costa este de la isla de Santa Cruz denominada Lang Bank, y durante la temporada de pesca (del 1 de junio al 31 de octubre). En Santa Cruz y Santo Tomás/San Juan la captura total anual (estatal + federal) está limitada respectivamente a 50 000 libras (unos 22 700 kilogramos) de carne de caracol rosado y solamente se permite pescar esta especie entre los meses de noviembre y mayo, si bien no es un producto popular en Santo Tomás/San Juan. En Puerto Rico, no existe un límite para la captura anual de caracol rosado en aguas estatales. La pesca de esta especie está permitida entre los meses de noviembre y julio y en 2015-2016 se desembarcaron unas 335 000 libras (unos 152 000 kilogramos) de carne. En Santa Cruz, casi todo el caracol rosado se comercializa como carne limpia en un 75 por ciento, mientras que en Puerto Rico se comercializa como carne limpia en un 80 por ciento. En ninguno de los dos lugares se han desarrollado completamente los factores de conversión para los diferentes grados de procesamiento de la carne. Se ha pedido al NMFS incluir el caracol rosado como especie amenazada o en peligro de extinción en el marco de la Ley de Especies en Peligro (ESA, por sus siglas en inglés) de los EE.UU. y dicha petición se está estudiando. Hasta el 4 de febrero de 2020 se pueden enviar comentarios sobre esta petición en: www.regulations.gov, expediente de búsqueda #NOAA-NMFS-2019-0141. El estado actual de la ordenación de los EE.UU. en relación a las catorce medidas del *Plan regional para la ordenación y conservación del caracol rosado* se revisó y discutió, incorporándose la información a la tabla de resumen del GTCR.

65. En respuesta a una pregunta sobre la ESA, el delegado de los EE.UU. aclaró que el NMFS analizará todas las especies candidatas a la hora de tomar una decisión sobre la inclusión del caracol rosado en la lista de especies amenazadas o en peligro de extinción. El CFMC animó a los países a facilitar información -incluida la situación de las poblaciones de caracol rosado- a Miguel Lugo (NMFS) para contribuir a fundamentar la decisión. El delegado de los EE.UU. destacó la importancia de aportar información para que se pueda adoptar así la medida más acertada.

66. Miguel Lugo (NMFS) se ofreció a facilitar una copia de la notificación del Registro Federal -en la que se detallan los antecedentes y se indica cómo proporcionar información- a la Secretaría de la COPACO para compartirla con el GTCR.

67. La Secretaría de la COPACO alentó a la OSPESCA y al CRFM a expresar su preocupación a sus países miembros y contribuir al suministro de información al NMFS. Les animó a que ayudaran a concienciar al sector, indicando que en la segunda reunión ministerial conjunta del CRFM y la OSPESCA -celebrada en octubre- se manifestó cierta inquietud por la posible inclusión del caracol rosado en la lista de la ESA. El representante del CRFM explicó que la información se compartió con sus Estados miembros. El representante de la OSPESCA se ofreció a difundir la información entre sus miembros.

68. El delegado de Belice trasladó la preocupación de los productores y exportadores por la posible inclusión del caracol rosado en la lista de la ESA de los EE.UU. Afirmó que las empresas buscarán mercados alternativos al de los Estados Unidos, con consecuencias para la ordenación.

Nicaragua

69. Estado de la implementación del Plan de ordenación pesquera (POP) del caracol rosado desglosado por medidas de ordenación:

    a. Categorías armonizadas y simplificadas para los factores de conversión para la carne de caracol rosado

70. Los factores de conversión en Nicaragua se estimaron en 2007 y no se han actualizado desde entonces. Se han publicado factores de conversión específicos en la Circular de Pesca y Acuicultura 1042/2009 de la FAO, titulada “Factores de conversión a peso nominal para el caracol rosado procesado”.

    b. Mejora de los programas de seguimiento de capturas y esfuerzo

71. Entre 2012 y 2019, el INPESCA ha venido implementando el Plan de Acción Nacional del caracol rosado, realizando al menos dos encuestas anuales en las aguas caribeñas de Nicaragua. En ellas se recopila y analiza información sobre los desembarcos y el esfuerzo pesquero por temporada de pesca. Además, se toman muestras de varias plantas de procesamiento.

    c. Temporada de veda.

72. La temporada de veda en Nicaragua se extiende del 1 de junio al 30 de septiembre de cada año, y es de obligado cumplimiento; una semana antes de que comience, los inspectores de pesca realizan un inventario del caracol rosado almacenado.

    d. Dictámenes de extracción no perjudicial (DENP) para la exportación de carne de caracol rosado y sus subproductos.

73. El Instituto Nicaragüense de Pesca y Acuicultura (INPESCA), en coordinación con el Ministerio del Ambiente y los Recursos Naturales (MARENA) como Autoridad Administrativa de la CITES, han establecido un proceso coordinado para planificar, organizar e implementar un conjunto de acciones destinadas a investigar y supervisar los instrumentos jurídicos y administrativos existentes, como la implantación de un cupo global de exportación y su asignación entre las diferentes empresas por temporada de pesca. Esta información puede consultarse en www.inpesca.gob.ni. Este proceso pretende salvaguardar la sostenibilidad de los productos del caracol rosado en el comercio, de conformidad con uno de los principios de la CITES en virtud del cual el comercio internacional no debe ser perjudicial para la supervivencia de una especie.

e. Concesión de licencias a todos los pescadores, procesadores y exportadores de caracol rosado.

74. Todos los propietarios de buques industriales (8 en total) que participan en la pesca del caracol rosado deben tener una licencia expedida por el INPESCA y han de cumplir una serie de requisitos para garantizar la seguridad de los pescadores. Entre ellos, la certificación de todos los equipos de buceo -expedida por la autoridad competente- y la obligación de no llevar más de 26 buceadores a bordo. Si una embarcación pesquera con buceadores deja la pesquería del caracol rosado, no se reemplaza con otra embarcación.

f. Adopción de normas más estrictas para regular el buceo autónomo.

75. En 1993 se aprobó y publicó la Norma Técnica de Higiene y Seguridad, aplicable a los trabajadores del mar en Nicaragua. Desde 2005, el INPESCA, el Ministerio de Trabajo y el Ministerio de Salud han impartido diversos cursos de capacitación a buceadores que pescan langostas, caracoles rosados y pepinos de mar, con el fin de mejorar las buenas prácticas y la seguridad en el mar. Hasta la fecha, se ha capacitado a un total de 846 buceadores dedicados a la pesca. En 2006, la Ley nº. 613 de Protección y Seguridad a las Personas dedicadas a la Actividad de Buceo resultó aprobada por la Asamblea Nacional de Nicaragua, y entró en vigor en 2007. Esta ley prohíbe la pesca de langosta y cualquier otro recurso marino- para fines comerciales por medio del buceo autónomo en ambos océanos. Sin embargo, su aplicación ha resultado difícil debido a la escasez de alternativas para los buceadores. En 2013, el INPESCA publicó la Resolución Ejecutiva PA-No. 004-2013 que introduce regulaciones adicionales para el buceo en Nicaragua.

g. Patrullaje organizado

76. Desde 2019, el INPESCA y la Marina han realizado patrullas conjuntas y se espera que continúen haciéndolo en 2020. Concretamente, entre los meses de septiembre y noviembre de 2019, se llevaron a cabo actividades de vigilancia en bancos pesqueros, centros de almacenamiento y plantas de procesamiento.

h Extender el uso de los sistemas de localización de buques vía satélite (SLB) a las embarcaciones de más de 10 metros de eslora.

77. En Nicaragua, a través de la Resolución Ejecutiva PA-No. 003-2010 del 19 de agosto de 2010, el uso de SLB es obligatorio en embarcaciones de más de 15 metros de eslora. Si el sistema no está instalado o no funciona correctamente, el buque no puede salir a faenar. Actualmente, varios colaboradores están buscando financiación para poder instalar estos sistemas en embarcaciones pesqueras de menos de 15 metros de eslora.

i. Programas continuos de educación y divulgación para las partes interesadas.

78. Existen programas educativos y divulgativos para las diferentes partes interesadas -incluidos buceadores pescadores, armadores y personal de plantas procesadoras- y se están realizando talleres y reuniones.

j. Planes nacionales de conservación y ordenación del caracol rosado.

79. Consideramos que el Plan Nacional de Ordenación del Caracol Rosado en Nicaragua está siendo implementado al 98 por ciento, en base a las siguientes medidas adoptadas:

80. Temporada de veda de 4 meses (del 1 de junio al 30 de septiembre cada año).

k. Se permite capturar caracoles rosados cuya concha tenga una longitud mínima de 200 mm y cuyo labio tenga un grosor mínimo de 9,5 mm. Estas dimensiones equivalen a tres filetes de caracol -100 por ciento limpios- por libra.

l. Establecimiento de un cupo anual de exportación de 628 toneladas (1,5 millones de libras), y reparto de este cupo entre las empresas autorizadas.

m. Entre 2012 y 2019 se ha realizado un seguimiento de las densidades y la abundancia de poblaciones de caracol rosado en la región del Caribe. Se considera que el caracol rosado no está sobreexplotado. Los rendimientos se mantienen estables: entre 800 y 1 200 filetes de carne 100 por ciento limpia por día y por embarcación.

n. Las densidades de las poblaciones de caracol rosado muestran que las capacidades reproductivas no se están viendo afectadas, ya que se mantienen en 70-109 ejemplares/ha en las zonas analizadas (octubre 2016, marzo 2018 y octubre 2019).

o. La mayoría de los desembarques son de ejemplares adultos.

p Trazabilidad del caracol rosado en toda la cadena de valor.

81. Un inspector de pesca supervisa los desembarques de caracol rosado en buques industriales y la información registrada en los cuadernos de bitácora que incluye -entre otros datos- zonas de pesca y capturas. Supervisar los desembarques artesanales es complicado. Sin embargo, se ha realizado un muestreo del tamaño del caracol rosado en las plantas de procesamiento, ya que los ejemplares capturados por pescadores artesanales se venden allí.

q. Establecer acuerdos de colaboración para generar mapas de hábitats a la escala necesaria a fin de mejorar la ordenación pesquera.

82. En los últimos dos años se han elaborado mapas de distribución de los diferentes recursos pesqueros. En ellos se muestran los rendimientos por zonas de pesca e incluyen al caracol rosado.

r. Adoptar mecanismos subregionales para evaluar el potencial pesquero del caracol rosado utilizando factores dependientes e independientes de la pesca.

No aplica

s. Incorporación progresiva de estrategias de ordenación conjunta.

No aplica

83. En respuesta a una pregunta sobre si la CPUE es un buen indicador para informar sobre el estado del recurso, el delegado de Nicaragua señaló que en sus informes utilizan el cociente ejemplares/hectárea para tal fin.

84. Explicó que las cifras de los pescadores artesanales son oportunistas y mucho más elevadas que las de la pesca industrial. Las capturas mixtas están prohibidas, aunque resulta complicado hacer cumplir esta disposición. Los pescadores artesanales venden los caracoles rosados que capturan con concha- a las plantas de procesamiento. El delegado señaló que el consumo local es reducido; parte de las capturas se consumen a bordo, pero la mayor parte del caracol rosado se destina al sector privado.

Barbados

85. El delegado de Barbados indicó que hay 50 buceadores de caracol activos, señalando que pescan de julio a octubre. Se utiliza tanto el buceo libre como el autónomo. Típicamente, los pescadores utilizan pequeñas embarcaciones desde la costa y el caracol rosado se vende directamente a los consumidores. Las conchas se usan como curiosidad para los turistas. Explicó que los ejemplares jóvenes suponen una gran parte de las capturas, que son de unos 5 000 caracoles/año. Señaló que las capturas por viaje por pescador son 18 caracoles (de media).

86. Explicó que el caracol rosado se encuentra en un hábitat poco profundo y la distribución es muy desigual, con 0 a 130 individuos/hectárea. La densidad media es de 1,2 individuos/hectárea para los ejemplares maduros. Una estimación sugiere que hay 38 000 caracoles. No hay ninguna estimación disponible para los caracoles en aguas más profundas (>15 metros).

87. Con respecto a la situación del *Plan regional para la ordenación y conservación del caracol rosado*, el delegado de Barbados afirmó que tienen mucho trabajo por hacer para mejorar la vigilancia de las capturas y el esfuerzo. Añadió que actualmente no hay una temporada de veda, no hay DENP (no se exportan caracoles) y no hay patrullaje organizado. La mayoría de los barcos tienen menos de 10 metros, por lo que no cuentan con sistema de localización de buques vía satélite (SLB). Es necesario trabajar para desarrollar factores de conversión para el caracol rosado. Los pescadores están registrados, pero no específicamente para la pesca del caracol. Ya que la carne del caracol se vende directamente al consumidor o se la comen los pescadores, la trazabilidad es compleja. La pesca del caracol se incluyó en las regulaciones sobre pesquerías en 2009-2010, y se espera poder desarrollar la ordenación conjunta.

Panamá

88. En 2003, se realizó un estudio en Bocas del Toro (Panamá). Basándose en los resultados obtenidos, se declaró la veda después a partir de diciembre de 2003 y por 5 años (hasta 2008). Una observación realizada en colaboración con la Universidad de Humboldt mostró que las poblaciones seguían afectadas por la pesca ilegal, y la veda se prorrogó otros 5 años (hasta 2013). La veda se prolongó nuevamente y terminará en 2020.

89. La delegación de Panamá explicó que se están llevando a cabo investigaciones para generar datos, ya que hay una falta de información sobre el caracol rosado y hay interés en comprender la estructura genética (por ejemplo, si hay una sola o varias poblaciones). El objetivo de la investigación es comprender las densidades, las distribuciones de tamaños/frecuencias, los tipos de hábitat y definir la capacidad de tolerancia a la pesca para varios lugares. Las leyes prohíben la captura con equipo de buceo autónomo, por lo que explicó que se utilizó equipo de esnórquel para examinar 12 transectos.

90. Observó que a pesar del cierre en Panamá, se sigue pescando el caracol rosado. Los pescadores estaban capturando caracoles y las poblaciones no se estaban recuperando como deberían. Los investigadores encontraron densidades medias de 0,014/hectárea, 0,013/hectárea y 0,05/hectárea. Durante los estudios, vieron canoas con langosta espinosa y concha de reina que eran de tamaño mínimo; los pescadores buscaban principalmente la langosta pero agarraban la concha sin importar el tamaño o la legalidad. Señaló que hay pesca incidental y de subsistencia (autoconsumo); otras pesquerías se venden a restaurantes y turistas.

91. La mayoría del caracol rosado de la muestra se encontró en lechos de hierba marina de entre 1 y 6 metros. Destacó que en su mayor parte se trataba de ejemplares jóvenes; no se encontraron muchos caracoles adultos.

92. Se destacaron los siguientes retos:
    - Falta de control y vigilancia; no hay fondos para la vigilancia o la aplicación de la ley
    - Al abordar los buques, los pescadores no sabían de la veda
    - Falta de fondos para la investigación; breve estudio realizado durante un año, no se encontraron fondos por lo que participamos en un concurso con la institución que da fondos para la investigación

93. El delegado indicó que Panamá tiene en vigor un plan de acción sostenible con el objetivo de utilizar los recursos acuáticos de manera sostenible con un enfoque ecosistémico de la ordenación pesquera (EAM) y un enfoque participativo de la ordenación que involucra al sector pesquero. En 2020, habrá que proponer un nuevo plan de ordenación. Una de las medidas propuestas es la divulgación de la veda para crear conciencia para reducir la captura. El gobierno administrativo está pensando en ampliar la veda, pero existe la preocupación de que la veda ha estado vigente durante 15 años sin vigilancia, lo que no ha hecho posible realizar progresos.

94. Durante la discusión del GTCR, afirmó que el caracol rosado es una pesquería de subsistencia en Panamá; en cambio, la langosta es más viable comercialmente, por lo que se considera más importante y hay más atención y enfoque en esta especie.

95. En respuesta a una solicitud de información, señaló que el estudio realizado en 2003 utilizaba datos estrictamente para la primera veda y sólo se hizo en una zona de Panamá. En un estudio posterior que abarcaba otras zonas habitadas por poblaciones indígenas se comprobó que el equipo de pesca utilizado era muy similar (no había mucha variación), pero se observaron cambios en las densidades.

Progreso del Programa de Acción Estratégica CLME+: Medidas para mejorar los acuerdos de gobernanza para aplicar un enfoque basado en el ecosistema en la pesca del caracol rosado

96. El proyecto PNUD/FMAM “Catalizar la Implementación del Programa de Acciones Estratégicas para el Manejo Sostenible de los Recursos Marinos Vivos compartidos en el Caribe y los Grandes Ecosistemas Marinos de la Plataforma Norte de Brasil - Proyecto (CLME+)” está acelerando la implementación de un Programa de Acción Estratégica (PAE) para abordar los principales problemas del medio marino (pesca insostenible, destrucción del hábitat, contaminación) en la región de la CLME+. Apoyan esta iniciativa los países de la CLME+, así como varias organizaciones intergubernamentales relevantes, entre ellas el CRFM, la FAO-COPACO y la OSPESCA. Estas organizaciones intergubernamentales son miembros del Mecanismo de Coordinación Provisional (MCP) del PAE de la CLME+ y son componentes integrales del Marco Regional de Gobernanza de los Océanos (RGF). También se está elaborando un Mecanismo Permanente de Coordinación (MPC) como parte del RGF. Esto irá acompañado de un plan de financiación sostenible.

97. El Proyecto está apoyando también la elaboración de un marco de vigilancia y evaluación del PAE y de un mecanismo regional e institucionalizado de evaluación y presentación de informes sobre el estado del medio marino y las economías asociadas (SOMEE). Los principales productos del SOMEE serán un informe regional y una plataforma interactiva en línea. En la presentación se incluye una descripción del enfoque del SOMEE y el borrador del informe. El informe de SOMEE se basará en las contribuciones de los miembros del RGF, así como en las de otros socios y expertos temáticos. Los Grupos de trabajo conjuntos -incluido el Grupo de Trabajo sobre el caracol rosado (GTCR)-, desempeñan un papel importante en el proceso de seguimiento y evaluación del PAE, así como en la elaboración del informe de la SOMEE (proyecto de resolución de la COPACO, COPACO/17/2018/9), que incluye subcapítulos sobre el caracol rosado y otras pesquerías importantes de la región.

98. Se ha proporcionado una herramienta de seguimiento en línea a la COPACO, CRFM y OSPESCA y se ha utilizado para examinar las medidas relacionadas con el caracol rosado. La herramienta proporcionará una visión general del estado del recurso en la región, incluyendo las actuaciones completadas y los progresos que se han realizado.

99. En respuesta a una pregunta sobre la forma en que el "enfoque descendente" del EAM se ajustaba a un enfoque ascendente de la ordenación pesquera, Patrick Debels, del CLME+, respondió que el proyecto del CLME+ y el PAE se originaban en el FMAM; por lo tanto, las organizaciones deberían actuar en nombre de los países (y deberían formar parte de un enfoque ascendente). Patrick señaló, sin embargo, que es necesario fortalecer la aportación de la pesca para informar las prioridades. Explicó que existe un programa de ajuste estructural local con el apoyo del Instituto de Recursos Naturales del Caribe (CANARI). Existe un PAE de grupos de la sociedad civil. Añadió que se espera contar con un PAE de carácter gubernamental para equilibrar debidamente lo que se hace de forma descendente con las medidas de tipo ascendente. Expresó su preocupación por la necesidad de incluir a los interesados en una etapa temprana del proyecto.

100. Patrick Debels indicó que el primer proyecto tuvo algunos problemas y que cuando se desarrolló el PAE, los recursos y el tiempo eran escasos. Afirmó que el primer PAE fue un logro, teniendo en cuenta el amplio apoyo que logró. La siguiente fase también cuenta con un apoyo total y supondrá la integración entre la sociedad civil, el gobierno y el mundo académico.

101. En la siguiente fase, cualquier problema que no se aborde de inmediato debe señalarse para que se preste atención a estos importantes aspectos. El caracol rosado no está entre las especies prioritarias, pero como el Plan Regional se implementa con lentitud, el programa ha identificado actividades que pueden emprenderse, como en la vigilancia.

102. Cuando se le preguntó si el caracol rosado se incluiría en el nuevo proyecto CLME+ para ayudar a supervisar el progreso de la implementación, Patrick reiteró que el PAE CLME+ es un proyecto marco. Por lo tanto, ningún proyecto por sí solo sería capaz de implementar completamente el proyecto. El nuevo proyecto ofrece la oportunidad de examinar la viabilidad de incorporar financiación para el caracol rosado; Patrick reiteró su convicción de que la región debería tratar de aprovechar las contribuciones financieras.

103. Señaló que el próximo CLME+ no es sólo el proyecto formulado en el marco del ciclo del FMAM. Explicó que podría ser bueno que el Grupo de trabajo transmitiera el deseo de incluir al caracol rosado en el proyecto a la COPACO, el CRFM y la OSPESCA para que lo llevaran al MPC y pudieran debatir dónde el caracol rosado formaría parte del proyecto o si debería formar parte de otro proyecto. Patrick afirmó que no está en posición de comprometerse a la financiación, pero señaló que es un debate importante para tener dentro del MPC.

Incidencia de la pesca ilegal, no declarada y no reglamentada (INDNR) del caracol rosado en la región: dificultades de aplicación y actualización de la colaboración regional y bilateral en la lucha contra la pesca INDNR del caracol rosado

104. La Secretaría introdujo este tema recordando la importancia de la pesca INDNR en la región, ya que los países suelen alegar o denunciar la pesca furtiva en sus aguas o cualquier forma de mala praxis por parte de terceros. Esto ha ocurrido desde que la cuestión se incluyese en el programa del GTCR en 2018.

105. Señaló que el próximo CLME+ no es sólo el proyecto formulado en el marco del ciclo del FMAM. Explicó que podría ser bueno que el Grupo de trabajo transmitiera el deseo de incluir al caracol rosado en el proyecto a la COPACO, el CRFM y la OSPESCA para que lo llevaran al MCP y pudieran debatir dónde el caracol rosado formaría parte del proyecto o si debería formar parte de otro proyecto. Patrick afirmó que no está en posición de comprometerse a la financiación, pero señaló que es un debate importante para tener dentro del MCP.

106. La Secretaría de la COPACO expresó su interés en disponer de una base de referencia para evaluar los progresos en la implementación del Plan de acción regional sobre la pesca INDNR que se aprobó en julio y de un examen sistemático al cabo de tres o cinco años para mostrar en qué situación se encuentran los países con respecto a la aplicación de esas medidas.

107. Durante la deliberación que siguió a la presentación, hubo un breve debate sobre las medidas para combatir la pesca INDNR que no se aplican a las embarcaciones pequeñas. De forma específica, el GTCR discutió que el marcado de los buques no se aplica a los buques pequeños (<12 metros de eslora) y señaló que el SLB se utiliza para los buques más grandes. El GTCR expresó su preocupación y destacó esto como una posible carencia. La Secretaría de la COPACO recordó al grupo que una recomendación sobre el registro redactada en la última reunión del GTCR no había sido aprobada en la 17ª reunión de la COPACO, a pesar del interés que suscitaba esta cuestión.

Estado de implementación del plan regional para la ordenación y conservación del caracol rosado

108. Por sugerencia del GTCR, Martha Prada creó una tabla con las medidas regionales del *Plan regional para la ordenación y conservación del caracol rosado* y preguntó a los delegados qué medidas se han implementado. Esto se hizo para ayudar a demostrar las áreas de progreso e identificar las cuestiones pendientes a nivel regional y subregional.

109. Se pidió a cada país que clasificara el estado de implementación de cada medida del plan basándose en el siguiente baremo:

0 – No

1 – Bajo

2 – Moderado

3- En forma plena

110. La Secretaría de la COPACO sugirió que en el cuadro se enumeren las medidas del plan y las actuaciones correspondientes a cada una de ellas como indicadores de evaluación. El cuadro se distribuyó a los participantes en la reunión del GTCR para que hicieran sus aportaciones y se distribuirá a los países que no asistan. El GTCR señaló el reto que suponía utilizar la clave en ausencia de criterios, pero determinó que el cuadro proporcionaría una estimación útil.

Examen de las actividades del grupo asesor científico, estadístico y técnico del caracol rosado (GACET/CR), próximos planes y recomendaciones

111. En nombre del grupo GACET/CR, Martha Prada, Nelson Ehrhardt y Richard Appeldoorn presentaron los progresos realizados por este grupo asesor, que se estableció en la tercera reunión del Grupo de Trabajo de CFMC/OSPESCA/COPACO/CRFM/CITES celebrada en Panamá (29 de octubre a 2 de noviembre de 2018). El grupo pudo reunirse dos veces (abril y noviembre de 2019), y en esa reunión se resumieron los progresos realizados, de conformidad con el informe presentado en el 17º período de sesiones de la COPACO celebrado en Miami (Julio, 2019).

112. Esta presentación colectiva comenzó introduciendo el contexto y las primeras asignaciones que el GACET/CR había recibido en relación con: a) la orientación sobre los factores de conversión regionales, b) la información básica que determina el análisis de los dictámenes de extracción no perjudicial (DENP), c) la identificación de la investigación prioritaria, y d) los acuerdos para sus protocolos internos sobre el modo en que funcionará.

113. Los expertos dedicaron un esfuerzo considerable a analizar la situación relativa a los factores de conversión (FC), en particular abordando las necesidades de datos estadísticos para calcular el nuevo FC en relación con el peso total sin concha (carne sucia). Es necesario calcular el FC para cada uno de los diversos grados de procesamiento, que son los productos que se comercializan. Además, y sólo para fines estadísticos de pesca de la FAO, se proporcionó el FC para el peso vivo (peso total más el peso de la concha) a partir del peso de la carne sucia. En general, existe un consenso sobre las graves lagunas de datos y la grave falta de aplicación de la ley en lo que respecta a la presentación de informes estadísticos de captura de CR, en particular sobre los desembarcos expresados por grados de procesamiento comercial (es decir, categorías de por ciento de carne limpia). De este modo, los FC no tienen finalidad si no se dispone de datos sobre los desembarcos.

114. A través de una consultoría (Nelson Ehrhardt y Manuel Pérez), los datos existentes sobre porcentajes de las categorías de aderezos comerciales fueron reanalizadas y validadas mediante comparaciones estadísticas de las calidades de procesamiento en función de los pesos en sucio en varios países. Las actualizaciones de las FC se calcularon utilizando datos estadísticamente validados de las Bahamas, Honduras, Nicaragua, Barbados, Martinica y la República Dominicana. Los principales resultados de este trabajo indicaron que:

a) El FC para un 100 por ciento de peso de carne limpia sobre el peso en suciodeterminar el peso de la carne sucia a partir del peso de la carne 100 por ciento limpia se dividió en dos grupos: Nicaragua-Honduras-Bahamas y las Bahamas-Martinica. Esto sugiere que el FC, en algunos casos, es comparable a nivel regional.

b) Los FC recomendados se estimaron para determinar el peso de la carne sucia a partir del peso de la carne limpia en un 50 por ciento (3 países), carne limpia en un 85 por ciento (3 países) y carne 100 por ciento limpia (4 países). un 50 por ciento de carne limpia sobre el peso de la carne sucia (3 países), un 85 por ciento sobre el peso sucia (2 países) y un 100 por ciento de carne limpia sobre el peso de carne sucia (4 países).

c) La relación entre el peso de la carne sucia y el peso vivo puede estimarse con gran precisión entre países cuyos desembarcos muestran una estructura/tamaño similar, por lo que estos países podrían utilizar un FC regional (5,36). El peso de la concha del caracol rosado no es un buen indicador del peso de la carne, por lo que no se recomendó un FC regional armonizado para poder reconstruir el volumen total de capturas.

115. Los siguientes son los valores actualizados del FC del CR derivados de esta consultoría:

Peso de la carne limpia en un 50% a peso de la carne sucia	Intervalo de confianza del 95%		
País	**FC medio**	**Inferior**	**Superior**
Martinica	1,53	1,33	1,80
Las Bahamas	2,05	1,78	2,43
Nicaragua	1,86	1,78	1,96
Republica Dominicana	1,69	N.A	N.A

Peso de la carne limpia en un 85% a peso de la carne sucia	FC (intervalo de confianza del 95%)		
País	**FC medio**	**Inferior**	**Superior**
Barbados	1,86	1,42	2,69
Honduras	2,41	2,17	2,73
Republica Dominicana	2,11	N.A	N.A

Peso de la carne sucia a partir del peso de la carne 100% limpia	FC (intervalo de confianza del 95%)		
País	**FC medio**	**Inferior**	**Superior**
Honduras	2,73	2,46	3,05
Las Bahamas	2,76	2,37	3,30
Nicaragua	3,06	2,84	3,31
Martinica	2,66	2,30	3,15
Republica Dominicana	3,19	N.A	N.A

Peso de carne sucia a partir del peso total	FC (intervalo de confianza del 95%)		
País	**FC medio**	**Inferior**	**Superior**
Nicaragua	5,39	4,82	6,12
Honduras	5,63	4,82	6,76
Las Bahamas	5,60	4,41	7,68
Martinica	5,54	5,53	5,55
Barbados	4,66	3,87	5,17
Media	5,36	4,69	6,26
Republica Dominicana	3,89	Muestras solamente de ejemplares subadultos	

116. El GACET/CR informó también de los progresos realizados en la capacitación relativa a los métodos para llevar a cabo estudios de densidad de CR, el posterior análisis de datos para recomendar cuotas de explotación, así como las formas de mejorar la colaboración científica. Esta iniciativa estuvo dirigida por la Elizabeth Babcock, de la Universidad de Miami, en colaboración con el Departamento de Pesca de Belice. El taller práctico se celebró en la Ciudad de Belice del 29 de julio al 2 de agosto de 2019 y contó con la asistencia de 16 participantes: representantes de ocho países, cinco expertos, un miembro de una organización regional de pescadores y dos representantes de la COPACO.

117. El GACET/CR ha proporcionado un total de 22 recomendaciones específicas relativas a factores de conversión, encuestas, actualización del manual de evaluación de poblaciones de CR del CFMC, conectividad, DENP, aspectos socioeconómicos y otras investigaciones prioritarias. A partir de ellas, en esta reunión se recomendaron varias medidas como prioritarias:

1) La COPACO necesita aumentar los esfuerzos que darían lugar a mejores informes de desembarques de caracoles rosados por país utilizando el nuevo FC (peso en sucio) por grados de procesamiento. Se les invita a utilizar preferentemente su propio FC o el promedio reportado

aquí en ausencia de un FC nacional. Los países que todavía carecen de FC necesitan reunir la información apropiada para la estimación del FC y presentar datos al GACET/CR para la evaluación estadística y la estimación de FC siguiendo métodos comunes. Los informes sobre desembarques deben incluir estimaciones del consumo local.

2) Actualizar y ampliar los métodos de evaluación de poblaciones de CR presentados en el Manual de evaluación de poblaciones de CR de 2008, en particular examinando los diseños de muestreo que incluyen la representación de toda su población y estableciendo criterios de sostenibilidad al definir los cupos de producción y exportación (p. ej. la densidad de adultos, el 8 por ciento o menos de la biomasa en pie explotable, etc.). A fin de reducir el coste de contar con una amplia participación de los principales funcionarios pesqueros en el Caribe, se debería fomentar un programa de capacitación en línea en inglés y español sobre los métodos actualizados de evaluación de poblaciones y algoritmos de estimación de cuotas.

3) Hay previsto elaborar una propuesta para determinar la conectividad genómica en todo el Caribe mediante técnicas de detección de polimorfismos de un solo nucleótido (SNP), aprovechando el importante apoyo que ya se ha recibido de la Universidad de Rhode Island. Se espera que los resultados de esta labor proporcionen información útil para contrarrestar la pesca ilegal, por lo que se recomendó un proyecto piloto de países que exportan CR y comparten zonas comunes (Colombia, Jamaica, Honduras, Belice y Nicaragua). La información también será útil para comprender la estructura de la población en pequeña escala necesaria para la ordenación.

4) Dos subgrupos seguirán ocupándose de las recomendaciones necesarias para simplificar el proceso de generación de DENP, integrando las recomendaciones del GTCR de 2012. Uno trabajará con la actualización del diagrama de flujo de los DENP, mientras que el otro grupo desarrollará y evaluará los méritos de los posibles criterios científicos que podrían utilizarse, con respecto al desarrollo de DENP simplificados.

5) Los aspectos socioeconómicos y reproductivos del CR se encuentran entre las áreas de investigación prioritarias que se recomienda desarrollar a corto plazo.

118. El GACET/CR recomienda buscar alternativas de financiación para llevar a cabo el trabajo recomendado, incluyendo la redacción de una propuesta, entre otras posibilidades.

119. Los informes completos de los talleres primero y segundo, que contienen información detallada, figuran en los APÉNDICES C y D del presente informe.

120. El delegado de Belice expresó su interés en la recomendación relacionada con la seguridad del buceo en las pesquerías de caracol rosado y langosta. Señaló que a lo largo de los años se había dedicado mucho tiempo a tratar de resolver este problema y los incidentes relacionados con accidentes y muertes por el uso indebido de los equipos de buceo. No obstante, la cuestión sigue siendo motivo de preocupación hoy en día y algunos gobiernos no se han tomado este asunto en serio. El delegado expresó su interés en una recomendación de que ya nadie apoya el statu quo ni el continuo uso indebido de compresores hookah para la pesca de CR y langosta. Afirmó que no podemos permitir que nuestros pescadores continúen siendo explotados y que arriesguen sus vidas.

121. Varios miembros del GTCR apoyaron las recomendaciones destinadas a aumentar la seguridad de los buzos, pero no apoyaron una recomendación contra el uso del hookah. Se sugirió que se exigiera la capacitación de los buceadores como condición previa para la obtención de una licencia.

122. Otro tema que se discutió relacionado con la dimensión socioeconómica fue el cierre de pesquerías. En concreto, el delegado de la República Dominicana recomendó que, cuando hubiera una veda de pesca, se ofrecieran otras alternativas a los pescadores, como la pesca deportiva o el ecoturismo para reducir el esfuerzo. El delegado de Nicaragua informó al grupo que durante los cierres de pesquerías, se autoriza a algunos buques a pescar otras especies. Martha Prada advirtió que era necesario ser cuidadoso al considerar las opciones, ya que algunas de las pesquerías ya están plenamente explotadas y quizás no sea posible aumentar la presión pesquera.

Actualizaciones técnicas sobre el caracol rosado: reajuste de factores de conversión

123. Con respecto a los factores de conversión, varios miembros del GTCR expresaron su apoyo al trabajo presentado y su entusiasmo por observar cierta convergencia en el camino a seguir. Un miembro señaló la necesidad de que los países se comprometan a proporcionar información para disponer de un mejor conjunto de datos. Se manifestó interés en examinar un protocolo normalizado para el caracol extraído de la concha mediante la ultracongelación frente a las que se extraen vivos, dadas las diferentes pérdidas de peso. El delegado de Belice informó al grupo de que se había establecido un factor de conversión del 85 por ciento procesado, pero señaló que algunas cuestiones no se habían podido resolver. Así pues, se prevé realizar otra recopilación sobre el terreno en 2020 para confirmar el factor de conversión que ya se ha establecido. Tras el análisis, el delegado se ofreció a compartir esta información con la COPACO y la CITES.

Actualizaciones técnicas sobre el caracol rosado: ajustes de la formación en los estudios del caracol y la determinación del estado de las poblaciones

124. Durante el debate sobre el tema de los estudios del caracol rosado y las evaluaciones de la población, el GACET/CR puso de relieve el manual de evaluación del CR producido por el CFMC en 2008 como una referencia potencial, señalando que esta metodología se ha aplicado en Jamaica y Honduras. Varios miembros del GTCR subrayaron el tiempo, el coste y los retos de realizar estudios dados los recursos y capacidades limitados de los países. Una recomendación de impartir capacitación sobre el uso del manual a nivel regional recibió el apoyo del GTCR. El delegado de San Vicente y las Granadinas explicó que el año próximo se esforzarían por realizar una evaluación de población de la pesquería del caracol, y la recomendación podría ayudarles a avanzar. También destacó la necesidad de apoyo y ayuda financiera.

125. El GTCR acordó la siguiente recomendación específica:

- Actualizar y ampliar los métodos en el manual de evaluación de la población de caracol rosado publicado por el CFMC en 2008 (índice de explotación por curva de captura basada en la conversión del peso de la concha);

- Implementar un programa informático de evaluación de poblaciones lo más sencillo posible, para promover más eficazmente el uso de los métodos recomendados; y

- Proporcionar capacitación en línea en inglés y español sobre métodos de evaluación de poblaciones y algoritmos de estimación de cuotas para reducir los costos de una amplia participación de los responsables clave de la pesca en el Caribe.

126. El CFMC acordó contratar a los expertos apropiados para elaborar un módulo de capacitación después de que se revise el manual; el plan sería llevar a cabo esta labor en 2020 en inglés y español, que luego se podrá traducir al francés con fondos suplementarios. La Secretaría de la COPACO se ofreció a ayudar en la traducción al francés y señaló que si el manual se digitaliza, la FAO puede ayudar en la publicación.

127. Se recomendó disponer de una versión digitalizada del manual y organizar la capacitación que pueda difundirse a través de YouTube. Nelson Erhardt señaló que hay diferentes necesidades en la región, por lo que tal vez se requieran diferentes metodologías que podrían proporcionarse en la capacitación.

Actualizaciones técnicas sobre el caracol rosado: la investigación prioritaria

128. Durante la discusión sobre las recomendaciones de investigación Richard Appledoorn y del GACET/CR, Martha Prada mencionó una oferta de la Universidad de Rhode Island para hacer estudios genéticos del caracol rosado. Explicó que ha habido avances en genética, y hay una oportunidad de redactar una propuesta usando nuevas técnicas y datos para hacer una comparativa. Varios miembros del GTCR expresaron su interés en los estudios genéticos para comprender mejor la conectividad y la participación en el estudio, incluidos los delegados de Belice, Nicaragua y Panamá. Se pidió a los miembros del GTCC interesados en participar en los estudios genéticos que se pusieran en contacto con Martha Prada y Richard Appledoorn.

129. Durante el debate sobre las recomendaciones de la investigación, la Secretaría de la COPACO sugirió que se identificaran las cinco prioridades principales y que luego se enviaran con una fecha límite a otros países miembros para que pudieran aportar sus comentarios. Tras determinar estas prioridades, sugirió que el GACET/CR adoptase medidas. El GTCR refrendó estas sugerencias. También expresó su apoyo a debatir la tabla del DENP presentada por OSPESCA y el proyecto de resolución de la CITES preparado para su consideración por el grupo.

Proyecto de educación y divulgación del caracol rosado

130. El caracol rosado, Strombus (Lobatus) gigas (Linne 1758), es un gasterópodo endémico muy extendido por el Caribe. Las existencias de caracol rosado han disminuido considerablemente en toda la región en las últimas décadas y, como resultado de la gran inquietud por esta especie, se ha incluido en el Apéndice II de la Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres (CITES). En la mayoría de los países del Caribe se han implementado ahora diversos reglamentos y la ordenación para un uso sostenible del caracol rosado (FAO-COPACO2013). Muchos aspectos de la biología y la ecología del caracol rosado se encuentran relativamente bien estudiados. Sin embargo, es necesario comprender el suministro larval, el establecimiento y reclutamiento de la especie, los estudios de abundancia larval y su distribución por el Caribe, examinando en particular la densidad de larvas velígeras durante su período de desove de verano.

131. El aumento de las emisiones de CO2 durante el último siglo ha producido cambios en los océanos, provocando un aumento de la temperatura y una disminución del pH. La temperatura en esta región podría llegar hasta los 31°C para el año 2100 y la acidificación podría disminuir de 8,1 a 7,6 para 2100 (Caldeira y Wickett 2003). Estos cambios afectan a la dinámica de las poblaciones y al metabolismo de los organismos, especialmente a los calcificadores, donde las fases larvarias son más vulnerables (Sale, 2010).

132. Cada día se produce alrededor de un megatón de plástico, suficiente para fabricar casi 22 billones de botellas de agua. Y más del 90 por ciento de ese volumen nunca será reciclado: hasta 12,7 millones de toneladas acabarán en los océanos. Hoy en día, el plástico es el tipo de desecho marino más frecuente, representando más del 60 por ciento de los desechos que se arremolinan en los mares. Sin embargo, la mayoría de estos plásticos se descomponen en microplásticos (≤5 mm) y éstos pertenecen a un grupo considerado como contaminantes emergentes (Andrady 2011, Baini *et al.,* 2018, Bosker *et al.,* 2018). El más grave -aunque menos documentado-, es el papel de los

microplásticos como acumuladores y biomagnificadores de contaminantes orgánicos persistentes (Andersson 2014, Auta *et al.,* 2017, Hurley *et al.,* 2018) como insecticidas (DDT), hidrocarburos aromáticos y metales pesados.

133. El objetivo de este trabajo fue mostrar los resultados de la colaboración con fines científicos entre varias Universidades en el Caribe, mostrando el impacto del cambio climático en la abundancia de larvas en esta región, en el proceso de calcificación de la concha y la concentración de contaminación por microplásticos en varios lugares del Caribe. También se incluyó información sobre los programas de divulgación relacionados con el caracol rosado.

Resultados

134. Densidad larvaria Se recolectaron un total de 158 larvas velígeras de caracol rosado de julio a septiembre de 2014. La mayoría procedían de Barbados (60,13 por ciento de las larvas) y el 21,52 por ciento se recolectaron en la República Dominicana. La densidad de las larvas osciló entre 0,0 larvas/10 m^3 en varios lugares y 6,02 larvas/10 m^3 en Barbados (julio). Las densidades larvarias también variaron en función del mes, desde un promedio en todas las localidades de 1,18 larvas/10 m^3 en julio, hasta 0,45 larvas/10 m^3 en agosto y 0,58 larvas/10 m^3 en septiembre. La mayor abundancia se observó en Barbados en julio (18,88 larvas/10 m^3). La abundancia de larvas no fue muy diferente de un mes a otro. Sin embargo, se encontraron diferencias significativas entre los lugares. La gran abundancia de larvas velígeras en las muestras de Barbados sugiere que la baja densidad de población de caracoles que se encuentra allí puede ser todavía capaz de proporcionar reclutas para las poblaciones aguas abajo.

135. La mayor tasa de crecimiento larvario (media ± SD 27,33 ± 2,96 µm día-1) se produjo a una tempratura de 30ºC, significativamente entre los tratamientos ($p \leq 0,05$). El desarrollo fue más rápido a 30°C, donde las primeras larvas se asentaron al día 27 (49 por ciento) y la tasa de mortalidad fue del 76 por ciento. A 28 °C, el día 29 fue el primer día en que se observó el asentamiento del 20 por ciento de las larvas.

136. El proceso de calcificación de las larvas de *S. gigas* se vio afectado por las temperaturas experimentales ensayadas. El porcentaje de contenido de *Ca* de las larvas con concha cultivadas a 30 y 28ºC fue de un 25,44 ± 4,74 y un 24,99 ± 0,74 por ciento respectivamente.

137. Todos los caracoles analizados de los cuatro sitios en la región del Caribe tenían microplásticos en sus heces. Estas partículas de microplástico tenían diferentes formas y tamaños. Las caracolas de sitios del noroeste del Gran Caribe (Cayos de Florida y Arrecife de Alacranes) tenían en general mayor abundancia de microplásticos en sus heces comparadas con las de sitios del Caribe oriental (Barbados y Guadalupe). Sin embargo, los tipos de partículas microplásticas más frecuentes fueron los mismos en todos los lugares, con mayor abundancia de fragmentos que de escamas. El tamaño de las fibras varió entre 300 y 4 500 µm y los fragmentos entre 100 y 700 µm.

138. Dalila Aldana aprovechó la oportunidad para destacar ante el GTCR el programa de formación del CFMC sobre el caracol rosado, que está en fase de desarrollo en los tres idiomas de la COPACO y que se ajustará para cada país. Recordó a los miembros y participantes que compartan información.

139. En relación con la información sobre los programas de divulgación del caracol rosado, se localizaron 207 documentos digitales; el 61 por ciento sin material educativo. El análisis final se llevó a cabo con 80 documentos que contenían material educativo. Los formatos de distribución de los documentos digitales fueron página web, video, blog, noticias, boletín, Facebook y radio. El 77 por ciento del material está en formato de página web, y los menos utilizados son el boletín informativo y la radio. En los programas educativos han participado ONGs, ministerios de pesca, ambientalistas, la iniciativa privada, museos y universidades. En países como Barbados, Martinica

y Puerto Rico, es una sola institución la que ha realizado el material educativo, mientras que en las Bahamas han participado 21 instituciones.

140. El material generado comprende nueve temas. El 79 por ciento se refiere sólo a generalidades del caracol rosado como especie amenazada y sobreexplotada. El segundo bloque es sobre su biología. Sólo el 10 por ciento informa sobre medidas de gestión específicas para un uso sostenible. Únicamente en el material elaborado por las Bahamas y los Estados Unidos se habla de medidas de ordenación de la pesca para usos sostenibles (tamaño mínimo, grosor del labio y veda) sin explicar a qué parte del ciclo de vida afectan y la forma en que protegen.

141. En conclusión, es necesario generar un programa educativo específico, en el que se expliquen las medidas de ordenación de la pesca del caracol rosado, qué parte del ciclo de vida protegen y cómo actúan. Se señaló que este material se hará en 2020 con el apoyo del CFMC.

142. Varios miembros del GTCR afirmaron que la educación y la promoción son muy importantes para la pesca El Convocante del GTCR señaló, sin embargo, hay programas de educación para el caracol rosado que se llevan a cabo a través de los departamentos/divisiones de extensión de las pesquerías que no se registran sistemáticamente. Dalila Aldana admitió esta laguna y pidió a los participantes del GTCR que compartan la información que tienen. Explicó que su equipo buscaría materiales adicionales en Google usando palabras clave. Señaló que hay mucha información de Colombia, pero que no toda está en forma digital y no es accesible.

143. Martha destacó como prioridad continuar la labor sobre la reproducción, ya que ésta se veía afectada por muchos procesos. Recordó al grupo que la reproducción depende de la densidad, y que hay mucha información ambiental que discutir con referencia a la misma.

Proyecto de plantilla del dictamen de extracción no perjudicial para el caracol rosado

144. Se pidió a Manuel Pérez (OSPESCA) que volviera a presentar el proyecto de plantilla de DENP para el caracol rosado que se había ofrecido el día anterior, para su examen y deliberación. Como antecedentes para el documento, señaló el desafío de utilizar la plantilla de DENP que se había desarrollado para la reunión del GTCR de 2014. Para el desarrollo de la plantilla, Manuel explicó que usó la pesquería de langosta y camarón en Nicaragua para ver cómo podría traducirse para el caracol rosado. En su explicación de la plantilla del DENP, destacó la necesidad de tener criterios, objetivos de gestión y puntos de referencia presentados en una forma que sea simple y proporcione un referente hacia una recolección sostenible. Presentó la plantilla como un punto de partida para ayudar a la discusión.

145. Nelson Erhardt afirmó que la plantilla supone un útil instrumento inicial para la discusión con muchos temas que pueden ser evaluados. Señaló que la CITES está interesada en la conservación de las especies frente a la promoción de la pesca. El delegado de Antigua y Barbuda estuvo de acuerdo, señalando los diferentes enfoques y metodologías utilizados por la CITES y la FAO para la pesca.

146. Richard Appledoorn expresó su interés en ver qué números serían apropiados para su inclusión en la plantilla del DENP (como el grosor de los labios que se considere sostenible).

147. Varios miembros del GTCR felicitaron a Manuel por el excelente trabajo realizado y señalaron que el cuadro constituye una herramienta útil y una base que aprovechar. La Secretaría de la COPACO expresó su reconocimiento por los esfuerzos y se hizo eco del apoyo a la labor ulterior que se llevará a cabo usando los criterios mínimos de sostenibilidad que figuran en el cuadro. Además, recomendó que se distribuya al Comité de Fauna de la CITES para recabar su opinión, ya

que se ofrecieron a dar orientación y comentarios. Manuel reafirmó el ofrecimiento de la CITES de examinar el cuadro y prestar su ayuda. Nelson Erhardt hizo presente su preocupación por el hecho de que el Comité de Fauna de la CITES carece de experiencia en el caracol rosado.

148. El delegado de Belice aceptó ayudar a proponer ideas para el DENP como parte del subgrupo. Informó al GTCR que un grupo subregional integrado por Belice, Honduras y Nicaragua tiene previsto elaborar un marco de DENP que sea sencillo, viable, útil y aceptable para la Secretaría de la CITES si se dispone de recursos.

Proyecto de Resolución de la Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres

149. Se pidió a los delegados de Belice (Mauro Gongora) y de los Estados Unidos (Laura Cimo) que explicaran y presentaran un proyecto de resolución de la CITES que se había preparado para su examen por el GTCR. Según Daniel Kachelriess de la Secretaría de la CITES, las decisiones adoptadas en la CoP18 de la CITES tienen un plazo de vigencia y expiran. Aconsejó al GTCR que considerara que muchas decisiones adoptadas no necesitan prescribir, ya que son asuntos de importancia a largo plazo. Sugirió que las Partes tienen la oportunidad de continuar haciendo el trabajo que se precisa e informó que se podría presentar una Resolución para su aprobación por la CITES. Siguiendo su consejo, las decisiones sobre el caracol rosado adoptadas en la CoP18 se incluyeron en la plantilla para una Resolución de la CITES, y él ha proporcionado un número significativo de revisiones y comentarios sugeridos. Dado que la Resolución no se había distribuido con antelación para su examen y debido al tiempo limitado que quedaba, se acordó que el GTCR no tenía suficiente tiempo para examinar y comentar el proyecto de resolución en la reunión. Se sugirió que se solicitaran aportaciones a las Partes y que se recopilaran entre períodos de sesiones.

150. La Secretaría de la COPACO informó al GTCR que la próxima reunión del Comité de Fauna de la CITES está prevista para julio de 2020. Explicó que es factible que el documento sea examinado por el Comité de Fauna de la CITES, pero que hay algunas tareas todavía pendientes.

151. Sugirió que, una vez finalizado, el proyecto de Resolución podría presentarse electrónicamente al GAC como propuesta entre períodos de sesiones y se consideraría para su adopción en el marco del proceso de Reorientación Estratégica previsto para mayo de 2020. La Secretaría de la COPACO recordó también al grupo que toda recomendación o resolución debía ir acompañada de una descripción de la propuesta y una justificación/razón para su adopción. Así pues, esta documentación debe ser preparada.

152. El GTCR acordó continuar trabajando en la resolución de la CITES. Miguel Rolón, del CFMC, sugirió que si la Resolución se adopta, debería ser presentada en la próxima reunión del Comité de Fauna por el Convocante del GTCR, y se ofreció a proporcionar apoyo. El delegado de Belice estuvo de acuerdo con esta recomendación y recordó al GTCR que él es miembro del Comité de Fauna de la CITES.

Futuros trabajos

153. Al concluir las deliberaciones de la reunión, se identificó una lista de tareas para el período 2019-2020, la mayoría de las cuales serán dirigidas por el GACET/QC como se indica en el *Plan regional para la ordenación y conservación del caracol rosado*. Éstas comprenden desde la finalización y publicación de las actas de la 3ª reunión del GTCR hasta el desarrollo de un proyecto dentro del ciclo 2021-2025 del CLME+. Los TdRs detallados y el Plan de trabajo se muestran en los APENDICES E y F.

Aprobación del informe resumido y recomendaciones para la Comisión de Pesca para el Atlántico Centro-Occidental

154. La Convocante del Grupo de trabajo sobre la calidad del aire señaló que el informe de la reunión se aprobaría entre períodos de sesiones. Pidió que se compartan los resúmenes de las presentaciones con el relator, la Secretaría de la COPACO y la CFMC. Informó al grupo de que todos los documentos se subirán a la unidad de Google ya compartida con los participantes en la reunión.

155. El GTCR adoptó varias recomendaciones, que se enumeran a continuación:

1. **Recopilación de datos/transparencia**: se recomienda a los países almacenar los datos de los estudios realizados en papel y formato digital para registrar adecuadamente el trabajo y orientar cualquier normalización.
2. **Seguridad de los buceadores**: se recomienda realizar -en determinados países- un estudio regional sobre el estado de las técnicas de buceo en la región de la COPACO. Ello reflejaría los esfuerzos que se han realizado y las medidas que se han adoptado en materia de seguridad en el trabajo en la región.
3. **Consumo interno**: se recomienda a los países miembros documentar el nivel de consumo interno de caracol rosado y realizar un estudio sobre este tema.
4. **Manual para la evaluación de las poblaciones de caracol rosado**: se recomienda que el CFMC apoye la actualización y ampliación de los métodos presentados en su manual de evaluación de poblaciones de caracol rosado publicado en 2008, poniendo especial hincapié en diseños muestrales que incluyen una representación de todas las poblaciones y utilizan criterios de sostenibilidad al definir los cupos de producción y exportación (p. ej. densidad de ejemplares adultos, umbral de biomasa explotable igual o inferior al 8 por ciento, etc.); facilite una versión digital del manual; e imparta formación -en inglés, español y francés- sobre el uso del manual a través de Internet, a fin de reducir los costes asociados al desplazamiento de oficiales de pesca por la región del Caribe.
5. **Resolución de la CITES sobre el caracol rosado**: se recomienda que la COPACO y la CITES trabajen conjuntamente en un proyecto de resolución de la CITES, que podría estudiarse en su próxima reunión del Comité de Fauna e igualmente de la COPACO.

156. El GTCR acordó que el proyecto de plantilla del NDF y la resolución de la CITES se completaría entre períodos de sesiones. Estos documentos serán distribuidos al GTCR para que los revise y comente una vez completados.

157. Además, el GACET/CR formuló varias recomendaciones prioritarias que fueron aprobadas por el grupo:

1) La COPACO debe redoblar esfuerzos para mejorar la información a nivel de país sobre los desembarques de caracol rosado utilizando los nuevos factores de conversión (FC) –sobre el peso de la carne sucia- para los diferentes grados de procesamiento. Se les invita a utilizar -preferentemente- sus propios FC o, en su defecto, el promedio que figura en el presente informe. Los países que no dispongan aún de FC deben recopilar datos adecuados y enviarlos al GACET/CR para su evaluación estadística y la correspondiente estimación de los factores utilizando métodos habituales. La información sobre los desembarques debería incluir estimaciones del consumo local.
2) Se formulará una propuesta para determinar la conectividad genómica en todo el Caribe mediante técnicas de SNP, aprovechando la labor realizada por la Universidad de Rhode Island. Se espera que los resultados de este trabajo proporcionen información útil para combatir la pesca ilegal, por lo que se recomendó realizar un proyecto piloto en países que exportan CR y comparten territorios comunes (Colombia, Jamaica, Honduras, Belice y Nicaragua).

La información servirá también para comprender la estructura en pequeña escala de las poblaciones necesaria para su ordenación.

3) Dos subgrupos continuarán ocupándose de las recomendaciones necesarias para simplificar el proceso de formulación de dictámenes de extracción no perjudicial (DENP), incorporando las recomendaciones del GTCR de 2012. Un subgrupo trabajará en la actualización del diagrama de flujo de los DENP, mientras que el otro desarrollará y evaluará las ventajas de los posibles criterios científicos que podrían utilizarse para simplificar dichos dictámenes.
4) Las cuestiones socioeconómicas y reproductivas relacionadas con el caracol rosado son una de las áreas de investigación prioritarias que se recomienda impulsar a corto plazo.

Fecha y lugar de la próxima reunión

158. La Secretaría de la COPACO, con el apoyo del CFMC y el Convocante, señaló que el GTCR podría tener que volver a reunirse en 2021 antes de la próxima reunión de la Comisión para garantizar que se adopten medidas antes de ese encuentro. Se ofreció a ayudar a coordinar el trabajo y a mantener a los miembros al corriente de cualquier novedad. Se espera que el GTCR se reúna en 2021 para discutir los resultados de la reunión del Comité de Fauna de la CITES y los resultados de cualquier estudio relevante.

Sesión de clausura

159. La reunión finalizó el martes 16 de diciembre con las observaciones del Convocante, el anfitrión de la reunión y la Secretaria de la COPACO.

160. La Secretaría de la COPACO tomó nota del intenso trabajo realizado en los últimos días y expresó su agradecimiento a todos los socios que han contribuido a las deliberaciones. Felicitó a los participantes por una reunión muy productiva con actualizaciones útiles desde la última reunión del GTCR. Entre ellas destacó la evaluación del grado de implementación de las medidas del plan de ordenación como un importante resultado de la reunión.

161. También expresó su agradecimiento por la presentación del GACET con recomendaciones amplias y útiles y las aspiraciones prioritarias de los países. La Secretaría tomó nota además del acuerdo sobre cuestiones prioritarias, como la actualización del manual sobre métodos de evaluación de poblaciones y estudios genéticos. Un resultado de gran utilidad fue el cuadro de criterios de sostenibilidad para ayudar a la realización de los DENPs, que fue una valiosa contribución como resultado de las deliberaciones del GACET/CR. La labor que están desarrollando Belice, Honduras y Nicaragua está en curso y necesita financiación.

162. Igualmente, declaró su orgullo por el marco de colaboración que vincula a la COPACO, la CRFM, la OSPESCA y el CFMC, dado el compromiso y la concienciación de todos sobre el deber de garantizar la conservación y ordenación responsables de las pesquerías de caracol rosado.

ANNEX A – AGENDA

4th Meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES working group on queen conch

San Juan, Puerto Rico, 16–17 December 2019

16 December 2019	
Morning session	
08.30	Registration of participants
09.15	1. Opening of the session Welcome words by: • Maren Headley, CRFM • Yvette Diei-Ouadi, WECAFC • Miguel A. Rolón, Executive Director of CFMC
09.45	2. Introduction of delegates
10.00	3. Election of the Chairperson and rapporteurs
10.15	4. Introduction of the Working Group – Convener: Maren Headley
10.30	5. Adoption of the agenda and arrangements for the Working Group
10.45	**Break**
11.00	6. Summary of WECAFC work on Queen Conch – Yvette Diei-Ouadi (WECAFC Secretariat)
11.30	7. Queen conch developments at CITES – TBD (CITES Secretariat)
12.00	8. FAO Trade Statistics on Queen Conch – Monica Barone (FAO)
12.30	**Lunch Break**
Afternoon session	
13.30	9. Queen Conch FMP implementation status in CRFM member states - Maren Headley (CRFM)
14.00	10. Queen Conch FMP implementation status in OSPESCA member states - Manuel Perez (OSPESCA)
14.30	11. Queen Conch FMP implementation status in selected WECAFC member States, degree of conch meat processing, and status of national conversion factor development (**10 minutes each and 5 minutes for questions/discussion**) • Antigua & Barbuda • Cuba • Mexico • Jamaica • Bahamas
15.45	**Coffee Break**

16.00	12. Queen Conch FMP implementation status in selected WECAFC member States, degree of conch meat processing, and status of national conversion factor development (**10 minutes each and 5 minutes for questions/discussion**) • United States • Colombia • Martinique & Guadeloupe • Honduras • Nicaragua
17.15	13. Progess of CLME+ SAP: Actions to enhance the governance arrangements for implementing an ecosystem approach for queen conch fisheries – Patrick Debels/Laverne Walker (CLME+)
17.45	End of the first day of the meeting
17 December 2019	
Morning session	
09.00	Reflection on Day 1 deliberations
09.15	14. Facilitated discussion: Addressing illegal fishing for Queen Conch in the context of The RPOA-IUU – Peter Murray (CRFM, Convener of Regional Working Group on IUU Fishing) [Backup: Yvette Diei-Ouadi (WECAFC Secretariat)]
09.45	15. Facilitated discussion: Review and discussion of implementation of WECAFC Recommendations – Yvette Diei-Ouadi (WECAFC Secretariat)
10.15	16. WECAFC Data Collection Framework in context of Queen Conch – Nancie Cummings (Chair, Fisheries Statistics Working Group)
10.45	**Break**
11.00	17. Review of Scientific, Statistical and Technical Advisory Group Activities, Upcoming Plans, and Recommendations- Martha Prada
11.15	18. Technical Updates on Queen Conch (**15 minutes each**): • Updates on conversion factors (Nelson Ehrhardt) • Updates on training in conch suverys and populations status determination (Elizabeth Babcok) • Updates on priority research (Richard S. Appeldoorn)
12.00	19. Queen Conch education and outreach project – Dr Aldana (Research and Advanced Studies Center of the National Polytechnic Institute, Merida, Yucatan, Mexico)
12.30	**Lunch Break**
Afternoon session	
13.30	20. Adoption of the summary report and recommendations for WECAFC
15.00	21. Time and location of next meeting
15.30	Closure of the meeting – Yvette Diei-Ouadi (WECAFC Secretariat)
16.00	Concluding remarks

ANEXO A – AGENDA

4ta Reunion de grupo de trabajo CFMC/OSPESCA/WECAFC/CITES sobre el caracol rosado

San Juan, Puerto Rico, del 16 al 17 de diciembre de 2019

16 de diciembre de 2019	
Sesión de la mañana	
08.30	Inscripción de participantes
09.15	1. Apertura de la sesión Welcome words by: • Maren Headley, CRFM • Yvette Diei-Ouadi, WECAFC • Miguel A. Rolón, Director Ejecutivo de CFMC
09.45	2. Introducción de delegados
10.00	3. Elección del Presidente y los relatores
10.15	4. Introducción del Grupo de Trabajo – Convocante: Maren Headley
10.30	5. Aprobación de la agenda y arreglos para el Grupo de Trabajo
10.45	**Receso**
11.00	6. Resumen del trabajo de WECAFC en Caracol Rosado – Yvette Diei-Ouadi (Secretaría de WECAFC)
11.30	7. Desarrollos de Caracol Rosado en CITES – TBD (Secretaría de CITES)
12.00	8. FAO Estadísticas comerciales de Caracol Rosado – Monica Barone (FAO)
12.30	**Receso de Almuerzo**
Sesión de la tarde	
13.30	9. Estado de implementación de Caracol Rosado FMP en los estados miembros de CRFM- Maren Headley (CRFM)
14.00	10. Estado de implementación de Caracol Rosado FMP en los estados miembros de OSPESCA- Manuel Perez (OSPESCA)
14.30	11. Estado de implementación del FMP de Caracol Rosado en Estados miembros seleccionados de la WECAFC, grado de procesamiento de carne de caracol y estado del desarrollo del factor de conversión nacional (**10 minutos cada uno y 5 minutos para preguntas / discusión**) • Antigua y Barbuda • Cuba • México • Jamaica • Bahamas
15.45	**Receso**

16.00	12. Estado de implementación del FMP de Caracol Rosado en Estados miembros seleccionados de la WECAFC, grado de procesamiento de carne de caracol y estado del desarrollo del factor de conversión nacional (**10 minutos cada uno y 5 minutos para preguntas / discusión**) • Estados Unidos • Colombia • Martinica y Guadeloupe • Honduras • Nicaragua
17.15	13. Progreso de CLME + SAP: Acciones para mejorar los acuerdos de gobernanza para implementar un enfoque ecosistémico para pesquerías Caracol Rosado – Patrick Debels/Laverne Walker (CLME+)
17.45	Fin del primer día de la reunión
17 de diciembre de 2019	
Sesión de la mañana	
09.00	Reflexión sobre las deliberaciones del día 1
09.15	14. Discusión facilitada: Abordar la pesca ilegal de Caracol Rosado en el contexto de The RPOA-IUU – Peter Murray (CRFM, Coordinador del Grupo de Trabajo Regional sobre Pesca IUU) [Apoyo: Yvette Diei-Ouadi (Secretaría de la WECAFC)]
09.45	15. Discusión facilitada: Revisión y discusión de la implementación del WECAFC 17 Recomendaciones – Yvette Diei-Ouadi (WECAFC Secretariat)
10.15	16. WECAFC Marco de Recopilación de Datos en contexto de Caracol Rosado – Nancie Cummings (Chair, Fisheries Statistics Working Group)
10.45	**Receso**
11.00	17. Revisión de las actividades del grupo asesor científico, estadístico y técnico, Planes Próximos y Recomendaciones - Martha Prada
11.15	18. Actualizaciones técnicas sobre Caracol Rosado (**15 minutos cada una**): • Actualizaciones sobre factores de conversión (Nelson Ehrhardt) • Actualizaciones sobre adiestramiento en encuestas de Conch y determinación del estado de las poblaciones (Elizabeth Babcok) • Actualizaciones sobre investigación prioritaria (Richard S. Appeldoorn)
12.00	19. Proyecto de educación y divulgación de Caracol Rosado – Dra. Aldana (Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional, Mérida, Yucatán, México)
12.30	**Receso de Almuerzo**
Sesión de la tarde	
13.30	20. Adopción del informe resumido y recomendaciones para la WECAFC
15.00	21. Hora y lugar de la próxima reunión
15.30	Clausura de la reunión – Yvette Diei-Ouadi (Secretaría del WECAFC)
16.00	Observaciones finales

ANNEX/ANEXO B – LIST OF PARTICIPANTS/LISTA DE PARTICIPANTES

Antigua and Barbuda/
Antigua y Barbuda

HORSFORD, Ian S.
Chief Fisheries Officer (Ag)
Fisheries Division
Ministry of Agriculture, Lands, Fisheries
and Barbuda Affairs
Point Wharf Fisheries Complex
St. John's

Barbados

TAYLOR, Colvin
Fisheries Assistant
Fisheries Division
Ministry of Maritime Affairs and Blue Economy
Princess Alice Highway
Bridgetown
St. Michael

Belize/Belice

GONGORA, Mauro
Fisheries Officer
Fisheries Department
Ministry of Natural Resources and Agriculture
PO Box 148, Belize City

Brazil/Brasil

DA SILVA BITTENCOURT, Carolina Amorim
Chefe de Divisão - DEPOP
Secretaria de Aquicultura e Pesca, Ministério da
Agricultura, Pecuária e Abastecimento
Brasilia

MARZAROTTO, Shayene Agatha
Coordinator
Department of Development and Planning
of Aquaculture

Colombia

PARAMO, Jorge E.
Autoridad Nacional de Acicultura y Pesca
(AUNAP)
Bogotá

Dominican Republic/República Dominicana

MATEO, Jeannette
Directora de Recursos Pesqueros
Consejo Dominicano de Pesca (CODOPESCA)
Km. 6 ½ Autopista Duarte
Jardines del Norte, Santo Domingo

Haiti/Haití

MERISIER, Laurent
Coordonnateur - Programme de Developpment
de la Peche Artisanale Ministere de
l'Agriculture, des Ressources Naturelles et du
Developpement Rural (MARNDR)

Jamaica

COOKE-PANTON, Kimberlee
Fisheries officer
National Fisheries Authority (NFA)
Marine Branch, 2C Newport East
Kingston 11

Nicaragua

VELASQUEZ, Luis E.
Técnico de la Dirección de Investigaciones
Pesqueras - DIGEPESCA
Managua

Panama/Panamá

MORENO, Josias
Autoridad de los Recursos Acuáticos de Panamá
(ARAP)
Ciudad de Panama

Saint Kitts and Nevis/
San Cristobal y Nieves

STURGE, Vaughn L.
Fisheries Trainee
Department of Marine Resources
Prospect, Nevis

Saint Vincent and the Grenadines/
San Vicente y las Grenadinas

ISAACS, Kris
Senior Fisheries officer
Fisheries Division
Ministry of Agriculture, Industry, Forestry, Fisheries and Rural Transformation
Kingstown

United States of America/
Estados Unidos de América

LUGO, Miguel
NOAA Office of International Affairs
USA

FAITEL CIMO, Laura
Fishery Policy
Office of International Affairs and Seafood Inspection
National Marine Fisheries Service/NOAA

ARNOLD, William
Caribbean Branch Chief
National Marine Fisheries Service/NOAA

LOPEZ, Maria
Caribbean Branch, NOAA/NMFS Sustainable Fisheries Division

INTERGOVERNMENTAL ORGANIZATIONS/
ORGANIZACIONES INTERGUBERNAMENTALES

Caribbean Regional Fisheries Mechanism Secretariat/Mecanismo Regional de Pesca del Caribe (CRFM)
Belize City
P.O. Box 642, Belize

HEADLEY, Maren
Research Graduate/
Convener of the Queen Conch Working Group

Organización del Sector Pesquero y Acuícola del Istmo Centro Americano (OSPESCA)

PEREZ MORENO, Manuel
Consultant
OIRSA
Managua
Nicaragua

OTHERS/OTROS

Caribbean Fishery Management Council/
Consejo de Administracion Pesquera del Caribe (CFMC)

268 Muñoz Rivera Ave., Suite 1108
San Juan, Puerto Rico 00918

ROLON, Miguel
Executive Director

MARTINO, Diana
Assistant to Executive Director

WECAFC SECRETARIAT/
SECRETARIA COPACO

FAO Subregional Office for the Caribbean
2nd Floor, United Nations House
Marine Gardens, Hastings
Christ Church, BB11000, Barbados

DIEI OUADI, Yvette
Fishery and Aquaculture Officer/
Secretary to WECAFC

RESOURCE PERSONS/
PERSONALES EXPERTOS

APPELDOORN, Richard
Consultant
San Juan, Puerto Rico

EHRHARDT, Nelson
Consultant
Miami, Florida, USA

PRADA, Martha
Independent Consultant
Puerto Rico

ALDANA, Dalila
Mexico

BABCOCK, Elizabeth
Presenter

ANNEX/ANEXO C

Queen conch working group (QCWG) CFMC/OSPESCA/WECAFC/CRFM/CITES

Report of the first workshop of the Scientific, Statistical and Technical Advisory Group (QC/SSTAG) – *Available in English Only*

23-25 April 2019, Hotel Aloft, Miami, Florida

1. Introduction

This queen conch expert workshop met in Miami following recommendations gathered at the CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group on Queen Conch (QC), held in Panama City, from 30 October – 1 November, 2018, in order to progressively implement the queen conch regional management and conservation plan. This regional plan envisioned the establishment of three subgroups, within the main queen conch working group: the technical advisory, the outreach and education, and the governance sub-groups. The document also outlined the kind of activities each sub-group could address.

In particular, the technical advisory group, coordinated by Martha Prada, has initiated its exchange of communication using online tools, but in depth discussions are expected to take place in this first face-to-face meeting. The CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group on QC recommended several experts names for the composition of this advisory group, however, it will be ultimately the task of the sub-group to make recommendations about its own composition and other rules and protocols. Every recommendation resulted from this technical advisory group will be then shared with the entire CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group for its final approval.

Funding for the coordination and for this workshop have been provided by the Caribbean Fisheries Management Council (CFMC) and FAO/WECAFC (80 percent and 20 percent respectively). However, it is recognized that there is a need for securing additional funding not only to maintain the group actively working, but in addition to be able to complete recommended actions stated in the regional fisheries management and conservation plan.

Initially, the technical advisory sub-group has been asked to discuss and provide recommendations on four main topics, as follow:

a) Improve scientific guidance on regional conversion factors,
b) Provide initial considerations about the basic information for generation of queen conch NDF determination,
c) Identify priority research at the regional level,
d) Define its internal protocols on how it will operate and agree on future steps, at least for its first year of work.

Based on those considerations, the agenda was agreed (Appendix 1), as prepared by the coordinator. She remembered that there have been previous encounters of QC experts aimed to improve collaboration and fisheries management during last decade, which proved relevant in completion of the species regional fisheries management and conservation plan recently adopted. Among them were:

- The collaborative management of the queen conch workshop in the southwestern Caribbean in San Andres Island, Colombia (Jul 2008),
- The technical recommendations gathered from the QC expert meeting in Miami (May 2012),

- The establishment of the CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group on Queen Conch at the 14th session of WECAFC, Panama (Feb 2012),
- The revision of the QC regional plan during the second meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES QC Working Group in Panama (Nov 2014),
- The expert's regional recommendations for better QC management in San Andres Island, Colombia (Mar 2015),
- The establishment of the technical advisory and education and outreach subgroups during the third meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES QC Working Group in Panama (Oct 2018).

This is the reason why the regional fisheries and conservation management of the QC in the Caribbean was built over scientific recommendations. However, technical advice needs to go beyond and develop mechanisms for the plan progressively implementation. In this respect, QC experts recommended to work in the development of one or several proposals aimed to respond to priority recommended actions (see section priority research).

2. Methodology

The meeting took place at the Aloft hotel, Brickell, Miami, from April 23–25, 2019. It was attended by 11 experts, three observers, and three representatives from regional organizations, as presented in Table 1 and Figure 1. The meeting was conducted in English.

FIGURE 1
Queen conch technical advisory group in the Miami 2019 expert workshop

TABLE 1
Participants of the first face to face expert meeting

No.	Category	Last name	Country	Organization	email
1	Expert	Paul Medley	UK	Consultant	paulahmedley@gmail.com
2	Expert	Nelson Ehrhardt	US	Consultant	nehrhardt@rsmas.miami.edu
3	Expert	Alex Tewfik	Belize	Wildlife Conservation Society	atewfik@wcs.org
4	Expert	Mauro Gongora	Belize	Fisheries Department	megongora@hotmail.com
5	Expert	Richard Appeldoorn	Puerto Rico	Consultant	richard.appeldoorn@upr.edu
6	Expert	Renaldi Barnutty	Nicaragua	Fisheries Department (INPESCA)	rbarnutti@inpesca.gob.ni
7	Expert	Stephen Smikle	Jamaica	Fisheries Department	sgsmikle@micaf.gov.jm
8	Expert	Manuel Perez	Nicaragua	OSPESCA	maper59@hotmail.com
9	Expert/ coordinator	Martha Prada	Puerto Rico	Under contract to CFMC	pradamc@gmail.com
10	Observer	Diana Beltran	US	Genetic researcher	dbeltran@uri.edu
11	Observer	Robert Glazer	US	Florida Wildlife Commission	bob.glazer@myfwc.com
12	Observer	Elizabeth Babcock	US	UM- RSMAS	ebabcock@rsmas.miami.edu
13	FAO/ WECAFC	Yvette Diei Ouadi	Barbados	FAO -WECAFC	yvette.dieiouadi@fao.org
14	FAO/Fishries Statistics	Stefania Vannuccini	Roma	FAO- FIAS	Stefania.Vannuccini@fao.org
15	CITES	Daniel Kachelriess	Switzerland	CITES	daniel.kachelriess@un.org

3. Meeting development

Updates from WECAFC

Yvette Diei Ouadi, from WECAFC, mentioned that this meeting is supported by FAO/WECAFC because it was recommended during the third meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES QC Working Group, and it would allow countries to respond to the new recommendations made on conversion factors, which in turn shall have an effect on how they report QC production and exports to FAO and CITES.

The meeting is also important to evaluate the progress of the QC working group in the implementation of the regional management plan, with regard to the technical and statistics guidance. Recommendation from this workshop will be presented at the next 10th session of WECAFC Scientific Advisory Group that would take place in June 2019 (online).

She recalled that in order to have experts frequent interactions, such as one or two face-to-face meetings per year and even more frequent online communications, the group needs to keep a manageable size. For instance, 10 individuals are believed to be a manageable size.

Updates from CITES

Daniel Kachelriess from CITES, acknowledged the closed collaboration CITES have developed in regard to the QC in the Caribbean region, since the species has been listed in CITES Appendix II. In fact, it was one of the first commercial species to be listed under this convention.

He made clear that every QC export would require a NDF (Non-Detriment Finding) and a legal acquisition, however, each country develops their own criteria to base these decisions, with no binding guidance specified in CITES. Thus, expert groups, should develop those guidelines. To counterbalance this situation CITES conducts significant trade reviews, based on databases, if necessary. Conducted twice in the case of QC. He expressed concerns about the use of scientific quotas, and how in the 2018 meeting, CITES remains that every export would require a requires a NDF, thus the concept of scientific quotas does not apply.

CITES is planning a large NDF workshop for plants and animals, similar that the one developed a decade ago in Cancun, with probably a working group on marine species. Thus, the QC is a good candidate for this analysis. Therefore, a small meeting will take place late in 2019 and a larger one in 2020. In addition, CITES is preparing a report on the sea trade.

Despite, there are not binding recommendations for QC international trade in CITES, they have been working to improve an international trade database, and other issues relevant to the species trade sustainability. However, it is recommended in the long term, to have more independent reviews, thus assuring that countries do not have under the same agency the scientific and the management CITES authorities. And so in this sense, countries need additional efforts to improve data collection, particularly if they are exporting. Funding again is playing a role in securing viable strategies for maintain good data collection of conch production and exports. Perhaps, this group can make a recommendation about it.

The group discussed that no-binding regulations is also the case for some regional organizations such as the WECAFC, and given the fact that this organization is currently going through a transformation process, it is unlikely that they adopt a binding measure. If a party is exporting, ii is its responsibility to comply with CITES requirements, including the collection of data.

They also analyzed the need for conducting surveys and be able to estimate proper levels of extraction. However, surveys are usually costly and funding mechanisms need to be in place. Several countries already have allocated budgets for this research, other has created an industry fund, while other exclusively on direct participation of the industry. The group recognized that it is important that management authorities require independence and establishing protocols and funding mechanisms is a task that should be addressed in the short term.

Considering that the queen conch fishery in the region has been usually working based on CITES decisions, which are short term actions in between COPS, for more permanent alternatives a CITES resolution will be needed; and in this process a system for data collection should be in place. At present, there is not time to consider a CITES Resolution for the upcoming 17th COP. Experts recalled that in fact, there is a big problem in data collection not just for expert, but also for production which need to include national consumption and IUU fishing.

Updates from FAO/Fisheries and Aquaculture Statistics (FIAS)

Stefania Vannuccini, from FAO/FIAS, presented an updated summary of the QC production in the region, expressed in nominal catches, a concept of live weight retrievable. In practical terms, the data is the effectively landed amount plus a conversion factor. The FAO database the Strombid products are dominated by the QC, and they utilized three harmonized codes (0307.82 for live or fresh chilled, 0307.75 for frozen, and 0307.88 for other conch species).

These statistics are based on trade or processing plants, and probably underestimates true production, because not all countries inform they level of processing or have in place national (preferred to the regional ones) conversion factors. The data is presenting for 9 countries (Belize, Barbados, Bahamas, Mexico, Dominican Republic, Honduras, Martinique, Nicaragua and Antigua & Barbuda) that participated in the regional conversion factor project lead by Manuel Perez and presented at the second

meeting QC Working Group in 2014. Since then, the database has been completed with information gathered from Anguilla, Antigua and Barbuda, Bahamas, Barbados, Bonaire/St. Eustatius/Saba, Belize, British Virgin Islands, Colombia, Cuba, Curaçao, Dominican Republic, Grenada, Guadaloupe, Honduras, Martinica, Mexico,Netherlands Antilles, Nicaragua, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent/Grenadines, Sint Maarten, Turks and Caicos Is. And US Virgin Islands.

In summary, the data indicated that Nicaragua is the country with the highest production, followed by Mexico, Jamaica, Bahamas and Belize. However, experts noted that in general, it appears that there are anomalous trends (all countries resent similar variations) and indicated that perhaps the inclusion of the shell may lead to huge mistakes. For instance, in Jamaica the QC local consumption significantly increased, so they will close the fishery for one year in order to get better estimations. In other case, Bahamas reports are likely to represent only 30 percent since it is believed that around 70 percent is consumed locally. Given the complexity of this fishery, there are not comparable trade and production databases. Again, it urges to apply conversion factors for better data and understanding of real patterns.

In addition, it was noted that in the regional analysis of the conversion factors (dirty weight to live weight) three countries (Mexico, Belize, Barbados), out of the nine countries analyzed, were clearly separated of the general trend identified for the other six.

In terms of attending the new QC working group recommendation to report without the conch shell, it would make difficult to compare with historical FAO data. However, experts discussed that shell weight in most cases cannot be measured, thus it is advice that for consistency, we need to focus of meat conversion factors and for now use one global value for the conch shell, thus reducing noise in the data. In this way, countries are invited to update their conversion factor to the processing degree in trade, that can be back-calculated to 100 percent dirty meat. A first approximation of an updated regional conversion factor may result from re-analyzing existing data, for a proposal should be presented by some of the experts in the meeting.

Processing grades

Manuel Perez presented on processing grades in queen conch. As background information he mentioned that the level of processing varies and depends on the marketing system and destination (export versus domestic market) or cultural preferences. Also, in some cases the animal is landed whole in the shell but usually the conch meat is extracted at sea (some processing at sea). Within the commercial sector specific terms are used to describe different processing grades. Each country has its own standardized processing grades, but usually varying from dirty (meat without shell) to 50, 65, 75, 85, 90 to 100 percent cleaned. The terminology used is not yet standardized throughout the region and within the seafood industry. Nominal weight, dirty and 100 percent clean are comparable in OSPESCA countries.

The expert presented a table showing the different processing grades and how the conch is reported in landings in many Caribbean countries. The table confirmed and showed there are different processing grades with different meaning in some cases, e.g. in Antigua and Barbuda what is reported as “dirty” meat is equivalent to 50 percent clean meat in other countries. The description of processing grades, therefore should be clearly described.

As recommendations, Mr Perez indicated the need to report/update on how the queen conch is landed and the current processing grades in the industry clearly described. At least, the most important grades and descriptions should be for nominal, dirty (without shell) and marketing grade (export or local). Also, all landings/export/local market units should be clearly defined as in many cases landings or exports are reported in meat weight but without any description of the processing grade. As final questions for discussion, he asked whether the standardization of processing grades terminology throughout the region is possible and whether is it worth considering that standard levels of processing could be defined in regulations and enforced.

Conversion factors

Nelson Ehrhardt talked about the conversion factors, the yield estimations based on population densities, and from landings. Highlighted that conversion factors should be comparable among countries for more accurate and precise information. Thus, providing high quality data for reports and stock assessments. However, it is important to consider the species differences in morphometry.

He recognized the importance of determine exploitation reference points for annual quotas, and adopt simultaneous conservation programs. Considering that meat processing grades can be defined as chaotic, and that conch size varies in a non-linear relationship, it would be difficult to estimate mean values for conversion factors, and so available statistics are uncertain. With the shell inclusion, the uncertainty will certainly increase, because the shell volume can be added with growth (non-linear) but not necessarily to the cavity. In addition, micro or small predators that dead shells attract can affect the shells, especially in those area where they accumulate when left at sea.

The problem is to have good estimates of size frequency or maturity from pieces of meat landed, thus there is need to assess population densities, in order to assess the stock densities in each fishing ground, and in this way be able to transfer dirty conch to number of individuals. Stock assessment based on conch population density will be also informative of the mating success, and allow for determination of reproduction success and recruitment to the fishing production. The inclusion of low and high densities need to be integrated into the survey design, thus counteracting for the low data situation.

The elaboration of proper NDF (Non-Detriment Findings) relies on the countries possibilities to conduct their fishery independent analysis, accounting for those cases when fishing effort is targeting conch aggregations. In addition, they need to improve their landings reports. Thus, definition and improvement in conversion factors is crucial.

Shell weight estimations is difficult to be properly calculated, so it is good to have an overall conversion factor for the shell estimate, but this factor should integrate conch variations in size.

The case of the QC conversion factors and fisheries in Belize

Mauro Gongora presented the evolution of the QC fisheries management in Belize. Mentioned the report landings at 85 percent clean as has specifically defined in the conch regulations. However, this 85 percent clean is a processing degree not included in the regional conversion factors recommendations. Belize has calculated they national conversion factor in 2014 (7.1 to live weight) with 400 sample size.

In response to the CITES recommendation to include the conversion factors their certificates, would demand the impression of new certificates in 2019, using new serial numbers. They will not include the shell weight as agreed in the last Panama meeting.

However, it is important to remember that the dirty meat recommendation is not in the documentation to be presented at the upcoming CITES COP, and maybe it won't be ready either for the WECAFC COP. To move forward and fast, a consultancy from this group can be developed to attend the issue of additional conversion factors. In this work, the situation of having three countries deviating from the mean can be also analyzed. Thus, a proposal for further work based on re-analysis of existing data was agreed.

The case of the QC conversion factors and fisheries in Jamaica

Stephen Smikle from Jamaica, presented that their national QC fishery management plan stipulates the development of surveys every three years to estimate the size of the conch population on the Pedro Bank, and from this the standing exploitable biomass, and the National Total Allowable Catch (NTAC), based on a decision rule.

These surveys have been conducted since 1995, when five processing grades were stipulated. They sample in three depth zones and a total of 81 stations. Areas up to 40 ft are mostly fished by artisanal fishers, while from 60 ft and beyond 100 ft are preferred by industrial ones.

From the 2018 survey it was found that the mean exploitable biomass was on average 9 276.787 mt, a drastic decline from the 28 020.007 mt estimated in 2015 (the highest density in 20 years). It was also found that there were many more areas on the Pedro Bank where were no conch found or that density was lower than the minimum limit of 100 ind/ha established by the international scientific community as required for conch to reproduce sustainably.

Given these observations it is highly likely that the true mean exploitable biomass is closer to the lower confidence level of 3 561.079 mt. As such the risk is extremely high that any continued commercial fishing for conch on the Pedro Bank will result in the collapse of the fishery. This Division has explored three policy options, and recommended closed the fishery for 1–2 years as the best option available. Several recommendations were also made, including the conduction of partial surveys to determine the soonest possible time for reopening of the QC fishery.

The distribution of the density was the reason for recommending the closure of the fishery, few sites with really high density (spawning aggregation) and low values in most places. They were worry about recruitment failure because fishing is taken place in discrete areas, looking at reduce time and area coverage.

The 2018 survey, also showed changes in the conch size, when they observed that after maturity, the shell in Pedro Bank was thick and the meat smaller. The adult conch and late juveniles exhibit porous and thick shells, thus, additional monitoring to study this situation is envisioned to see what is going on the conch population. For instance, the are looking at recovery conch density up to 150 ind/ha, conduct more work on spawning aggregation, and thinking in permanent areas for closure, especially those with high juvenile density.

Currently, their conch is exported at the 50 percent clean, but little variations are seen in domestic consumption. Imbedded in the legislation is the 50 percent for establish QC quotas, thus maybe difficult to change this grade. The values for conversion factors have not been updated, and a plan to update the information for the conversion factors is being developed. Since 2011, 500 mt of conch fillets are set for export (99 percent to EU), but the local consumption is on the rising, and unfortunately they do not have this data. So they are considering to increase the 20 mt allocated for national consumption, perhaps up to 100 mt.

Additional research is needed to determine the impacts from hurricanes on juvenile, believed to be a serious problem, four hurricanes crossed Pedro bank from 2004 to 2006. The group mentioned how in Florida, this recovery maybe takes two years.

The case of the QC conversion factors and fisheries in Nicaragua

Reinaldi Barnutty presented the information on Nicaragua QC conversion factors. He mentioned they have 4 processing grades (100 percent dirty, 50 percent clean, 98 percent clean and 100 percent clean). They also trade trimmings and operculum resulting from QC processing, and some shells.

In Nicaragua there are 7 conversion factors obtained from data collected in 2005 and 2006. In addition, in 2007, they participated in the FAO regional project to estimate conversion factors that include the nominal weight.

Conch fishery begin to increase since 2005, to maximum of 9.9 million of ton (nominal weight) in 2017. High production values have been stable in the past five years, probably because of the expansion of

fishing areas granted to Nicaragua by the International Court of Justice. They also conduct QC surveys to estimate the resource abundance.

It is believed that around 20 percent of landed QC is not registered in the total catch, with another 5percent for family consumption, and 12 percent in local trade. In the new law 489/2005 clearly defined that the Instituto Nicaragüense de Pesca y la Acuicultura (INPESCA) is the fishing authority and so they will establish conch regulations. They declared a four months closed season (June 1 to September 30), a minimum size of 200 mm total shell length, and 9.5 mm of lip thickness. Conch export quota has been set at 1 500.000 pounds 100 percent clean meat since 2012.

The case of the QC conversion factors and fisheries in Bahamas

Paul Medley informed about the big concern in the QC fishery there, and so currently are revising their harvest strategy, but need to confront the incomplete database on landings (it not includes local consumption). Severe decline in CPUE have been experienced since 2012.

From 20 years of visual surveys (Stoner *et al.,* 2018), it is clear that:

- mature density negatively correlated with fishing pressure index (FP),
- mean shell length no correlates with FP,
- mean lip-thickness negatively correlated with FP,
- densities declined significantly over 22 years in a large no-take fishery reserve,
- juveniles rather than mature conch declined in no-take area, with little or no recruitment,
- in main fishing grounds, densities of adult conch are now below that needed for successful mating and reproduction.

QC populations in the Bahamas have undergone serial depletion, and so a wide range of recommendations are being proposed aimed at stock recovery including a broader network of no-take reserves, the landing of the shell, 13 mm lip thickness, the ban of scuba & hookah, a quota for recreational fishing (6 conch/vessel), and ending exports in 2021.

The case of the QC conversion factors and fisheries in Turks and Caicos Islands (TCI)

Paul Medley also presented the case for TCI, an area biogeographically part of the Bahamas, but separated and much smaller area (6 500 km^2 vs 136 000 km^2 <10 m deep), and surprisingly with similar landings 2 500 mt in TCI versus 2 696 mt in the Bahamas (mentioned this make no sense). Local consumption there also appears to be increasing.

TCI differs from the Bahamas because compressed air not allowed, has a closed season, have landings data from 1901 to 2019, with all exports recorded, and partial local consumption, two surveys bank-wide in 2000 and 2015, with sporadic biological sampling at landing sites. In general, fishery dependent information in TCI good, but fishery independent information poor.

Two depletion/recovery, one in 1985 due to gear improvements, followed by recovery due to fishers going to Freeport for construction work. The second in 2012 due to increase in CPUE, followed by rapid decline. To counter balance, they reduced by 50 percent export quota and returned to “normal” levels CPUE again. Reasons for the 2009-2012 decline in CPUE remains unknown, but not reflected in landings data, but perhaps due to hurricane Hanna/Ike 2008, increase in IUU fishing, increase local consumption, more research is needed for better understanding.

For stock assessment, a new version of production model JABA was utilized in an attempt to estimate unrecorded mortality, change in catchability, random effect on the population size. “Serial depletion” is not evident in TCI Bank, which seems relatively very productive compared to the rest of the Bahamas.

The group commented about the role in reduction of conch predators can be playing in the conch recovery, that can influence why the model is lacking ability to predict abundance trends. They recall the need to be careful when using models, and so considered that catch should be dirty meat, that conch sizes are needed to determine better production data, and that reproduction needs to be successful.

Summary of Glover's Reef conch fishery

Alexander Tewfik (coauthors Elizabeth Babcock, Janet Gibson and Richard Appeldoorn) presented the general conclusion of long-term analysis, and mentioned how shell length (SL), currently used to limit individual harvest in Belize is not a good proxy for determining maturity, as SL growth ceases before an individual conch is mature. This research and others have found that lip thickness is the best proxy for maturity. Thus, there is a need to refine the size limits (i.e. size at first capture) for conch in Belize.

Ongoing efforts at regional harmonization of conch management have considered switching to a shell lip thickness minimum, because a lip thickness-based limit would be more likely to protect spawners, and our research supports this concept. It should be noted that minimum conch meat mass does not constitute a reliable indicator of individual maturity, and the use of lip-based regulations will remain problematic where shells are not landed, like Belize. Landing conch in the shell will mean that fewer conch can be transported from fishing grounds and fishers will need a higher price to offset decreased yields. Nevertheless, such measures should be considered.

The protection of juvenile conch would allow increased recruitment of mature animals (i.e. higher age at first capture) to the fishery and spawning stock, supporting the reproductive success of the population, if combined with sustainable levels of fishing effort. The continued use of a shell length minimum may lead to recruitment and growth overfishing over time, diminish the economic yield from the fishery and negatively impact thousands of Belizeans dependent on conch resources.

In further support of a switch to lip-thickness limits, we observed a significant decrease in SL of adults and sub-adults (LT≥1mm) in two habitats (PR – patch reefs, SF – sand flats) and both management zones (RZ – replenishment, GUZ – general use) over a 15-year period. These observations were made using the full range of fisheries-independent data collected within SF and PR habitats (2004 – 2018), where conch in PR were consistently larger than those in SF (Figure 8). In addition to natural habitat quality induced differences in growth (e.g. PR vs. SF), may also affect reproduction, the conch fishery at Glover's Atoll may have selectively removed larger SL animals due to the SL based size limit, thus truncating the SL size distribution of non-juveniles.

The predominance of small phenotype adults in populations, which also display low mating frequencies, has previously been associated to selective fishing pressure compounding the density effect on reproduction. Future research in Belize should include movement dynamics of conch in relation to replenishment zone size and spillover as well as the importance of deep-water conch to shallow water recruitment, which is thought to be limited.

The group highlighted the importance of having independent data and discussed the potential reasons for this declining, recommending further studies on conch fecundity, in fishing and not-fishing zones, and additional information of the deep water population with poor data. In other areas, such as Florida, researches have concluded that local recruitment prevails over long-distance connections; and in Jamaica, highly variable conch recruitment despite fairly stable fishing patterns. Therefore, reproduction success patterns and connectivity of larval dispersal effects across the region needs better attention.

Group discussion on minimum data collection

The group of experts, lead by Paul Medley, analyzed the minimum requirements for fisheries managers to meet their obligations, with the following recommendations:

- Fishery-dependent reporting is for scientific and statistics purposes; thus it is of the highest relevance to have conversion factors allowing for population trends analysis.
- All countries should know what the conch catch and efforts are the minimum required estimations. If local consumption is significant, surveys need to be conducted regularly to improve the catch information, and if possible its changes with time. Countries should have their own conversion factors in place.
- A system for registry and licensing fishers should be in place for submission of the data.
- At least one index of abundance needed to determine the sustainability of the fishery or alternative to demonstrate mechanisms in place to promote it. The production performance indicators are dynamic.
- Improvement of the traceability system for QC fishery. Traceability is relevant for food safety and to counteract IUU fishing. For instance, Jamaica has one in place for several years now for the EU markets, and in Belize one shall soon be implemented. Other examples can be seen in Nicaragua in the spiny lobster fishery or the one in Costa Rica one for fish fishery. OSPESCA is developing one for spiny lobster, but still need additional funds and coordination for its implementation. The problem with traceability based on soft money, is that the system collapse once project ended.
- Traceability standardization can heavily increase the cost, thus in the next CITES COP aspects for adaptation of basic definition for standardization will be considered, including lessons from case studies. The use of VMS systems information would help to improve traceability. Additional data can be obtained from processing plants, or vessel registries, but data from artisanal fishing become challenging.
- Reporting from restaurants in Belize proved not as successful as expected for traceability, but probably effective to estimate local consumption. Data on artisanal fisheries demand commitments, and what countries lack.
- Industrial vessels should have a mandatory catch certificates, based on log books and fisheries estimations. Digital reporting is not easy to manage, sophisticate and lots of data to analyze.
- A subregional training workshop looking at harmonize protocols for surveys and further data analysis for determination of catch quotas should be pursued. This kind of event may overcome political limitations, and facilitate identification of potential resources that can be shared.
- Surveys can provide a lot more additional information for fisheries management, supporting data environmental data, including the support for genetic and reproduction movements.
- Pearls trade is difficult to trace and understand, thus poor data is available.
- Experts recognized the need to address other aspects different than the biological aspects, but for now are attending the QC working group recommendations.

Phenotypic and Genomic variation of the Queen Conch (Lobatus gigas) in Puerto Rico

Diana Beltran presented the research that quantified genetic variability in populations of the QC throughout Puerto Rico and evaluated if the presence of the four morpho-types identified by commercial fishermen represented differences in populations, and so deserve independent resource management. 757 specimens were collected across 11 sampling sites. For each specimen, morphometric measurement and tissue samples for genomic analysis were gathered. The genomic data analyzed DNA fragments (over 10k SNPs) from 279 individuals.

Their data indicated that at least one of the morphs (“flin”) is substantially different than the others, differences were found in lip thickness and shell length and in its genetic composition. At small scale (only Puerto Rico), the mixture of the populations was seen across the geography range.

This is the first study in reporting genetic differentiation among QC morphotypes. The "flin" phenotype seems to be not only found in Puerto Rico, but also related to the Samba morph in the Bahamas, Mexico and Cuba. We suggest a follow up study across the wider Caribbean region for revealing and better understanding the genetic differentiation across the region. In addition, the degree of differentiation between the "flin" morph and the so-called samba conch needs to be addressed. To achieve these objectives, we will require a strong collaboration from scientists and resources managers to contribute with conch samples. The support of the University of Rhode Island for the genetic analysis is available, and so emerging enthusiastic networks can be built.

The group discussed how larval dispersal appears to be not that large as previously thought, and that connectivity among areas can be determined by new genetic technologies. In high connectivity sites proportion of genetic diversity is low and the plot of genetic distance vs geographic distance is a constant line, while on low connectivity situation this plot is a line, with the slope meaning the rate of lack of connectivity. In Jamaica, observations in Pedro, appears that some conch has different potential to become stoned (large), perhaps a function of sponges abundances (predation). However, the impact is not uniform across the local populations. Conch appears to have a great genetic plasticity.

Priority research agenda

Yvette Diei Ouadi led a group identification of a research agenda the conch experts considered relevant. Amon them were:

- Compile existing data and re-analyzed for updated recommendation on conversion factors.
- Countries that are conducting surveys need to get together and generate guidelines documents, including sampling design and data analysis. It is important to address the entire dynamics of conch reproduction into the survey design.
- A questionnaire for collecting additional conch information, including local consumption, accounting for increase in tourism and populations would be necessary. FAO can contribute with its experiences on determination about parameters should be factored, reduction in exports, or alternative rebuilding stocks measures. The growth in human population and tourism dynamics need to be better understood.
- Need a compendium of those areas in the region where still more quantitative analysis and better understanding of stocks assessments is needed. It is important, to be sure the minimum points are being considered.
- Studies on conch spawning and spawning aggregation to assist the harmonization of management measure, such as close seasons. This can be extended to improve understand the impact of water temperature change.
- Need for more conch genetics identifying populations including eco-toxicology and their effects on meta-populations. Plastics is a growing concern.
- Psychological research link to compliance of regulation, the increase of stakeholders participation in management are both an innovative topic to determine. Some countries are successfully implemented such techniques.
- Studies on economic and fair trade topics are also needed. Increase in a perceived value of the conch products, and added value products would complement this kind of research.
- Selected countries may need help in term in making a NDF and in understanding questions being asked in proposed regional formats. Very often different national CITES authorities. Useful tide to CITES animal committee with the issues of NDF and the working group.
- Linkages to intercommunicate with other working sub-groups stated in the regional plan.
- Enforcement need to be in place and find mechanisms to access effectively ways to access funds, at national and international level. Need to discuss opportunities.

NDF tables revision

Experts found that the 2014 proposed tables to provide guidelines on a simplify version to generate NDF were too comprehensive, and not much practical, and recommended the use of a flow diagram instead. If so, it would probably demand a different overall approach, and further work. In any case, it would be important to consider a harmonizing of population reference points (i.e.: density or MSY among others).

Additional comments were received regarding the following aspects:

A. General considerations

- It is important to evaluate data quality and availability for the jurisdiction, thus facilitating the scientific authority assessment.
- Degree on dependence on spawning stocks and larval recruitment either to or from the fishery being examined.
- Access to all forms of fishing mortality including estimation on domestic consumption or international poaching.

B. Biological characteristics

- Follow recommendations on minimum population density made by experts in the region, to reduce risks of resource overfishing. Estimations should be done in a proper manner.

C. National status

- Distribution, size/age structure needs to be considered across all viable habitats, which may include current fishing grounds, former fishing grounds, nursery grounds, and spawning grounds. This is critical to correctly evaluate the density threshold, areas that require protection from fishing, correct closed season and the portion of the population under protection in MPA no-take areas.
- The socio-economic impacts need to be considered in a way that protects the needs of local household consumption and tourism and the potential for export and foreign earnings.

D. Queen conch management plans

- Evaluation of measures focused in protection of juvenile conch, secure spawning individuals, and establishment of no-take zones to enhance larval recruitment and promote spillover.
- Robust mechanisms to counteract IUU fishing and compliance with management regulations.
- Application of an adaptive approach to set indicators for determining population status.

E. Queen conch fishing

- Total catches must be detailed by processing grade and harvest areas and reasonable estimates of domestic consumption and illegal harvest must be available. Total export quotas must not exceed the total sustainable catch minus both domestic consumption and illegal harvest.
- Harvest control rules are important for population stability, and so needs to be clearly identified.

F. Monitoring

- Underwater stratified surveys need to be in place, and should include nursery and spawning areas.
- Monitoring of proper fishing-dependent parameters are also needed.

G. Trade data

- Trans-shipments and reprocessing of QC products must be carefully accounted for. The fully standardized and transparent nature of conversion factors is a critical component. A robust traceability system will also support the elimination of illegal trade or exceeding of documented sustainable extractions.

H. Aquaculture

- A robust traceability system will be an absolute requirement is significant aquaculture production for conch were to be established to eliminate illegal and unregulated trade.

Protocol

Conclusions

1. FAO has been working in standardizing the conch production reported data by countries with the use of national and regional conversion factors, to achieve an estimation of a comparable historical data and be able to determine indices of abundances. However, proper conversion factors are difficult to estimate, particularly when the shell weight is included, accounting for a very large proportion of the weight and exhibiting a very large variation through its distribution range. With the new working group recommendation of using a conversion factor to the total weight removed from the shell (i.e. dirty meat) new challenges emerged, not only because the shell weight is a measure that only few countries can conduct, given the fact mostly QC meat fillets are being landed; but also because countries are may utilizing outdated parameters when their conversion factors to the so different meat processing degrees. For this reason, experts recommend that at minimum countries need to report their conch production allowing for back calculating to the so called "dirty weight" and from there to the nominal weight (with the shell weight). The second can be set as a global factor, resulting for re-analysis of existing data, according to statistically tested equality of conversion factors by country groupings and estimate average and standard deviations.
2. In particular, it is recommended that countries define: a) processing degrees in use or degree of cleaning and calculate the proper conversion factor; b) report all landings indicating equivalent units (i.e. x kg of 85 percent clean meat), c) develop a scale of the conversion factor from percent tissue loss for each processing grade they trade; d) Determine the numbers of conch by unit of weight for each processing grade (weight frequencies can also be used), d) convert production (100 percent dirty meat) to nominal weight, if needed, for FAO statistics. Note that processing grade and conversion factors should be reported to CITES and FAO.
3. There is a need to identify the reason (cause) why in the regional analysis of the conversion factors (dirty weight to live weight) three countries (Mexico, Belize, Barbados), out of the nine countries analyzed, were clearly separated of the general trend identified for the other six. In addition, it is necessary to have a complete and clear definition of the various processing grades currently employed of the conch meat by countries and utilized to generate the conversion factors. This will help better understanding of the harmonization process of conversion factors. Ideally, conversion factors should be developed for different processing grades and taking into consideration several criteria such as size, sex, season, and habitat among others. Countries that do not have national conversion factors should give priority to develop their own.
4. Countries should have a mandatory report of their conch production (harvest) and exports, where applicable. This can improve country data quality and introduce estimations of conch local consumption and IUU fishing levels, which appears to be changing with time. Note that harvest reports are different from exports reports.
5. There is need to develop multiple mechanisms to overcome country limitations in conducting conch density surveys in the region. Technical advice on survey design and potential for improve field work collaboration can be provided by the expert sub-group, allowing for harmonization and better understanding of the conch abundances trends.
6. Experts noted that guidance on the management of Queen Conch in the context of CITES has been provided either in the form of recommendations by the Animals Committee in the Review of Significant Trade Process or Decisions adopted by the Conference of the Parties, both of which are time-bound and expire once implemented. The Experts are of the view that a Resolution on Queen Conch under CITES would be helpful to ensure consistency of guidance over time and to make it easier for Parties to find such guidance. Noting that the document

deadline for CITES CoP18 has passed, experts recommend to start the drafting of such a resolution under the auspices of WECAFC with a view to submit the resolution to CITES CoP19, scheduled for 2022. Experts recommend that FAO/WECAFC request the CITES Secretariat to inform Parties about this recommendation through an oral update at the upcoming 18th meeting of the Conference of the Parties. Experts further recommend to seek the CITES Animals Committee's view at its 31st meeting, scheduled for 2020, on possible elements of such a draft resolution.

7. To reduce risks and the impacts associated to uncertainty, fisheries managers often rely on surveys that allow the estimation of population densities as reference points (fishery-independent data), among other factors. Despite the relative slow movement of conch, spatial and temporal variations of the conch distribution and densities by depth or habitat strata are observed in long term monitoring. Therefore, experts recommend that countries need to identify long-term research strategies for conducting such density surveys.
8. As a management priority, countries should also need fishery-dependent data to be analyzed to get information to develop a harvest strategy and closely monitor data quality (good estimations of total production) and fishery trends. Processing grades and conversion factors are critical for proper catch production estimations.
9. Two recent and long-term studies presented in the meeting are providing indications of a decline in shell size (Belize and Jamaica) which still poorly understood, thus offering an opportunity to develop further research addressing the potential causes, including for instance uncertainty in the reproduction success, impacts associated to intense and more frequent hurricanes, changes in water temperature, pollution, or fishing pressure among other topics.
10. Experts recognized that participation in international scientific and management meetings contribute for developing further collaborative efforts in training and research among countries given the transboundary nature of the queen conch stocks, shared larval pools and connections in environmental characteristics. Additional collaboration is also needed, to promote that countries comply with international agreements signed, in particular those addressing IUU fishing.
11. Responding to the QC working group recommendations, this expert sub-group is for now attending to the priority issues identified in the 3d regional QC working group meeting held in November 2018 in Panama related to the biology of conch populations and the effect of exploitation on the sustainability of the resource given data limitations and availability. Nevertheless, it is understood that other social and economic issues also need to be addressed. For this reason, the experts sub-group considers appropriate to invite additional experts to contribute in this area as the scope of discussions expands to data needs and methods required to address social and economic impacts and associated factors related to queen conch governance at larger scale.
12. On data needs, the experts subgroup agreed that, at minimum, more reliable data and information should be available, *inter alia*, total catch, an index of abundance (CPUE, densities), size/sex composition of the landings and fishing fleet composition. Vessel Monitoring Systems (VMS) in place, transparency and traceability were considered useful to assess reliability of the data generated.
13. The experts subgroup agreed to evaluate the NDF forms with an extended time frame (until May 10, 2019) recognizing the complexity of the information is involved. Perhaps an additional online interaction would be needed to address this topic particularly in the case of poor-data quality cases.
14. A recent genetic study has indicated the determination of connectivity patterns in queen conch using microsatellite-based techniques may still overestimate the degree of connectivity and that more accurate determinations will require the use of newer genetic techniques, such as use of Single Nucleotide Polymorphisms (SNPs). Unfortunately, such studies are relatively new and to date have been conducted only within Puerto Rico. With the potential collaboration of the University of Rhode Island, and scientists and fishery offices in the Caribbean region, a

more comprehensive regional study could be conducted, thus ways and strategies for further collaboration are open for future agreements.

15. The group of experts recommended the following initial topics in the development of a research agenda to improve regional queen conch fisheries management and conservation:
    a) Improve understanding of conversion factors by re-analyzing existing data,
    b) Develop guidelines for conch density survey protocols that could then be standardized across the region (with priority given to those countries already conducting surveys),
    c) Review available landings data (including landings for both export and local consumption) and determine minimum data needs for stock assessment using fishery-dependent data,
    d) Survey design(s) that could be used to estimate domestic conch consumption in the countries where it is important and worth to assess,
    e) Update and summarize information on conch population dynamics, including growth, mortality, habitat quality, and develop a conch population dynamics simulation model suitable for use in management strategy evaluations,
    f) Conduct specific research aimed to ncrease our understanding of spawning aggregations and reproduction success, including the effects of climate change,
    g) Determine the degree of conch population connectivity by using proper genetic techniques,
    h) Identify mechanisms (social, cultural, behavioral) that can be used to increase stakeholder buy-in and support for the 3 pillars embedded in the regional plan (Technical & Statistics, Education & Outreach and Governance),
    i) Strengthen the preparation of queen conch NDFs,
    j) Identification of potential mechanisms for improvement of the regulations enforcement strategies and assessment of countries capabilities needed for conch stock recovery.
    k) Increase knowledge and understanding of the queen conch value chain, in particular on conch added-value products (e.g. byproducts of conch meat processing and the use of the shells), to be able to track its trade.
16. As future first steps (next couple of weeks), proposals on how to develop points a) and b) from the priority research list above will be presented to the group coordinator. In addition, this advisory group would work in identifying potential opportunities to address the remaining topics. A suggested viable funding strategy would be to have project proposals presented by FAO/WECAFC to the GEF or other sources of funding.

17. The group of experts agreed to be identified as the **Scientific, Statistical and Technical Advisory Group**. It was also agreed to expand its composition and participation depending on issues and subjects to be addressed. A probable participation of up to 20 people (including permanent and temporal) to mainstream a diversity of expertise to better advise on additional biological, social and economic issues was discussed. It was also agreed the participation of a limited number of observers. Recognizing the restricted funds available, it was also agreed that most communication will continue with the same participants in this Miami meeting using online communication tools, but that a second face-to-face meeting, of up to ten people, would be necessary. It was recognized that the experts in this group participate on a personal voluntary basis, and that they do not represent any country or institution. The official language will mostly be English, but other languages can be used as required. FAO/WECAFC was asked to provide examples of other groups rules and procedures in the region which can guide the further development of this group.

IUU fishing contribution with technical recommendations, ie, genetics, distribution, etc. governance of IUU fishing can b look at and made some recommendations.
WG made recommendations on IUU. Exchange information, registry. Subgropup need to agree in additional task.
MP generate a draft protocol for discussion.

ANNEX D/ANEXO D

Report of the second workshop of the Scientific, Statistical and Technical Advisory Group (QC/SSTAG) – *Available in english only*

25–26 November 2019, Hotel Aloft, Miami, Florida

Introduction

This document constitutes the final report of the second workshop of the Queen Conch Statistical, Scientific and Technical Advisory Group (QC/SSTAG) created in response to the implementation of the QC Regional Fisheries and Conservation Management Plan as agreed in the third meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group on Queen Conch (QC).

The QC/SSTAG first met in Miami, 23–24 April 2019, thanks to the financial support received from the Caribbean Fisheries Management Council (CFMC) and FAO/WECAFC (80 percent and 20 percent, respectively), and it is being coordinated by Martha Prada. Around 10 experts were initially appointed by the QC working Group, but accordingly with their internal protocol, its composition is flexible enough to accommodate additional experts depending on the tasked objectives. Recommendations from its first meeting were presented at the WECAF 17 session of the commission, held in Miami 15–18 July 2019.

The second QC/SSTAG workshop took place also in Miami, 25–26 November 2019 and had a similar financial than the first one. This workshop allowed for active discussions and analysis to attend the objectives received from the QC Working Group, as follows:

a) Improve scientific guidance on regional conversion factors,
b) Provide initial considerations about the basic information needed for generation of queen conch NDF determination,
c) Identify priority research at the regional level.

In this way the workshop agenda (Appendix 1) promoted discussions (Appendix 2) and generated specific recommendations needed to facilitate the implementation of actions contemplated in the QC Regional Fisheries and Conservation Plan.

While face to face meetings of experts can be and are complemented with online communications, it is recognized that there is a need for securing additional funding, not only to maintain the group actively working, but also to develop supporting advice on other management actions and to conduct the priority research being identified.

Workshop participants

The second QC/SSTAG convened a total of 12 experts, with three of them participating using online communication (Figure 1).

No.	Name	Last name	Country	Organization	email
1	Nelson	Ehrhardt	US-Miami	Consultant	nehrhardt@rsmas.miami.edu
2	Alex	Tewfik	Belize	Consultant	tewfikalexander@gmail.com
3	Elizabeth	Babcock	US-Miami	Univ. of Miami	ebabcock@rsmas.miami.edu
4	Mauro	Gongora	Belize	Fisheries Department	megongora@hotmail.com
5	Richard	Appeldoorn	Puerto Rico	Consultant	richard.appeldoorn@upr.edu
6	Manoj	Shivlanim	US-Miami	Consultant	shivlanim@bellsouth.net
7	Diana	Beltran	US-Rhode Island	Genetic researcher	dbeltran@uri.edu
8	Monica	Barone	Roma	FAO- FIAS	Monica.Barone@fao.org
9*	Daniel	Kachelriess	Switzerland	CITES	daniel.kachelriess@un.org
10	Maren	Headley	Barbados	CRFM	maren.headley@crfm.int
11*	Martha	Prada	Puerto Rico	CFMC-coordinator	pradamc@gmail.com
12*	Manuel	Perez	Nicaragua	OSPESCA	maper59@gmail.com
13	Natalia	Perdomo	Puerto Rico	CFMC-logistical support	nataliaperdomo_cfmc@yahoo.com

* = Online participation

FIGURE 1
Participants of the second meeting the QC/SSTAG held in Miami, 25–26 November 2019

Updates from WECAFC 17 and CFMC 10th regular meeting (Martha Prada)

After welcoming participants, Martha Prada communicated to the group that recommendations generated during this second expert encounter will be presented at the fourth meeting of the QC Working Group, to be held in San Juan, 15–16 December 2019, and so encourage the group to engage in fruitful discussions and generate specific technical recommendations.

She reported that the main four recommendations on Conversion Factors (CF) generated during the first meeting of the QC/SSTAG were presented at the WECAFC 17 meeting, which took place 15–18 July 2019, in Miami. Those recommendations tackled the need for better country reports on their annual

landings using proper CF that would allow back calculations of the animal weight, without the shell (dirty meat), for the various processing states, and the description of how they define as each processing grade used in trade. In addition, data reported also need to be presented in a way that the number of individuals harvested can be determined, in order to support stock assessments.

During this meeting, the Commission also recommended that the QC/SSTAG address complementarily issues in the queen conch fisheries, such as impacts from climate change, studies on the marine pollution, and inclusion of more information on socio-economic aspects, all consistent with an ecosystem approach to fisheries.

The work done by the QC/SSTAG was also presented at the 166th regular CFMC meeting, held in St. Croix, 20–21 August 2019. Council members did not have any additional comments.

Updates from CITES CoP18 decisions on queen conch and some other relevant developments (Daniel Kachelriess)

The group was informed that the CITES CoP18 (Geneva, 17-28 August 2019) adopted a new set of decisions on Queen Conch, that took into account the revisions made by the QC/SSTAG at its first meeting as presented by Mauro Gongora. These are Decisions 18.275-18.280 and can be found in the CITES Web page (D:/Data/CFMC/2 percent20expert percent20meeting/E-CoP18-085.pdf).

The decisions included an instruction to the CITES Secretariat to continue its collaboration with FAO and the members of the QCWG, including, subject to external funding, support to range States in implementing the Regional Queen Conch Management Plan, in particular making Non-Detriment Findings (NDF), and provide assistance to range States on relevant enforcement issues.

CITES CoP18 also agreed on a broad work program on Non-detriment findings that one or several workshops to improve guidance on NDFs will be organized between CoP18 and Cop19.

The QC/SSTAG should discuss whether or not to recommend to the QCWG the development of a resolution under CITES on queen conch.

Improving understanding of queen conch conversion factors by reanalyzing existing data (Nelson Ehrhardt and Manuel Perez)

Regarding queen conch Conversion Factors from clean meat landing categories, in 2019 CFMC funded a consultancy aimed to: a) statistically review existing data used in CF estimations for live weight and assess adequacy of the data for estimating new CF ("dirty" meat weight from different processing grades use in trade); b) examine the effects of "dirty weight" on percent clean meat weights to elucidate the statistical validity of using such data under potential QC morphometric effects; c) to provide new CF to "dirty weight" from various percent processing weights reported by the countries; and d) to estimate a regional average CF for the purpose of reconstructing FAO fishery statistics from average "dirty" weight statistics to live weight (i.e. dirty weight + shell weight). The QC/SSTAG noted the final report submitted by the consultants (Nelson Ehrhardt and Manuel Perez) and accepted the results presented and discussed at this meeting.

Covariance and regression comparisons analyzed phenotype (morphometric measures) between various processing levels (i.e. 50 percent clean meat, 85 percent clean meat, 100 percent clean meat) and dirty weight, as well as live weight (animal with the shell) and dirty weight. Variations in the slope of this relationship characterized differences in morphometric growth, while differences in the intercept portrayed the degree of weight reduction due to processing.

CF were then estimated taking into consideration these regressions of the different percent clean meat and the average dirty meat category, as follows:

50% clean to dirty weight	CF 95% Confidence interval		
Country	**Average CF**	**Lower**	**Upper**
Martinique	1.53	1.33	1.80
Bahamas	2.05	1.78	2.43
Nicaragua	1.86	1.78	1.96
Dominican Republic	1.69	N.A.	N.A.

85% clean to dirty weight	CF 95% Confidence interval		
Country	**Average CF**	**Lower**	**Upper**
Barbados	1.86	1.42	2.69
Honduras	2.41	2.17	2.73
Dominican Republic	2.11	N.A.	N.A.

100% clean to dirty weight	CF 95% Confidence interval		
Country	**Average CF**	**Lower**	**Upper**
Honduras	2.73	2.46	3.05
Bahamas	2.76	2.37	3.30
Nicaragua	3.06	2.84	3.31
Martinique	2.66	2.30	3.15
Dominican Republic	3.19	N.A.	N.A.

Dirty weight to whole weight	CF 95% Confidence interval		
Country	**Average CF**	**Lower**	**Upper**
Nicaragua	2.73	2.46	3.05
Honduras	2.76	2.37	3.30
Bahamas	3.06	2.84	3.31
Average	5.36	4.69	6.26
Dominican Republic	3.89	Samples with sub-adults only	

The ANCOVA results showed that stocks in Nicaragua, Honduras, the Bahamas, Barbados, and Martinique have statistically similar slopes, implying that linear regressions fitted to dirty weight on shell weight are parallel lines. To the contrary, the large dispersion of dirty weight about regression on live weight generated a low degree of association between the variables, which is indicative that queen conch shell weight is not a good predictor of flesh weight. Therefore, differences in dirty weight-to-whole weight suggest an average regional CF at the live weight level may be lacking precision regarding reconstruction of total catch in live weight for FAO landing statistical purposes. In depth results from this work can be obtained from the CFMC and FAO/WECAFC Secretariat. For the purposes of CITES tracking of harvest in the context of export permits and associated country quotas for long-term sustainability, CF from dirty (uncleaned, soft-tissue) to the most common processed forms of conch meats (i.e. 65, 85, 100 percent clean) are the most important. Such conversions are also useful to associate total abundance and biomass from surveys to the recommended 8 percent, or less, harvest levels. Finally, CF may also be useful in determining whether mean meat weights used in various production models are reasonable.

Data from two important QC producing countries, Mexico and Belize, were not validated, and thus not utilized in the analysis. For that, Alex Tewfik mentioned that in a recent research project conducted on Glovers Reef, Belize, information for around 500 individuals could be used for this analysis, and so he offered to help in getting access to this dataset. In addition, Mauro Gongora, from Belize Fisheries Department, mentioned they will have additional data collected in 2019, that can be also utilized for this purpose. On the other hand, data received from the Dominican Republic, contained only small

individuals (juveniles), and the sample size was also small, thus while illustrative, it was recommended that to be comparable with other countries, larger individuals need to be collected. It was not possible to have access to raw data collected from Antigua and Barbuda.[1]

The group discussed that variability in CF is going to be related to the sample size, size range, and sex information and the habitat where the animal was collected, data that is not regularly collected when taking field information. They mentioned also the limitations resulting from collecting data from one or two locations versus from several places, which can better characterize a country's variability. To the contrary, available data contained very little information on the locations from where samples were collected. In cases where data came from pre-processed conchs (usually in the industrial fishery) the possibility to introduce noise in the statistical analysis is higher.

QC/SSTAG Recommendations:

1. The new CF for estimating dirty weight from percent clean meat categories have to be reported by countries using CF estimated at country level, and it is recommended that countries use this new CF to report landings data as dirty weight. It is also recommended that countries use the specific CF value or the average for countries that do not have this CF.
2. It is recommended that countries that still do not have CF take the appropriate data and submitted these to the QC/SSTAG for the evaluation of the methodology and for the CF estimation.
3. CF should be re-assessed periodically. An elapsed time between 4 to 5 years is recommended between CF re-assessments, giving attention to fishery expansions that may increase rapidly and effecting the size structures in the stocks. Such data collections could also be useful in providing samples for additional studies, such as genetic connectivity or the use of depletion models based on shell weights.
4. Sample sizes for CF estimation should be between 300 and 400 individuals. Samples should contain the whole range of sizes observed in the areas fished, or at least observed in the landings. Additional information on location is needed, and information on sex and habitat information will be useful. Technical guidance for collecting data on CF can be included in the updating of the existing manual for queen conch surveys.

Conclusion and recommendations to the QC Working Group. FAO perspectives and additional support. Recommendations for the QC Working Group (Monica Barone)

From FAO's perspective, it is essential to have QC landings data expressed on live-weight to allow comparison among/within countries and obtain consistent studies on national and regional trends. When submitting annual landings to FAO, countries and territories are being requested to report as soon as possible complete with their processing grade(s), or provide the whole historical data series on queen conch catch in live weight according either to their national or the regionally agreed conversion factors.

In this sense, there is a need to determine how to revise the FAO Statistics once new recommended CF are applied, and how to reduce uncertainty of terminology, and methodologies of processing grades, given the country variability or lack of information either on CF and the processing grade utilized.

The new CF from dirty weight to live weight, implies that currently each country needs to solve the conversion from different processing grades to dirty weight. The average/regional CF (5.36) is currently estimated and available only for the CF from dirty weight to live weight. Moreover, there is more interest, in view to obtain a stand and evaluation of the catch for stock assessment purposes, to promote the CF estimated at National level.

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[1] Used in the published work of Horsford *et al.* (2011): The Morphology of the Queen Conch (*Strombus gigas*) from the Antigua and Barbuda Shelf – Implications for Fisheries Management. Proceedings of the 64th Gulf and Caribbean Fisheries Institute October 31 - November 5, 2011, Puerto Morelos, Mexico.

She reported on the main implications on the FAO statistics in the application of the new CF. She presented the list of countries who reported official capture production data to FAO, divided in three groups, depending on the status/declaration of the CF: Countries declaring both the processing grade and the National CF, which were 12 for 2017 statistics, accounting for the 66 percent of the total reported capture production of QC; Countries declaring processing grade and applying the regionally agreed CF. In 2017, the nine countries being part of this group accounted for 26 percent of the total reported capture production of QC. The third group of countries is represented by nine countries not declaring neither CF nor processing grades, and accounting for 8 percent of the total capture production of QC reported to FAO. FAO is transparent in reporting data and CF applied is made available as metadata in the FishStatJ software.

There is a need to determine how to revise the FAO Statistics once new recommended CF are applied, and how to reduce uncertainty of terminology, and methodologies of processing grades, given the country variability or lack of information either on CF or the processing grade utilized.

In addition to all the difficulties mentioned in existing FAO database, Alex Tewfik mentioned that this information also contains huge gaps, because countries are not reporting local conch consumption, which for some countries can be as high as 60 percent of the total landings. This is a critical issue that need to be addressed.

Monica Barone also talked about the need for having indicators demonstrating the implementation of the QC regional plan of action, (e.g. percentage of countries declaring CF and detailed information on processing grade; countries having management measures in place for QG; etc.). Maren Hedley then mentioned that through the CMLE+ project and its Strategic Action Plan there are around four indicators in strategy 4B for enhance governance in the queen conch fisheries that can be look at, and so shared a document containing this information with the group.

Another aspect to consider is that under CITES, Parties need to report on their annual international trade which is recorded in the CITES trade database. Within that database, there is no field allocated for the reporting of conversion factors and it is unlikely that such a field could be created easily, meaning that information on conversion factors submitted by CITES Parties in their annual reports would currently not be reflected. Reflecting on the goal to have comparable data between countries and databases, the group discussed that one solution may be to ask UNEP-WCMC, the service provider that maintains the CITES trade database, to apply the conversion factors reported by Parties to convert the trade data to a commonly agreed processing grade before entering the data into the trade database. Daniel Kachelriess confirmed that this would be a possibility and that there are precedents for such an instruction. Due to the fact that the definition of 100 percent clean queen conch meat varies among the countries, the group discussed that a possible standard for CITES export transactions could be the dirty weight. This would require that Parties in their annual CITES trade report provide the relevant conversion factor for their exports to be converted from the various processing grades to dirty weight. In summary, the group discussed that countries should be requested to provide their CITES trade data on QC in dirty weight, or provide conversion factors that allow calculation into dirty weight, and a CF to live weight (or using regional CF only from dirty to live weight). The group discussed that this type of instruction could be included in a QC resolution under CITES.

QC/SSTAG Recommendations:

1. Further investigate differences in the terminology of conversion factors across countries to validate the national and regional CF for the various processing grades, helping to understand and improve the quality of the FAO production and CITES trade databases.
2. Continue the discussion on CF and the need to use new standards (i.e., dirty meat weight), identifying which criteria would be applied in the future and the importance of countries in obtaining good national CF, in response to the species's variability in growth parameters and processing grades across its distribution.

Regional training workshop on queen conch population assessment in the Caribbean (Elizabeth Babcock)

She presented results from the training on queen conch population assessments workshop held in Belize 30 July – 1 August 2019, with financial support of the WECAFC Secretariat. Representatives from countries conducting surveys were invited, including Jamaica, Nicaragua, Colombia, the Bahamas, Honduras and Belize (Figure 2).

The workshop aimed to analyze field protocols for QC density surveys and how the data is used to determine nations' annual quotas. They discussed how to harmonize field and data analysis protocols, so that some recommendation can be applied across the Caribbean. In addition, they explored the potential use of fishery dependent data to develop regional indices of QC abundance and patterns so that existing data can be better integrated into estimation of Total Allowable Catch (TAC) and NDF determinations.

FIGURE 2
Group picture of workshop on queen conch population assessments workshop held in Belize, 2019

Surveys vary in the depth of surveyed sites, the length of the transects, and other details considered in the survey design. In Jamaica (Pedro Bank) a standard stratified random design is used to estimate total biomass; the potential quota is then calculated with an 8 percent control rule, then reduced by precautionary rules to accommodate uncertainty. Belize captures mostly sub-adults in relative shallow waters; they conduct surveys to estimate total fishable biomass and apply an equilibrium production model method (assuming equilibrium and requiring an accurate estimate of natural mortality) to estimate maximum sustainable yield (MSY) which is used to set their annual quotas. In Nicaragua, the fishery is in deep water and the survey is done on the fishing grounds with a stratified random design. The survey is not the only source of information to determine their quota. In Colombia, the fishery is small and artisanal, and they no longer export QC; however, the TAC is set based on a control rule. The Bahamas has a mostly shallow water fishery covering many fishing grounds over a large area and the survey samples different areas every year. Thus, the survey is not used to set quotas. In Honduras, the fishery is also comprised of adults in deep water, and surveys are not used to estimate export quotas, which are the same every year (not adjusted for the survey estimate of biomass).

The group concluded that standardizing methods in a short meeting was not achievable, and perhaps there is more opportunity for standardization in the way surveys are reported. For instance, countries should report the total area surveyed, and how the surveyed area was defined (e.g. conch spawning areas, regions of potential conch habitat, etc.) and when the survey is conducted with respect to reproductive seasons. Sample size tends to be small so it is important to calculate the power and necessary sample

size to calculate biomasses with the necessary precision to inform quotas. Some questions to consider in the sampling design were analyzed, including changing in the protocols to be more effective when resources are limited.

The group discussed the use of both fishery-independent and fishery-dependent data for setting quotas. They noted that different countries may need to use different methods depending on, for example, how complete their catch data sets are, whether IUU fishing is a problem, and what kinds of data are available. Whatever methods are used to assess population status and set quotas, it is important that countries report the proportion of biomass that is harvested every year (i.e. harvest rate = catch/ biomass) to make sure that the harvest rate is below the recommended 8 percent limit by the QC Working Group in 2012.

For setting quotas many data limited methods are available (more than 120 methods are available, for example in the DLM tools R library by Carruthers *et al.,* 2018[2]) and some of these may be viable for management of QC in some countries. These methods are powerful, but they have been designed for fish with different growth and some may not work for conch having 2-phase growth. The inclusion of the Allee effects would require extra work to be integrated into these models. Management strategy evaluations should be used to test these methods before applying them.

The use of non-equilibrium surplus production models fitted to time series of abundance is an alternative for assessment and setting quotas, which requires complete annual catch data along with an index of abundance. This may be viable in some countries, especially if information on life history and conch habitat were used to improve the estimates of the population growth rate (r) and carrying capacity (K) parameters. On the other hand, the length-based methods are not recommended for this species with 2-phase growth (use across the fishery, it would assume a low degree of habitat-based growth variability) with the exception of those areas where sub-adults are targeted. Perhaps weight converted catch curves may be effective (See Valle and Ehrhardt QC manual).

In depth information on the Belize City meeting is available in the technical report along with additional tutorials and other documentation.

The group discussed whether stock assessments are necessary for making an NDF. It seems that if a sustainable fishery management plan is in place, this could be the basis for NDF. In this sense, less data intensive methods may also be sufficient for an NDF. Many assessment methods depend on adequate catch data, which may not be available given the large amount of IUU fishing for QC, and domestic use of QC in some countries. Statistical good design population surveys can be a sound basis for tracking abundance and setting quotas, even in the absence of adequate catch data, but they are expensive. There is a need to recover the cost of surveys from the fisheries. Indicator-based methods are useful because they start with current conditions and do not require historical data.

Given the uncertainty in whether QC occurring below fishing depths are a source of recruitment into the fisheries, there is a need to survey deep water areas in some countries.

Surveying in deeper areas is challenging, and available methods may vary within certain depth ranges. Using Nitrox, 30–40 m is still within the limits of diving, but it is not recommended to dive deeper than that. In deeper waters, ROVs may be needed, although video data may not be as accurate as diver counts. In shallow waters, millions of empty shells are left behind from the fisheries, and it may be difficult to differentiate shells from life conchs by using remote sensing technologies. This may be less of problem in waters below fishing depths or in sandy habitats where within six months dead shells will probably be covered by sand, according to Richard Appeldoorn's experience in Puerto Rico. Live conch may also avoid areas with large amounts of empty shells at least temporarily.

[2] Carruthers, T.R. & A.R. Hordyk. 2018. The Data-Limited Methods Toolkit (DLMtool): An R package for informing management of data-limited populations. Methods in Ecology and Evolution 9:2388-2395.

Destruction of juvenile-habitat by deposition of empty shells in the search for queen conch pearls is another phenomenon that needs to be considered. In Belize for instance, a significant number of empty legal size conch shells (sub-adults) are found in nursery grounds, although recruitment in the past 19 years is consistent.

QC/SSTAG Recommendations

1. Promote harmonization in reporting on the fraction harvested and conch population abundance indices from QC surveys, thus facilitating the determination of the national stock status.
2. Develop guidelines for conch density survey protocols that could then be standardized across the region (with priority given to those countries already conducting surveys), that include information on the habitat type, depth, size/age classes.
3. Filling data gaps including the identification of sink and source locations, spawning grounds, and a genetic study to determine connectivity, and traceability should be a priority.
4. Evaluating the presence and reliability of existing data by country. Perhaps a proposal, at the subregional level, can be developed. FishPath (fishpath.org) is a useful tool for evaluating data availability, capacity and fishery characteristics to determine which assessment and management strategies are feasible.
5. Habitat and environmental conditions need to be considered in surveys and assessment. The distribution of density is important and may change with climate change. Providing maps that visualize spatial distributions of QC density across each nation's fishing grounds over time is important to understand changes in population dynamics and fisheries.
6. Private sector (industry) can generate transparent mechanisms for conducting QC surveys. In addition, collaboration with other sectors is essential for more efficient way to perform field work.

Proposed manual updates and strategies for improvement methods to estimate annual extraction quota. Ad-hoc stock assessment expert group (Nelson Ehrhardt and Elizabeth Babcock)

The available stock assessment manual developed by Ehrhardt and Valle in 2008 and published by CFMC needs to be updated to integrate all the new agreements and requirements, in fulfilling the objectives as CITES Appendix II listed species. The establishment of harvest quota needs to integrate the international trade (export) and the local consumption, and there is a need to consider that not all Caribbean countries and Overseas Territories are Parties to this Convention. CITES specify that Parties are responsible for the enforcement of the species regulations, and so they must determine the export quotas that are not detrimental to the species based on what they consider an appropriate sustainability criterion. In this framework, that is important to be able to provide technical support to countries in properly determining their annual quotas, based on minimum sustainability criteria, for instance, the 56 ind/ha in spawning grounds, which may vary depending on the habitat type. The Review of Significant Trade is a process through which the CITES can review the national process and can also provide technical guidance to the Convention Parties.

Mauro Gongora mentioned that in Belize they use several indicators to determine how the conch population is performing, and they consider this adaptive management strategy based on past performance is functioning well. He mentioned that they are happy to adapt it with other criteria applicable sustainability criteria. The Group suggested a review of such indicators to seek validation and potential application of the Belize experience.

Estimation of conch density needs to be related to the extent of the fishing ground in the process of estimating the conch quota. There is a need to understand the real scale of population connectivity to determine the degree of local and regional dynamics. VMS data may provide interesting data to understand the extend and variations in fishing areas. Thematic habitat maps can help in understand these processes.

The group agreed that total annual quotas should be based on formally defined sustainability criteria, and recommend that such criteria be studied, assessed, and integrated to the non-detrimental catch estimation methods that should be included in the updated stock assessment manual. The QC Working Group already had adopted the recommendation of 100 individual conch per hectare on spawning grounds as a sustainability criterion. However, the update of this manual is a good opportunity to develop cost efficient guidance to countries facilitating implementation of better sustainability criteria in setting up their national and export quotas.

QC/SSTAG Recommendations:

1. Update methods in the existing queen conch stock assessment manual and address issues related to the establishment of sustainability criteria when defining production and export quotas (i.e., adult density, 8 percent or less of exploitable standing biomass).
2. Implement a stock assessment software that is as simple as possible to more effectively promote the use of the recommended methods.
3. Address online training regarding the stock assessment methods and quota estimation algorithms to reduce the cost of having broad participation of key fisheries officers across the Caribbean.

Proposal for studies on QC genetic connectivity (Diana Beltran)

Diana Beltrán described the work done in Puerto Rico using genome wide variation across four queen conch morphotypes identified by local fishermen. She found differences among morphotypes using Single-Nucleotide Polymorphism (SNP's) and test if phenotypic differences between conch morphs are associated with genomic variation. To better understand the quantitative differences among morphotypes, she measured lip thickness and shell length for each individual across 757 conchs. She found lip thickness differentiation among four morphotypes ($p = 2e\text{-}16$; $p < 0.05$). Similarly, shell length varied across morphotypes ($p = 2e\text{-}16$; $p < 0.05$), with the Flin phenotype being the smallest and most differentiated.

Flin individuals had significantly thinner lips and were the smallest (between 12-17 cm); their shell is thicker and heavier, less space between whorls, and they often have longer spines compared with the other three morphs. The Flin morphotype shares numerous characteristics with an identified phenotype in Mexico, Cuba, Turks and Caicos, and Bahamas called Samba. A few hypotheses related to the Samba phenotype include: 1) limited food, 2) habitat availability, or stressful conditions and 3) high fishing pressure.

To test if phenotypic and geographic variation is correlated with genetic segregation, Beltran used genome wide variation using 21,861 SNPs across 277 individuals. She found genetic differentiation among morphotypes as inferred from multivariate analysis such as: 1) Principal Component Analysis (PCA); 2) Discriminant Analysis of principal components (DAPC), 3) analysis of molecular variance (AMOVA) and 4) fixation indexes ($FST= 0.001$; $p= 0.001$). The SNPs data highlights the differentiation between Flin and non-Flin morphotypes. Dr Beltran's results were successful given the power of the test, which analyzed large portions of the individual's DNA. Unfortunately, results cannot be compared at the regional basis, because this is the only genetic analysis done using this technique. All others include the use of microsatellite variants, which cannot be compared across studies.

To identify the conch genetic connectivity across the Caribbean, a new project needs to be developed, which shall offer the opportunity to:

1. quantify connectivity patterns for neutral and adaptive SNPs (variants) for each morph across the Caribbean. An opportunity to test for the first time if genomic variation is segregated across the Caribbean.
2. test if phenotypic differences between morphs are associated with genome wide variation by identifying alleles correlated with morph variation.

3. test if variation in latitude correlates with variation in allele frequencies to understand if some alleles might be moving northward to colder environments as seawater warms.
4. test if genetic variation has changed in the last 200K years. Using these techniques, Dr Beltran can estimate populations sizes through time and test if populations have contracted or expanded as a result of climatic variations associated with glacial cycles that have changed seawater temperatures and sea levels.

In addition to the main objectives, Dr Beltran's genomic data will be publicly available and deposited at the NCBI and will provide the baseline data to design protocols to stablish the traceability of conchs from different Caribbean regions/islands to identify illegal trade.

To develop Dr Beltrán's project, she requires access to samples throughout the Caribbean, and from each location at least 10-15 adult individuals per morph will be needed. Conch shells will be collected along with tissue samples. Conchs will be measured morphologically, and tissue samples processed to generate genomic libraries.

To accomplish her work, Dr Beltrán has already secured some funding from the University of Rhode Island. URI will provide: a) Materials for tissue samples, preservation and storage, b) materials for DNA extraction (DNA extraction kits, plasticware and chemicals), c) use of laboratory equipment, library quality control through a tape-station, d) SNPs libraries or, whole genome low coverage genotyping (1x-2x), e) the cost for sequencing of ~ 500 conchs, along with bio-informatic computer and software, f) three months of salary for one laboratory technician to help Beltrán during library preparation, and g) one summer month of salary for a professional analyst to help Beltrán during data analysis. To match her funding from URI, she is requesting: 1) her salary as the principal investigator for 18 months, 2) a second month for a professional analyst and 3) the cost of collecting the samples. URI is open to explore additional collaboration with other partners in the region or elsewhere.

QC/SSTAG Recommendations:

1. The QC Working Group identified the genomic work with connectivity of the different morphs across the Caribbean as an example of the scientific gaps relative to manage and protect QC populations and how they will be affected by climate change. The QC Working Group encouraged the development of a proposal to better estimate costs and needs.
2. The QC/SSTAG recommended that the genetic work first focus on locations in which commercial fisheries that export QC operate in common, particularly the areas fished by Colombia, Jamaica, Honduras and Nicaragua, as this would also demonstrate the practicality of using genetics to determine small-scale population structure of interest to management and its practicality for traceability. Alternatively, additional funding could be found to increase the sample size in this area within her original proposal.

Revision and analysis of existing guidelines for making NDF for QC exports (Martha Prada)

In preparation for this discussion, Martha Prada prepared two flow chats, based on the Mexico diagrams presented at the Second QC Working Group. Mauro Gongora mentioned how Honduras, Nicaragua and Belize agreed to a sub-regional cooperation for developing guidance in the preparation of QC NDFs. Thus, the frame of this structure is very important for a NDF workshop being planned for early next year in Honduras and technical recommendations from this group would be highly appreciated. Monica Barone commented that there are some repetitive topics in those charts, and they need to add space for addressing risk when information is not available, thus it was recommended to update the way the flow charts are being presented. Manuel Perez also commented that countries need to be consulted in order to address what are their realities and resource limitation in obtaining the necessary data for performing good NDFs, and so it was recommended that this be discussed in the December meeting. Daniel Kachelriess suggested to include the timeline for having final recommendations on the NDFs,

and informed the working group that there will be one or more workshops on non-detriment findings organized between CITES CoP18 (2019) and CoP19 (2022) that would present opportunities to look at other NDFs for marine species and share experience and knowledge more broadly. An advance draft can be presented at the CITES Animals Committee and receive their guidance too.

During the discussion on the making of NDFs, several references were made to the original listing proposal for queen conch, and Daniel Kachelriess explained to the group in that context, that since queen conch was listed in 1992, the guidance on listing criteria in Resolution Conf. 9.24. (Rev. CoP17) had been revised by the Conference of the Parties, making the information in that original listing less relevant today. In addition to the biological criteria, trade criteria also need to be considered, and it was further explained that in CITES there are not automatic proposals for listing species, but only proposals received from Parties. The overarching objective is to ensure that trade is not detrimental to the survival of the species. Thus, criteria definition is essential, thus recommendations made in the past from experts and adopted at the second QC Working Group needs to be revisited.

QC/SSTAG Recommendations:

The group discussed more on how to proceed for the evaluation of the NDF procedure rather than on the concrete procedure, agreeing on the followings:

1. The diagram for the NDF should be evaluated step by step, aggregating the points that are referred to annual or longer considerations to distinguishing the routine procedures related to singular trade operations. Moreover, the application to national examples can help in testing the applicability of the proposed model. Mauro Gongora, Fisheries Department of Belize, offered to chair a subgroup for continuing the discussion for providing a revised draft version of the diagram by the next meeting of the QC WG planned in Puerto Rico from 18–19 December 2019. Other suggested members of this subgroup were Maren Headley and Martha Prada.
2. As the NDF starting point of the diagram refers to the determination of the annual quota and therefore of an export quota, and considering that a CITES "export permit shall only be granted when … a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species", the group considered fundamental to clarify the theoretical but fundamental definition of the QC fisheries sustainability, to guide in the allocation of the quota, which include definitions of what are healthy populations (all life history stages), sustainable levels of production and associated export quotas which account for considerable local consumption Appeldoorn. Richard Appeldoorn, Alex Tewfik and N. Ehrhardt were suggested to be part of this group.

Analysis of socioeconomic aspects in the QC fishery (Manoj Shivlani)

He made a comprehensive description of various socioeconomic topics in the QC fishery, with particular references to the Bahamas and Puerto Rico. He mentioned how this species is tied to the local communities in terms of income, livelihoods, trade, and identity, and how the current decline in QC stocks may demand different management strategies and information needs. Conch fishers are generally identified as small-scale fishers operating out of traditional and historical fishing communities, even when engaged in industrial activities in exporting countries or working in well-built processing plants, which may also serve small scale producers. Small-scale fishers participating in the production and trade are impacted by variations in the species's abundance and demand. Prices can remain high based on supply conditions, due to the high demand from the tourism sector.

He presented some estimations about trip costs, where fuel represents the highest proportion. In addition, he talked about fishing vessel characteristics and described the diving operations consisting of hookah, Scuba, or free diving. However, due to a reduction in QC abundance, fishers have progressively shifted to dive in deeper waters and more frequently (additional bottom time is required to search and remove conch meat from the shell). Diving is also a serious problem for some communities, and it appears that decompression episodes did not dissuade fishers to dive, even with moderate disability.

Fishers are usually multispecies fishers, although habitat conditions do limit the number of species targeted, especially in relation to conch habitat. In places like Puerto Rico, hand-lines are often used as secondary gears on a trip or seasonal basis. Reports from Puerto Rico, described how Hurricane Maria in 2017 generated extensive damage to sea grass, resulting in losses in landings, fewer trips, and deeper water dives (to 115–130 ft). In fact, price of conch meat in western PR increased from $6.50/pound to $9.00/pound from 2016 to 2018 due to supply disruption.

Fishers' perceptions concerning regulatory approaches vary. In some regions there is support for additional measures, while in in other regions fishers are completely against new measures. Concerns on regulations are due to uncertainty over how long expected benefits will take place, and what alternatives are available. Open access throughout most of the Caribbean leads to competition and increases IUU fishing concerns.

Socioeconomics strongly shape political will, so strong understanding of socio-ecological system, especially in terms of setting the socioeconomic incentives towards more sustainable harvest and management is needed. Without a better understanding of socioeconomics, management changes will be met with pushback. Education would help in this regard and the case of conchservation (https://bnt.bs/science/conchservation/) and Community Conch (http://www.communityconch.org/) in the Bahamas were mentioned.

The group analyzed the complex socio-economic structure in the industrial fisheries, like in the case of Honduras, where there are a lot of complaints about competition arising from having different seasons with lobster fishery in offshore fishing grounds; to deal with this situation, maybe a special management structure is needed. On the other hand, local consumption in many countries is significant and driven by foreign tourists, and so there is strong connection between fishers and restaurants. In another example, Mauro Gongora mentioned the difficulties in getting information on small quantities of conch used for family consumption because the product is usually not sold in small quantities; the minimum amount sold through the formal market is 5 pounds (the export unit). To increase transparency and traceability it was mentioned that there is a need to use proper terminology when determining what local consumption really is.

CITES is currently seeking case studies that demonstrate the value of sustainable use for livelihoods and other socio-economic aspects. Conch fisheries in Belize may a good example. This trade is dominated by exports, but it may be important to determine how important this fishery is for small scale fishers, which is in fact a topic of discussion right now, and is creating a big debate, and that is why more case studies are encouraged.

QC/SSTAG Recommendations:

1. Identify mechanisms (social, cultural, behavioral) that can be used to increase stakeholder engagement and support for the 3 pillars embedded in the regional plan (Technical & Statistics, Education & Outreach and Governance). The development of case studies with different characteristics, e.g., high vs low capacities, successful cases vs non-successful cases, are recommended to be prioritized.
2. Improve the data on socio-economics in this fishery, including aspects of local communities, local consumption and trade to be included in the quota setting. Continue the CRFM socio-economic data compilation.
3. For those non-exporting countries, the QC/SSTAG can provide technical recommendations in order to increase the sustainability of the fishery, taking into account different aspects related to the socio-economics of the QC fishery, food security, and local consumption among other topics.
4. Continue to improve sustainable conch fishing to maintain more stable production and benefits to local communities in the long term, considering aspects of conservation, captures and trade network.

5. The lack of safety diving in the QC and lobster fishery needs to be further addressed, with evaluations of the progress achieved from initiatives in place, to counter this health problem in local communities.

Research priorities (Richard Appeldoorn)

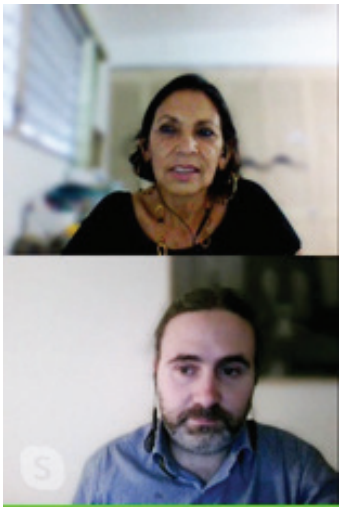
The following recommendations are the QC/SSTAG consensus on research priorities and are in addition to the specific recommendations presented above within the specific issues analyzed during this meeting.

- There is a need for countries to report their annual conch landings along with their processing grades to be able to utilize the proper conversion factors. Efforts in developing new conversion factors may be null if landing statistics are not available.
- Survey protocols need to be developed in collaboration with experts on statistics and in light of what models will be used for analysis to ensure that the resulting data fit the model. Allocating sampling sites systematically is recommended to that thematic habitat maps can be generated. Future studies should attempt to do a power analysis, so that number of sites and allocation among strata can be optimized and the abundance/biomass estimate will be more precise.
- For surveys in depths within 30-40 m, nitrox diving offers an effective approach. For deeper areas, camera-based (drop cameras, towed cameras, remote operated vehicles) surveys would be required. There are advantages and disadvantages of each method, and there was interest among the QC/SSTAG to explore these further.
- Review and provide proper guidance on compiling landings data (including both export and local consumption) and determine minimum data needs for stock assessment using fishery-dependent data. Emphasis was given to have countries provide reliable landings data, estimates of local consumption, and IUU fishing. The last two can be obtained by special surveys, including trip tickets, site and phone surveys, and weekly inspections.
- Update and summarize information on conch population dynamics, including growth, mortality, habitat quality, and develop a conch population dynamics simulation model suitable for use in management strategy evaluations. Results would provide the basis for conducting management strategy evaluations (MSEs) using the available Data Limited Models (DML) tools.
- Conduct specific research aimed to increase our understanding of spawning aggregations and reproduction success, including the effects of climate change. The QC/SSTAG emphasized the importance of maintaining spawning aggregations and reproductive success, yet the factors affecting these are poorly known and difficult to assess. Some information could come from fishery independent surveys, but this would again depend on the purpose and target of the surveys.
- Improvement of the regulations, enforcement strategies and assessment of countries capabilities is needed to improve stock management. QC/SSTAG recommended exploring the use of Fishpath to identify data availability and capacity, which could then be matched to potential assessment mechanisms. In addition, it is recommended that a gap analysis be conducted for the legal (=regulatory) framework of countries. This would require a review of each countries' framework and management plans.
- Increase knowledge and understanding of the queen conch value chain, in particular on conch value-added products (e.g., byproducts of conch meat processing and the use of the shells), to be able to track its trade. The trade in conch pearls is particularly valuable yet unknown. For example, fishers from Belize report that pearls are disproportionally found in small juveniles, which would incentivize fishing for juveniles, but it was also reported that pearls were found in the Honduras sampling, which was only of adults. It was noted that Megan Davis of Harbor Branch (Florida Atlantic University) has worked with culturing conch pearls and may be able to address issues of how long it takes for pearls to develop and in what size conch are they found. For CITES permits, it would be valuable to document that pearls were coming from licensed fishers.

APPENDIX 1. QC/SSTAG Second workshop agenda

Day 2: November 26, 2019			
09:00-10:45	Revision and analysis of existing guidelines for making NDF for QC exports	Richard Appeldoorn & Martha Prada	Comments on simplified NDF scheme, need for documentation on guidelines to be provided, CITES support. Plans and future work. Recommendations for the Working Group.
10:45-11:00	**Break**		
11:00-12:00	Analysis of socioeconomic aspects in the QC fishery	Manoj Shivlanim	Summary of the specific need of information, what are the priorities, sources of data, main challenges and risks.
12:00-13:30	**Lunch**		
13:30-14:00	Continuation of analysis of socio-economic aspects in the QC fishery	Manoj Shivlanim	Recommendation for the working group
14:00-15:45	Revision of the research agenda for establishment priorities	Richard Appeldoorn	Revisited list of identified research needs, analysis for identification of priorities needs. Agreements and potential partnerships.
15:45-16:00	**Break**		
16:00-16:45	Strategies for drafting a GEF proposal for getting additional funding	Group discussion lead by Maren Headley	Agreement on objectives and potential outputs for structuring a regional proposal for the improvement of the QC fisheries and conservation management.
16:45-17:00	The way forward	Maren Headley	Final recommendations and future steps

APPENDIX 2. Workshop picture collection



APPENDIX E

(Revised) Terms of reference of the CFMC/OSPESCA/WECAFC/CRFM/CITES working group on queen conch (Period 2019–2021)

1. Scope

The purpose of the Working Group is to support the sustainable management and conservation of queen conch (*Strombus gigas*) resources and its fisheries in the WECAFC Region. In undertaking its work, the working group will pay due attention to FAO's Code of Conduct for Responsible Fisheries' Article 6.4 of the general principles.

Conservation and management decisions for fisheries should be based on the best scientific evidence available, also taking into account traditional knowledge of the resources and their habitat, relevant regional and international agreements, as well as relevant environmental, economic and social factors. States should assign priority to undertake research and data collection in order to improve scientific and technical knowledge of fisheries including their interaction with the ecosystem. In recognizing the transboundary nature of many aquatic ecosystems, States should encourage bilateral and multilateral cooperation in research, as appropriate.

2. The goal of the working group

Using a multidisciplinary approach, the working group will contribute to the sustainable conservation and management of the queen conch fisheries and trade. In pursuing this goal, the working group will contribute to the fulfillment of national, regional and international responsibilities and commitments for the management and conservation of and trade in queen conch and related or interacting species or fisheries in the WECAFC Region under the Code of Conduct for Responsible Fisheries, and in accordance with agreed, documented management goals including ensuring the livelihoods of the people depending on these resources.

In particular, the Working Group will aim to support with technical and scientific advice the implementation of Decisions adopted at the 17th meeting of the Conference of the Parties to CITES on "Regional cooperation and management of and trade in queen conch (Strombus gigas)" (South Africa, 2016), and WECAFC 16 Recommendation (WECAFC/16/2016/1) "on the Regional Plan for the management and conservation of Queen Conch in the WECAFC area" (Guadeloupe, 2016) and any relevant decisions that are adopted at the 18th meeting of the Conference of the Parties to CITES and WECAFC 17.

3. Terms of reference (TORs)

Queen Conch is a transboundary resource with commercial and economic, as well as ecological, importance for most countries in the Wider Caribbean region. Therefore, these TORs apply at regional and/or national levels as appropriate. The working group, with the support of FAO, WECAFC, CFMC, CITES, CRFM and OSPESCA, will act in an advisory capacity to guide and facilitate the sustainable management and conservation of queen conch.

The Working Group will carry out the following general tasks:

1. Compile, analyze and share interdisciplinary available data and information on queen conch, in thematic areas such as: biology, management of this fishery, socio-economics and trade, fishing technology, environmental factors, and other relevant areas needed to provide advice for policy and decision-making processes.
2. Develop common and modern methodologies for data and information collection for monitoring of queen conch stocks and promote the involvement of the private sector in data collection.

3. Monitor changes in abundance/density of queen conch stocks and populations in the Caribbean region.
4. Review data from the countries and other sources on queen conch catch and effort and aquaculture production in the range states and monitor changes as appropriate.
5. Provide advice on the implementation of national and regional management measures and regulations for queen conch to countries and regional organizations.
6. Establish communication between the members of the working group and interested parties and stakeholders, including the private sector.
7. Develop and implement a work plan that will be monitored and evaluated by the WECAFC SAG and Commission.
8. Report to CFMC, OSPESCA, WECAFC and CRFM at each of their sessions (on the outcome of each Working Group meeting).
9. Further advance and monitor the implementation of the Regional Queen Conch Management and Conservation Plan that was adopted by WECAFC 16, CRFM, OSPESCA and CFMC at appropriate levels.
10. Invite selected experts to participate in the Working Group, ensuring that they have the necessary expertise, know-how and experience in areas relevant to the operation of the Working Group and the implementation of these Terms of Reference.

Mode of Operation

1. Role of WECAFC Member Countries

The members of the Working Group are to play a leading role in the Working Group activities through the following activities and commitments:

- Participate in agreed activities of the working group, and ensure the participation of appropriate experts;
- Ensure involvement of both CITES and Fisheries Authorities in the work of the Group;
- Implement, at the National level, the work identified in the agreed work plan of the Group;
- Host working group meetings on a rotational basis.

2. Role of the FAO/WECAFC Secretariat

FAO Subregional Office for the Caribbean and the WECAFC Secretariat will facilitate and support the activities of the working group by collaborating actively with the partner agencies CFMC, OSPESCA, CRFM and CITES in:

- Co-coordinating the activities of the working group (including securing funding for its operation);
- Providing a technical secretary;
- Providing technical assistance and support to research;
- Facilitating training (as appropriate);
- Communicate outcomes to WECAFC, CITES, UNEP-SPAW and countries (as appropriate);
- Ensure the participation of appropriate experts and other stakeholders in Working Group Activities.

3. Roles of other Subregional organizations (e.g. CFMC, OSPESCA, CRFM)

Subregional organizations have an important role to play in assisting their member countries to participate fully in the activities of the working group by:

1. Providing technical assistance and support;
2. Facilitating procurement of funding for working group activities;
3. Coordination of the activities of the working group;
4. Facilitating the decision-making process at the Subregional level.

Role of the Convener

The Convener, in consultation with the Working Group, will:

- formally convene the meetings of the group,
- technically guide the group work and determine subjects to be discussed,
- represent the group in regional and international meetings (as appropriate),
- invite new members and ad hoc experts to participate in working group meeting,
- review and approve publications and messages produced by the working group, and
- take a leading role in securing funding for working group meetings.

Communication

A mechanism for on-going communication among working group members (Video conference, Skype and email), is essential to ensure that the work of the group is sustained between meetings. It must include all working group members.

The successful functioning of the working group also requires that each member country of WECAFC and organization/agency identify a national focal point/expert through which communications will be directed. The outputs of the working group will be communicated through working group reports to WECAFC, OSPESCA, CFMC, CRFM, CITES, UNEP-SPAW and national fishery and CITES administrations and other relevant entities via the WECAFC Secretariat.

Working group meetings

The working group should meet physically at least once every two years or as needed. The meetings should be of two to five days duration. Meetings should use cost effective accommodations and institutional facilities and where possible take advantage of other meetings in the region.

ANEXO E

Términos de referencia (revisados) del Grupo de trabajo conjunto CFMC/OSPESCA/ COPACO/CRFM/CITES sobre el caracol rosado (2019-2021)

1. Alcance

El propósito del Grupo de trabajo es apoyar la ordenación y conservación sostenible de los recursos y pesquerías del caracol rosado (*Strombus gigas*) en la región de la COPACO. En el desempeño de sus funciones, el Grupo de trabajo prestará la debida atención al artículo 6.4 del Código de Conducta para la Pesca Responsable de la FAO.

Las decisiones sobre ordenación y conservación pesquera deberían basarse en los mejores datos científicos disponibles, teniendo en cuenta también los conocimientos tradicionales de los recursos y su hábitat, los acuerdos regionales e internacionales relevantes, y los factores medioambientales, económicos y sociales pertinentes. Los Estados deberían priorizar las actividades de investigación y recolección de datos, a fin de mejorar los conocimientos científicos y técnicos sobre la pesca, incluida su interacción con el ecosistema. Al reconocer la naturaleza transfronteriza de muchos ecosistemas acuáticos, los Estados deberían alentar la cooperación bilateral y multilateral en materia de investigación, según corresponda.

2. El objetivo del Grupo de trabajo

Utilizando un enfoque multidisciplinario, el Grupo de trabajo contribuirá a la conservación y ordenación sostenible de las pesquerías y el comercio del caracol rosado. Para lograr este objetivo, trabajará para lograr el cumplimiento de las responsabilidades y compromisos nacionales, regionales e internacionales en materia de ordenación, conservación y comercio del caracol rosado y las especies o pesquerías relacionadas -o con las que interactúa- en la región de la COPACO, en virtud del Código de Conducta para la Pesca Responsable, y de conformidad con los objetivos de ordenación acordados y documentados, incluido el de garantizar los medios de vida de las personas que dependen de estos recursos.

En particular, el Grupo de trabajo tendrá como objetivo apoyar -con asesoramiento técnico y científico- la implementación de las decisiones adoptadas en la decimoséptima reunión de la Conferencia de las Partes en la CITES sobre "Cooperación regional sobre el manejo y el comercio del caracol pala (Strombus gigas)" (Sudáfrica, 2016), la Recomendación de la COPACO 16 (COPACO/16/2016/1) "sobre el plan regional para la ordenación y conservación del caracol rosado en el área de la COPACO" (Guadalupe, 2016) y cualquier decisión relevante que se adopte en la decimoctava reunión de la Conferencia de las Partes en la CITES y la COPACO 17.

3. Términos de referencia (TdR)

El caracol rosado es un recurso transfronterizo de importancia comercial, económica y ecológica para la mayoría de países de la región del Gran Caribe. Por lo tanto, estos TdR aplican a nivel regional y/o nacional, según proceda. El Grupo de trabajo -con el apoyo de la FAO, la COPACO, la CFMC, la CITES, el CRFM y la OSPESCA- actuará en calidad de asesor para orientar y facilitar la ordenación y conservación sostenible del caracol rosado.

El Grupo de trabajo llevará a cabo las siguientes tareas generales:

1. Recopilar, analizar y compartir datos e información interdisciplinarios sobre el caracol rosado, en áreas temáticas como: biología, ordenación de esta pesquería, aspectos socioeconómicos y comercio, tecnología pesquera, factores medioambientales y otros ámbitos relevantes necesarios para proporcionar asesoramiento en los procesos normativos y de toma de decisiones.

2. Desarrollar metodologías comunes y modernas para la recopilación de datos e información, a fin de realizar un seguimiento de las poblaciones de caracol rosado y promover la participación del sector privado en este proceso.
3. Hacer un seguimiento de los cambios en la abundancia/densidad de las poblaciones de caracol rosado en la región del Caribe.
4. Analizar los datos de los países y otras fuentes sobre captura y esfuerzo del caracol rosado y producción acuícola en los Estados del área de distribución. Hacer un seguimiento de los cambios observados según proceda.
5. Proporcionar asesoramiento a países y organizaciones regionales sobre la implementación de medidas de ordenación y regulaciones nacionales y regionales para el caracol rosado.
6. Establecer líneas de comunicación entre los miembros del Grupo de trabajo y las partes interesadas, incluido el sector privado.
7. Desarrollar e implementar un Plan de trabajo que será supervisado y evaluado por el GAC de la COPACO y la Comisión.
8. Informar al CFMC, la OSPESCA, la COPACO y el CRFM en cada una de sus reuniones (sobre los resultados de cada una de las reuniones del Grupo de trabajo).
9. Seguir promoviendo y supervisar la implementación del *Plan regional para la ordenación y conservación del caracol rosado*, aprobado por la COPACO 16, el CRFM, la OSPESCA y el CFMC a los niveles apropiados.
10. Invitar a expertos seleccionados a participar en el Grupo de trabajo, asegurando que tengan los conocimientos y experiencia necesarios en ámbitos relevantes para el funcionamiento del grupo y la implementación de estos Términos de referencia.

Modo de funcionamiento

1. Papel de los países miembros de la COPACO

Los miembros del Grupo de trabajo deben desempeñar un papel destacado en las siguientes actividades y compromisos:

- Participar en las actividades acordadas del Grupo de trabajo, y asegurar la participación de expertos apropiados;
- Garantizar la participación de la CITES y las autoridades pesqueras en la labor del Grupo de trabajo;
- Ejecutar, a nivel nacional, el Plan de trabajo acordado;
- Acoger las reuniones del Grupo de trabajo de manera rotativa.

2. Papel de la Secretaría de la FAO/COPACO

La Oficina Subregional de la FAO para el Caribe y la Secretaría de la COPACO facilitarán y apoyarán las actividades del Grupo de trabajo, colaborando activamente con los organismos asociados (CFMC, OSPESCA, CRFM y CITES) en las siguientes tareas:

- Coordinar conjuntamente las actividades del Grupo de trabajo (incluida la obtención de financiación para su funcionamiento);
- Proporcionar un secretario técnico;
- Facilitar asistencia técnica y apoyo a la investigación;
- Facilitar la capacitación (según proceda);
- Comunicar los resultados a la COPACO, la CITES, el PNUMA-SPAW y los países (según corresponda);
- Garantizar la participación de expertos apropiados y otras partes interesadas en las actividades del Grupo de trabajo.

3. Papel de otras organizaciones subregionales (p. ej. CFMC, OSPESCA, CRFM)

Las organizaciones subregionales desempeñan un papel importante a la hora de ayudar a sus países miembros a participar plenamente en las actividades del Grupo de trabajo:

1. Proporcionando asistencia técnica y apoyo;
2. Facilitando la obtención de fondos para las actividades del Grupo de trabajo;
3. Coordinando las actividades del Grupo de trabajo;
4. Facilitando el proceso de toma de decisiones a nivel subregional.

Papel del Convocante

El Convocante, previa consulta al Grupo de trabajo:

- Convocará formalmente las reuniones del Grupo de trabajo,
- Orientará técnicamente el trabajo y determinará los temas objeto de discusión,
- Representará al Grupo de trabajo en reuniones regionales e internacionales (según proceda),
- Invitará a nuevos miembros y expertos *ad hoc* para que participen en las reuniones del Grupo de trabajo,
- Revisará y dará el visto bueno a las publicaciones y mensajes elaborados por el Grupo de trabajo, y
- Liderará la obtención de financiación para las reuniones del Grupo de trabajo.

Comunicación

Es esencial disponer de un mecanismo de comunicación continua entre los miembros del Grupo de trabajo (videoconferencia, Skype y correo electrónico) a fin de garantizar la continuidad de su labor entre reuniones. Debe incluir a todos los miembros del Grupo de trabajo.

El funcionamiento exitoso del Grupo de trabajo requiere también que cada país miembro de la COPACO y organización/organismo identifique un centro de coordinación/experto nacional a través del cual se dirigirán las comunicaciones. Las contribuciones del Grupo de trabajo se comunicarán a a la COPACO, la OSPESCA, el CFMC, el CRFM, la CITES y el PNUMA-SPAW a través de los informes del Grupo de trabajo; y a las administraciones pesqueras nacionales y de la CITES y otras entidades pertinentes por medio de la Secretaría de la COPACO.

Reuniones del Grupo de trabajo

El Grupo de trabajo debería reunirse presencialmente al menos una vez cada dos años, o según resulte necesario. Las reuniones deberían tener una duración de dos a cinco días. Se deberían utilizar alojamientos e instalaciones institucionales de coste asequible y aprovechar -cuando sea posible- la celebración de otras reuniones en la región.

APPENDIX F

Work plan of the CFMC/OSPESCA/WECAFC/CRFM/CITES working group on queen conch

The QCWG will carry out the following activities in 2019–2021 period:

Activity	Timeframe	Responsible
1. Finalization, publication and dissemination of the Report of the WG meeting in Panama (in hard copies and on-line on http://www.strombusgigas.com/index.htm and at www.WECAFC.org; including the national summary reports)	February 2019	CFMC and FAO with inputs from meeting participants
2. Provide technical and scientific advice to national governments in the region to support the implementation of CITES COP 17 Decisions and WECAFC 16 recommendation WECAFC/16/2016/1 and any relevant decisions that are adopted at the 18th meeting of the Conference of the Parties to CITES and WECAFC 17	January 2019 – December 2021	WG members
3. Report on progress with the implementation of relevant CITES and WECAFC decisions, and the outcomes of the Working Group – at the following: • next meeting of the WECAFC Scientific Advisory Group (SAG), November 2018; - • 17th session of WECAFC, April/May 2019; • 18th meeting of the Conference of the Parties to CITES, May/June 2019; • 31st meeting of the Animals Committee, January 2020	In advance of deadlines for reporting required	CITES/Fisheries authorities of QC range States attending these meetings (as appropriate); CITES and WECAFC Secretariats
4. Translate the *Regional Queen Conch Fisheries Management and Conservation Plan* that was adopted at WECAFC 16 into French and Spanish, disseminate for review, and publish upon completion	January 2019	WECAFC Secretariat
5. Continue increasing awareness and building capacity among fishers on Safety-at-Sea, in particular addressing risk management in compressed air diving for Queen Conch; fisher organizations should be engaged as much as possible for these activities	January 2019 onwards	NOAA Fisheries/CFMC and FAO with the fisheries authorities in the region
6. Continue review and consideration of options for the development of a transparent "chain of custody" procedure to track catches from their catch location to their eventual destination	January 2019 onwards	NOAA Fisheries/CFMC with CITES, WECAFC/FAO and the authorities in the region
7. Further advance and monitor the implementation of the *Regional Queen Conch Management and Conservation Plan* that was adopted by WECAFC 16, CRFM, OSPESCA and CFMC at appropriate levels	January 2019 onwards	CFMC, WECAFC, and CRFM, OSPESCA and the WG members
8. Encourage countries to implement the *Regional Queen Conch Management and Conservation Plan* as called for by WECAFC 16	January 2019 – December 2021	CFMC, WECAFC, CRFM, OSPESCA and WG members (national fisheries and CITES authorities)
9. Support national level consultations as needed to discuss Working Group proposed management and conservation measures for building awareness, increasing buy-in and contributing to compliance	January 2019 onwards	WG members (national fisheries and CITES authorities)
10. Support national authorities and fisherfolk organizations to implement the *Regional Queen Conch Management and Conservation Plan*	January 2019-December2021	WG members (national fisheries and CITES authorities), CRFM, OSPESCA, CITES, CFMC, FAO/WECAFC

Activity	Timeframe	Responsible
11. Operationalize the Scientific and Statistical Sub-Group (SS Sub-group) established in the *Regional Queen Conch Management and Conservation Plan* that will be responsible for: • Identifying countries that lack national conversion factors for queen conch meat, analyzing available data, assisting with development of national conversion factors for these countries, and reporting back to the Working Group on these factors for their consideration. • Review of existing queen conch NDFs and guidance in order to develop a simplified template for making non-detriment findings for queen conch, in consultation with the CITES Animals Committee, dissemination of the template to the Working Group membership for their consideration, and supporting selected countries in applying the templates and sharing the results at the regional level.	Draft template: November 2018 -March 2019 Results and application of template: June 2019 and onwards	CFMC/WECAFC, SS Sub-group membership, CITES
12. The CFMC will hire a consultant to compile existing information and educational resources, with the appropriate authorization and permission, that could be used to meet the objectives of the Working Group	January-December 2019	CFMC/WECAFC Secretariat
13. Consult with the CLME+ project to identify queen conch fishery needs that can be incorporated into a possible next phase of the CLME+ project and explore potential opportunities for collaboration specifically with respect to contributions to the State of the Marine Environment and Associated Economies (SOMEE) reporting mechanism and the Strategic Action Program Monitoring and Evaluation framework	November 2018 – December 2019	CFMC, the WECAFC Secretariat too and/ or the relevant sub-regional partners (CRFM, OSPESCA)

ANEXO F

Plan de trabajo del Grupo de trabajo CFMC/OSPESCA/COPACO/CRFM/CITES sobre el caracol rosado

El GTCR realizará las siguientes actividades en el período 2019-2021

Actividad	Calendario	Responsables
1. Finalización, publicación y difusión del informe de la reunión del GTCR en Panamá (en papel y en línea en http://www.strombusgigas.com/index.htm y http://www.WECAFC.org; incluidos los informes resumidos nacionales)	Febrero de 2019	CMFC y FAO, con aportaciones de los participantes de la reunión
2. Proporcionar asesoramiento técnico y científico a los gobiernos nacionales de la región para apoyar la implementación de las Decisiones de la CoP 17 de la CITES, la Recomendación de la COPACO 16 (COPACO/16/2016/1) y cualquier decisión relevante que se adopte en la decimoctava reunión de la Conferencia de las Partes en la CITES y la COPACO 17.	De enero de 2019 a diciembre de 2021	Miembros del GTCR
3. Informar sobre los avances realizados en la implementación de las decisiones pertinentes de la CITES y la COPACO, y los resultados del GTCR en: • la próxima reunión del Grupo Asesor Científico (GAC) de la COPACO, en noviembre de 2018; • la decimoséptima reunión de la COPACO, en abril/mayo de 2019; • la decimoctava reunión de la Conferencia de las Partes en la CITES, en mayo/junio de 2019; • la trigésima primera reunión del Comité de Fauna de la CITES, en enero de 2020.	Antes de que venzan los plazos de presentación de los informes	Autoridades de la CITES/ autoridades pesqueras de los Estados del área de distribución del caracol rosado que asisten a esas reuniones (según corresponda); Secretarías de la CITES y la COPACO
4. Traducir al español y francés el *Plan regional para la ordenación y conservación del caracol rosado* que se aprobó en la COPACO 16, difundirlo para su revisión y publicarlo una vez finalizado.	Enero de 2019	Secretaría de la COPACO
5. Seguir sensibilizando a los pescadores y desarrollando su capacidad en materia de seguridad en el mar, en particular abordando la gestión de riesgos en el buceo autónomo para la pesca del caracol rosado; las organizaciones de pescadores deben participar -en la medida de lo posible- en estas actividades.	A partir de enero de 2019	NMFS de la NOAA/CFMC y FAO con las autoridades pesqueras en la región
6. Continuar analizando y considerando diferentes opciones para el desarrollo de un procedimiento transparente de "cadena de custodia" a fin de rastrear el caracol rosado desde el lugar de captura hasta su destino final.	A partir de enero de 2019	NMFS de la NOAA / CFMC con la CITES, COPACO/ FAO y las autoridades en la región
7. Seguir promoviendo y supervisar la implementación del *Plan regional para la ordenación y conservación del caracol rosado*, aprobado por la COPACO 16, el CRFM, la OSPESCA y el CFMC a los niveles apropiados.	A partir de enero de 2019	CFMC, COPACO, y CRFM, OSPESCA y los miembros del GTCR
8. Animar a los países a implementar el *Plan regional para la ordenación y conservación del caracol rosado*, en consonancia con la petición de la COPACO 16.	De enero de 2019 a diciembre de 2021	CFMC, COPACO y CRFM, OSPESCA y los miembros del GTCR (autoridades nacionales pesqueras y de la CITES)
9. Apoyar las consultas a nivel nacional para discutir las medidas de ordenación y conservación propuestas por el GTCR a fin de sensibilizar a la población, promover la aceptación y contribuir al cumplimiento	A partir de enero de 2019	Miembros del GTCR (autoridades nacionales pesqueras y de la CITES)

Actividad	Calendario	Responsables
10. Ayudar a las autoridades nacionales y organizaciones de pescadores a implementar el *Plan regional para la ordenación y conservación del caracol rosado*.	De enero de 2019 a diciembre de 2021	Miembros del GTCR (autoridades nacionales pesqueras y de la CITES), CRFM, OSPESCA, CITES, CFMC, FAO/COPACO
11. Poner en funcionamiento el Subgrupo Científico y Estadístico -establecido en el *Plan regional para la ordenación y conservación del caracol rosado*- que se encargará de: • Identificar aquellos países que carezcan de factores de conversión nacionales para la carne del caracol rosado, analizar los datos disponibles, ayudar al desarrollo de factores de conversión nacionales en dichos países, e informar al GTCR sobre estos parámetros para su consideración. • Revisar los DENP existentes del caracol rosado y proporcionar orientación a fin de desarrollar una plantilla simplificada para su formulación, consultando al Comité de Fauna de la CITES; difundir esta plantilla entre los miembros del GTCR para su consideración; ayudar a los países seleccionados a utilizar la plantilla; y compartir los resultados a nivel regional.	Borrador de la plantilla: de noviembre de 2018 a marzo de 2019 Resultados y uso de la plantilla: a partir de junio de 2019	CFMC/COPACO, Subgrupo Científico y Estadístico, CITES
12. El CFMC contratará a un consultor para que recopile – con la autorización y permisos adecuados- la información y recursos educativos existentes que podrían utilizarse para cumplir los objetivos del GTCR.	De enero a diciembre de 2019	Secretaría del CFMC/ de la COPACO
13. Consultar con el proyecto CLME+ para identificar las necesidades de la pesquería del caracol rosado que pueden incorporarse en una posible próxima fase del proyecto CLME+ y explorar oportunidades potenciales de colaboración, de forma específica respecto a las contribuciones al mecanismo para la elaboración de informes sobre el Estado del medio ambiente marino y las economías asociadas (SOMEE) y el marco de seguimiento y evaluación del Programa de Acción Estratégica	De noviembre de 2018 a diciembre de 2019	CFMC, Secretaría de la COPACO y/o asociados subregionales pertinentes (CRFM, OSPESCA)

The Fourth meeting of the CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group on Queen Conch was held in San Juan, Puerto Rico from 16 to 17 December 2019.

Discussions focused on strengthening national, regional and international efforts and uplifting responsibilities and commitments for the management and conservation and trade in queen conch and related or interacting species or fisheries in the Western Central Atlantic. Participants also considered how to strengthen the livelihoods of the people depending on these resources by following the Code of Conduct for Responsible Fisheries, and in accordance with management goals agreed in the **Regional Queen Conch Fisheries Management and Conservation Plan**, which remains a matter of priority.

The meeting adopted a set of recommendations ranging from Data Collection/Transparency, Diver safety; Domestic consumption; Queen Conch Stock Assessment Manual; CITES Resolution on queen conch, and other priority areas of actions of which the queen conch socio-economic and reproductive aspects are among the priority research avenues to be developed in the short term.

La cuarta reunión del Grupo de trabajo conjunto CFMC/OSPESCA/COPACO/CRFM/CITES sobre el caracol rosado se celebró en San Juan, Puerto Rico, del 16 al 17 de diciembre de 2019.

Las discusiones se centraron en el fortalecimiento de los esfuerzos nacionales, regionales e internacionales y la ampliación de las responsabilidades y compromisos para la ordenación, conservación y comercio del caracol rosado y las especies -o pesquerías- relacionadas -o con las que interactúa- en el Atlántico centro-occidental. Los participantes también estudiaron cómo fortalecer los medios de vida de quienes dependen de esos recursos, en consonancia con el Código de Conducta para la Pesca Responsable y los objetivos de ordenación acordados en el **Plan regional para la ordenación y conservación del caracol rosado**, que continúa siendo una cuestión prioritaria.

En la reunión se adoptó un conjunto de recomendaciones que incluían: Recopilación de datos/transparencia, Seguridad de los buceadores; Consumo interno; Manual para la evaluación de las poblaciones de caracol rosado; Resolución de la CITES sobre el caracol rosado y otras áreas prioritarias de acciones cuyos aspectos socioeconómicos y reproductivos de la caracola rosado se encuentran entre las vías prioritarias de investigación a desarrollar a corto plazo.

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