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WESTERN CENTRAL ATLANTIC FISHERY COMMISSION

Report of the

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

Panama City, Panama, 18–20 November 2014

DRAFT

Prepared for the 28th meeting of the Animals Committee

(A final version in English, French and Spanish is expected to be published by October 2015)

PREPARATION OF THIS DOCUMENT

This is the report of the second meeting of the Caribbean Fisheries Management Council (CFMC), Organization for the Fisheries and Aquaculture Sector of the Central American Isthmus (OSPESCA), Western Central Atlantic Fishery Commission (WECAFC) and the Caribbean Regional Fisheries Mechanism (CRFM) Working Group on Queen Conch, held in Panama City, Panama, from 18 to 20 November 2014.

The joint Working Group was established by the fourteenth session of the Western Central Atlantic Fishery Commission (WECAFC) in February 2012 and organized its first meeting in October 2012. This second meeting was coorganized and sponsored by the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the CFMC of the United States Department of Commerce, WECAFC and FAO.

The FAO Secretariat to the meeting consisted of Mr Raymon van Anrooy, Mr John Jorgensen, and Mr Luca Garibaldi. Mr Tom de Meulenaer (CITES), Mr Sjef Van Eijs and Mr Manuel Perez (FAO consultants) assisted the secretariat in its duties. Administrative and logistical support was provided by the CFMC and the WECAFC Secretariat in Barbados, and coordinated by Mr Miguel Rolon, convener of the Working Group, with assistance from Ms Diana Martino, Ms Patricia Murillo, Ms Sonya Thompson and Ms Bertha Simmons.

This report provides a record of the meeting proceedings. The report also includes the regional harmonized conversion factors for the various degrees of processing of conch meat, and a format for non-detriment findings (NDFs) assessments, as discussed and agreed by the experts. Conclusions and recommendations agreed by the Working Group for consideration by the WECAFC at its sixteenth session and by the partner agencies in their respective governance frameworks are included as well.

The material included in the appendixes has been reproduced as submitted.

FAO Western Central Atlantic Fishery Commission 2015.
Report of the second meeting of the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch, Panama City, Panama, 18–20 November 2014. FAO Fisheries and Aquaculture Report No. 1097, Bridgetown, Barbados, FAO. 229 pp.

ABSTRACT

The second meeting of the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch was held in Panama City, Panama, from 18 to 20 November 2014. The meeting followed up on decisions by the sixteenth meeting of the Conference of Parties of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and a recommendation from the fifteenth session of the Western Central Atlantic Fishery Commission (WECAFC). The meeting reviewed a draft Regional Queen Conch Management and Conservation Plan with 26 potential fisheries management measures, and determined which measures will contribute most to the sustainability of the stocks and livelihoods of those involved in queen conch fisheries in the region. The meeting reached expert agreement on the use of regional harmonized conversion factors for the various degrees of processing of conch meat and on a format for non-detriment findings (NDFs) assessments. The meeting also updated the Terms of Reference of the Working Group and prepared a new work plan. The conclusions and draft recommendation from the Working Group will be reviewed by the Scientific Advisory Group and forwarded to the sixteenth session of WECAFC and important meetings of partner agencies for their endorsement. The working group meeting was attended by 55 fisheries and CITES authority delegates from 22 countries and territories. The meeting was facilitated by the Caribbean Fisheries Management Council, CITES and FAO.

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OPENING OF THE MEETING

1. The second meeting of the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch was held in Panama City, Panama, from 18 to 20 November 2014. The meeting was coorganized and sponsored by the Caribbean Fisheries Management Council (CFMC) of the United States Department of Commerce, the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Western Central Atlantic Fishery Commission (WECAFC) and FAO. Welcoming remarks were delivered by Mr Carlos Farchette on behalf of CFMC and by Mr Raymon van Anrooy on behalf of FAO.

ATTENDANCE

2. The following 22 countries and territories attended the meeting: Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Belize, Caribbean Netherlands, Colombia, Costa Rica, Cuba, the Dominican Republic, Honduras, Jamaica, Guadeloupe, Grenada, Martinique, Mexico, Nicaragua, Panama, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Turks and Caicos Islands, and the United States of America. The CMFC, Organization for the Fisheries and Aquaculture Sector of the Central American Isthmus (OSPESCA), Caribbean Regional Fisheries Mechanism (CRFM), CITES, Caribbean Network of Fisherfolk Organizations (CNFO), MarViva, The Nature Conservancy (TNC) and WECAFC/FAO, as well as various queen conch experts and fishers were also in attendance. The list of 55 participants, including Working Group members and other participants, can be found in Appendix 2.

ELECTION OF CHAIRPERSONS AND RAPPORTEURS

3. Mr Mauro Gongora (Belize) and Ms Patricia Hubert-Medar (Saint Lucia) were elected chairpersons of the meeting. Mr Raymon Van Anrooy (FAO/WECAFC), assisted by Mr John Jorgensen and Mr Luca Garibaldi (FAO), Ms Diana Martino (CFMC) and Mr Sjef Van Eijs (consultant) acted as rapporteurs.

ADOPTION OF THE AGENDA

4. The meeting adopted the agenda as shown in Appendix 1.

INTRODUCTION OF THE WORKING GROUP

5. Mr Miguel Rolón, Executive Director of the CFMC and convener of the Working Group, presented an introduction to the Working Group. He made reference to the first meeting of the joint CFMC/WECAFC/OSPESCA/CRFM Working Group (held in Panama City, 23–25 October 2012). That meeting produced the "Declaration of Panama City", reviewed the Report of the Miami Queen Conch Expert Workshop (May 2012) and shared experiences and information among the experts in the queen conch range States. Mr Rolón emphasized that the Working Group activities in 2013 had also been important and led to the CITES Conference of the Parties 16 (CoP16) decisions on queen conch,[1] a recommendation to the fifteenth session of WECAFC[2] and the desired outcomes in the review of the Endangered Species Act (ESA) of the United States of America.

[1] These decisions are available online at: www.cites.org/eng/dec/valid16/230

[2] The WECAFC recommendation can be found in: FAO Western Central Atlantic Fishery Commission/FAO Commission des pêches pour l'Atlantique Centre-Ouest/FAO Comisión de Pesca para el Atlántico Centro-Occidental. 2014. *Report of the fifteenth session of the Commission, Port of Spain, Trinidad and Tobago, 26–28 March 2014. Rapport de la quinzième session de la Commission, Port of Spain, Trinité-et-Tobago, 26-28 mars 2014. Informe de la decimoquinta reunión de la Comisión, Puerto España, Trinidad y Tabago, 26-28 de marzo de 2014.* FAO Fisheries and Aquaculture Report/FAO Rapport sur les pêches et

6. The convener then listed the objectives of the second meeting of the Working Group, which were:

- Collect and share queen conch catch statistics, stock information, national management plans and regulations that relate to queen conch fisheries, management and conservation and trade.
- Review and finalize a draft Regional Queen Conch Fisheries Management and Conservation Plan.
- Discuss and agree on formats for non-detriment findings (NDF) studies or assessments of queen conch stocks that are practical, simple and cost-effective to implement – using best-practice examples available.
- Agree at regional level on conversion factors of queen conch at different processing grades of conch meat.

7. The related outputs that were expected from the second meeting included:

- Updated queen conch catch statistics, stock information, national management plans and regulations information, and information on queen conch management and conservation and trade.
- A near final draft Regional Queen Conch Fisheries Management and Conservation Plan, including expert agreement on various joint management measures to take at the regional level.
- Agreed draft format for NDFs by queen conch producing and trading countries.
- Agreed regional level conversion factors of queen conch at different processing grades of meat.
- A workshop report in the FAO Fisheries and Aquaculture report series.

8. The convener informed the meeting that all background documents that had been distributed had also been made available on-line at: www.strombusgigas.com/

9. Mr Raymon van Anrooy, WECAFC Secretary, provided a summary of the WECAFC's work on queen conch. He gave some historical context, which included:

- The International Queen Conch Conference, Puerto Rico, organized on 29–31 July 1996 by the CFMC. Queen conch work in the region until 2000 was largely led by CFMC, which provided advice to the WECAFC sessions.
- At the tenth session of WECAFC (2001), the Commission requested a stronger collaboration with CFMC and the organization of a joint workshop (workshops) on queen conch.
- In February 2007 (in Panama), a workshop was held on the improvement of information on the status and trends of queen conch capture fishery in the Caribbean Region.
- Development of Fisheries Technical Paper No. 514 by Mr Paul Medley on "Monitoring and managing queen conch fisheries: a manual"[3] took place in 2007 and 2008.
- A Study on Conversion Factors for Processed Queen Conch to Nominal Weight was carried out in 2008 and published as FAO Fisheries and Aquaculture Circular No. 1042[4] in 2009.
- A first meeting of the joint CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch was held in Panama City, 23–25 October 2012. The outcomes were published as Fisheries and Aquaculture Report No. 1029.[5]

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l'aquaculture/FAO Informe de Pesca y Acuicultura No. 1069. Bridgetown, Barbados. FAO. 132 pp. (also available at http://www.fao.org/3/a-i3790t/index.html).

[3] Medley, P. 2008. *Monitoring and managing queen conch fisheries: a manual*. FAO Fisheries Technical Paper No. 514. Rome. 2008. 78 pp. (also available at www.fao.org/docrep/011/i0256e/i0256e00.htm).

[4] Aspra, B., Barnutty, R., Mateo, J., Marttin. F. & Scalisi, M. 2009. *Conversion factors for processed queen conch to nominal weight / Factores de conversión para el caracol reina procesado a peso nominal*. FAO Fisheries and Aquaculture Circular / FAO, Circular de Pesca y Acuicultura No. 1042. Rome/Roma, FAO. 97 pp. (also available at www.fao.org/docrep/014/i0996b/i0996b00.htm).

[5] FAO Western Central Atlantic Fishery Commission/FAO Commission des pêches pour l'Atlantique Centre-Ouest/FAO Comisión de Pesca para el Atlántico Centro Occidental. 2013. *Report of the first meeting of*

10. Mr Van Anrooy continued by giving an overview of the recent developments within WECAFC, which included WECAFC 15, held on 26–28 March 2014 in Trinidad and Tobago.

11. Recommendation WECAFC/15/2014/3 "on the management and conservation of queen conch in the WECAFC Area" was approved by the Commission at the session. This recommendation incorporated agreement by the Commission that:

a. Members of WECAFC implement the CITES CoP16 Decision on "Regional cooperation on the management of and trade in the queen conch (Strombus gigas)" and report, through FAO and the CITES Secretariat on progress with implementation of the decision, to CITES CoP17.
b. Members of WECAFC prepare (if relevant) national-level queen conch management and conservation plans, in line with the CITES CoP16 Decision, and put in place appropriate legislation in support of long-term sustainable queen conch stocks.
c. WECAFC, FAO and CITES cooperate closely and work jointly on the improvement and standardization of trade data and statistics (through regionally agreed conversion factors in the absence of national conversion factors based on regionally agreed processing grades and terminologies) for queen conch and its derivatives such as pearls, shells and opercula.
d. Members of WECAFC work towards determining and adopting national conversion factors based on regionally agreed processing grades and terminologies before the end of 2015 and communicate the adoption formally to the FAO and CITES Secretariats.
e. Members of WECAFC apply the corresponding regionally agreed conversion factors by the end of 2016.
f. Members of WECAFC prepare and share their NDFs in 2014 in support of well-informed decision-making processes at the national and regional levels for better conservation and management of the queen conch.
g. WECAFC sends this recommendation to the CITES Secretariat with the request that CITES include this topic in the work of the Animals Committee.
h. WECAFC, in close coordination with OSPESCA, CRFM, CFMC, CITES and the Specially Protected Areas and Wildlife (SPAW) Protocol Secretariat, develop a regional plan for the management and conservation of queen conch, in accordance with the best available scientific evidence to be presented to the sixteenth session of WECAFC for final review and regional adoption.

12. Mr Van Anrooy finalized his summary by pointing towards the achievements of the Working Group in the period 2012–14, which had been substantial and included:

- Draft Decisions on "Regional cooperation and management of trade in the queen conch" – adopted by CITES CoP16.
- A draft recommendation to WECAFC, adopted by the fifteenth session of WECAFC.
- Increased information and statistics available on the status of queen conch in the region.
- High-quality information in support of a balanced decision in the review process of queen conch in the ESA.
- Continued support from CFMC / National Oceanic and Atmospheric Administration (NOAA), CITES and FAO to queen conch management and conservation, including the availability of funding of this second meeting.

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the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch, Panama City, Panama, 23–25 October 2012. Rapport de la première session de la CFMC/OSPESCA/COPACO/CRFM, Groupe de Travail sur le Strombe Rosé, Panama, Panama, 23–25 octobre 2012. Informe de la primera junta de la CFMC/OSPESCA/COPACO/CRFM, Grupo de Trabajo sobre el Caracol rosado, Ciudad de Panamá, Panamá, 23–25 de octubre de 2012. FAO Fisheries and Aquaculture Report / FAO Rapport sur les pêches et l'aquaculture / FAO Informe de Pesca y Acuicultura No. 1029. Bridgetown, Barbados. FAO. 155 pp. (also available at http://www.fao.org/docrep/017/i3193t/i3193t.pdf).

13. He ended his presentation by thanking the CFMC Executive Director for convening the meeting and the CITES Secretariat for the support provided under project EP/SLC/003/UEP – CITES–FAO joint capacity building for implementation of the Decisions on "Regional cooperation on the management of and trade in queen conch (Strombus gigas)" adopted at CITES CoP16.

14. In the discussion that followed the presentation by the WECAFC Secretariat, some participants congratulated the CFMC and FAO for having been able to bring all organizations and stakeholders involved in queen conch again to the table to discuss management of the fisheries. It was also noted that a queen conch research agenda should be developed and that the Working Group should continue its activities towards improving exchange of information on queen conch fisheries.

QUEEN CONCH DEVELOPMENTS AT CITES

15. Mr Tom de Meulenaer, CITES Secretariat, presented the recent developments on queen conch within CITES. The CITES requirements for international trade in specimens of *Strombus gigas* provide that the specimens to be (re-)exported must have been obtained legally, that levels of authorized exports are sustainable, and that the international trade is monitored through a system of CITES permits and certificates, and reported. National CITES management authorities in the State of (re-)export make the legal findings (i.e. the specimens were obtained in compliance with national fisheries and conservation laws and agreements), issue CITES documents, and ensure annual trade reporting. CITES scientific authorities in the State of export make NDFs, and advise their national management authority accordingly before export permits are issued.

16. CITES CoP16 (Bangkok, March 2013), discussed Document CoP16 Doc. 65 (Rev.1) on regional cooperation on the management of and trade in queen conch, submitted by Colombia and drawing attention to two international queen conch meetings held in 2012, as well as the resulting Declaration of Panama City. After discussions, the Parties adopted Decisions 16.141 to 16.148, directed to range States of *S. gigas* and the CITES Secretariat, which are to be implemented between CoP16 (2013) and CoP17 (in 2016).

17. At the twenty-seventh meeting of the CITES Animals Committee (AC27, Veracruz, Mexico, May 2014), the CITES Secretariat submitted document AC27 Inf. 12 27, presenting the Final Report of the Fifteenth Session of the Western Central Atlantic Fishery Commission (WECAFC) (March 2014), including recommendation WECAFC/15/2014/3 "on the management and conservation of Queen Conch in the WECAFC area". The recommendation, *inter alia*, strongly supports the implementation of the eight CoP16 Decisions by the members of WECAFC. It also recognizes that illegal, unreported and unregulated IUU fishing for queen conch remains a major problem in the region, that some range States do not have a management plan, and that regionally harmonized terminology on processing and regional conversion factors are needed. Finally, it requests the Animals Committee to include trade in queen conch in its regular work, which AC27 formally took note of. At AC27, Colombia committed to preparing a report for the twenty-eighth meeting of the Animals Committee (AC28, Israel, September 2015) on scientific aspects of the implementation of Decisions 16.141 to 16.146.

18. Also at AC27, on the basis of Document AC27 Doc. 12.5 on Selection of species for Significant Trade Review (STR) following CoP16, the Animals Committee analysed CITES trade data concerning *Strombus gigas* for the period 2002–2012, concluding that trade was at high volumes, with sharp increases and high variability. It nevertheless decided not to select the species for a new review. Previously, *Strombus gigas* had been selected for the RST process in 1995–97, and again in 2001–03–05. Each of these reviews resulted in dramatic shifts in trade volumes and patterns, *inter alia* because of the various trade restrictions and bans imposed on countries exporting queen conch at unsustainable levels.

19. The CITES trade data for 2002–2012 show that the export of queen conch meat had remained stable at about 1 500 tonnes since 2004 (Figure 1) and the end of the second STR process. For 2002–

2012, Jamaica (25 percent), Turks and Caicos Islands (17 percent), Belize (16 percent), Honduras (13 percent), Bahamas (10 percent) and Nicaragua (10 percent) were major exporters of queen conch meat (Figure 2). During that period, the United States of America (65 percent) and France (32 percent) were the main importers (Figure 3).

Figure 1
Annual exports of *Strombus gigas* meat (in kg), 1993–2012

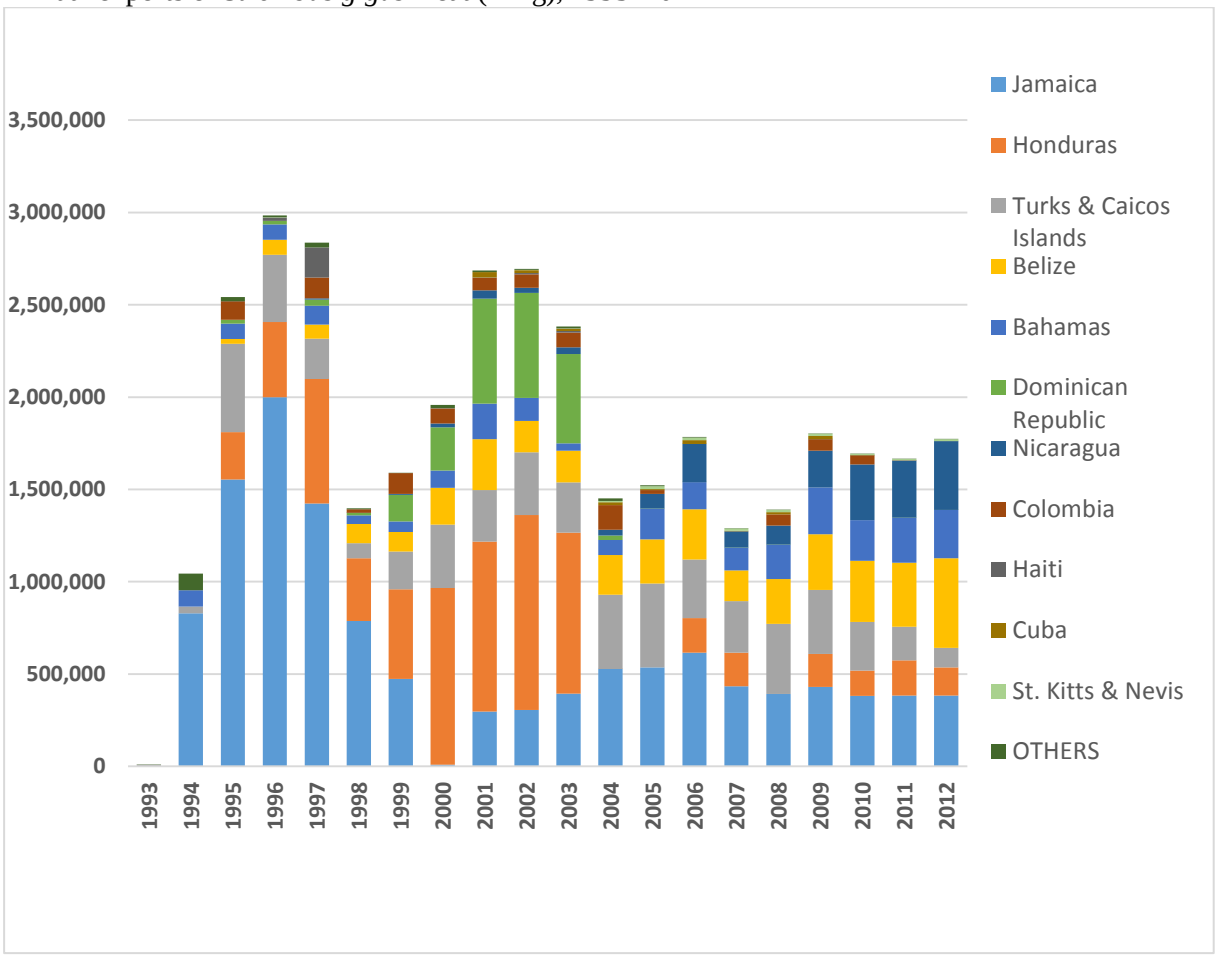


Figure 2
Exporting countries of queen conch meat, average 2002–2012

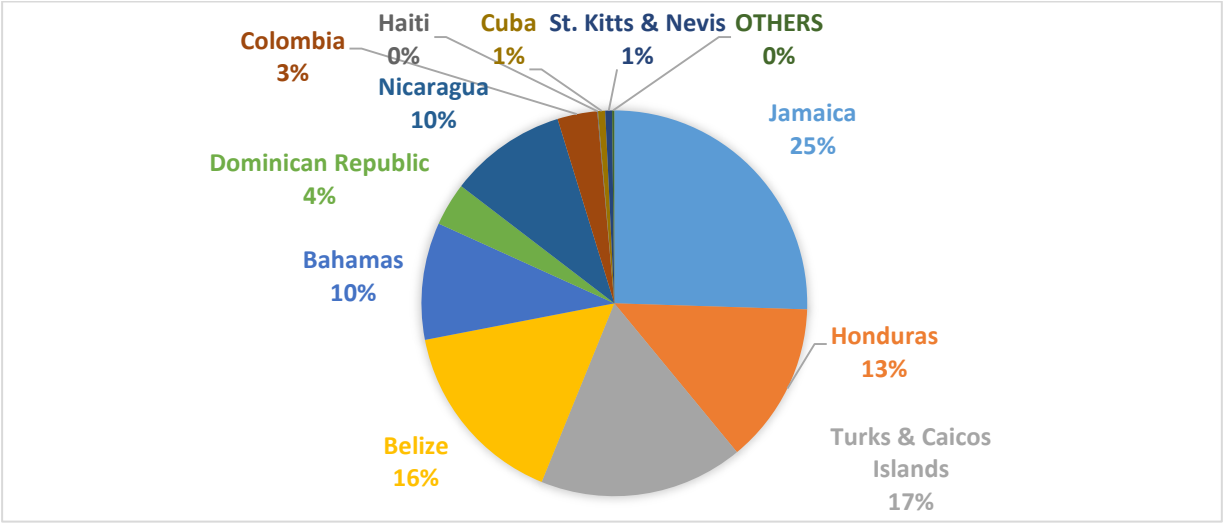
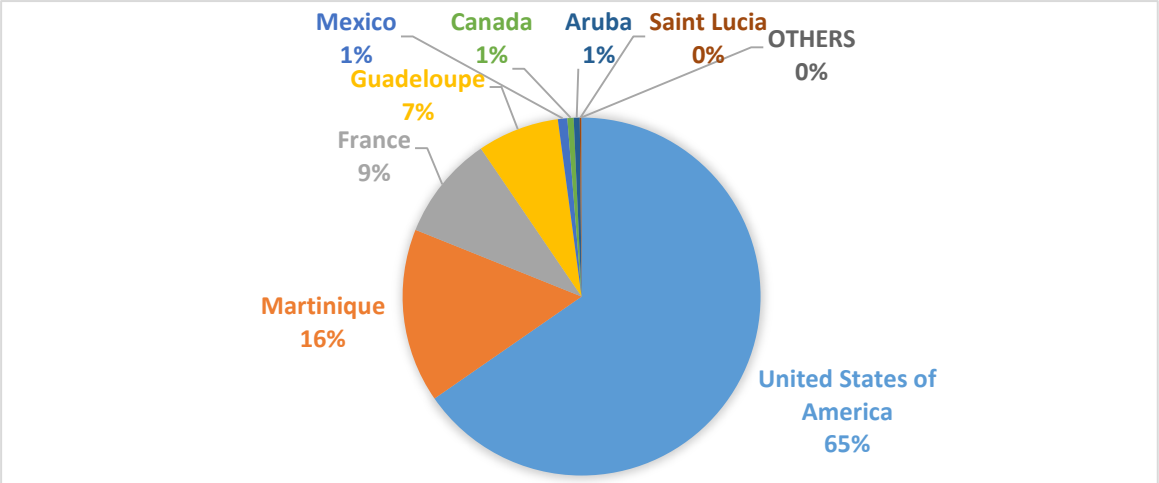


Figure 3
Importing countries of queen conch meat, average 2002–2012



20. Following the presentation the range of questions was very diverse. It was stressed that any proposal to the CITES CoP17 (scheduled for October 2016) should be made six months beforehand. It was added that the CITES mechanism was a valuable tool in support of queen conch management, but that many activities in terms of managing and conserving queen conch related more to national-level aspects rather than trade aspects. However, both are closely linked. Some participants noted that, owing to the trade limitations, the market price of conch had increased. It was also mentioned that it would be timely to find agreement on a regional conversion factor for conch meat.

QUEEN CONCH FISHERIES STATUS AND MANAGEMENT IN CRFM MEMBER STATES

21. Ms Elizabeth Mohammed, CRFM Secretariat, delivered a presentation on queen conch fisheries status and management in CRFM member States. The details of the presentation are summarized below and the references given can be found in Appendix 5.

22. The Caribbean Community Common Fisheries Policy (CCCFP) was confirmed by the Council for Trade and Economic Development on 10 October 2014 as a regional policy document. This is a milestone achievement for the region. The CCCFP sets forth the general guidelines for collaboration and cooperation among CRFM member States for the conservation, management and sustainable utilization of shared marine resources. In addition, Ms Mohammed made reference to respective CRFM Fisheries Working Group activities at the annual scientific meetings, the Castries (2010) Declaration on Illegal Unreported and Unregulated Fishing, the Regional Strategy on Monitoring, Control and Surveillance to combat IUU fishing (approved by the Ministerial Council in May 2014), the Coral Reef Regional Plan of Action (2014–2019) and the CRFM–OSPESCA Joint Action Plan as key initiatives also of relevance to the assessment and management of the queen conch fishery in CRFM member States.

23. An update was provided on CRFM achievements since the first meeting of the Queen Conch Working Group. In 2013, two projects were executed under the ACP Fish II Programme specifically on queen conch. The first project (SOFRECO, 2013), executed by consultants Ms Martha Prada and Mr Bob Glazer, provided theoretical and practical training in underwater visual survey methods for evaluation of stock status, which included production of a survey manual, preliminary estimates of the queen conch population (density and biomass) as well as total allowable catch for the Grenadine Islands and strategies for conch fisheries-independent surveys in Jamaica, Belize, the Dominican Republic, Saint Lucia and Antigua and Barbuda. The second project (MRAG, 2013), executed by

consultants Mr Paul Medley and Ms Monica Valle-Esquivel, focused on support to improve and harmonize the scientific approaches required in order to inform sustainable management of queen conch with a focus on five case studies for the Bahamas, Belize, the Dominican Republic, Grenada and Haiti. A regional review of assessment and management of queen conch fisheries was conducted, and a regional queen conch management options paper was developed. This paper, which is consistent with the recommendations of the Queen Conch Expert Workshop in 2012, the Panama Declaration of 2012 and the CITES Resolution (CoP16 of March 2013), is to form the basis for a regional queen conch management plan by Caribbean Community (CARICOM) States, having been endorsed by the Caribbean Fisheries Forum and the CRFM Ministerial Council in 2014. The paper provides recommendations for key elements of the harvest strategy, namely, data collection, data analysis and management, which are of relevance to efforts to develop a regional management plan for the queen conch fishery within the WECAFC area (FAO Statistical Area 31).

24. Other achievements since the 2012 Working Group meeting included the CRFM's consolidation of data, information and responses to the proposed listing of the queen conch under the United States Endangered Species Act and its efforts, along with other partner agencies, to have this proposal overruled by the United States of America as well as several activities at the 2014 CRFM Scientific Meeting, including a review of the Jamaica, Pedro Bank, queen conch fishery-independent data analysis and estimates of catch quotas for 2014, and efforts by Belize and the Bahamas to estimate queen conch conversion factors from whole (live) weight to exported (processed) weight.

25. Statistics – annual catch: A brief description of queen conch fisheries in CRFM member States was provided. Time series catch statistics for the FAO–WECAFC Area 31, highlighted the relative importance of this fishery for the CRFM member States, with annual catches averaging 64 percent of total catches in the area between 2002 and 2012 (ranging between 46 and 79 percent). As FAO has at times estimated catches in the absence of country data, there is a need for FAO to identify the data sources and methodologies used to derive such estimates that are reflected in its FishStatJ statistical database. There was also evidence that recent queen conch catch estimates in the FAO database were underestimated (in the case of Barbados in particular). Some countries traded with China in opercula (Jamaica) and shells (Turks and Caicos Islands). However, there was uncertainty in the overall trade in non-meat conch products by CRFM countries.

26. Statistics – conversion factors: Some CRFM countries have developed conversion factors (e.g. Antigua and Barbuda, Barbados, the Bahamas, Belize and Jamaica – in Horsford *et al*., 2012, 2013; Oxenford, Willoughby and Downes-Agard, 2014; Perez, 2014) but the exercise has not been rigorous or standardized across various grades of processing and countries.

27. Statistics – data collection systems: There has been some success with the collection of total catch and catch and effort data from purchase receipts provided by exporters and processors, mainly though large establishments and central markets. In some cases, routine trip interview programmes provided good-quality data from landing sites, with some countries having random, stratified systems along with vessel-census information to allow estimation of total landings. Only Jamaica implements a logbook system for its large-scale vessels. A continuing challenge is the capture of statistics on the quantity of queen conch consumed locally. Processors and exporters play a key role in the provision of trade data, facilitated through the CITES permitting system, as well as linkages with national authorities responsible for trade, customs and excise. With the exception of Antigua and Barbuda and Jamaica, biological data (length, weight, sex, maturity) are not collected routinely but instead may be focused on specific short-term research programmes. The biological sampling of exports in Belize serves to monitor compliance with associated regulations. Except for Antigua and Barbuda, most countries do not routinely collect socio-economic data. However, Saint Lucia and Turks and Caicos Islands conducted ad hoc socio-economic surveys in 2008 and 2010, respectively. Both Belize and Jamaica depend on abundance information from visual surveys to assess conch stocks. Such surveys are standard, well-developed methods to collect information on biomass, density and stock structure.

28. Policy and legislation: Except for Haiti and Turks and Caicos Islands, all CRFM member States are parties to CITES. Therefore, their policy and legislation concerning queen conch fisheries are guided by the CITES requirements, with all countries having a national CITES committee. Often, this committee is without expertise and experience in fisheries science and management, and consequently relies on inputs from national fisheries departments. There is a need for such committees to comprehensively review fisheries science and decision-making. In general, there is a need to review the performance of CRFM member States that are involved in the trade in queen conch. General management and conservation as well as monitoring, control and surveillance of queen conch fisheries are guided by the Caribbean Community Common Fisheries Policy, the Castries (2010) Declaration on Illegal, Unreported and Unregulated (IUU) Fishing and the Regional Strategy on Monitoring, Control and Surveillance.

29. Current fisheries legislation of most member States makes provisions for licensing and registration of local and foreign fishing vessels, fisheries research, fish processing and export licensing, a range of conservation measures and regulations and enforcement. The fisheries legislation among countries of the Organization of Eastern Caribbean States (OECS) is harmonized. The fisheries legislation of some CRFM member States is currently being updated. Although most legislation makes adequate provision for good management practice, the major challenge is the limited resources for implementation. Most CRFM member States do not have specific conch fishery management plans (FMPs). Draft FMPs exist in Jamaica (1994), Belize (2007) and Barbados (2009), and these are partially being implemented. There is in most instances a need for well-defined harvest control rules for the queen conch fisheries in the region. Although IUU fishing is a serious issue in some countries, only Antigua and Barbuda and Belize have developed related national plans of action.

30. Fisheries management and conservation: A range of conservation and management measures are used among CRFM member States, ranging from effort limits to minimum size limits, closed seasons and areas, and gear controls. Jamaica, the Bahamas, Antigua and Barbuda apply catch and effort controls through a special permitting system. In most countries, a commercial fishing licence is required to fish, but such systems are not currently active licensing systems used for direct control of effort. Often, the responsibility for fishing vessel registration is not within the control of fisheries departments. Most countries have a minimum size limit, but this is often applied to the shell and is difficult to enforce as the shells are discarded at sea. Jamaica, Belize and Turks and Caicos Islands have implemented export quotas with enforcement at the point of export and import to the United States of America, the main market. Closed seasons are widely, but not universally, used. In some countries, queen conch is targeted during the lobster closed season (the Bahamas and Turks and Caicos Islands). Turks and Caicos Islands has imposed a closed season for queen conch during the lobster open season as a measure to ensure that the queen conch quota can be taken throughout the lobster closed season. Closed areas have been applied with varying degrees of success in a few countries (e.g. Belize and the Bahamas). However, in some cases, protected areas are not designated specifically for the purpose of conserving queen conch, and monitoring of such areas continues to be an issue. Some countries prohibit certain gear, e.g. use of compressed air, which prevents exploitation of the population in deeper waters and consequently lowers mortality of the spawning stock.

31. A vessel monitoring system is implemented only in Jamaica, for the industrial fleet. Although the system is useful for combating IUU fishing, it is somewhat cost-prohibitive and, consequently, appropriate systems for smaller vessels are being investigated. Other control measures include the prohibition of possession or sale of diced conch meat in Belize, and a catch limit of three conch specimens per person per day in the recreational queen conch fishery in Jamaica. In most instances, the effectiveness of conservation and management measures has not been evaluated owing to inadequate data and information. However, size limits have been evaluated in Belize, which targets a subadult population, and found to be effective, whereas a similar evaluation in the Bahamas has found that the minimum size limit is probably the size at maturity. Closed areas in Belize appear to be sufficiently protecting significant stock biomass and habitat, but marine protected areas (MPAs) in the Bahamas appear to be protecting too small a portion of the stock to be effective. The banning of the

use of compressed air also appears to be a success in Belize and Turks and Caicos Islands as a means of reducing fishing mortality on spawners in deeper waters.

32. Consumption and trade: Some countries have estimated local consumption, which is reported in varying units. Trade figures were not available at the time of the meeting. In most instances, the main export market for conch meat was the United States of America, except in the case of Jamaica where the European Union (Member Organization) (overseas regions of France – Martinique and Guadeloupe) is the main market. Trade in queen conch is negligible in Antigua and Barbuda and non-existent in Barbados. Trading countries have not yet submitted their NDFs to CITES.

33. Research and stock assessment: Since 2006, fisheries analyses and stock assessments of queen conch stocks have been conducted by the Conch and Lobster Resource Working Group and, more recently, the Reef and Slope Fisheries Working Group at the CRFM annual scientific meetings, for the following countries: the Bahamas (CRFM, 2006, 2014), Belize (CRFM, 2014), Jamaica (CRFM 2006, 2009, 2012, 2014), Turks and Caicos Islands (CRFM 2006, 2007, 2010) and Saint Lucia (CRFM, 2007, 2008, 2009). Reports of these analyses and assessments provide management, statistics and research recommendations. Queen conch stocks in the Bahamas were considered not overfished (Deleveaux and Ehrhardt, 1999). In Belize and Jamaica, there was no evidence of stock decline (BCFU [2010] in SOFRECO, 2013). In Turks and Caicos Islands, the stocks were considered to be in a good state in 2006 but suffered declines owing to a hurricane in 2008 (CRFM, 2007, 2010). In Saint Lucia, the stock was found to be overfished but not being overfished in 2008 (CRFM, 2009). In addition, some countries also conduct research on conch fisheries with national, regional and international organizations and research institutions. In Barbados, several research initiatives have been led by the University of the West Indies (Centre for Resource Management and Environmental Studies) and partly funded by the government to support policy development and legislation in meeting national obligation and commitments to regional and international agreements (Oxenford, Willoughby and Downes-Agard, 2014). The key areas of research include: fishery description and marketing arrangements; fishery-independent abundance surveys; movement patterns; behaviour; reproductive behaviour and biology and larval recruitment. Relevant research in Saint Vincent and the Grenadines includes: baseline assessment and mapping of coastal and marine resources within the South Coast Marine Conservation Area (SCMCA); assessment of additional and alternative livelihoods (also within the SCMCA); and an evaluation of national legal and organizational frameworks for MPA management within Saint Vincent and the Grenadines – Caribbean Aqua Terrestrial Solutions (CATS) Project (Isaac, 2014). The latter is aimed at contributing to achievement of the Caribbean Challenge Initiative – target of 20 percent of marine and coastal habitats to be protected by 2020.

34. After this summary, various CRFM member States thanked the CRFM Secretariat for putting together an excellent overview. Some members added information on the stock status, safety-at-sea aspects, need for traceability of conch meat, options for joint inspection/monitoring of stock status and conch fisheries, impact of natural disasters (hurricanes) on the stocks, and any progress made in terms of the preparation of their national management plans for queen conch fisheries. Some discussion took place on the use of gillnets by Martinique and Guadeloupe in their queen conch fisheries, which was considered an unsustainable practice by various experts.

QUEEN CONCH FISHERIES STATUS AND MANAGEMENT IN OSPESCA MEMBER STATES

35. Mr Manuel Perez, on behalf of the OSPESCA Secretariat, presented the queen conch fisheries status and management in OSPESCA member States. The distribution and abundance of the queen conch fisheries resources in the Caribbean largely depends on the size and geomorphology of the continental shelves. Queen conch remains one of the important items in the fisheries exports of the OSPESCA countries. In general terms, queen conch has a limited local consumption. More than 80 percent of the production by OSPESCA member States goes to international markets, with the United States of America as the main importing country. The main exporting countries in the region

are Nicaragua, Belize and Honduras. A permanent closed season for queen conch has been established in Costa Rica and Panama.

36. The main product landed and exported is the meat, presented in different processing grades. Queen conch is either a fisheries target species or bycatch of the spiny lobster catch in artisanal or industrial fisheries, and the species is collected by scuba or other forms of diving. Other items traded are shells, opercula pearls, carvings and derivatives.

37. The recent change of maritime boundaries between Nicaragua, Honduras and Colombia has had an effect in the change of sovereignty in favour of Nicaragua over the waters where the main queen conch fishing grounds are located.

38. Import data from United States customs show a shift in the import pattern. Before 2005, the main countries exporting to the United States of America were Honduras and the Dominican Republic, whereas Nicaragua and Belize are now the most important exporters from OSPESCA member States of queen conch to the United States of America. Mr. Perez also presented some examples of mistakes found in the CITES trade database regarding queen conch exports and imports.

39. From an OSPESCA viewpoint, queen conch fisheries are of less importance than lobster fisheries and generally follow CITES regulations for exports. There are often national regulations for queen conch fisheries in place, but there is no harmonization of management measures at the regional level. The trend in exports shows that these are not declining. However, better and more accurate estimates of landings are needed. With regard to research, the authorities have emphasized surveys on stock density estimates. However, little has been done towards queen conch stock assessments based on actual production. The development of analytical models and standardization of stock assessment methods is needed.

40. Following the well-received presentation by Mr Perez, the meeting asked some questions on OSPESCA's view on the development and usefulness of a regional queen conch management plan. Regarding the implementation of some of the proposed regulations and the adoption of the queen conch regional management plan, the delegate from OPESCA mentioned that under its current subregional governance system within the SICA framework there is the possibility to include a formal process of approval that could result in a subregional binding agreement. However, formal requests and communications through the Secretariats (WECAFC and OSPESCA) to the countries to foster and facilitate the process are needed if such a binding agreement is desired. A voluntary (non-binding) agreement is easier to achieve.

41. Some experts mentioned that the data presented for Honduras include some data of capture in Jamaican waters. The scientific quota for queen conch catches (210 tonnes of 90 percent clean meat) applied by Honduras was noted. It was also explained that import and export reports from countries should match, as some errors had been found in the trade CITES database as noted by Mr Perez in his presentation. If there are differences between exports and imports reported by specific countries, then this will receive follow-up investigation from CITES. The reports on imports and exports are all available from the United Nations Environment Programme – World Conservation Monitoring Centre (UNEP-WCMC) website (www.unep-wcmc.org/).

QUEEN CONCH FISHERIES STATUS AND MANAGEMENT IN OTHER WECAFC MEMBER STATES

42. **Cuba:** Mr Enrique Plaza Mildestein, Ministry for the Food Industry (MINAL), Cuba, presented an overview of the fisheries regulations and management measures in place in Cuba for queen conch. He also gave an overview of the number of vessels, historical catches, quotas applied, conversion factors, industry indicators, transport and labelling practices applied in Cuba. He informed the meeting that the main export market for conch meat had been Canada in recent years and that the

market price per tonne of meat increased substantially between 2010 and 2013, from USD6 590 to USD8 762.

43. **Mexico:** Mr Pedro Ulloa, Regional Centre for Fisheries Research of Banderas Bay, and Mr Emmanuel Rivera, CITES Scientific Authority of Mexico, presented a summary of the queen conch status and trends in Mexico.

44. In Mexico, the queen conch (Strombus gigas) is distributed mainly in the States of Yucatan and Quintana Roo in the Yucatan Peninsula. Its use is regulated within the framework of the General Law on Sustainable Fishing and Aquaculture, Close season regulations and the NOM-0013-PESC-1994 and the National Fishing Chart which limits capture to a minimum size of 20 cm. and it establish as reference point a density of 0.0048 ind/m2. Been that it is listed on CITES Appendix II, its international trade is regulated within the framework of this Convention. Prior to commercial use authorization, INAPESCA develop expert studies to evaluate adult's density (biomass and number of individuals).

45. In Banco Chinchorro from 1989 to 2011there was a decrease of individuals; monitoring from 2011 to this say shows a preliminary trend towards the stabilization of this resource. Local universities, institutes and the National Commission of Natural Protected Areas have taken part in the evaluation of this and other banks along the peninsula, they have also taken part in studies on genetics, mariculture, environmental education and socio-economic monitorings.

46. In México the catch is used for national consumption and the shells of the individuals caught are exported. From 2000 to 2013, 71, 470 pieces and 10.7 ton. of shells were exported with the USA as the main market. During that same period 118.7 ton of meat was imported mainly from Belize.

47. Currently within the Yucatan State there is permanent close season, in Q. Roo there is an annual close season from May 1 to Oct. 31 and a total ban for Banco Chinchorro from 2012 to 2017. In order to increase the density of the species in B. Chinchorro, from 2008-2011 10,000 individuals were translocated resulting in an increase of 0.002 to 0.036 ind/m^2. Fishing cooperatives assisted by the Federal Government have implemented Surveillance Committees to avoid poaching and to promote good practices through environmental education. In order to have simplified procedures regarding NDF it is necessary to consider key indicators which will enable us to determine the sustainability of authorized use, therefore it is recommended to consider previous experiences such as the International Workshop on NDF (Cancun, 2008) and the Workshop on capacity building with regards to NDF (Dominican Republic, 2010).

48. The presentation was followed by intense discussion on the application of the closed season. It was noted that the fishers had requested the closed season and that as alternative income source some fishers targeted lionfish in the closed season and others were involved in tourism. Several other countries mentioned that fishers were in fact calling for a harmonized closed season and level playing field in the region. It was confirmed that queen conch meat could be exported from Belize to Mexico while Mexico has a closed season (for capture of conch). However, it was noted that illegal practices of export of conch to Belize and re-import during the closed season should be addressed.

49. **The United States of America:** Ms Nancy Daves, United States National Marine Fisheries Service of NOAA, presented the status of conch fisheries and trade in the United States of America. She described the fishing industry in the Florida, United States Virgin Islands and Puerto Rico, and provided information on the status of the resource and its fisheries. She discussed also data collection systems in place, as well as policy and legislation of relevance to the fisheries. Particular attention was given to the Endangered Species Act (ESA) process under which the queen conch had recently been reviewed. The meeting was informed of fisheries management and conservation measures taken by the United States of America and consumption and trade trends. The increases in imports of queen conch meat from Nicaragua, Belize and the Bahamas in recent years were also presented.

50. In the discussion that followed the presentation a range of issues was raised. It was noted that the United States of America had a joint obligation with the exporting countries to ensure that conch imported by the United States of America is from non-IUU fisheries. In this respect it was mentioned that Secretary of State HE John Kerry had established an IUU task force and that there was an increasing focus on traceability and capacity building against IUU fisheries. Reference was also made to the recently established IUU Fisheries Working Group under WECAFC, which is convened by the CRFM.

51. It was also noted that the recent positive outcome of the ESA process for queen conch could be only a temporary issue if no progress were made towards guaranteeing the sustainability of the resource. According to some experts, the importance of environmental (non-fisheries) factors that affect the queen conch resources should be investigated. Some other experts mentioned the need to implement catch certification programmes, which would not only benefit traceability but also enable the sector to know better the domestic/national consumption of queen conch, including consumption by tourism.

52. **Colombia:** Ms Trisha Forbes, Agriculture and Fisheries Department of San Andres, made a presentation on the management and conservation of queen conch in Colombia.

53. Currently the National Authority on Aquaculture and Fishery (AUNAP) issue everything pertaining to fisheries statistics, through bulletins issued by Colombia Fisheries Statistics Service – SEPEC. By 2014 an Independent General Database for Queen Conch Fisheries was generated.

54. Colombia has made great efforts to achieve sustainable management of queen conch following FAO and CITES directives. They are a number of independent studies carry out by fisheries and environmental authority and the universities. Since 2003 San Andres, Providencia and Santa Catalina began inter institutional expeditions focus on the evaluation of this important resource. Currently artisanal fishers are allowed to catch queen conch at the Serrana Bank, with an extraction quota of 16 tons. One hundred percent (100%) of that quota is for local consumption.

55. The Colombian government includes within its development plan assisting with the recovery of the country's fishery sector as a key aspect of this plan; having as guidelines research and technology transfer. However, despite the efforts and intention to find the most adequate management model to contribute to the recovery of queen conch a regional cooperation is required in order to reduce the pressure brought on by illegal harvesting in most of the Caribbean countries. The ecosystem based management approach was included as a sustainability criteria, application of control regulations of 8% proposed by Medley (2005), increasing the restrictions on smaller fish banks.

56. France (Martinique and Guadeloupe): Mr Guillaume Perrin, Fisheries Department, Guadeloupe, and Ms Myriam Bouaziz, French Research Institute for the exploration of the Sea (Ifremer) presented the status of queen conch in the French West Indies.

57. Three fishing techniques targeting queen conch are practised by professional fishers in the French West Indies: free diving, and the use of trammel net and bottom gillnet. Scuba diving is forbidden. Since 2006, production and fishing effort have been monitored through the fisheries information systems (FIS) designed by Ifremer. To evaluate the number of fishing trips, phone surveys are conducted with captains according to a stratified sampling process, or they are calculated from the vessels' consumption of fuel and the calendar of activity by each vessel. The local production estimations are also compiled from phone surveys supplemented by observations and biological sampling from the main landing sites.

58. In Martinique, owing to the small queen conch fleet (27 vessels in 2012), the sampling applied does not allow for a relevant estimation of queen conch catches. In Guadeloupe, 20 tonnes were landed in 2013. In the two cases, the queen conch fleet has been increasing in recent years, with an

important part of the landings from nets (> 75 percent) in Guadeloupe. A thesis is ongoing on sea turtle bycatch by queen conch nets. The first results show that a low profile "folle" net (loose mesh) without floats should be the most efficient and selective gear. In Martinique, shells are mainly used by the last three active lime kilns, given or sold for about EUR0.02 each. Pearls are retailed by fishers to jewellery stores at EUR200–3 000 each (5–6 pearls a year).

59. With FAO/WECAFC support, a field survey was carried out in October 2014 in Martinique on 210 animals. It allowed the following conversion factors to be determined from the nominal weight: 5.6 for the dirty weight; 8.6 for the "50% clean" grade; and 15.0 for the fillet.

60. Queen conch fishing is regulated by law (two different decrees are applied on the islands). The catch of juveniles, auricle unformed or cleaned meat weight under 250 g, by professional and recreational fishers is forbidden. A closed season (which is depth dependent) is implemented in Guadeloupe. A method for queen conch resource assessment was worked out by video transects by the regional committee of fisheries in 2008. Results show a positive effect of the closed season, but no significant effect of MPAs on conch densities. To date, Saint Barthélemy has been under the fishery legislation of Guadeloupe, but from 1 January 2015, an independent legislation will be in place. In Martinique, a new regulation is under discussion to ban trammel nets and implement a closed season for queen conch fisheries.

61. No queen conch exports take place from the French West Indies, and legal imports originate only from Jamaica. The queen conch plays an important economic role in the trade between these two countries. In 2013, 308.5 tonnes were imported by Martinique and 36 tonnes by Guadeloupe. The average market price of the local product is about EUR21/kg. Illegal imports from other neighbouring countries are difficult to estimate, but almost one tonne of meat is seized annually on each island. Since the 2012 first meeting of the Queen Conch Working Group, the enforcement of fishery regulations has improved through annual fishery inspection plans in both Guadeloupe and Martinique. These inspections aim to coordinate efforts by the various government services involved in this matter (customs, veterinary inspection, guards of MPAs, maritime affairs coastal units, and navy).

62. The discussion the followed the presentation included many aspects of queen conch fisheries and management. Among others, the sustainability of the use of trammel nets for queen conch fisheries was questioned. The applicability of IUU fisheries regulations of the European Union (Member Organization), trade between Martinique and Guadeloupe, prices of queen conch at regional level, trade inspections practices, illegal trade by fishers at night, and the usefulness of combining a closed season with depth limits were discussed.

NON-DETRIMENT FINDINGS

63. Mr Sjef van Eijs (FAO consultant) made a presentation on NDF: requirements, tools and capacity. He noted that the queen conch (Strombus gigas) conservation track record showed that it had been the first large-scale fisheries species to be regulated by CITES and had been placed on Appendix II in 1992, which implied trade and fishing restrictions. He added that the state of the queen conch resource was very sensitive to environmental changes and harvesting levels. Despite substantial biological surveys, there are still large voids in the understanding of the species dynamics, particularly within the regional context. The level of harvest that a species can sustain depends on its biological and habitat characteristics, as well as on the nature and selectivity of the harvest and the effectiveness of the management regime.

64. In line with the CITES decisions, many countries have adaptive management programmes in place, which allow adjusting and improving management from lessons learned (monitoring and control systems) and from improvements in data gathering and analysis. The application of the precautionary principle is a common feature in these programmes.

65. One of the major implications of the inclusion of queen conch in Appendix II of CITES is that the countries with queen conch fishing and trade are required to regularly produce an NDF for the local CITES scientific authority to justify a determined level of trade. Although most countries produce an NDF, its contents and formats vary widely. The production of NDFs is supposed to be a dynamic process, performed by local authorities and reviewed by the national CITES scientific authority. The NDF activity monitors and reviews, on a continuous basis, variables that determine the species population trends within the established thresholds. An NDF identifies tendencies and risks, and proposes management measures to be taken or adjusted in order to further encourage positive developments and/or mitigate risks.

66. CITES makes it clear that it has no standard model or format for NDFs, because of the sheer number of species of animals and plants covered. However, in Res. Conf.16.7, CITES provides concepts and non-binding guiding principles to the scientific authority for the preparation of NDFs, which relate to the fact that the data requirement should be proportionate to the vulnerability of the species concerned, as well as that adaptive management, including monitoring, constitutes a core element of any NDF.

67. The proposed NDF format for the queen conch producing and trading countries has taken into consideration various NDF guidelines and proposed formats for different species or groups of species. The most notable among these were the IUCN Guidelines (2002 and 2008 versions), Rose's (Version 2.1, 2014) Non-detriment Findings in CITES, the case study formats presented at the Cancun Workshop (2008), and CITES NDFs for shark species and seahorses.

68. Considerations for the elaboration of the proposed NDF format for queen conch producing and trading countries included the following:

- The proposed NDF format is meant as a due diligence and best practice guideline for those countries that currently do not make NDFs and/or that find it difficult to determine the required contents. Countries that already produce NDFs on a regular basis may find the proposed format suitable for reasons of regional comparisons and uniformity.

- Although the design and content of the proposed queen conch NDF format aspire to be practical, simple and cost-effective to produce, it should, at the same time, include most, if not all, queen-conch-relevant conservation specific issues as required by the national CITES scientific and management authorities for an adequate evaluation procedure. The proposed NDF format strives to include all those aspects that are required for a comprehensive assessment as requested by CITES.

- The format should be suitable for national and regional application, allowing for decision-making on a unilateral level, as well as provide a basis for regional comparisons and collaboration.

- The proposed format is meant to serve as a base document. It is unlikely that from the outset relevant information on all the mentioned topics will be available. The NDF format will provide an opportunity to gradually cover more of the topics and make the assigned national authorities aware of other pending issues, which can be included once information recollection constraints have been overcome and as information from a variety of other national and international sources becomes available.

- Most of the NDFs will not be outright positive or negative findings, but come with conditions for improving management in areas such as restrictions on catch, monitoring and control systems

requirements to ensure compliance, and/or the need for traceability from catch to consumer. An NDF generally promotes the introduction and application of a precautionary approach.

- The format includes multiple-choice as well as open questions. It is considered that the multiple-choice option does not always adequately reflect the level of knowledge, monitoring and control. Moreover, the multiple-choice option does not allow measuring of the progressive improvements achieved between the respective evaluation periods.

69. The proposed queen conch NDF format was made up of 10 information categories, divided into 57 subcategories to make the complex queen conch ecology more accessible. Although the subcategories closely follow the checklist of the International Union for Conservation of Nature (IUCN), they were extended in order to be more in line with those issues that have, directly or indirectly, a bearing on the sustainable exploitation of queen conch as a commercial resource. The available information can be reproduced in a number of indicators, which in turn will be used to make and/or adjust management decisions. Indicators can be obtained from scientific research or other sources.

70. Of the ten main categories included in the format, the first three contain basic information that can be obtained with relative ease from national records and general references and that is adequate to serve as a rapid or early warning assessment of the state of the species.

71. The next four categories deal with management of the resource and how actual fishing affects the role of the species in the ecosystem and its sustainability. The indicators obtained will provide a clear picture as to where more and better information is required. This can be achieved either through more research and improved monitoring, control and feedback systems, which, in turn, will be reflected in more robust management.

72. One category is dedicated to the trade in queen conch products, because market forces determine to a major extend the exploitation levels. This part provides the scientific and management authorities with information to check on due diligence and compliance in relation to the established export quotas and exploitation of the species. The ninth category deals with commercial culture and ranching activities. Currently, these are very few and not significant in the scheme of things. They may grow in importance in the future as a market for their products (aquarium, etc.) develops.

73. A last category concerns two subcategories, natural phenomena and legal framework, of which particularly the first one may become of major importance for the species' survival and may have a detrimental impact.

74. Mr Van Eijs presented the above, making reference to a table in the background document presented (Table 1 in Appendix 6). On the basis of that table, a much-shortened table has been elaborated with the inclusion of a limited number of key variables and indicators, which can serve as a basis for quick assessments.

75. He stressed that among the important generalized questions that have to be answered by the information provided in the NDF, the following stand out:

1. In which way is species managed?
2. What is the current conservation status of the species?
3. Is there enough management in place to mitigate the risk of resource overexploitation?
4. What information does the country need to provide through the NDF to prove that trade is not detrimental?

76. Mr Van Eijs finalized his presentation with some recommendations and conclusions from the research he undertook in preparation of the background paper. These were the following:

1. References to applied and accepted protocols, methodologies and terminologies should be provided for easy understanding and, above all, for regional comparisons and consensus.
2. A major effort should be made to ensure that competent national authorities as well as the local CITES scientific and management authorities focus their efforts on a regional approach to the issue at hand.
3. Queen conch pearls and operculum are set to become relatively important in the near future compared with processed meat and should accordingly be duly included in the NDF evaluation.
4. The validity of an NDF should be put at one year. This period coincides with the validity of various quotas and provides an adequate period for the introduction of new management guidelines and for the evaluation of research and monitoring requirements and results.
5. Queen conch provides an income/lifeline to an estimated 20 000 artisanal fishers in the region, in addition to the employment created through the processing and trade in queen conch products. Importantly, it also constitutes a much-appreciated traditional food item to the local population, as well as international tourists. Because of this, it appears appropriate to bring economic and social issues into the equation of sustainable development and not to consider only environmental issues as CITES does. Successful implementation and compliance of a management scheme may strongly depend on the overall socio-economic impact.

77. In the plenary discussion that followed the presentation, there was a lengthy discussion about the necessity of a regional NDF format and the purpose of the document presented. It was pointed out that the data must justify the harvest levels/levels of export, demonstrating that, despite the export the NDF is requested for, the population remains healthy and the landings are legal and not detrimental to the sustainability of the resource.

78. The CITES Secretariat clarified that the CITES parties have indicated that they require a flexible queen-conch-oriented NDF format. The levels of detail that have to be included in the NDF reports to CITES depend to a large extent on the level of exports and the vulnerability of the resource. Countries with a minimum export can do an NDF with just a few indicators, but it is different if the export is significant. However, it was emphasized that there was a difference between what is feasible and what is not in the various countries owing to local conditions, including different levels of capacity.

79. The experts recommended that, in the absence of data, the precautionary approach had to be applied. The lack of information is not a green light to continue fishing. The NDF draft document presented to the meeting should be considered a guideline and a list of tools to provide inputs to an adaptive management plan. While a full NDF should preferably be done annually, a rapid assessment including just some of the elements could be undertaken, for example, in the case of an emergency or upon the request of another country or CITES. However, any NDF prepared must be based on research that meets international standards for good science.

80. The meeting discussed a second table (Table 2 in Appendix 6) in detail and agreed that the draft NDF guideline format should be considered a guidance for the range States and would be finalized by a small group of experts, after which it would be published on the CFMC, CITES and WECAFC websites to facilitate the preparation of NDFs by the countries. The finalized NDF guideline format, including the finalized tables (as mentioned above) can be found in Appendix 6.

CONVERSION FACTORS

81. Mr. Manuel Perez, FAO consultant and representative of OSPESCA, presented the study "Conversion factors for processed queen conch to live weight" (see Appendix 7) carried out within the framework of the joint CITES–FAO project and prepared in collaboration with FAO.

82. In order to be comparable among countries and allow consistent studies on regional trends, all queen conch catch data should be in live/nominal weight (animal with shell). Catch statistics reported by countries to FAO often do not refer to the whole animal with the shell but to various levels of processing, and most countries do not specify in their reports which processing grade their data refer to.

83. Weight data for the three most commonly used processing grades (dirty, 50 percent clean, and 100 percent clean) were obtained, either from field surveys or from the literature, for the following nine countries and territories: Antigua and Barbuda, the Bahamas, Barbados, Belize, the Dominican Republic, Honduras, Martinique, Mexico and Nicaragua. All subregions of the Western Central Atlantic were represented, with two countries from the northern Caribbean, three from the eastern Caribbean, and four countries from continental America.

84. During the discussion, some participants had reservations about the usefulness of calculating live weight. However, the need was reiterated of having queen conch catch data in a uniform standard and meaningful term among countries for FAO statistical purposes, which also allows the annual total live weight of conchs removed from the waters in the whole region to be determined. Live weight is the standard used by FAO for the compilation of world catch statistics.

85. The meeting endorsed the following regional conversion factors for the three processing grades as proposed in the presentation.

Processing grade	Conversion factor
Dirty meat	5.3
50% clean	7.9
100% clean	13.2

86. The meeting agreed that countries and territories that had already established their national conversion factor should continue to apply them in order to calculate the live weight and inform FAO of the conversion factor applied. Countries and territories without national conversion factors should apply the regional conversion factor relevant to the processing grade in which they collect the data in order to raise them to live weight.

87. With the purpose of finally having all catch data in live weight by applying the appropriate conversion factor for the relevant processing grade, countries and territories were requested to report as soon as possible to FAO in which processing grade their past data had been submitted or provide the whole historical data series on queen conch harvest in live weight according to either the national or the regional conversion factors.

88. Countries should continue to collect weight data by processing grades to update and improve the agreed regional conversion factors and for other possible additional conversation factors (e.g. 85 percent clean), which are used in some countries.

FISHERIES MANAGEMENT AND CONSERVATION PLAN

89. Ms Martha Prada, consultant for the CFMC, presented the first draft of the Regional Queen Conch Fisheries Management and Conservation Plan (FMP). She presented aspects of the background, importance of the species, description of the fishery, as well as the main challenges faced by the fisheries resource managers. These challenges covered a wide variety of topics such as: catch data, conversion factors, fishing efforts, surveys, CITES permits, unsustainable fishing aspects/habitat concerns, IUU fishing, surveillance, fisheries regulations enforcement, human safety and participation in the decision-making process. Eight objectives were identified to address these challenges regionally

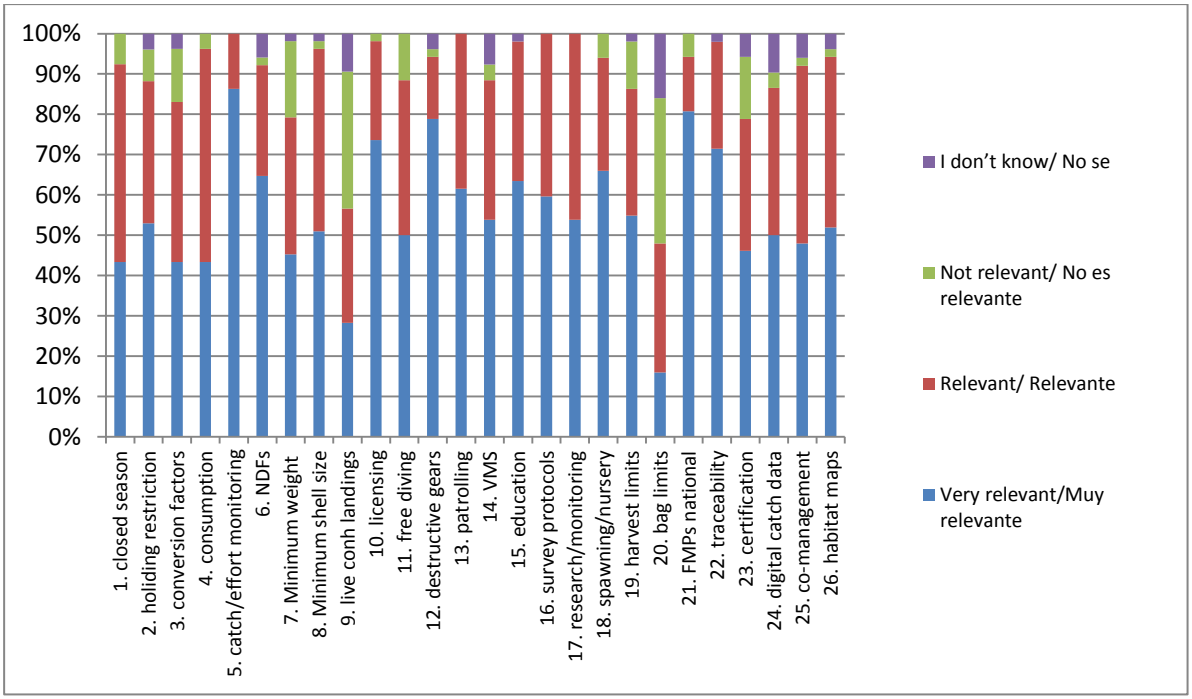
or subregionally, together with 26 management actions, grouped into short (3 years), medium (6 years) or long (10 years) term.

90. The meeting took note of the fact that policy- and decision-makers at CITES and WECAFC fora had agreed that a regional plan would be required urgently. They discussed the need to state clearly in the document that the management recommendations are guidelines to the countries in the region. It was stressed that while the regional management plan contained actions that might strengthen strategies for better regional management of the queen conch, it would not be a binding agreement as such, but should be regarded as a voluntary instrument unless the countries jointly decided otherwise in the near future. It was also emphasized that, while all recommendations were potentially valuable at the national scale, the charge to the working group was to view these in the light of what should pursued on a regional or subregional scale to enhance overall regional and national management of the resource.

91. As no agreement on the specific regional measures could be reached in plenary initially, a survey was held among the meeting participants.

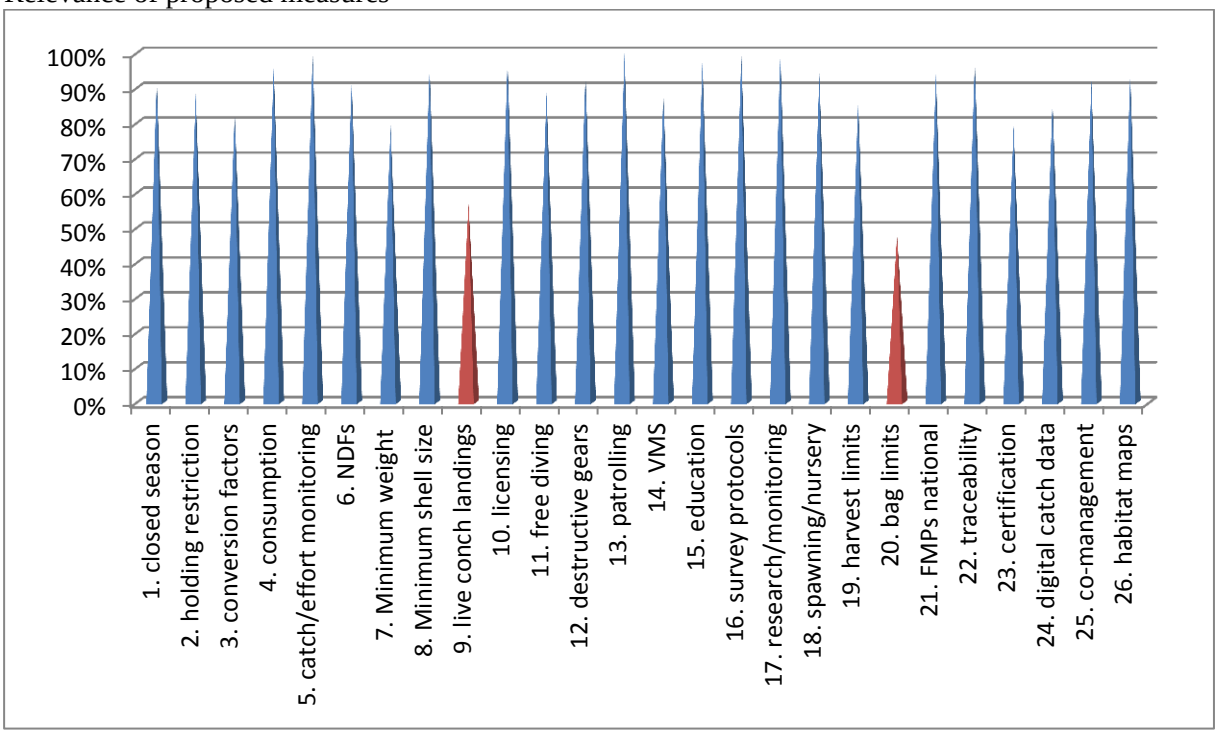
92. On the question "Which proposed regional management, conservation and trade measures for queen conch are relevant?", the respondents (n=53) replied as shown in Figure 4.

Figure 4
Which proposed regional management, conservation and trade measures for queen conch are relevant?



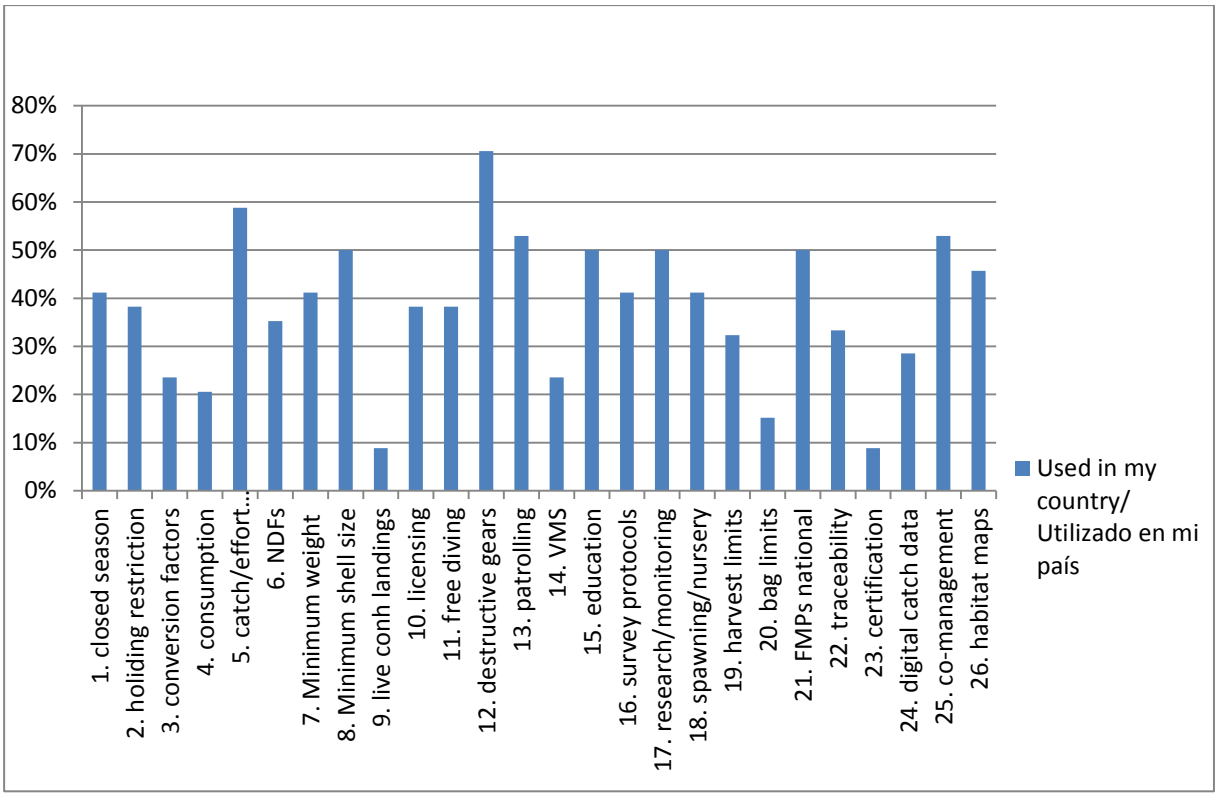
93. The responses indicated that most of the 26 regional management measures proposed were considered either relevant or very relevant (n=53). In fact, 24 of the 26 measures proposed were considered by at least 75 percent of the experts relevant or very relevant (Figure 5). Only the requirement to land all conch alive (in the conch) and the bag limits for recreational fisheries were considered of less relevance by the experts.

Figure 5
Relevance of proposed measures



94. Figure 6 shows how the respondents (n=35) answered the question "Which of the proposed regional management, conservation and trade measures for queen conch are currently used in your country?"

Figure 6
Which of the proposed regional management, conservation and trade measures for queen conch are currently used in your country?



95. The meeting participants were also asked "Do you see possibilities to develop partnerships in support of the regional queen conch management and conservation with other countries?" The responses received are presented in the table below.

Answer Options	yes/ si	maybe/ quizas	no/ no
for monitoring/ para monitoreo	35	3	0
for research/ para investigacion	34	3	0
for education/ para educacion	25	12	0
for enforcement/ para cumplimiento	26	9	2

96. The responses to the survey were discussed in plenary. The CRFM members made suggestions as a group, which were combined and compared with those of other experts. The resulting proposed management recommendations were revised in plenary, using the expert viewpoints and experiences. Consensus was achieved on a range of recommendations that are relevant, needed and enforceable at the regional/subregional level. The preference was expressed for all regionally agreed measures to be implemented as soon as possible and at least within three years from adoption of the regional management plan.

Proposed regional management measure	In the regional plan	Remarks
1. A harmonized (sub-) regional closed season	Yes	(1 June – 30 September)
2. Holding restrictions on queen conch in the closed season	Yes	

Proposed regional management measure	In the regional plan	Remarks
3. Harmonized and simplified categories of queen conch meat conversion factors	Yes	
4. Quantification of local consumption of queen conch meat	No	
5. Improvement in catch and effort monitoring programmes at regional/subregional level	Yes	
6. Non-detriment finding (NDF) for export of queen conch meat and its by-products	Yes	There should be regional agreement on the NDF format; collaboration in approaches and review of the processes to establish NDFs; assistance in research towards NDFs would be valuable.
7. A minimum weight limit for conch meat	No	Belize prefers to maintain national weight measures for the moment – there should be a regional measure in the future; uniform subregional standards are needed. Some delegates mentioned that this measure plays no role in the protection of the queen conch as the animal is already dead.
8. A minimum conch shell size (length/lip thickness) limit	No	Belize prefers to keep shell size a national measure for moment; Regional comparative research is needed. Every country should establish limits within its national management plans.
9. Landing of only live conch (in the shell)	No	
10. Licensing of all queen conch fishers, processors and exporters	Yes	Regional information sharing, lists of authorized fishing vessels; list of vessels engaged in IUU – re conch fishing are required.
11. Promote the use of free diving and adoption of stricter regulations in autonomous diving techniques	Yes	Safety at sea – diver safety, certification and occupational health aspects need regional attention and harmonization. Education of divers is required; hyperbaric chamber issues to consider.
12. Prohibition of destructive fishing gear and methods	No	
13. Organized patrolling	Yes	A regional security system would be valuable.
14. Extend the use of vessel monitoring systems (VMS) to vessels longer than 10 m	Yes	
15. Develop and implement continuous education and outreach programmes for stakeholders	Yes	
16. Adopt subregional mechanisms and protocols to conduct conch surveys	Yes	There is a need for survey protocols for surveys in deeper water. This measure could be combined with 17 (below).
17. Subregional research and monitoring programmes addressing fisheries-dependent and -independent factors	Yes	
18. Spawning and nursery areas are identified and conserved through closure	No	This measure should initially take place at national level – connectivity issues may be important.

Proposed regional management measure	In the regional plan	Remarks
		Identification of transboundary spawning/nursery sites could become important in some years.
19. Harvest limits per area are established by the national governments	Yes	
20. Bag limit of 5 conch per day for recreational fishers	No	
21. National-level queen conch conservation and management plans	Yes	While these are national plans, there is a need for regional harmonization, which is covered under the regional plan –each range State should have a national plan.
22. Traceability of queen conch throughout the value chain	Yes	This is important for MCS, trade, research and product identification.
23. Develop and progressively implement a certification programme to promote legal conch consumption in the Wider Caribbean	Yes	This measure could be combined with 22 (above). There is a need for references to SPS instead of to HACCP.
24. Develop and implement a digital catch and effort data entry and analysis system	No	
25. Progressive inclusion of co-management strategies	No	This measure is more suitable for national + subregional level, but of less relevance for the regional level.
26. Develop collaborative arrangements needed to generate habitat maps at the scale needed for better fisheries management	Yes	This measure could be integrated in measure 17 (above).
27. Aquaculture development	No	Exchange of information is needed in region and capacity building. A paragraph could be included in the regional plan, but not as a measure. Use of aquaculture as regenerative measure was not possible in the past –maybe aquaculture for rehabilitation of the stock or production could be of use in the future.

97. The meeting agreed further that the Ms Prada and Mr Appeldoorn would continue their work on the draft regional FMP and share the next version, which would reflect the outcome of the meeting, with the Working Group for further comments before finalization.

BREAK-OUT WORKING GROUP DISCUSSIONS

98. The meeting divided into four beak-out working groups to work together on the text of some of the agreed regional-level measures. Each break-out group reviewed 3–5 measures in support of the finalization of the FMP. The focus of the break-out working groups was revising (as necessary) the title of the proposed measure, reviewing the justification and amending as necessary the implementation advice.

99. Each group presented its proposed revisions and changes to the meeting, and additional comments and suggestions were noted.

GENETIC RESEARCH ON QUEEN CONCH

100. Mr. Nathan Truelove, Smithsonian National Museum of Natural History, the United States of America, made a presentation on "Regional collaboration for genetic research sheds new light on the population structure of queen conch (Strombus gigas) in the Caribbean". He presented an ongoing regional collaboration for genetic research, which collected more than 400 samples from 18 locations in 6 countries (Aruba, the Bahamas, Belize, Honduras, Turks and Caicos Islands, and the United States of America [Florida]). A minimally invasive sampling procedure to extract tissue from the mantle of queen conch without needing to sacrifice the animal and then extract DNA was used. Genetic analysis provided evidence of population differentiation among Aruba, Belize and Florida, while no major differentiation was found among population in the offshore banks of the Bahamas, Honduras, and Turks and Caicos Islands. The project is now aiming at expanding collaboration and coverage in other countries to confirm that queen conch is not a homogenous large pan-Caribbean population shared among different countries but is instead made of discrete subpopulations.

101. The meeting discussion highlighted the fact that genetic data would be also needed in order to implement traceability in queen conch trade.

TERMS OF REFERENCE, CONVENER AND WORKPLAN

102. The convener of the Working Group, Mr Rolon, presented a draft updated Terms of Reference (TORs) for the Working Group to the meeting. Various questions were asked in relation to the composition of the group and selection of experts. It was acknowledged that the CFMC and WECAFC had managed to bring all the key regional experts on queen conch around the table. The amended TORs as agreed by the meeting, and to be proposed to the sixteenth session of WECAFC for endorsement, can be found in Appendix 8.

103. The chairpersons requested the meeting to elect the Working Group convener for the period 2015–18. Various experts thanked Mr Rolon for the excellent implementation of his role of convener, in close coordination with the WECAFC Secretariat. The meeting requested therefore that Mr Rolon continue his active role as convener of the Working Group. Mr Rolon kindly agreed to continue in his coordinating role of a dynamic Working Group.

104. The convener then presented the draft updated work plan for the period 2015–18, which was discussed by the meeting. It was noted that the national-level consultations on the draft FMP would require major efforts from each of the Working Group members. It was also suggested that the next meeting of the Working Group should develop a regional research agenda and implementation plan. The updated work plan is available in Appendix 9.

CONCLUSIONS, RECOMMENDATIONS AND NEXT STEPS

105. Owing to time constraints, the conclusions and recommendations that were drafted by the meeting secretariat and circulated the evening before discussion to the meeting were not discussed in detail. It was agreed that these would be finalized by the secretariat based on the comments received on the drafts prepared. The summary of conclusions of the meeting can be found in Appendix 3, while the recommendation proposed by the Working Group to sixteenth session of WECAFC can be found in Appendix 4.

106. The next steps in the finalization and approval of the various documents discussed by the meeting were presented by Mr Van Anrooy. The meeting discussed and agreed on time frames for finalization of the documents. At the time of publication of this report, it is foreseen that the conservation factors and NDF reports (as given in the appendixes) will have been finalized.

107. In terms of the next steps in the process of development and finalization of the FMP, the following steps were agreed:

1. Distribution of the draft FMP to all countries and stakeholders for discussion at the national level in February–March 2015.
2. Stakeholder awareness raising and consultations to be held at the national level in the member countries (February 2015 – February 2016).
3. Presentation of the draft FMP to the Scientific Advisory Group (SAG) of WECAFC for review in November 2015 (Panama City) and to the CITES Animals Committee for information.
4. Final review and pre-endorsement of the plan by October/November 2015 by CRFM and OSPESCA and endorsement by the fifteenth session of WECAFC (in March 2016).

ANY OTHER MATTERS

108. It was requested that this report of the meeting and its appendixes be further submitted formally to the members of WECAFC, the CITES Secretariat, UNEP-SPAW Secretariat and FAO by May 2015. It was further requested by Working Group members that the report of the meeting be made available for dissemination to the next session of the CITES Animals Committee and CITES CoP17.

DATE AND PLACE OF THE NEXT MEETING

109. The Working Group requested that the convener organize a third meeting of the Working Group in 2016 or 2017; dates and venue to be confirmed.

CLOSURE OF THE MEETING

110. Mr Mauro Gongora, co-chairperson, thanked the Working Group members and other meeting participants, the convener and the staff of the CFMC and FAO/WECAFC Secretariats, the CITES Secretariat, interpreters and other contributors to the success of the meeting. Various experts expressed appreciation for the work by the host country, convener and the meeting secretariat.

111. The meeting was declared closed by Mr Carlos Farchette, CFMC Chairperson, on Thursday, 20 November 2014 at 16:30 hours.

APPENDIX 1

Agenda

1. Opening of the meeting
2. Election of the Chairpersons and rapporteurs
3. Adoption of the agenda and arrangements for the meeting
4. Summary of WECAFC Work on Queen Conch
5. Queen Conch Developments at CITES
6. Queen Conch fisheries status and management in CRFM member states
7. Queen Conch fisheries status and management in OSPESCA member states
8. Queen Conch fisheries status and management in selected WECAFC member states
9. Non-Detriment Findings: Requirements, tools and capacity
10. Conversion factors used for Queen Conch meat processing
11. Regional Fisheries Management and Conservation Plan for Queen Conch
12. Work Plan and Terms of Reference of the Working Group on Queen Conch
13. Any other matters
14. Date and Place of the next Working Group meeting
15. Closure of the meeting

APPENDIX/APPENDICE/ANEXO 2

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APPENDIX 3

SUMMARY OF CONCLUSIONS

The second meeting of the CFMC/OSPESCA/WECAFC/CRFM[1] Working Group on Queen Conch was held in Panama City, 18-20 November 2014. The meeting was co-organized and sponsored by the CFMC of the U.S. Department of Commerce, the CITES[2] Secretariat, WECAFC and FAO[3]. The Working Group meeting was attended by 55 fisheries sector and CITES authority delegates from 22 countries and territories[4].

The delegates shared information on queen conch catch statistics, stocks status, national management plans and regulations, and on other efforts being made on Queen Conch management, conservation and trade.

Regional queen conch management and conservation plan

The meeting reviewed a draft regional Queen Conch management and conservation plan, including proposals for 26 regional measures, and determined which measures would contribute most effectively to the sustainability and conservation of the stocks, and the long-term livelihoods of those involved in queen conch fisheries. The experts identified 17 measures that would be suitable for harmonization and implementation at the regional level, and advised that these be discussed in all queen conch range Sates in 2015 with all relevant national stakeholders.

The measures recommended for regional harmonization and implementation are the following:

1. A harmonized (sub-) regional closed season
2. Holding restrictions on QC in the closed season
3. Harmonized and simplified categories of queen conch meat conversion factors
4. Improvement of catch and effort monitoring programmes at regional/subregional level
5. Non-Detriment Finding for export of queen conch meat and its by-products
6. Licensing of all queen conch fishers, processors and exporters
7. Promote the use of free diving and adoption of stricter regulations in autonomous diving techniques
8. Organized patrolling
9. Extend the use of Vessel Monitoring Systems (VMS) to vessels larger than 10m in length
10. Develop and implement continuous education and outreach programs for stakeholders
11. Adopt sub-regional mechanisms and protocols to conduct conch surveys
12. Sub-regional research and monitoring programs addressing fisheries dependent and independent factors
13. Harvest limits per area are established by the national governments
14. National level queen conch conservation and management plans
15. Traceability of queen conch throughout the value chain
16. Develop and progressively implement a certification program to promote legal conch consumption in the Wider Caribbean
17. Develop collaborative arrangements needed to generate habitat maps at the scale needed for better fisheries management

[1] This is a joint species specific Working Group of the Caribbean Fisheries Management Council (CFMC), the Organization for the Fisheries and Aquaculture Sector of the Central American Isthmus (OSPESCA), the Western Central Atlantic Fishery Commission (WECAFC), and the Caribbean Regional Fisheries Mechanism (CRFM).
[2] Convention on International Trade in Endangered Species of wild flora and fauna (CITES)
[3] Food and Agriculture Organization of the United Nations (FAO)
[4] The meeting was attended by the following countries and territories: Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, Caribbean Netherlands, Colombia, Costa Rica, Cuba, Dominican Republic, Grenada, Honduras, Jamaica, Guadeloupe, Martinique, Mexico, Nicaragua, Panama, Puerto Rico, St Lucia, St Vincent and the Grenadines, Turks and Caicos, and the United States of America.

It was recognized that many of these measures are already applied at the national level by the majority of queen conch range states. The finalization and adoption of a set of regionally harmonized management measures is expected to take place at the 16th session of the Western Central Atlantic Fishery Commission (WECAFC) in 2016. The agreed measures will also be presented for information at 17th meeting of the Conference of Parties to CITES in 2016.

Regional queen conch conversion factors from meat grades to live weight

Following-up on CITES Decisions 16.141 to 16. 148 (2013) on "Regional cooperation on the management of and trade in queen conch (*Strombus gigas*)", and WECAFC Recommendation WECAFC/15/2014/3 on Queen Conch, the Working Group reached agreement on the use of regional harmonized conversion factors for various degrees of processed conch meat, which are to be applied in case no national conversion factors exist. The experts agreed on the following regional conversion factors:

Processing grade	Conversion factor
Dirty meat	**5.3**
50% clean	**7.9**
100% clean	**13.2**

Countries and territories were requested to report as soon as possible to FAO in which processing grade their original data had been submitted or provide the historical data series on queen conch harvest in live weight according either to the national or the regional conversion factors.

Agreement was also reached on the terminology to be used in relation to live weight/nominal weight, percentages of 50%, 65%, 85% and 100% cleanliness of meat in processing, shell length and lip thickness.

Format for Non-Detriment Findings

A draft format for Non-Detriment Findings (NDFs) assessments was discussed, recognizing that in case of international trade in specimens of queen conch, the making of NDFs is required under the provisions of CITES to ensure that the export will not be detrimental to the queen conch stocks in the country of export. This implies that the resource is sustainably managed and monitored, and that exports are not negatively impacting the long-term survival of the stocks.

The Working Group considered the NDF guidance and draft format as useful and practical, and agreed that the minimum requirements be identified and incorporated in the format tables before finalization of the document. The document would be of importance for countries and institutions that would like to have a best-practice guidance document for making NDFs. A number of experts volunteered to work with the FAO consultant on the completion of the guidance document, which will be published on the CITES website for wide dissemination and application.

Other matters

The Working Group agreed on revised Terms of Reference and an updated work plan for the period 2015-2018, which address the needs expressed by the WECAFC, CFMC, CRFM and OSPESCA members in terms of queen conch research, capacity building and management. Mr Miguel Rolon, CFMC, was elected as convener of the Working Group for the upcoming period 2015-18, and kindly agreed to convene the next Working Group meeting in 2016 or 2017.

APPENDIX 4

Draft Recommendation WECAFC/16/2016/TBD

ON THE REGIONAL PLAN FOR THE MANAGEMENT AND CONSERVATION OF QUEEN CONCH IN THE WECAFC AREA – *addendum to Recommendation WECAFC/15/2014/3*

The Western Central Atlantic Fishery Commission (WECAFC),

REAFFIRMING recommendation WECAFC/15/2014/3 "on the management and conservation of queen conch in the WECAFC area", adopted by WECAFC 15, held in Port of Spain (Trinidad and Tobago), 26-28 March 2014.

FURTHER REAFFIRMING the commitments made by Queen Conch range states at the Sixteenth meeting of the Conference of the Parties to CITES (COP 16), held in Bangkok (Thailand), 3-14 March 2013 to implement the Decisions on "Regional cooperation on the management of and trade in the Queen Conch (*Strombus gigas*)" agreed at CoP16;

RECALLING the outcomes of the second meeting of the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch, held in Panama City, Panama, 18–20 November 2014;

RECOGNIZING the progress made by WECAFC members towards implementing the CITES COP16 Decisions and the WECAFC 15 Recommendation on Queen Conch;

PENDING the delivery of additional information by the Working Group, CRFM Annual Scientific Meeting and the WECAFC Scientific Advisory Group (SAG);

RECOMMENDS in conformity with the provision of Article 6 (h) of the Revised Statutes of the WECAFC that:

1. Members of WECAFC implement the "Regional plan for the management and conservation of Queen Conch in the WECAFC area" as appropriate, and report from 2018 onwards, through WECAFC and the CITES Secretariats, on progress with the implementation of the plan to the meetings of the Conference of the Parties of CITES and the WECAFC sessions.
2. Members of WECAFC adopt national-level conversion factors for the standard reporting of queen conch landings as nominal weight, and in the absence of national factors, apply the following regionally agreed conversion factors for various meat processing grades:

Processing grade	Conversion factor
Dirty meat	**5.3**
50% clean	**7.9**
100% clean	**13.2**

3. Member States should identify the meat processing grades which apply in their countries or use the appropriate conversion factor from the table above to:
4. Adjust historical time series catch data from processed weight to live weight; and (2) Report future catch statistics in live weight on an annual Members of WECAFC adopt and apply the terminology used in relation to processing grades of Queen Conch that is laid out in the report of the second meeting of the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch.
5. Members of WECAFC, to the extent possible, apply the guidelines for the making of Non-Detriment Findings (NDFs) as reviewed at the second meeting of the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch, in support of a well-

informed decision- making processes at the national and regional levels, for the sustainable trade in, and the effective conservation and management of, Queen Conch.

6. The WECAFC Secretariat, in close coordination with OSPESCA, CRFM, CFMC, CITES and the SPAW Protocol Secretariats, continues to share these and future recommendations, as well as the work of the Working Group on Queen Conch, with all relevant stakeholders in the Queen Conch range states.

APPENDIX 5

REFERENCES TO THE CRFM QUEEN CONCH FISHERIES STATUS AND MANAGEMENT REPORT

CRFM, 2006. Report of Second Annual Scientific Meeting – Port of Spain, Trinidad and Tobago, 13-22 March 2006. *CRFM Fishery Report – 2006*, Volume 1. 188p.

CRFM, 2007. Report of the Third Annual Scientific Meeting – St. Vincent and the Grenadines, 17-26 July 2007. *CRFM Fishery Report – 2007*, Volume 1. 183 pp.

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Deleveaux, V., Ehrhardt, N. 1999. Report on Assessment and management of the Queen Conch, *Strombus gigas*, fisheries in the Bahamas. Report to Department of Marine Resources.

Horsford, I., M. Ishida, G. Looby, M. Archibald, H. Simon, T. Edwards, T. Lovell, P. James, J. Webber and C. Appleton. 2012. The morphology of the queen conch (*Strombus gigas*) from the Antigua and Barbuda shelf – implications for fisheries management. *Proceedings of Gulf and Caribbean Fisheries Institute* **64**:375-382.

Horsford, I., H. Simon, M. Ishida, M. Archibald, J. Webber, T. Joseph, R. Morris and A. DeSouza. 2013. The morphology of the queen conch (*Strombus gigas*) from the island of Barbuda – implications for fisheries management. *Proceedings of Gulf and Caribbean Fisheries Institute* **65**:450-457.

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Oxenford, H.A., Willoughby, S. and Downes-Agard, K. 2014. Barbados National Report. Prepared for Second Meeting of the CFMC/WECAFC/OSPESCA/CRFM Working Group on Queen Conch. Panama City, Panama. November 2014. 6p.

Perez, M. 2014. Proposal: Conversion Factors for Processed Queen Conch to Live Weight. Prepared for Second Meeting of the CFMC/WECAFC/OSPESCA/CRFM Working Group on Queen Conch. Panama City, Panama. November 2014. 12 p.

SOFRECO. 2013. Training in Underwater Visual Survey Methods for Evaluating the Status of Strombus gigas, Queen Conch Stocks. Final Technical Report of the ACP Fish II Programme – Strengthening Fisheries Management in ACP Countries. 359 p.

APPENDIX 6

CFMC/WECAFC/OSPESCA/CRFM/CITES

GUIDELINE FORMAT NON-DETRIMENT FINDING (NDF) FOR CARIBBEAN QUEEN CONCH (*STROMBUS GIGAS*)

Author

J.L.M. van Eijs

Panama, May 2015

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List of Abbreviations

AC	Animals Committee.	http://www.cites.org/eng/com/ac/index.php
Cartagena Convention	Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region.	http://www.cep.unep.org/cartagena-convention
CBD	Convention on Biological Diversity.	www.cbd.int/convention
CFMC	Caribbean Fishery Management Council.	www.caribbeanfmc.com
CIRCABC	Communication and Information Resource Centre for Administrations, Businesses and Citizens.	https://circabc.europa.eu
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna.	www.cites.org
CoP	Conference of the Parties (CITES).	
CRFM	Caribbean Regional Fisheries Mechanism – CARICOM.	www.crfm.net
EC/EU	European Community/European Union.	http://ec.europa.eu/ http://www.oecd.org/eu/
FAO	Food and Agriculture Organization of the United Nations.	www.fao.org
IOC	Intergovernmental Oceanographic Commission.	http://ioc-unesco.org/
ISSC-MAP	International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants.	http://www.floraweb.de/map-pro/Standard
IUCN	International Union for Conservation of Nature and Natural Resources.	www.iucn.org
IUU	Illegal, Unreported & Unregulated.	www.fao.org/fishery/iuu-fishing/en
MA	Management Authority.	
MEP	Maximum Estimated Production.	
MSY	Maximum Sustainable Yield.	
NDF	Non-Detriment Finding.	
OSPESCA	Fisheries and Aquaculture Organization for Central America.	www.sica.int/ospesca
Res. Conf.	Resolution of the Conference of the Parties (CITES).	

SA	Scientific Authority.	
SPAW Protocol	Protocol Concerning Specially Protected Areas and Wildlife.	http://www.cep.unep.org/
SRG	Scientific Review Group.	
TRAFFIC	Trade Records Analysis of Flora and Fauna in Commerce.	www.traffic.org
UNEP	United Nations Environment Program.	www.unep.org
USA	United States of America.	www.usa.gov https://www.cia.gov/index.html
WCC	World Conservation Congress.	www.iucnworldconservationcongress.org
WCMC	World Conservation Monitoring Centre.	www.unep-wcmc.org
WECAFC	Western Central Atlantic Fishery Commission.	http://www.wecafc.org/en/

1. Introduction

During the last century, as a result of the industrial revolution and its need for an ever increasing supply in volume and type of raw materials for the production of manufacturing and consumption goods, natural resources became subject to exploitation levels which put in jeopardy the survival of many a species. Initially, a limited number of flora and fauna species were harvested intensely on a reduced geographical range. However, as demand for raw materials increased and harvesting and transportation systems benefitted from technological advances, traditional and substitute resources on a global level were incorporated in the frenzy.

At the end of the 1950th, the need for conservation became apparent and public and private organizations were established to look into this issue and/or for the protection of one or various specific species.

In 1960, the International Union for Conservation of Nature and Natural Resources (IUCN) ascertained that global trade was a major threat to the normal existence and survival of several species. In 1964, IUCN launched an international framework in the form of the "Convention on International Trade in Endangered Species of Wild Fauna and Flora" (CITES), which entered into force on the 1st of July 1975.

The aim of CITES is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. So far (February 2014), 180 States have ratified the Convention. States that have joined CITES agree to implement the Convention by incorporating CITES rules and regulations into their own domestic legislation. As such, CITES does not supersede national laws, rather it provides a framework to be respected by each Party. With the exception of Anguilla, Haiti and Turks & Caicos, all countries and dependent territories with a presence in the wider Caribbean basin and with a queen conch resource, are CITES signatory parties.

CITES works by subjecting international trade in specimens of selected species to established controls. All import, export, re-export and introduction of (products from) species covered by the Convention have to be authorized through a permitting system. For that purpose, each Party to the Convention must designate one or more Management Authorities (MA) in charge of administering that licensing system, and one or more Scientific Authorities (SA) which advises the MA on the effects of trade on the status of the species (Convention CITES, Article IX).

In order of degree of protection required, CITES has created three Appendices which list species or populations whose survival is in jeopardy based on their biological and trade status. The respective Appendix stipulates specific control mechanisms that apply to the trade in that particular species or population:

1. Appendix I: Species and populations are considered to be threatened with extinction and international trade in specimens of wild origin is allowed in exceptional circumstances and for non-commercial purposes only.
2. Appendix II: Includes species or populations that are not necessarily threatened with extinction, but may become so unless trade in specimens of such species or populations is subject to regulation in order to avoid utilization incompatible with the survival of the species in the wild. Article IV of the CITES Convention requires that exporting countries restrict trade in Appendix

II species to levels that are not detrimental either to its survival, or to their role within the ecosystems in which they occur. A Non-Detriment Finding (NDF) from the Scientific Authority and an export permit from the Management Authority form part of the controls put in place by the exporting member countries, in collaboration with CITES.

3. Appendix III: Species or populations are listed in Appendix III after one member country has asked other CITES Parties for assistance in controlling its trade.

Queen conch (*Strombus gigas)*, was one of the first marine species to be subject of calls for conservation. In 1992, the USA proposed to downgrade the listing of queen conch to Appendix II of CITES. This proposal was adopted at the 8th meeting of the Conferences of the Parties to CITES (Kyoto, 1992), and queen conch became the first large-scale fisheries species to be regulated by CITES. CITES provisions apply to trade in all readily recognizable specimens of the species i.e. live specimens, meat, shells, pearls, carvings and all other parts of wild, ranched, or mariculture origin.

In 1990, the Parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention) included queen conch in Annex II of its Protocol Concerning Specially Protected Areas and Wildlife (SPAW Protocol).

In terms of the Rules and Regulations of the CITES Convention, the inclusion of queen conch in Appendix II finds it justification in the Fundamental Principles expressed in Article II-2 of the Convention, which, in Paragraph a), states that Appendix II shall include "All species which, although not necessarily now threatened with extinction, may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival".

The conditions under which trade in products of a species mentioned in Appendix II can be allowed are expressed in Article IV of the CITES Convention, which in its 2nd Paragraph states the following:

> The export of any specimen of a species included in Appendix II shall require the prior grant and presentation of an export permit. An export permit shall only be granted when the following conditions have been met:
>
> (a) A Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species;
> (b) A Management Authority of the State of export is satisfied that the specimen was not obtained in contravention of the laws of that State for the protection of fauna and flora.

In Paragraph 3 of Article IV, the role of the Scientific Authority is clarified:

> A Scientific Authority in each Party shall monitor both the export permits granted by that State for specimens of species included in Appendix II and the actual exports of such specimens. Whenever a Scientific Authority determines that the export of specimens of any such species should be limited in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I, the Scientific Authority shall advise the appropriate Management Authority of suitable measures to be taken to limit the grant of export permits for specimens of that species.

In addition, Article IX of the Convention and Resolution Conf. 10.3 provide further details on the designation and functions of the SA and MA in relation to its functioning within the Convention's framework.

2. Queen Conch Specific Information

Queen conch, found in various degrees of abundance throughout the wider Caribbean basin, has been a main source of food and trade for the Caribbean island states. Regional annual conch meat production is estimated at around 7,600 MT with an estimated value of some US$ 60 million. Within the overall picture of the regional economy, the participation of the queen conch fishery is modest, but it still establishes itself as the second most important fishery after spiny lobster. Its socio-economic impact is substantial as it provides an income to around 20,000 artisanal fishers and constitutes a much appreciated source of traditional food to the local population, as well as to international tourists.

Despite the substantial number of countries and dependent territories with some kind of queen conch resource, eleven countries represented 92.4 percent of the queen conch landings between 1980 and 2011, and 91.6 percent of the landings from 2000 to 2011. Trade between the various islands has always been rather intensive and can be expected to maintain at least current levels.

The queen conch fishery in most producing countries is very closely linked with the spiny lobster fishery as it often concerns the same artisanal fishers and inputs, and both species are often harvested at the same time. In major lobster producing countries, queen conch is regarded as an (essential) by-catch. For instance, in Nicaragua, the closed spiny lobster seasons coincide with open access to queen conch, and *visa versa*, as to guarantee these small scale fishers a regular source of income.

The biology of queen conch indicates that the species appears quite habitat sensitive, displays poor dispersal and colonization ability, and requires a relatively high population density of adults per hectare in order to maintain its reproductive capacity. Its major distribution in waters of less than 30 meter in depth is thought to be a result of the photosynthetic nature of its main food source (Randall, 1964; McCarthy, 2008). The most important among the factors that contribute to overall mortality of the species, are:

- Habitat loss and degradation. From pollution, human infringement, climate change and natural disasters.

- Fishing activities: Relatively easy access by artisanal, industrial, subsistence and recreational fishers, taking advantage of the species preference for (mostly sea grass) habitats close to shore at limited depth.

- Natural predators: Within the context of the ecosystem.

The commercial fishery started in all earnest in the 1960 when the lucrative export of frozen conch meat to the USA was initiated. Popular demand from local and export markets led to a rapid and mostly uncontrolled development of the industry and by the early 1980th the first local conservation measurements were put in place.

Products derived from queen conch include meat, trimmings, pearls, shell and, more recently, the operculum. The sustained increases in demand over the years and the limitations imposed by resource availability have resulted in major hikes in price levels, stimulating a further intensification in overall harvest activities.

3. Study Objectives

Signatory parties and CITES share a common interest. CITES is primarily interested in the protection of the species and the ecosystem through appropriate and sound management practices, while the producing countries additionally wish to assure optimal socio-economic benefits from the sustainable development of the fishery.

It follows from Article IV-2 of the CITES Convention that exports of Appendix II listed Caribbean queen conch (*Strombus gigas*) products from member States require a permit which will be extended on the basis of a Non-Detriment Finding (NDF), to be elaborated by the designated national Scientific Authority. The NDF has to show that the products to be exported originate from a well managed and sustainable resource, have been obtained in accordance to the country's fishery regulations and laws and, therefore, their harvest has (had) no detrimental impact on the survival of the species or its function in the ecosystem (CITES Inf. 11.2, 2000).

CITES does not provide a standard model for NDFs, but rather provides concepts and non-binding guiding principles which the SA should take into consideration when producing an NDF which, in the end, will determine whether trade is detrimental to the survival of a species (Res. Conf.16.7). As a result, countries appear to have encountered major difficulties in producing adequate NDFs for specific species.

There have been initiatives and multiples publications on how to produce NDFs, but, with the exception of specific case studies, they all are very general as to accommodate the immense quantity of species listed in CITES Appendix II.

The present study is made in support of the work of the CFMC/WECAFC/OSPESCA/CRFM Working Group on Queen Conch and addresses various points of the CITES COP 16 Decision on "Regional Cooperation of the Management of, and Trade in Queen Conch (*Strombus gigas*). It responds to Recommendation WECAFC/15/2014/3 "on the Management and Conservation of Queen Conch in the WECAFC Area", which calls upon the members countries of WECAFC to prepare and share their Non-Detriment Findings in support of well-informed decision making processes at the national and regional levels for improved conservation and management of queen conch" (FAO, 2014).

The present study is also a further extension of activities in the field of queen conch conservation and trade by organizations like FAO, WECAFC, OSPESCA, CRFM and CFMC and is being carried out in support of the implementation of CITES-FAO project EP/SLC/003/UEP, and in particular in the design of queen conch Non-Detrimental Finding (NDF) formats that are practical, simple and cost-effective to implement. As part of this initiative are also foreseen the preparation of a Draft Regional Management Plan for Queen Conch, as well as a proposal to unify queen conch processing conversion factors which currently show a large variation in methodologies and standards throughout the region.

4. CITES Non-Detriment Findings

Despite the fact that CITES deals primarily with international trade, it requires that the NDF takes into consideration all aspects that could endanger and/or put undue pressure on the species (Res.

Conf.10.3). Therefore, additionally to those pressures exercised by international trade, also such aspects as the species' biology, habitats, fishing effort, domestic consumption, as well as illegal, unregulated and unreported (IUU) fisheries have to be taken into consideration in complying with the core CITES requirement for a Non-detriment Finding to show that the trade is from a sustainable harvest (Wijnstekers 2006).

It is necessary to assess whether there is a risk of over-utilization and whether sufficient management and monitoring are in place to eliminate this risk. There are no thresholds for this assessment; the assessment must be taken considering the entirety of the data (Rose, 2014).

The production of NDFs is a dynamic process, performed by the Scientific Authority (SA), which monitors and reviews on a continuous basis the various variables that determine the species population dynamics within the established thresholds and identifies tendencies and risks, and proposes management measures to be taken or adjusted in order to further encourage positive developments and/or mitigate risks.

In Resolution Conf.16.7 CITES provides certain concepts and non-binding guiding principles which the SA should take into considering producing an NDF. Among these, the most notable in the context of the present study, are:

- The assessment has to be science based (later adapted to also include information sources such as local fishers, traditional sources and non-governmental organizations, in case of doubt about the validity and/or absence of data) (Practical Principle 4 of the Addis Ababa Principles and Guidelines);
- The data requirements should be proportionate to the vulnerability of the species concerned;
- The implementation of adaptive management, including monitoring, constitutes a core element of an NDF.
- The unambiguous identification of a species and its resource status, prior to a review is of utmost importance.

5. Relevant Information for a Queen Conch NDF

Almost immediately after queen conch was included in Appendix II in 1992, the substantial volumes of queen conch products which continued to be traded in the national and international markets raised concern about the sustainability of the resource. A probable cause was the likelihood of an inadequate interpretation and implementation by producing and exporting countries of Article VI of the CITES Convention, which deals the designation and role of the Scientific Authority and the requirement of Non-Detriment Findings (Theile, S. 2001).

In order to address these concerns, the CITES Animals Committee decided to initiate a Significant Trade Review for *Strombus gigas* in 1995 and results were presented at the 13th Meeting of the Animals Committee in 1996. The failure of various countries to implement the subsequent Animal Committee recommendations within the agreed time frame, exposed serious shortcomings in the Scientific Authorities in assuming their intended role and understanding the nature of Non-Detriment Findings.

Since, various activities have been employed by CITES and other organizations to deal with the issue of the content and reach of Non-Detriment Findings, like international CITES workshops and commissioned studies. Probably the most well known among the latter is the IUCN report denominated *CITES Scientific Authorities' Checklist to assist in making Non-Detriment Findings for Appendix II Exports* (CoP 11 Inf 11.3), and later also published by IUCN (Rosser and Haywood, 2002). The Checklist identifies factors that should be taken into account when making an NDF.

With regard to the workshops, the International Expert Workshop on CITES Non-Detriment Findings, held in Cancun, Mexico in 2008, stands out. The results were adopted by the Animal Committee at the Conference of Parties 16 as Resolution 16.7, which provides a number of concepts and non-binding guiding principles for Scientific Authorities and encourages bi- and multilateral cooperation in NDF capacity building.

Despite all the support over the years to the Scientific Authorities and workshops on Non-Detriment Findings, the complexity of the subject matter still appears to be the basic reason for the mayor diversity in methodologies for NDFs. The discussion on the content, depth and periodicity of NDFs will likely continue as it deals with evolving ecosystems. The proposed NDF format for queen conch presented in this paper is an attempt to assist range States to effectively and sustainably manage just this one, wild resource.

The importance of the queen conch fishery for each specific country and the state of vulnerability of the resource will, to a large degree, determine the type, extent and quality of the NDF required. There are few countries that have actually produced an NDF for one of the following reasons:

- Uncertainty about the parameters that should be included.
- Restraints on the part of the SA because of lack of sufficient and/or trained personnel, as well as the lack of funds for surveys, data collection, analysis and formulation of NDFs, resulting in a lack of due diligence.
- Insufficient scientifically sound data to base analysis and recommendation on.
- Difficulty to certify that products comply with CITES requirements as insufficient information is available on origin and legal status of these products.
- Generally speaking, only queen conch meat is considered for NDFs, not so other (potentially –more- profitable) exports products, such as conch pearls and operculum, although they may be subject to voluntarily imposed export quotas.

It should be pointed out that the working group "Aquatic Invertebrates" of the NDF Workshop in Cancun recommended a positive NDF decision if population trends, despite harvests, are at least stable or measures have been put in place to achieve this. Any risks that have been identified should be mitigated and addressed (Roberts and Fleming, 2008).

In the case of queen conch, CITES has used the criteria of population density levels and export quantities to judge the status of exploitation and conservation of the species. There has been substantial discussion (and disagreement) on the adult density per hectare proposed by CITES.

The limited availability and overall poor quality of most information on biological, ecological, harvest, processing and commercial aspects of queen conch is notorious, particularly consistent time series are almost non-existent.

With the exception of Belize and Mexico, most of the queen conch fishers are not organized in cooperatives or another form of organization, which further complicates the tasks of the fisheries authorities in terms of data collection, implementation, monitoring, control and compliance of (ecosystem oriented) co- management programs.

Despite this situation of limited data, the majority of the major producing countries have some kind of queen conch management plan or regulation in place in order to comply with CITES and/or to mitigate impacts on the sustainability of the resource for socio-economic considerations.

Most of these management systems are of the adaptive management type, which allows adjusting and improving management from lessons' learned and the fact that there is a close link with monitoring and control systems. In addition, they facilitate the introduction of the precautionary principle.

Since the early 1980s, a substantial number of management measures have been introduced in the queen conch fishing with varying levels of success in terms of implementation, compliance and follow-up. Any NDF will have to evaluate these measures' effectiveness and the reliability of the feedback mechanisms. The most important of these measures include the following:

- Permanent or temporal closed seasons;
- Minimum shell length and/or flared lip thickness;
- Minimum clean or unclean meat weight;
- Establishment of sanctuaries / Marine Protected Areas (MPAs);
- Catch quotas by area or in time;
- Export quotas and prohibition of exports;
- License systems for fishers and vessels;
- Prohibition or limitation on fishing methods or gears (scuba, hookah):
- Individual non-transferable quotas for industrial vessels;
- Exclusive zones for artisanal fishers.

6. Proposed NDF Format for Queen Conch Exports

In the course of the preparation of this proposal, and in compliance with the terms of reference, numerous documents with NDF guidelines, NDF formats for specific species or groups of species were reviewed. In the end, the documents that proved most useful in the preparation of the proposed NDF format were:

- WECAFC; Working Group reports and papers.-FAO 2012 and FAO 2014.
- CITES Non-detriment Findings Guidance for Shark Species – A Framework. Mundy-Taylor, Crook, Foster, Fowler, Sant, Rice. 2014.
- Making Non-Detriment Findings for Seahorses – A Framework, Version 3.0. Foster & Vincent, 2013.
- Colombia National NDF for Queen Conch. Prada, 2008.
- IUCN NDF Guidelines – 2002 and 2008 versions.
- Non-detriment Findings in CITES (Version 2.1), Martin Rose, 2014.
- Cancun CITES Workshop (2008); Case Study Formats.

- Uwe Schippmann (2008) Factors to be considered during a CITES-ISSC NDF.

It was decided to follow basically the IUCN guidelines and this decision finds its justification in the following aspects:

- They appear to be accepted by CITES and are generally applied in NDFs;
- They include most of the concepts that can be considered relevant in a queen conch NDF. Notable gaps include socio-economic indicators and the evaluation of impact on the habitat;
- They provide a best match for an adaptive management approach. The checklist was designed to encourage the regular monitoring and adaptive management.
- They claim to be rather pragmatic;
- They lead to an NDF which can be used as quick risk assessment and early warning system, particularly in the absence of pertinent information;
- They have been subject to extensive reviews and trials;
- They offer good applicability capacities for use on a national as well as regional level;
- Rosser in his 2008 paper to the Cancun meeting gives the rational for the IUCN checklist and these are still very much valid (Cancun 2008, A. Rosser; P2 - CITES – IUCN Checklist, p 1/11)

Particularly the paper of Martin Rose (Rose, 2014) has been instrumental in the design of the format. The list of major categories has been adopted with minor changes. Rose also identified a number of Indispensible Indicators for a minimum review which are in large part adopted and slightly extended in view of specific queen conch sector characteristics.

The amended checklist for queen conch NDF (Table 1) was developed with the following guiding principles in mind:

- The required information is queen conch specific;
- The design contemplates different levels of assessment in line with the overall importance of the resource exploitation and data availability;
- It should be relatively simple, highlighting those categories important in sustainability assessment with accessible data;
- Enhance possibilities for regional harmonization of NDF criteria;
- Provide conditions for adaptive management based on adequate monitoring and feedback;
- Quantitative data and reference points should form the prime criteria for the assessment, supplemented by qualitative data;
- Encourage private industry participation as rules and requirements are clearly established;
- The checklist could promote communication and collaboration between government institutions, NGO's and national and international institutions of higher learning.

6.1 Explanation of the Proposed Queen Conch NDF Format

The proposed queen conch NDF draft format consists of one, relatively extensive table, which is presented as a kind of Table of Contents, where those issues considered crucial by CITES and mentioned in the IUCN Guidelines (2002 and 2008), are put in the context of the queen conch sector.

There is little need to make a preliminary assessment of the sustainability of the species in order obtain an outright positive NDF. It can be assumed that the possibility to get to such a verdict in the queen conch producing countries is virtually nil in view of the nature of the fishery, the overall lack of comprehensive scientific information and numerous elements which are not duly controlled.

The proposed NDF format is made up of 10 information categories, which are divided in 57 sub-categories to make the complex queen conch ecology more accessible. Although the sub-categories closely follow the IUCN checklist, they were brought in line with those issues that have directly or indirectly a bearing on the sustainable exploitation of queen conch as a species. The information generated will be expressed in a number of indicators, which in turn will be used to make and/or adjust management decisions. Indicators can be obtained from scientific research or other sources.

Of the ten main categories included in the format, the first three contain basic information that can be obtained with relative ease from national records and general references and which is rather adequate to serve as a rapid or early warning assessment as to the state of the species. The General Considerations identifies the species and overall state of affairs in a national and international setting. The section on the life history and biological characteristics of the species provides an indication of the species' likely resilience, whilst the information on the National Status of the taxon will yield specific indicators on the reaction of the species to prevailing mortality inducing factors.

The next four categories deal with management of the resource and how actual harvesting impacts in the role of the species in its ecosystem and its sustainability. The indicators obtained will provide a clear picture as to where more and better information is required. This can be achieved either through more research and improved monitoring, control and feedback system, which, in turn, will be reflected in more robust management.

One category is dedicated to the trade in queen conch products as market forces determine to a major extent the exploitation levels. This part provides the SA with the information to check on due diligence and compliance in relation to the established export quotas and exploitation of the species.

The ninth category deals with commercial culture and ranching activities. Currently, these are very few and not significant in the scheme of things. They may grow in importance in the future as a market for their products develops. For the time being, they play no role of importance and, therefore, their impact through the NDF will be minimal and that is reflected in the position they take in the proposed NDF format.

A last category concerns two sub-categories, namely natural phenomena and legal framework, of which particularly the first one may become of major importance for the species' survival and have a detrimental impact.

In Table 1, the general categories and sub-categories are accompanied by a description of the specific content and a column denominated Indicators where the requested information can be provided. In a number of cases the possible reply has been provided in a multiple choice format, in others a specific reply is requested based on a qualitative evaluation or on substantive quantitative date, backed-up by information on the methodology or protocol applied.

6.2 Proposed Queen Conch Checklist

In this section general information on the main categories is provided. Specific information on those sub-categories coupled with the specific relevant information requested is provided in Table 1.

A. General Considerations

This category provides the SA with a quick impression on the identification and the overall status of the resource. Under CITES, the species' identification should be beyond doubt. The question of the overall quality of the data is directly related to the level of precaution that should prevail. In the case of queen conch the international status of the resource is important as the management of the national resource has to take into account possible regional effects, as well as the fact that it can be negatively or positively impacted by actions in neighboring countries. As mentioned earlier, CITES request that all factors that have an impact on the mortality of the species have to be taken into account.

B. Biological Characteristics

In most countries ample information is available on the biological characteristics of the species which provide crucial insights about the species' overall resilience and sensitivity. In this context, the life history of the species is of particular interest if (commercial) fishing occurs. Queen conch displays a number of specific and peculiar characteristics (habitat, mobility, reproduction), which makes it unique and which have a bearing on the management plan. Population density is a crucial parameter in the species survival as it is tied to a certain number of adults per hectare. The species importance for the ecosystem is largely unknown but needs to be addressed.

C. National Status

In this section, distribution, size, age structure and the respective trends are dealt with in the light of its survival as a species. These are very relevant data for the NDF and much will depend on the source of information and its respective level of reliability. The socio-economic impact of the queen conch sector has to be considered as it affects an important part of the economically active persons.

D. Queen Conch Management Plans

Information about the components, functioning and effectiveness of the management plan are of major importance to the review by the SA. The review will require detailed information on such issues as the management history, current type of management plan with its components and measures adopted. The functioning of the authority in charge of the implementation and revision of the management plan should be considered by the SA in terms of compliance, co-management arrangements and regulating illegal harvest and trade actions.

E. Queen Conch Fishing

With the help of quantitative data from national records, most of the harvest characteristics can be described and used in trend analysis. It is of importance that the actual total catches, including catches from IUU fishing, are compared against the established catch quotas. Human fishing is likely the most detrimental factor in the species' survival, and as a result data on the type of gear used, fishing effort, methods and total catches are important. Restraining factors like quotas as well as closed seasons and areas, have to be included.

F. Monitoring

The existence of monitoring constitutes a core activity for CITES. The SA has to evaluate the existence and effectiveness of monitoring in areas like trends in catches and fishing effort, biological characteristics (population dynamics), shifts in markets forces and the impact of any external factors on the overall sustainability of the resource. For this purpose, the SA should make use of fishery dependent and independent data and sources.

G. Control of Harvest

This section allows the SA to evaluate the proportion of the total estimated national resource of queen conch that is effectively being protected relative to the part which is being exploited, by area and the respective assigned degree of resource protection.

H. Trade Data

Trade data will provide the SA with information on the trend in product movement and trade quota compliance levels. At the trade level the full extent of the species commercial potential in volume and value becomes apparent. Produced volumes should be compared to established quotas and catches from IUU fishing. Other issues of importance are trends in offer and demand as well as price levels on the national, international and intra-regional market. The occurrence of illegal, unreported and unregulated (IUU) trade in the queen conch industry is notorious and exercises substantial negative pressure on the sustainable exploitation of the resource.

I. Aquaculture

The impact of the culture industry are insignificant, but the SA should be aware of any operation and check such issues as the taking of larvae, juveniles or brood stock from the wild and any negative impact of established grow out facilities on the habitat. Also positive effects have to be included in the evaluation, such as the release of healthy larvae and juveniles. In order not to interfere with the deliberations on the quotas of the wild stock, traceability mechanism should be in place.

J. Other Factors

This section includes components of overall importance. The information on the legal framework of queen conch conservation is important in the national and regional context. Climate change and educational activities have to be taken into considerations for their likely future impact.

7. Final Remarks

On the basis of the indicators and data presented in Table 1, the SA should be in a good position to come to a decision whether or not the harvest for trade is likely to be non-detrimental to the survival of the species.

The NDF should preferably be valid for a one year period as the quotas are established per calendar year and most of the data used for the NDF are of a per year nature (Conf. 14.7 Rev. CoP15). Also cost and time considerations are important criteria. This consideration is not valid in case the NDF is negative, or in case of serious impacts by natural phenomena and decisions by international organizations like CITES. In case, there is an interest in an interim update, the minimum NDF can be performed taking into considerations data related to national population, management plan, monitoring, trade statistics and overall data reliability (sub-categories in grey in Table 1).

An important objective of the proposed format is to promote regional collaboration and harmonization of criteria in the management and conservation of this species whose population boundaries supersede national borders. By using the same format on a national level, by reaching consensus on the use of the same protocols and methodologies, and by standardizing terminology this proposed NDF format expects to contribute to this objective.

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www.pnas.org	Global Seagrass Trajectories Working Group/National Center for Ecological Analysis and Synthesis, USA
www.seagrasswatch.org (SeagrassWatch)	Seagrass-Watch aims to raise awareness on the condition and trend of nearshore seagrass ecosystems Provide detailed information on how to map and monitor seagrass resource status and condition.
www.seagrassnet.org (SeagrassNet)	SeagrassNet is a global ecological monitoring program that investigates and documents the status of seagrass resources and the threats to this marine ecosystem.
www.coralwatch.org (CoralWatch)	Provides hands-on monitoring and education tools to increase awareness of reefs and monitor coral health.
www.crfm.net	Caribbean Regional Fisheries Mechanism- CARICOM
www.fao.org/fishery/iuu-fishing/en	Illegal, Unreported & Unregulated Fishing
http://www.cites.org/eng/prog/ndf/index.php	CITES' Non-detriment Findings website
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http://www.strombusgigas.com/Meeting%20Panama/fao/Annex_QCEW_Recommendations_En.pdf	Recommendations of the Queen Conch Expert Workshop, Miami, USA, 22–24 May 2012

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TABLE 1: Proposed Non-detriment Finding (NDF) Guideline Format for Queen Conch Producing and Trading Countries

- The proposed NDF Format is meant as a due diligence and best practice guideline for those countries that currently do not make NDFs and/or that find it difficult to determine the required format and contents. Countries that already produce NDFs on a regular basis may find the proposed format suitable for reasons identification of pertinent variables to be included, as well as for comparison with NDFs from other countries with which they share the queen conch resource.

- Although the design and contents of the proposed Queen Conch Non-Detrimental Finding Format aspires to be practical, simple and cost-effective to implement, it should include most, if not all, queen conch relevant conservation specific issues as required by the National CITES Scientific and Management Authorities for an adequate and comprehensive evaluation procedure.

- The Format should be suitable for national and regional application, allowing for decision making on a unilateral level, as well as provide a basis for regional comparisons and collaboration.

- The proposed Format is meant to serve as a base document. It is unlikely that from the onset relevant information on all the mentioned topics will be available. The format NDF will provide an opportunity to gradually cover more of the topics and make the assigned authorities aware of other pending issues, which can be included once information recollection constraints have been overcome and as information from a variety of other national and international sources becomes available.

- The format includes multiple choice as well as open questions. It is considered that the multiple choice option does not always adequately reflect the level of knowledge, monitoring and control. The multiple choice option also does not allow measuring the progressive improvements achieved between the respective evaluation periods.

The proposed Queen Conch NDF Format is made up of 10 information categories, which are divided in 57 sub-categories to make the complex queen conch ecology more accessible. Although the sub-categories closely follow the IUCN checklist, it was extended in order to be more in line with those issues that have, directly or indirectly, a bearing on the sustainable exploitation of queen conch as a commercial resource. The available information can be reproduced in a number of indicators, which in turn will be used to make and/or adjust management decisions. Indicators can be obtained from scientific research or other sources.

Recommendations & Conclusions:

6. References to applied and/or accepted protocols, methodologies and terminologies should be provided for easy understanding and, above all, for regional comparisons and consensus.
7. Effort should be made to get National CITES Scientific and Management Authorities to focus their efforts on a regional approach of the issue at hand.
8. Queen conch pearls and operculum are set to become relatively important in the near future compared to processed meat and should accordingly be duly included in the NDF evaluation.
9. The validity of a NDF should be put at one year (Conf. 14.7 – Rev. CoP15). This period coincides with the validity of various quotas and provides an adequate period of time for the introduction of new management guidelines and for the evaluation of research and monitoring requirements and results.
10. Queen conch provides an income/lifeline to an estimated 20,000 artisanal fishers in the region, in addition to the employment created through the processing and trade in queen conch products. Importantly, it also constitutes a much appreciated traditional food item to the local population, as well as international tourists. Because of this, it appears appropriate to bring economic and social issues into the equation of sustainable development and not to consider environmental issues only as CITES does. Successful implementation and compliance of a management scheme may strongly depend on the overall socio-economic impact.

The headings with a gray color are elements that also form part of Table 2 which can function as an (intermediate) quick reference and/or early risk assessment.

TABLE 1: Proposed Non-detriment Finding (NDF) Guideline Format for Queen Conch Producing and Trading Countries

Species: Queen Conch *(Strombus gigas)* **Country:**

Conservation Status of the Species: (IUCN Red List): _____ **National Conservation Status:** _____

Date of last NDF: _____ **Date of Present NDF:** _____

NDF Prepared by (Organization/Authority): _____ **Official in Charge / Assigned:** _____

National Competent Scientific Authority: _____ **Official in Charge / Assigned:** _____

National Competent Management Authority: _____ **Official in Charge / Assigned:** _____

Actual Annual Voluntary Quotas: A) Clean Meat (fillets): _____ MT; B) Trimmings: _____ MT; C) Pearls: _____Units; D) Others: _____

CATEGORIES	DESCRIPTION	INDICATORS	REFERENCES
1. General Considerations			
1.1 Species identification	CITES requires the correct identification of the species: 1. Check correct taxonomy and nomenclature of Strombus species found in national waters. 2. Look for synonyms and local names.	1. Strombus species: 2. Local names and synonyms:	
1.2 Accuracy of application data accuracy	Provide an overall opinion on the reliability, accuracy, consistency and comprehensiveness of data used. In the evaluation, the SA will have to take into consideration that the quality of information should be proportional to the state of the resource. For CITES this preliminary and overall indicator is important as it sets the tone for the level of precaution that should be applied to any TAC. The quality of ecological information depends largely on the quantity of research stations or locations, as well as the frequency of the data recording.	Overall qualitative level of biological and ecological data in relation to the state of resource: • Low ……..…….☐ • Medium ……...……...☐ • High …….☐ • Don't know ……☐ Indicators to determine the quality of the information: • Number of research stations or localities: • Frequency of research:	

		• Others:	
1.3 Consideration of total mortality	CITES makes it clear that not only international or national trade but all factors that contribute to the species' mortality have to be considered in the evaluation. Provide indication of the level of impact on mortality per identified factor on a scale of 1 to 4. (Scale: 1- None; 2- Limited; 3 – Average; 4- Substantial)	Factors that contribute to resource mortality: • Habitat loss …….☐ • Habitat degradation ……..……☐ • Fishing activities ……..☐ • Natural predation ……☐ • IUU fishing activities ……..☐ • Diseases:……..☐ • Others: ……☐	
1.4. Global conservation status	Review listing status according to the IUCN Red List or any other organization that makes evaluations of the status of national and regional resources. Mention name(s) of organization(s) of reference.	Conservation level evaluation: 1. Critically endangered ……..…☐ 2. Endangered ……☐ 3. Vulnerable ……..……☐ 4. Near threatened ……..…☐ 5. Least concern ……☐ 6. Data deficient ……...☐	IUCN Red List
1.5 International status of resource	Queen conch is a regionally shared resource, where fishing areas overlap and population dynamics are influenced by actions of multiple Parties. Provide indication of resource status on the basis of national and regional population abundance and density studies, management plan measures and quota control.	National resource status indication: • Increase ……..……..☐ • Healthy ……..☐ • Stable ……☐ • Decline ……...☐ • Unknown ……...☐ Regional resource status indication: • Increase ……..☐ • Healthy ……..☐ • Stable ……☐ • Decline ……...……....…….☐ • Unknown ……...☐	

CATEGORIES	DESCRIPTION	INDICATORS	REFERENCES
2. Biological Characteristics			
2.1 Life history	Knowledge of the life history stages of a species is critical in understanding its adaptability to threats and its resilience. Provide names of publications and/or studies that are used as reference points for the understanding of the different life stages.	Reference literature on queen conch life stages, adaptability to threats and its resilience: • Larval: • Juvenile: • Adult:	Cop 15, Doc. 16.2.2
2.2 Population density and adults per hectare	Density of adults per hectare is one of the most easily measured and monitored attributes for assessing the likelihood of survival of queen conch populations. Despite contrariety of opinion between experts and countries of the Caribbean region, there appears to be regional consensus that following be examined and established: 1. Information on the average density of adults per hectare from local surveys. 2. Information on adult per hectare densities currently taken as benchmark by the national fisheries authorities 3. Suggestion for adult per hectare density standard for regional reference.	Adult specimen per hectare benchmarks: 1. National average: 2. National benchmark: 3. Suggested regional minimum benchmark:	Appeldoorn et al., 2011 NMFS – ESA, 2014 (pag. 18-20). Stoner and Ray-Culp, 2000 QCWG, Miami, 2012
2.3 Habitat	Depending on the life stage, queen conch has specific habitat requirements, most probably linked to food source and protection as major underlying factors. 1. Indicate preferred habitats by the main life stages as observed in national surveys. 2. Report if a spatial map(s) has been elaborated that shows habitat areas of the mentioned four stages.	1. Preferred habitat per life stage: • Larval: • Juvenile: • Adult: • Reproduction: 2. Spatial maps of sea bottom (<70 m) substrate and conditions.	
2.4 Regional resource enhancement	Regional extension and connectivity of resource should be taken into consideration in guiding the national use and management plans in order to maintain and enhance key "stepping stone" populations. 1. Indicate the existence of surveys on marine currents and impact on queen conch larval dispersal. 2. Report on studies on genetics, stock structure and spatial distribution. 3. Indicate if management plan includes components on regional stock enhancement.	1. Conclusions of national surveys on impact by marine currents on larval dispersal: 2. Results of studies on genetics, stock structure and spatial distribution with regional focus. 3. Elements on efforts of regional stock enhancement in management plan.	

2.5 Ecological adaptability	The various life stages appear to be closely linked to a particular type of habitat. How does queen conch? Provide information on how queen conch, in its different life stages, reacts to disturbances in its habitat.	Survey results of habitat disturbances and species sensitiveness to changes and disturbances.	
2.6 Migration/mobility	There are still gaps in the knowledge about the dispersal rate of larvae and the limited mobility/migration of adult queen conch. The seasonal movements of adult queen conch are associated with mating and spawning. 1. Provide survey results on spatial movements by life stage. 2. Identify underlying factors of migration and spatial movements. 3. Inform on adult queen conch mobility during mating season.	1. Results of national field surveys on spatial mobility by life stage: 2. Identified underlying factors of migration and movements: 3. Data on adult mobility during mating season:	Stoner and Sandt, 1992.
2.7 Significance for eco-system	Information is scarce on the role that queen conch plays in the local ecosystem and the consequences its removal has on the ecosystem. 1. Report on national surveys on queen conch impact on ecosystem. 2. Inform on results of studies on ecosystem related benefits derived from queen conch presence by life stage.	Availability of field surveys data on: 1. Queen conch impact on habitat: 2. Queen conch contributions to habitat:	CFMC, 2005; Stoner et al., 1995. Leader-Williams, 2002. M Rose, 2014.

2.8 Population resilience	The natural capacity of the resource to recuperate from fishing effort, habitat degradation and devastation by natural phenomena provides an important indication of the species resilience. 1. Report on field survey results on recovery capacity per impact type. 2. Provide historic data on adult per hectare density in impact areas. 3. Provide data from recruitment studies.	1. Population recovery capacity data after impact of: • Fishing: • Habitat degradation: • Natural phenomena: 2. Historic adult density data in impact areas: 3. Data from recruitment studies:	
2.9 Biological parameters in critical life stages	Field surveys have generated substantial amounts of data on queen conch habitats, feeding habits and morphometric characteristics for the different life stages. 1. Report on morphometric measurements for different life stages (conch and flared lip measurements). 2. Indicate feeding preferences and habits per life stage.	1.Morphometric measurements analysis data for: • Juveniles: • Male adults: • Female adults: 2. Feeding preferences: • Larvae: • Juveniles: • Adults:	

CATEGORIES	DESCRIPTION	INDICATORS	REFERENCES
3. National Status			
3.1 National distribution	There are generally substantial differences in the spatial distribution pattern within an area as a result of depth, substrate, food requirements and factors which contribute to overall mortality. 1. Provide information on availability of spatial distribution per fishing area. 2. Provide data on underlying factors for geographical distribution per life stage. 3. Provide information on sub-populations detected. 4. Mention which biological parameters are included in national distribution analysis. 5. Indicate the protocol or methodology used in national queen conch distribution analysis.	Resource distribution surveys data: 1. Resource distribution maps: 2. Underlying factors for spatial distribution: 3. Sub-populations detected: 4. Biological parameters in distribution analysis: 5. Protocol / methodology utilized:	
3.2 National abundance	The spatial abundance by individual fishing bank should be included in stock assessment activities. 1. Provide information of population baseline studies. 2. Inform about stock abundance per fishing area 3. Provide data on differences in abundance between different zones within the national territory. 4. Indicate the protocol or methodology used in national queen conch abundance analysis.	Resource abundance survey data: 1. Baseline figures. 2. Spatial stock abundance data or maps: 3. Data on abundance differences for respective zones within the national territory: 4. Protocols /methodologies used:	CFMC Manual on Queen Conch Stock Assessment. Ehrhardt, 2008
3.3 Habitat quality	Information on the overall status and over-time morphological and quality changes in the queen conch habitats should be available. 1. Habitat loss or degradation from anthropogenic or natural causes (e.g., hurricanes) should be included in the evaluation.	1. Habitat loss and degradation factors identified: • Human habitat infringement ……..……☐ • Human wastes ……...……☐ • Estuarine discharges ……..….☐ • Natural phenomena …….……..☐ • Climate change .....…...…...☐ • Others ……..…….……☐	
3.4 National population tendency	Trends are a good indicator to measure the sensitivity and resilience of the resource to adverse population effects. Important is the trend period to build data confidence. The	National Population: 1. Baseline used and trends: 2. Trend period:	NMFS, 2014 Rose, 2008

	sources of Information are important for quality and verification reasons 1. Provide information on population baseline and trends. 2. Inform on the trend period (in number of years or resource generations). 3. Information on information sources used.	3. Information sources: • National scientific records and data: ……...☐ • National statistics: ……....☐ • Local non official sources:. ……...……..☐ • Traditional sources: ……..☐ • Others: ……..☐	
3.5 Population age/size structure	The age/size structure of the population is related to specific habitats and the reproductive behavior of the species, which in turn are important determinants in exploitation and habitat protection measures. 1. Provide overall age/size structure of the population based on quantitative data, preferably conch length and flared lip thickness. 2. Enumerate parameters used in determining the age structure. 3. Inform on protocols and/or methodologies used to determine age/size structure.	Age structure information: 1. Population age/size structure table or graph. 2. List of parameters used to establish age/size structure: 3. Identification of methodologies and/or protocols used:	
3.6 Main threats	Direct and indirect threats and their cumulative impact on the habitat have a major impact on the sustainability of the resource. Indicate severity of each threat indicated on a scale of 1-5. (Scale: 1- Very low; 2- low; 3 – Average; 4- Substantial; 5- Intense.)	Main threats identified: • Habitat Loss/Degradation ……...☐ • Invasive alien species …….……..……☐ • Harvesting…… ☐ • Pollution ……..…☐ • Allee effect on reproduction ……...☐ • Others ……...☐ • No threats ……☐ • Unknown ……....☐	

3.7 Economic impact of resource utilization	The contribution of the queen conch sector to the national economy through fishing for trade is an important indicator in the evaluation of the state of the resource for its repercussions in conservation management measures. Quantitative data should be provided on: 1. Contribution of queen conch exports to total fishery exports	Economic performance data (in %, volume and/or value): 1. Queen conch exports in total exports: 2. Queen conch in total GNP: 3. Queen conch in primary sector GNP: 4. Employment:	

	(trend). 2. Contribution of queen conch related trade to the total GNP (trend). 3. Contribution of queen conch related trade to primary sector GNP (trend). 4. Employment generated by queen conch fishery (direct and indirect).	• Fishing: • Processing: • Trade: • Others:	
3.8 Social impact of resource exploitation	A successfully managed fishery needs to take into consideration the social structure and implications, particularly in the case of an artisanal fishery activity. The SA can determine the social impact of the fishery by considering the following data: 1. Total employment generated in the sector. 2. Total income derived from the fishery. 3. Make-up of the fishers' population according to income group, age structure, social structure and education level. 4. Role of queen conch in food security/protein intake (subsistence catch). 5. Accident and disability rate caused by sector related activities.	Social impact: 1. Level of employment generated: 2. Total income from sector 3. Structure of total workforce by: • Income group: • Age structure: • Education level: 4. Food security input 5. Number of accidents reported:	
3.9 Overall quality of queen conch sector related information	Provide opinion on overall quality of sector related information based on reliability, accuracy, consistency and comprehensiveness of available sources and data. 1. Inform on the type of information which is generally used. 2. Report on the overall quality of information used.	1. Type of data: • Quantitative (in %): • Qualitative (in %): 2. Overall quality level of data: • Low ……...☐ • Medium ……☐ • High ……...☐	

CATEGORIES	DESCRIPTION	INDICATORS	REFERENCES
4. Queen Conch Management Plans			
4.1 Management history	Provide information on the following elements of the queen conch management history: 1. Date queen conch was included in management systems. 2. Date of last management plan update. 3. Institutions in charge of management plan. 4. Impact of the management plans. 5. International conventions on conservation subscribed to, with indication whether the country is legally bound by the conventions' decisions. 6. Co-management history (stakeholders and feedback systems). 7. History of how legal framework of management plan has evolved.	Management history: 1. Date of first management plan 2. Date of last management up-date: 3. Institution(s) in charge. 4. Impact analysis: 5. International conventions: 6. Co-management arrangements: 7. Legal framework history:	
4.2 Management plan or equivalent	The existence of a management plan and its effectiveness in terms of execution, monitoring, control and compliance, is of major importance to the SA. Information needed for the evaluation consists of: 1. Orientation of the management plan. 2. Purpose of management plan. 3. Type of management plan 4. Effectiveness analysis of execution and management performance. 5. Current institutional and judicial framework.	Elements of management plan: 1. Orientation of plan: • Adaptive ……...☐ • Co-management ……☐ • Eco-system ……..……☐ • Other ……..……☐ 2. Purpose of management plan: • Economic ….....☐ • Socio-economic ……..……☐ • Commercial ……☐ • Ecological …….....☐ • Other .....…...☐ 3. Type of management plan : • Queen conch specific ……...☐ • Part of management plan of other	

		species ……...……...☐ • Fisheries generic ……...…….☐ 4. Effectiveness analysis of execution and management: • SWOT….....….☐ • Othe……..…☐ 5. Institutional and judicial framework:	
4.3 Management measures	Indicate the control and alleviation measures in place to assure that fishing is not detrimental to the survival of the species. 1. Enumerate the different management measures in place. Management measures are not mutually exclusive.	1. Management measures in place: • Quotas for export ……....☐ • TACs ……☐ • MPAs ……☐ • Specific quotas ……..……☐ • Minimum number adults per hectare …….☐ • Minimum conch and flared lip size .....…☐ • Closed seasons ..……..…..☐ • License systems …..…….....☐ • Limitations of fishing methods/gears. …. ☐ • Individual non transferable quotas …..……☐ • VMS ……☐ • Precautionary principle is being applied …☐ • Other ……☐	
4.4 Elements of the Management Plan	Identify the major elements in the management plan.	Elements of management plan: • Population dynamics ……☐ • Habitat conservation strategy …….....☐ • Monitoring and control …….....……☐ • Threats …….…….....☐	

		• Enforcement …….....☐ • Co-management arrangements …….....☐ • Legal framework ……..…☐ • Others ……...☐	
4.5 Regular revision/update of the management plan	One of the major parameters which the SA has to evaluate in the effectiveness of the management plan is the frequency with which the management plan is being reviewed and updated.	Review and update frequency: • Continuous ……..……..☐ • Every six months …….☐ • Once a year ……..☐ • Others …….....…☐	
4.6 Confidence in fishery management effectiveness	Confidence in the management of fishing activities is a key factor in the sustainable exploitation of the resource. Confidence and effectiveness go hand in hand. 1. Evaluate factors that impact on the effectiveness of the management plan and affect the confidence in the fishing management. Indicate the level of impact on a scale of 1 to 4. (Scale: 1-Very little; 2-Little; 3–Regular; 4-Substantial)	Confidence and effectiveness of fishery management are hampered by: • Budget restrictions …….....☐ • Shortage of (trained) personnel ……..☐ • Lacking enforcement ……...☐ • Inadequate feedback mechanisms ……....☐ • Limited stakeholder involvement ….....☐ • Others ……..……..☐	

CATEGORIES	DESCRIPTION	INDICATORS	REFERENCES
5. Queen Conch Fishing			
5.1 Fishing methods	The queen conch fishery consists of four sub-sectors: Industrial, artisanal, subsistence and recreational. Fishing gears are not sub-sector specific and the gear used is mainly determined by national legislation on the issue. 1. Mention the major producers by sub-group. Indicate importance (in % or MT) of the volume landed by each sub-group. 2. Provide classification of fishing gears used based on volume produced. 3. Intensity of impact on sustainability per fishing method on a scale from 1-3. (Scale: 1- Low; 2 – Average; 3 - High.)	1. Producers' sub-groups: • Industrial vessels: ……☐ • Independent artisanal fishers: ……☐ • Subsistence fishers: …… ☐ • Recreational: ……☐ 2. Harvesting methods: • Pole & hook: ……..☐ • Free-diving: ……☐ • Scuba: ……☐ • Hookah: ……..☐ • Others: ……☐ 3. Possible impact of fishing gear on resource sustainability (scale 1-3): • Pole & hook: ……..☐ • Free-diving: ……☐ • Scuba: ……☐ • Hookah: ……..☐ • Others: ……☐	Appeldoorn et al., 2011
5.2 Catch quotas	Fishing quotas are a major tool to limit fishing effort and overall exploitation levels, when correctly applied and duly enforced. Within the queen conch fishery, a number of quotas options can be employed by the competent authorities and which can be evaluated by the SA by obtaining information on the following issues: 1. Indicate if, in addition to the commercial fishing quota, a scientific harvest quota has been allotted to the country by CITES. Provide total quota allocated.. 2. Provide information on origin of quota. 3. Indicate if quotas are applied by producers' sub-groups. 4. Indicate if fishing quotas are established by fishing area on the basis of population dynamics analysis. 5. Evaluate trend in harvest quota and levels of compliance.	Evaluation of harvest quotas: 1. Type of quota: • Scientific: ……..……☐ • Commercial: ……..☐ 2. Origin of harvest quota: • Voluntary established based on population dynamics and CITES approved: ……☐ • CITES imposed: ……☐	

	6. Indicate the queen conch products that are under a harvest quota regime.	3. Harvest quota per fishers' sub-group: • Recreational: …….. ☐ • Subsistence: ……☐ • Independent artisanal: ……..……☐ • Industrial: ……..☐ 4. Harvest quota by fishing area: 5. Trend in harvest quotas and levels of compliance: 6. Products with quota regime: • Meat (fillets): ……..……☐ • Trimmings: ……☐ • Pearls: ……☐ • Operculum: ……☐ • Shells: ……☐ • Other: ……..☐	

5.3 Closed fishing seasons and areas	As part of queen conch conservation, among the most commonly applied management measures to limit fishing effort are closed seasons and areas.	Closed seasons based on: • Biological factors: …….. ☐ • Quota considerations: ……. ☐ • Other: …..... ☐ Closed areas based on: • Quota considerations: ……. ☐ • Life stage prominence: ……..… ☐ • Population density figures: ……☐ • Reproduction: ……. ☐ • Regional resource conservation: ..… ☐ • Others: ……..……☐	
5.4 Definition of Total Allowable Catch (TAC)	The definition of a TAC, if and when elaborated on the basis of insufficient and/or inadequate data on, like the state of the resource, fishing effort (including IUU), and effectiveness of conservation measures and its enforcement, normally implies the introduction of the Principle of Precaution. 1. Evaluate the methodology for the calculation of the TAC. 2. Evaluate the methodology of the calculation and application of the Principle of Precaution. 3. Define the protocol used.	Consideration of the TAC: 1. Definition of TAC: • Methodology applied: • Percentage of TAC over total resource 2. Principle of Precaution: • Criteria applied in establishment of the Principle of Precaution • Trend in applied level of the Principle of Precaution. 3. Protocol(s) applied	Ehrhardt, 2008
5.5 Illegal, unreported and unregulated fishing (IUU)	The SA needs information on the significance of illegal, unreported and unregulated (IUU) fishing in the total landings and mechanisms to combat these practices. 1. Provide information on mechanisms in place to combat IUU fishing. 2. Check with local sources on practices and volumes of IUU fishing. 3. Provide information on trend in IUU fishing over last 5 years. 4. Indicate the impact of the IUU on the sustainability of the resource on a scale of 1 to 4.	1. Mechanisms to detect and curb IUU fishing: • Use of VMS (satellite):……☐ • Surveillance: ……...☐ • Co-management and tenure	

	(Scale: 1- None; 2- Limited; 3 – Notable; 4- Substantial)	arrangements:…☐ • Inter-institutional collaboration:…. ☐ • Traceability protocols: ……☐ • None: ……..☐ • Others: ……..…..…☐ 2. Levels of IUU fishing (Scale 1-4): • Illegal: …….☐ • Unreported: ……☐ • Unregulated: ……..☐ 3. Trend in IUU fishing over last 5 years. 4. Impact of IUU on resource sustainability (Scale 1-4): ..☐	
5.6 Morphometric management indicators	Specific morphometric measurements of queen conch are applied to assist in conservation and sustainability of the species. There is general consensus on the specific characteristics that can be measured, although differences exist between the various fishing grounds and on a regional level. 1. Report on national morphometric measurements in use. 2. Evaluate field data, methodology or protocol used to establish measurements. 3. Indicate compliance level with established morphometric measurements (Scale 1-4) (Scale: 1- None; 2- Limited; 3–Average; 4-High)	1. Morphometric measurements: • Shell length: ….. mm • Flared lip thickness: …. mm • Operculum rings: ….. # rings • Others: 2. Origin of measurements: • Field surveys and analys: • Specific methodology: • Protocol: 3. Levels of compliance: (1-4): ….. ☐	

5.7 Total harvest volume and trend	Maintaining accurate and up to data factual information on the exploitation is indispensible to comply with the established quotas and to prevent excess exploitation. 1. Review the sources of information used in obtaining total landings of queen conch. 2. Provide information on trends in harvested volumes (scale 1-5) (Scale: 1- Decline; 2- Stable; 3 – Steady increase; 4- Heavy increase; 5-Unknown)	1. Sources of information used: • Log books from vessels: ……☐ • Processing plant records: ……☐ • Landing sites: ……..…☐ • National landing statistics: ……☐ • Producers' organizations:……....☐ • FAO statistics: ……☐ • CITES: ……☐ • Others: ..... ☐ 2. Trend in fishing volumes (Scale 1-5) • Total harvest: ……....☐ • Meat (fillets): ……☐ • Trimmings: ……☐ • Pearls: ……☐ • Operculum: ……☐ • Shells: ……☐	
5.8 Confidence in fishing data	The SA will need to evaluate the quality of the harvest data as harvesting is the factor with the major influence on the sustainability levels of the resource. The different ways queen conch is harvested and processed complicate the uniform data collection. 1. Review the factors that affect the confidence level of the data and evaluate the confidence levels in fishing data. (Scale 1-4). (Scale: 1- None; 2- Limited; 3–Average; 4-High)	1. Factors that influence the confidence levels of data: • No reporting: …….. ☐ • Processing at sea of catch: ….……☐ • Incongruity in live to meat conversion factors: …….☐ • Limited effectiveness of monitoring systems: …..….☐ • Others: ……☐	

CATEGORIES	DESCRIPTION	INDICATORS	REFERENCES
6. Monitoring of Fishing			
6.1 Monitoring methods used	Monitoring systems are essential to the effective functioning and control of relevant parameters. 1. Evaluate monitoring activities in three categories: A. Biological aspects: B. Aspects of fishing: (Incl. IUU fishing) C. Trade aspects: (Incl. IUU trade)	1. Monitoring methods: A. Biological aspects: • Direct stock assessment: ……..... ☐ • Habitat and biodiversity Observations: ……. ☐ • Internet and literature: ……...☐ • Others: ……☐ B. Aspects of fishing effort: • Revision of logbooks: ……☐ • VMS records: …….☐ • On-board observers: ……...☐ • Processing plant records: ……☐ • Landing sites (incl. atolls):…….☐ • Surveillance: ……..☐ • National statistics: ……..☐ • Others: ……☐ C. Trade aspects: • Export/import statistics: …….☐ • Market trend studies: ……☐ • Others: ……☐	
6.2 Confidence in monitoring	The SA has to evaluate which factors affect in a positive or negative way the confidence levels in the established monitoring systems 1. Establish the levels the confidence in monitoring is being affected by evaluating the impact and performance levels of the mentioned factors, on a scale of -2 to +2. (Scale: -2 Very negative; -1 Negative; 0- No impact; +1 Positive; +2- Very	1. Confidence in monitoring depends on: (Scale: -2 to +2) • Periodicity of reviews: …..☐ • Quality of data sources used:….☐ • Collaboration from private sector: …☐	McGowan and Hay, 2008.

	positive)	• Levels of competence at management authority: …..☐ • Inter-institutional collaboration:……☐ • Level and effectiveness of enforcement: ……..……..☐ • Compliance levels: …….☐ • Qualitative feedback on adjustments:……☐ • Peer reviews: ……..☐ • Levels of fishing and trade IUU: …☐ • Efficient data bases: ……...☐ • Others: ……☐	

CATEGORIES	DESCRIPTION	INDICATORS	REFERENCES
7. Control of Fishing			
7.1 Fishing in protected areas	What percentage of the legal national harvest occurs in state controlled Marine Protected Areas (MPAs), sanctuaries or temporary closed areas under the scientific and/or commercial quota, and IUU? 1. Provide volume of total legal landings for the country. 2. Establish respective fishing levels per quota type.	Total legal harvest in protected areas: 1. Total annual legal harvest in MT live weight. 2. Percentage harvest share: • Scientific quota: …… % • Commercial quota: …….. % • IUU fishing: ….. %	
7.2 Percentage share of fishing vs. percentage actually protected	What proportion of the potential total landing volume is made up of the commercial, scientific and IUU fishing versus the protected share of the resource? 1. Review distribution of legal total landings.	1. Total legal annual harvest distribution: • Total annual legal harvest: . % • Total commercial harvest: . % • Total scientific harvest : …. % • Total estimated IUU: ….. % • Total estimated protected share: ……. %	
7.3 Landings in areas with tenure or ownership agreements	Total landings in areas with stakeholders' ownership arrangements; in percentage of total quota for fishing.	Percentage total fishing quota by stake holders with ownership arrangements: • Stakeholders' fishing quota: ……..MT, or ……% • Total fishing quota: ……MT, or …...%	
7.4 Exploitation of population by several states	Management arrangements with countries that share the resource. Include international arrangements/agreements on IUU fishing and related issues.	To be addressed once regional agreements on shared exploitation and IUU are in place	

<table>
<tr><th>CATEGORIES</th><th>DESCRIPTION</th><th>INDICATORS</th><th>REFERENCES</th></tr>
<tr><td colspan="4"></td></tr>
<tr><td>8. Trade Data</td><td colspan="2"></td><td></td></tr>
<tr><td>8.1 Trade history</td><td colspan="2">This short description of the commercial history of queen conch products should identify elements in the trade that have a detrimental effect on the sustainability of the resource, and as such are of interest to the SA.
1. Provide short history of the trade in queen conch products.</td><td>1. Factors to consider for short trade history:
• Situation before CITES
• Major outlets and foreign destinations.
• Intra-regional trade
• Historic trends in volume and value.
• Marketing channels development.
• Products traded
• Trade IUU in historic perspective.
• Baseline information for SWOT analysis.</td><td></td></tr>
<tr><td>8.2 Products & destination</td><td colspan="2">Five products which are generally produced on the basis of queen conch (for last year on record):
<table>
<tr><td>Year: …….</td><td colspan="2">Market share in volume and value:</td><td colspan="4">Destination:</td><td>Estimated % IUU trade in total volume traded</td></tr>
<tr><td></td><td>In volume (kilos)</td><td>In value (US$)</td><td>Export Countries</td><td>Local</td><td>Subsistence</td><td>Total</td><td></td></tr>
<tr><td>• Meat (clean fillets)</td><td>.....%</td><td>.....%</td><td>.....%</td><td>.....%</td><td>.....%</td><td>100%</td><td>.....%</td></tr>
<tr><td>• Trimmings</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>• Pearls</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>• Operculum</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>• Whole shells</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>• Other</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>Total</td><td>100%</td><td>100%</td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>8.3 Export quotas</td><td colspan="2">Indicate products that are subject of export quotas.</td><td>Products subject to quota regime:
• Meat: ……...……☐
• Trimmings: ……....☐
• Pearls: ……....☐
• Operculum: ……☐
• Shells: ……☐</td><td>Resolution Conf. 14.7 (Rev. CoP15)</td></tr>
<tr><td>8.4 Quota</td><td colspan="2">The SA is primarily responsible for overseeing and managing the</td><td>Quota compliance:</td><td></td></tr>
</table>

compliance	regulatory compliance of the established export quota(s). 1. Provide information on measures taken to assure compliance. 2. Review historic trend in quota compliance.	1. Compliance procedures in place. 2. Historic data on compliance.	
8.5 Demand versus supply	The imbalance in supply and demand is of crucial importance for the price developments and the consequent level of interest in harvesting. 1. Evaluate market demand for the various queen conch products (Scale 1-4): (Scale: 1-decrease; 2-stable; 3-increase; 4-strong increase)	Demand trend at outlets: • Meat: ……...……☐ • Trimmings: ……..... ☐ • Pearls: ……..... ☐ • Operculum: ……☐ • Shells: ……☐	
8.6 Trade volume	Maintaining accurate and up to data factual information on trade movements is indispensible to comply with the established quotas and prevent excess exploitation. 1. Review national trade movements and volumes in the light of established trade quota. 2. Review historic trade quota compliance levels	1. Trade statistics: • Queen conch import, export and re-export data for the last 5 or 10 years on record. • Queen conch product export quota(s) for last 5 or 10 years on record. 2. Historic compliance data	

8.7 Illegal, unreported and unregulated trade	How significant is illegal, unreported and unregulated trade? 1. Determine if products from IUU fishing operations are being imported and/or exported. 2. Provide information on products which are subject of IUU trade. 3. Review levels of estimated IUU trade in relation to total trade in queen conch products. 4. Measures to detect curb and eradicate IUU trade. 5. Methodology used for calculating IUU trade.	Illegal, unreported and unregulated trade: 1. Direction of IUU trade: • Incoming for re-export: …….☐ • Incoming for local consumption:…..☐ • Outgoing for re-export: ……☐ • Outgoing for direct consumption: ……☐ 2. Products subject to IUU trade: • Meat: ……...☐ • Pearls: ……....☐ • Operculum: ……☐ • Other: ……..☐ 3. Level of outgoing IUU in relation to total trade: • Meat: ……. % of total meat trade • Pearls: : …… % of total pearl trade • Operculum: ……. % of total operculum trade • Other: : …… % of total trade 4. Measures to curb IUU trade: 5. Methodology used to calculate IUU in trade:	
8.8 Confidence in trade data	Trade data are often subject to over or under reporting by producers, processors and traders depending on prevailing tax and fiscal incentive regimes and/or established quotas. 1. Identify trade data sources. 2. Evaluate the confidence levels in trade data sources. (scale 1-4) (Scale: 1- None; 2- Limited; 3–Average; 4-High)	1. Trade data sources: • National statistics: ……....☐ • Statistics of importing countries: …….☐ • FAO statistics: ……..☐ • CITES statistics: …….……..☐ • Exporters' records: ……..☐ • Extrapolated landing data: ……☐ • Others: ……...☐ Confidence levels in trade data sources: (1-4) • National statistics: ……....☐ • Statistics of importing countries: …….☐ • FAO statistics: ……..☐ • CITES statistics: …….……..☐ • Exporters' records: …….……..☐	

		• Extrapolated landing data: ……☐ • Others: ……...☐	
CATEGORIES	**DESCRIPTION**	**INDICATORS**	**REFERENCES**
9. Culture Operations			
9.1 Origin of stock	Important issues are the origin of the founder stock. 1. Establish the origin of the founder stock 2. Protocols in place for collection of founder stock. .	1. Founder stock origin: • Larvae collected from the wild: ……☐ • Juveniles taken from the wild: …….....☐ • Adults taken from the wild for reproduction purposes: …….☐ 2. Protocols:	
9.2 Direct impact on local resource and conservation	Culture operations can impact positively and/or negatively on wild populations and conservation.. 1: Identify activities with negative impact and establish level of impact. 2. Identify activities with positive impact and establish level of impact.	1. Activities with negative impact: • Founder stock collection: ……☐ • Possible loss of habitat if outgrow facilities cover sea grass areas .....☐ • Others: ….....☐ 2. Activities with positive impact: • Release of excess larvae and juveniles: …..…….☐ • Commercial production: ……..☐ • Others ……☐	Res. Conf. 11.11 Rev.15
9.3 Traceability of products	Highly significant that the species and specimens can be easily identified and be duly distinguished from wild-taken specimens. 1. Evaluate traceability protocols.	- Traceability protocols	CoP16 Inf.11

CATEGORIES	DESCRIPTION	INDICATORS	REFERENCES
10. Other Factors			
10.1 Impact of climate change and natural phenomena	Evaluate how climate change can have an impact on the survival of the species. 1. Evaluate the reaction of queen conch under warmer water temperature conditions. 2. Review possible impact on the strength and direction of ocean currents. 3. Consider impact of increased hurricane activity in the resource area.	1. Case studies on queen conch behavior and habitat changes under higher temperature variations. 2. Change in ocean current patterns 3. Hurricane impact studies.	
10.2 Educational and outreach activities	Broad educational and outreach activities directed at industrial and artisanal fishermen, teachers, students, politicians and the general public.	Educational material and course material.	
10.3 Legal framework	1. Review possible impact of specific and national and international legislation relating to the exploitation and conservation of queen conch. 2. Evaluate implementation and compliance levels	1. Data base with relevant dispositions. 2 .Enforcement	

Table 2: Rapid Assessment Format for Ascertaining the Queen Conch Resource Conservation Status

The Categories included in the Rapid Assessment Format can also be found in Table !, which is a full fledged due diligence and best practice guideline NDF format meant for those countries that currently do not make NDFs and/or that find it difficult to determine the required format and contents. Countries that already produce NDFs on a regular basis may find the proposed format suitable for reasons identification of pertinent variables to be included, as well as for comparison with NDFs from other countries with which they share the queen conch resource.

Table 2 does not substitute for Table 1 and it is recommended to be used as an intermediate assessment between two major NDF evaluations. This can happen on occasions such as the occurrence of natural phenomena or major changes in the prevailing management regimes. The Rapid Assessment Format is meant to be executive and for this reason some of the Categories have been shortened and/or merged

The Categories mentioned in Table 2 are those recommended by M. Rose in his paper on Non-detriment findings in CITES (NDFs); Version 1.2 (2014) based on the original IUCN check list, and complemented by the author and participants to the CFMC/WECAFC/OSPESCA/CRFM/CITES Working Group on Queen Conch, which took place from 18 to 20 of November 2014 in Panama City.

Also this Format should be suitable for national and regional application, allowing for decision making on a unilateral level, as well as provide a basis for regional comparisons and collaboration.

Species: Queen Conch *(Strombus gigas)*	**Country:**
Conservation Status of the Species: (IUCN Red List): _____	**National Conservation Status:**
Date of Rapid Assessment Format: _____	**Date of last NDF:**
Rapid Assessment prepared by (Organization/Authority): _____	**Official in Charge / Assigned:**
National Competent Scientific Authority: _____	**Official in Charge / Assigned:**
National Competent Management Authority: _____	**Official in Charge / Assigned:**
Actual Annual Voluntary Quotas: A) Clean Meat (fillets): _____ **MT; B) Trimmings:** _____ **MT; C) Pearls:** _____**Units; D) Others:** _____	

CATEGORIES	DESCRIPTION	INDICATORS	REF.
1.1 Species identification	CITES requires the correct identification of the species: 1. Check correct taxonomy and nomenclature of Strombus species found in national waters. 2. Look for synonyms and local names.	1. Strombus species: 2. Local names and synonyms:	
2.2 Population density and adults per hectare	Density of adults per hectare is one of the most easily measured and monitored attributes for assessing the likelihood of survival of queen conch populations. Despite contrariety of opinion between experts and countries of the Caribbean region, there appears to be regional consensus that following be examined and established: 3. Information on the average density of adults per hectare from local surveys. 4. Information on adult per hectare densities currently taken as benchmark by the national fisheries authorities 3. Suggestion for adult per hectare density standard for regional reference.	Adult specimen per hectare benchmarks: - CITES minimum benchmark: 56 adults/hectare 1. National average: 2. National benchmark: 3. Suggested regional minimum benchmark:	Appeldoorn et al., 2011 NMFS – ESA, 2014 (pag. 18-20). Stoner and Ray-Culp, 2000 QCWG, Miami, 2012
3.1 National distribution	There are generally substantial differences in the spatial distribution pattern within an area as a result of depth, substrate, food requirements and factors which contribute to overall mortality. 6. Provide information on availability of spatial distribution per fishing area. 7. Provide data on underlying factors for geographical distribution per life stage. 8. Provide information on sub-populations detected. 9. Mention which biological parameters are included in national distribution analysis. 10. Indicate the protocol or methodology used in national queen conch distribution analysis.	Resource distribution surveys data: 1. Resource distribution maps: 2. Underlying factors for spatial distribution: 3. Sub-populations detected: 4. Biological parameters in distribution analysis: 5. Protocol / methodology utilized:	
3.2 National abundance	The spatial abundance by individual fishing bank should be included in stock assessment activities. 5. Provide information of population baseline studies. 6. Inform about stock abundance per fishing area 7. Provide data on differences in abundance between	Resource abundance survey data: 5. Baseline figures. 6. Spatial stock abundance data or maps: 7. Data on abundance differences for respective zones within the national territory:	CFMC Manual on Queen Conch Stock Assessment. Ehrhardt, 2008

	different zones within the national territory. 8. Indicate the protocol or methodology used in national queen conch abundance analysis.	8. Protocols /methodologies used:	
1.2; 5.8; 8.8: Quality of data used in evaluation. • Overall biological and ecological data on queen conch resource (1.2) • Fishing sector data (5.8) • Trade sector data (8.8)	For CITES the reliability, accuracy, consistency and comprehensiveness on data used in the evaluation is of is great importance as it sets the tone for the level of precaution that will be applied to the level of trade allowed and catch levels. 1. Provide overall opinion of biological and ecological data used. 2. Review the factors that affect the confidence level in fishing sector data. (Scale 1-4). 3. Evaluate the confidence levels in trade data sources. (scale 1-4) (Scale: 1- None; 2- Limited; 3–Average; 4-High)	1. Overall confidence level in available biological and ecological data on the national queen conch resource: • Low: ……..… ☐ • Medium: ……...… ☐ • High: ……..…… ☐ • Don't know: ……..… ☐ 2. Factors that influence the confidence levels of data on the queen conch fishing sector (Scale 1-4): • No or limited reporting: ……..……☐ • Processing at sea of catch: ….…..…… ☐ • Incongruity in live to meat conversion factors:☐ • Limited effectiveness of monitoring systems: .☐ • Others: ……..…… ☐ 3. Confidence levels in trade data sources: (Scale 1-4) • National statistics: ……..... ☐ • Statistics of importing countries: ….……..☐ • FAO statistics: ……. ☐ • CITES statistics: ……..…. ☐ • Exporters' records: ……..…..	

		☐ • Extrapolated landing data: …… ☐ • Others: …….. ☐	
4.2 Management plan or equivalent	The existence of a management plan and its effectiveness in terms of execution, monitoring, control and compliance, is of major importance to the SA. Information needed for the evaluation consists of: 1. Orientation of the management plan. 2. Type and outcome of execution and performance analysis of management plan.	1. Orientation of management plan: • Adaptive: ..……... ☐ • Co-management: …… ☐ • Eco-system : …… ☐ • Other: …..……. ☐ 2. Type and result of execution and efficiency analysis: • SWOT: …….....….☐ • Other: …..……..…☐	

4.3 Management measures	Indicate the control and alleviation measures in place to assure that fishing is not detrimental to the survival of the species. 1. Enumerate the different management measures in place. Management measures are not mutually exclusive.	1. Management measures in place: • Quotas for export: …..…….. ☐ • TACs: …...……...……☐ • MPAs: ..……..……..……☐ • Specific quotas: ……..……..…☐ • Minimum number adults per hectare: …….☐ • Minimum conch and flared lip size: ....☐ • Closed seasons: . …….…….. ☐ • License systems: …….....☐ • Limitations of fishing methods/gears: ….....☐ • Individual non transferable quotas: ……..…☐ • VMS: ……...…. ☐ • Precautionary principle is being applied: …☐ • Other: …… ☐	
4.6 Confidence in fishery management effectiveness	Confidence in the management of fishing activities is a key factor in the sustainable exploitation of the resource. Confidence and effectiveness go hand in hand. 1. Evaluate factors that impact on the effectiveness of the management plan and affect the confidence in the fishing management. Indicate the level of impact on a scale of 1 to 4. (Scale: 1-Very little; 2-Little; 3–Regular; 4-Substantial)	Confidence and effectiveness of fishery management are hampered by: • Budget restrictions: …..……..... ☐ • Shortage of (trained) personnel: ….…….. ☐ • Lacking enforcement: ……... ☐ • Inadequate feedback mechanisms:	

		……....☐ • Limited stakeholder involvement : ……..…….☐ • Others: ……..☐	
6.2 Confidence in monitoring	The SA has to evaluate which factors affect in a positive or negative way the confidence levels in the established monitoring systems 1. Establish the levels the confidence in monitoring is being affected by evaluating the impact and performance levels of the mentioned factors, on a scale of -2 to +2. (Scale: -2 Very negative; -1 Negative; 0- No impact; +1 Positive; +2- Very positive)	1. Confidence in monitoring depends on: (Scale: -2 to +2) • Periodicity of reviews: ……..…..☐ • Quality of data sources used: ……..….☐ • Collaboration from private sector: …….……☐ • Levels of competence at management authority:.☐ • Inter-institutional collaboration: ……..…☐ • Level and effectiveness of enforcement: ….☐ • Compliance levels: ……..….☐ • Qualitative feedback on adjustments: …..…☐ • Peer reviews: ……..……..☐ • Levels of fishing and trade IUU: ….……☐ • Efficient data bases: ..……....☐ • Others: ..……☐	McGowan and Hay, 2008.
5.2 Catch quotas	Fishing quotas are a major tool to limit fishing effort and overall exploitation levels, when correctly applied and duly enforced. Within the queen conch fishery, a number of quotas options can be employed by the competent authorities and which can be evaluated by the SA by obtaining information on the following issues:	Evaluation of harvest quotas: 1. Type of quota: • Scientific: …….....……☐ • Commercial: ……..	

	1. Indicate if, in addition to the commercial fishing quota, a scientific harvest quota has been allotted to the country by CITES. Provide total quota allocated.. 2. Indicate the queen conch products that are under a harvest quota regime. 3. Evaluate trend in harvest quota and levels of compliance.	☐ 2. Products with quota regime: • Meat (fillets): ……..…….……☐ • Trimmings: ……☐ • Pearls: ……..……☐ • Operculum: ……..……☐ • Shells: ……..☐ 3. Trend in harvest quotas and levels of compliance:	
5.5 Illegal, unreported and unregulated fishing (IUU)	The SA needs information on the significance of illegal, unreported and unregulated (IUU) fishing in the total landings and mechanisms to combat these practices. 1. Provide information on mechanisms in place to combat IUU fishing. 2. Check with local sources on practices and volumes of IUU fishing. 3. Provide information on trend in IUU fishing over last 5 years. 4. Indicate the impact of the IUU on the sustainability of the resource on a scale of 1 to 4. (Scale: 1- None; 2- Limited; 3 – Notable; 4- Substantial)	1. Mechanisms to detect and curb IUU fishing: • Use of VMS (satellite): ……..……☐ • Surveillance: ……....☐ • Co-management and tenure arrangements: …☐ • Inter-institutional collaboration: …..…….☐ • Traceability protocols: ……..……☐ • None: ……..... ☐ • Others: ……..….☐ 2. Levels of IUU fishing (Scale 1-4): • Illegal: ……..……☐ • Unreported: ……..……☐ • Unregulated: ……..☐ 3. Trend in IUU fishing over last 5 years 4. Impact of IUU on resource sustainability (Scale 1-4): …☐	

<table>
<tr>
<td>8.7 Illegal, unreported and unregulated trade</td>
<td>How significant is illegal, unreported and unregulated trade?
1. Determine if products from IUU fishing operations are being imported and/or exported.
2. Provide information on products which are subject of IUU trade.
3. Review levels of estimated IUU trade in relation to total trade in queen conch products.
4. Measures to detect curb and eradicate IUU trade.
5. Methodology used for calculating IUU trade.</td>
<td>Illegal, unreported and unregulated trade:
1. Direction of IUU trade:
• Incoming for re-export: …….☐
• Incoming for local consumption: …….☐
• Outgoing for re-export: ……..☐
• Outgoing for direct consumption: ….☐
2. Products subject to IUU trade:
• Meat: ……...☐
• Pearls: ……....☐
• Operculum: ……☐
• Other: ……..☐
3. Level of outgoing IUU trade in relation to total trade:
• Meat: …… % of total meat trade
• Pearls: : …… % of total pearl trade
• Operculum: …… % of total operculum trade
• Other: : ……. % of total trade
4. Measures to curb IUU trade:
5. Methodology used to calculate IUU in trade:</td>
<td></td>
</tr>
<tr>
<td>8.2 Products & destination</td>
<td colspan="3">
Five products which are generally produced on the basis of queen conch (for last year on record):
<table>
<tr><td>Year: …….</td><td colspan="2">Market share in volume and value:</td><td colspan="4">Destination:</td><td>Estimated % IUU trade in total volume traded</td></tr>
<tr><td></td><td>In volume (kilos)</td><td>In value (US$)</td><td>Export Countries</td><td>Local</td><td>Subsistence</td><td>Total</td><td></td></tr>
<tr><td>• Meat (clean fillets)</td><td>.....%</td><td>.....%</td><td>.....%</td><td>.....%</td><td>.....%</td><td>100%</td><td>.....%</td></tr>
<tr><td>• Trimmings</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>• Pearls</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>• Operculum</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>• Whole shells</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
<tr><td>• Other</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>…….%</td><td>100%</td><td>…….%</td></tr>
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	Total	100%	100%						

Socio-economic impact of resource utilization (3.7 & 3.8)	The socio-economic contribution of the queen conch sector to the national economy through fishing and trade is an important indicator in the evaluation of the state of the resource and its management. Quantitative data should be provided on: 5. Contribution of queen conch to total fishery exports (trend). 6. Contribution of queen conch related trade to primary sector GNP (trend). 7. Total employment generated in the sector (direct and indirect). 8. Make-up of the fishers' population according to income group, education level, age and social structure.	Socio-economic performance data (in %, volume and/or value): 5. Trend in queen conch exports in total exports: 6. Trend in participation queen conch in primary sector GNP: 7. Total employment generated: 8. Structure of total workforce by: ➢ Income group: ➢ Age structure: ➢ Education level: ➢ Other	

APPENDIX 7

CONVERSION FACTORS FOR PROCESSED QUEEN CONCH TO LIVE WEIGHT

CFMC/WECAFC/OSPESCA/CRFM Working Group on Queen Conch

Table of Contents

INTRODUCTION

The first meeting of the CFMC/OSPESCA/WECAFC/CRFM working group on queen conch (Panama City, Panama, October 2012), the 16th meeting of the CITES Conference of the Parties (Bangkok, Thailand, March 2013), and the 15th session of the WECAFC Commission (Port of Spain, Trinidad and Tobago, March 2014) highlighted the need of having regionally harmonized terminology and conversion factors for queen conch (*Strombus gigas*). Specifically, the WECAFC session adopted a recommendation stating that: "*Members Countries of WECAFC to work towards determining and adopting national conversion factors based on regionally agreed processing grades and terminologies before the end of 2015 and communicate the adoption formally to the FAO and CITES Secretariats*".

Establishment of regional conversion factors was then included as one of the major activities in the recently approved project "*CITES-FAO joint capacity building for implementation of the Decisions on "Regional cooperation on the management of and trade in queen conch (*Strombus gigas*)" adopted at the 16th meeting of the Conference of Parties to CITES (CoP16)*" providing an opportunity to fund activities on conversion factors.

Following an FAO FishCode-STF/OSPESCA workshop (Panama, Panama City, February 2007) on queen conch, three countries (Dominican Republic, Honduras and Nicaragua) had volunteered to participate in field surveys to establish conversion factors for different processing grades. Results and the methodology adopted were published in the FAO Fisheries and Aquaculture Circular No. 1042 (Aspra et al., 2009). However, processing grades and conversion factors vary significantly throughout the region and additional *ad hoc* surveys in other countries were needed in order to obtain a wider coverage of the region.

This document summarizes the results of the field surveys reported in the FAO Fisheries Circular No. 1042, the new field surveys carried out in 2014, and data already available from other countries which had been published in peer-reviewed journals. Regional conversion factors of different processing grades for the whole Western Central Atlantic (FAO Fishing Area 31) are proposed on the basis of this information gathered.

JUSTIFICATION AND OBJECTIVE

In order to be comparable among countries and allow consistent studies on regional trends, all queen conch catch data should be in live weight (animal with shell). Catch statistics reported by countries to FAO are often not referring to the whole animal with the shell, but to various levels of processing and most countries do not specify in their reports which processing grade their data refer to. The level of processing of the queen conch meat varies and depends on the marketing system and the final destination (export versus national market) or cultural preferences.

Establishment of valid conversion factors for the different levels of queen conch meat processing grades is necessary to raise the weight of processed queen conch meat to the live weight. So far, FAO has applied the standard conversion factor '7.5' to data from all countries and territories (i.e. Anguilla, Antigua, Bahamas, Barbados, Belize, Colombia, Costa Rica, Guadeloupe, Honduras, Jamaica, Martinique, Puerto Rico, St. Kitts Nev, St. Lucia, St. Vincent, Turks & Caicos, and US Virgin Islands) which reported data in meat weight, regardless the processing grade.

Each country has its own standardized processing grades, varying from different grades such as "dirty meat" (meat without shell) up to 100 percent cleaned. However, the terminology used is not yet standardized throughout the region and within the seafood industry. In general, the different grades refer to the level of tissue loss that occurs with processing.

The final objective of this study was to propose regional conversion factors for three standard and most commonly used processing grades (dirty, 50% clean and 100% clean) to back calculate the live weight of the animals caught and obtain harmonized and comparable statistics between countries.

METHODOLOGY

The original plan was to carry out field samplings in at least four countries of the Caribbean before the second working group workshop in Panama but, unfortunately, in several countries a queen conch closed season was being implemented and field collection of specimens was not possible. Therefore, efforts were made to get weight data from processing grades also from countries which had already collected data from similar samplings and from the literature.

Eventually, weight data for the three standard processing grades were obtained for the following nine countries and territories: Antigua and Barbuda, Bahamas, Barbados, Belize, Dominican Republic, Honduras, Martinique, Mexico and Nicaragua. All sub-regions of the Western Central Atlantic were represented, with two countries from the northern Caribbean, three from the eastern Caribbean, and four countries from the continental America.

With the support of the CITES-FAO project and IFREMER, Belize and Martinique carried out in October 2014 sampling of weight data from specimens in accordance with the agreed guidelines. Barbados, The Bahamas and Mexico provided data already collected for their own national purposes, respectively from October 2008 to August 2014, February to June 2014 and from May 2008 to April 2009. Data from Honduras, Nicaragua, and the Dominican Republic were those obtained from the field surveys carried out in 2007 with the support of FAO and OSPESCA (Aspra et al, 2009). Data from Antigua y Barbuda were obtained from the study of Horsford et al. (2011). Table 1 shows the number of individuals sampled by each country.

Table 1. Dates and sample size of queen conch used for conversion factor analyses

	Antigua & Barbuda	Bahamas	Barbados	Belize	Dominican Rep.	Honduras	Martinique	Mexico	Nicaragua
Date	2011	Feb - Jun 14	Oct 08 - Aug 14	Oct-14	May-Jun 07	May - Jun 07	Oct-14	May 08 - Apr 09	May-Jun 07
Sample size (# IND)	1231	258	231	400	475	405	210	372	711

In order to obtain standard and simplified regional conversion factors, the data were collected on the three most common processing grades (Table 2). To fit in with the standard processing grades and make data comparable, the grade classified as "tissue weight" by Antigua & Barbuda was considered as "dirty weight".

Table 2. Description of the three standard processing grades

Processing grade	Description
Live weight	Complete animal, including the shell
Without processing (dirty)	Complete animal extracted from the shell, meat with skin, viscera, penis, organs and nail
50 percent clean	Operculum (claw) and the visceral bag are removed
100 percent clean (fillet)	Fillet of white meat only. The skin, viscera, nail, penis and organs are removed

With the exception of Antigua & Barbuda and the Dominican Republic because the required data was not available; in the other countries regression analyses, calculation of conversion factors and statistical analyses (t student and analyses of variance) were carried out.

In addition to natural variation, differences in the estimation of conversion factors could be attributed to several different factors such as the fishing grounds/sampling sites the queen conch was harvested, different stocks with different growth parameters, local customs and classification in processing: the sampling was carried out on board or in a processing plant or the processing was carried out by a biologist or a fisher. Other factors include whether the sampling was carried out on fresh or frozen and thawed animals (Castelo et al., 2011 reported a conversion factor which considers the animal kept on ice and transported for 48 hours) and the method of extraction of the meat from the shell. If a new regional study would be envisaged in the future, it is suggested to consider the differences in sampling fresh or thawed animals in order to take into account weight variations and correct the data accordingly. It should also be necessary to standardize sampling procedures as much as possible.

RESULTS

The relation between live weight and 100 percent clean weight was tested using a simple regression model. Per country linear regressions were estimated, and the significance of each regression parameter was tested through a t-test. Outliers were consequently discarded. All regression parameters were significantly different from 0 and the R values were significant, although low R^2 must be noted (Figure 1).

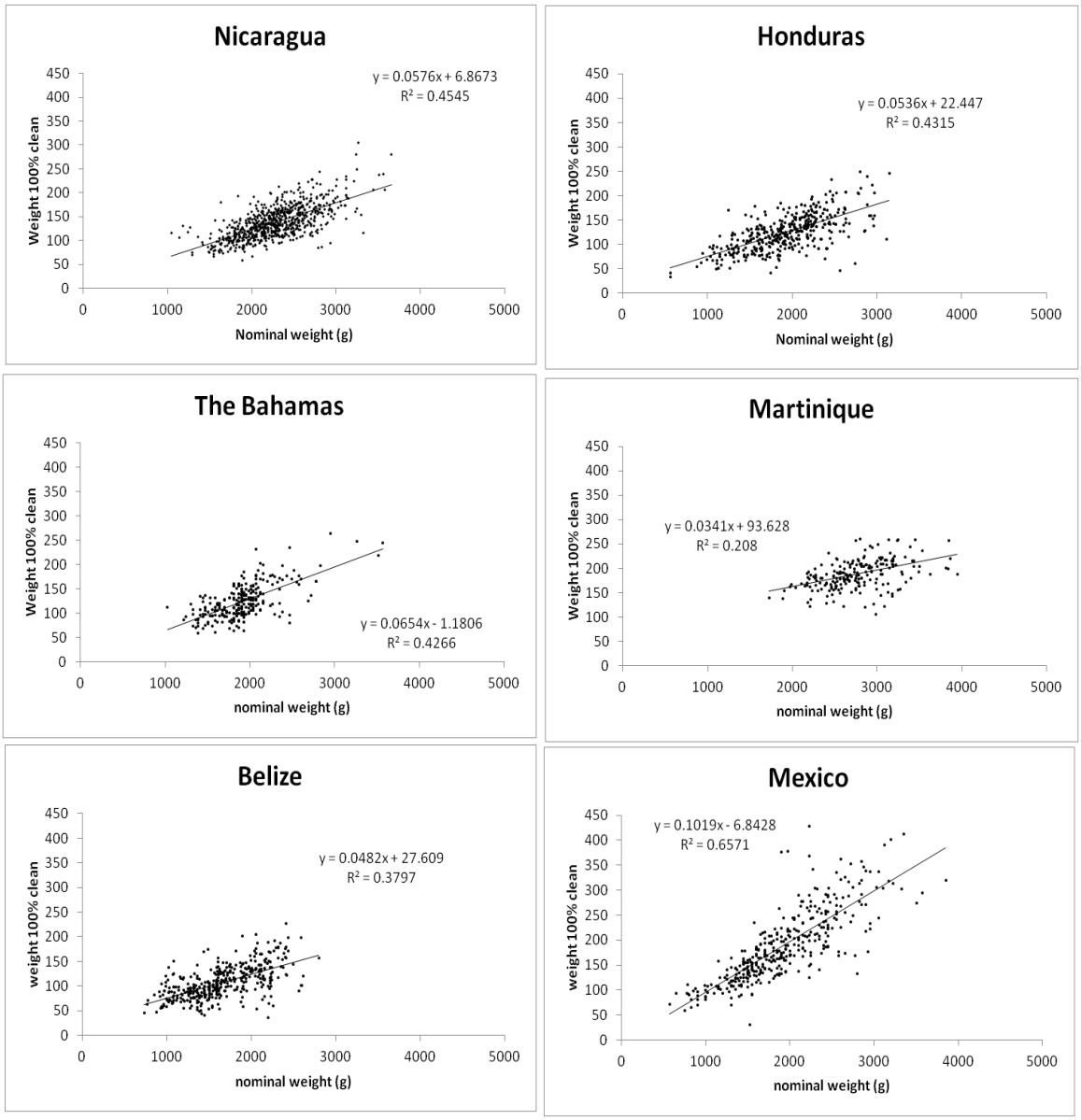

Figure 1. Linear regression between 100 percent clean meat and live weight

Table 3 shows the conversion factors estimated for each country and the weighted mean (dirty to live weight, 50% clean meat to live weight and 100% clean meat to live weight). Weighted mean was applied to give more importance to the results from countries that collected more specimens. The weighted mean for dirty meat was 5.3, 7.9 for 50% clean meat and 13.2 for 100% clean meat to live weight[1].

[1] Some weeks after the conclusion of the Working Group meeting, The Bahamas informed that the data they had made available actually referred to 65% cleaned meat instead of 50% clean meat as previously reported. However, as the exclusion of Bahamas' data from the pool of samples for 50% clean meat would have affected the final conversion factor only marginally, it was decided to keep the conversion factor for 50% clean meat as agreed by the Working Group

Table 3. Conversion factors to live weight
(ANT= Antigua & Barbuda, BAH= The Bahamas, BAR= Barbados, BLZ= Belize, DRM= Dominican Republic, HND= Honduras, MTQ= Martinique, MEX= Mexico, NIC= Nicaragua)

DIRTY TO LIVE WEIGHT

	ANT	BAH	BAR	BLZ	DRM	HND	MTQ	MEX	NIC	Weighted mean
Mean	5.5	5.8	4.8	3.5	6.1	5.8	5.6	4.4	5.5	**5.3**
St. deviation	1.02	1.23	1.27	1.09	1.30	1.57	0.97	1.84	0.84	
Variance	1.04	1.50	1.61	1.19	1.69	2.46	0.94	3.38	0.71	
N (sample size)	1231	258	231	400	475	405	210	372	711	
Confidence limits (95%)	0.06	0.15	0.16	0.11	0.12	0.15	0.13	0.19	0.06	

50% CLEAN TO LIVE WEIGHT

	ANT	BAH	BAR	BLZ	DRM	HND	MTQ	MEX	NIC	Weighted mean
Mean	6.8	11.8		5.8	8.4		8.6	6.1	10.2	**7.9**
St. Deviation	1.40	2.76		1.80	1.74		1.47	3.03	1.63	
Variance	1.96	7.61		3.24	3.03		2.15	9.20	2.65	
N (sample size)	1231	258		400	475		210	372	711	
Confidence limits (95%)	0.08	0.34		0.18	0.16		0.20	0.31	0.12	

100% CLEAN TO LIVE WEIGHT

	ANT	BAH	BAR	BLZ	DRM	HND	MTQ	MEX	NIC	Weighted mean
Mean	10.0	16.2		10.1	15.9	16.1	15.0	9.9	17.0	**13.2**
St. Deviation	2.19	3.70		3.42	4.14	4.62	2.67	4.37	3.24	
Variance	4.80	13.66		11.68	17.14	21.35	7.14	19.14	10.51	
N (sample size)	1231	259		397	475	402	210	372	711	
Confidence limits (95%)	0.12	0.45		0.34	0.37	0.45	0.36	0.45	0.24	

Various authors reported (Aspra et al., 2009; Horsford et al., 2011, Castelo et al., 2011) that there are differences between conversion factors, either by country, by fishing ground or by maturity stage, although in some cases in this study the difference between some countries was not significant.

Figure 2 shows the conversion factors for dirty to live weight. With the exception of Belize, Mexico and Barbados, in the other countries conversion factors were more or less similar in the order of magnitude.

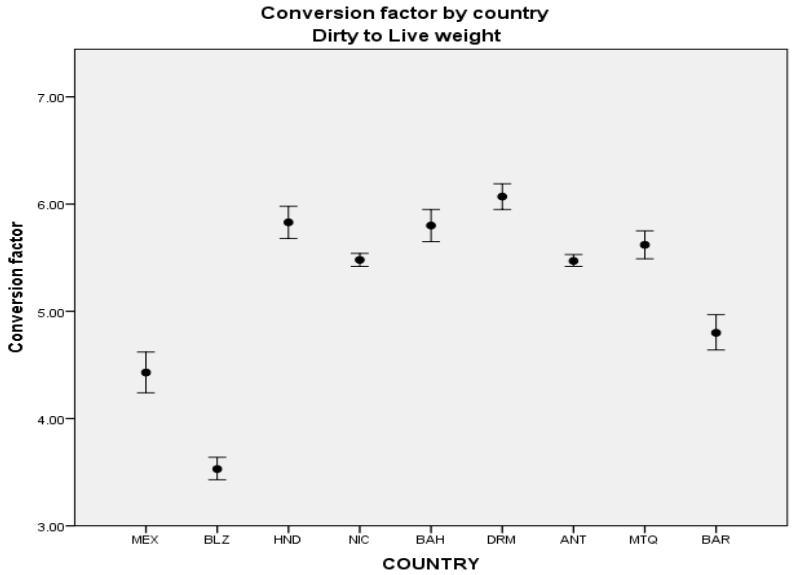

Figure 2. Conversion factors and confidence limits (95%) by country for dirty meat weight to live weight. Position of the countries in the x axis according to the geographical position. (ANT= Antigua & Barbuda, BAH= The Bahamas, BAR= Barbados, BLZ= Belize, DRM= Dominican Republic, HND= Honduras, MTQ= Martinique, MEX= Mexico, NIC= Nicaragua,)

Figure 3 shows the conversion factors estimated for 50% clean meat weight to live weight. In this case there is no clear trend and the differences are clearer, although Belize and Mexico, and Martinique and the Dominican Republic showed no significant difference.

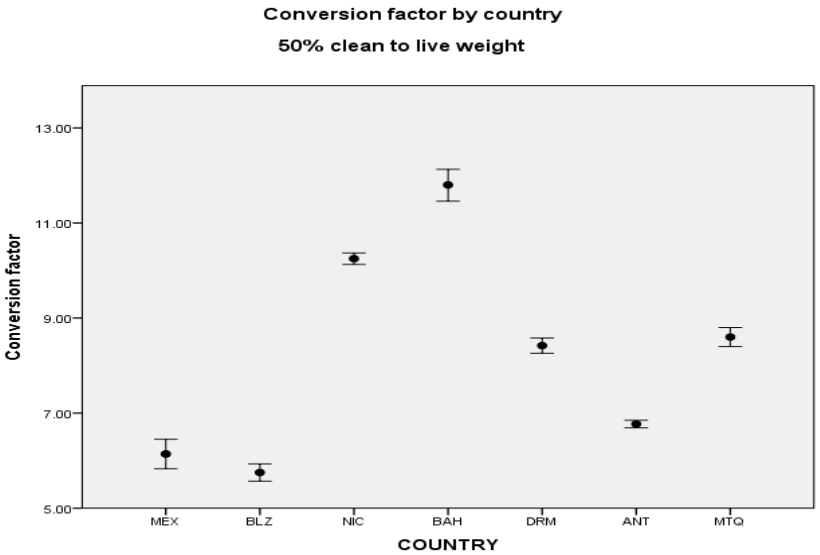

Figure 3. Conversion factors and confidence limits (95%) by country for 50% clean meat weight to live weight. Position of the countries in the x axis according to the geographical position. (ANT= Antigua & Barbuda, BAH= The Bahamas, BLZ= Belize, DRM= Dominican Republic, HND= Honduras, MTQ= Martinique, MEX= Mexico, NIC= Nicaragua,)

Figure 4 shows the conversion factors estimated for 100% clean meat weight to live weight. Again, there are groups of countries with close values, e.g. one group consists of Antigua & Barbuda, Belize and Mexico, which is different from the group comprising The Bahamas, Dominican Republic, Honduras and Nicaragua. Martinique is closer to the latter group.

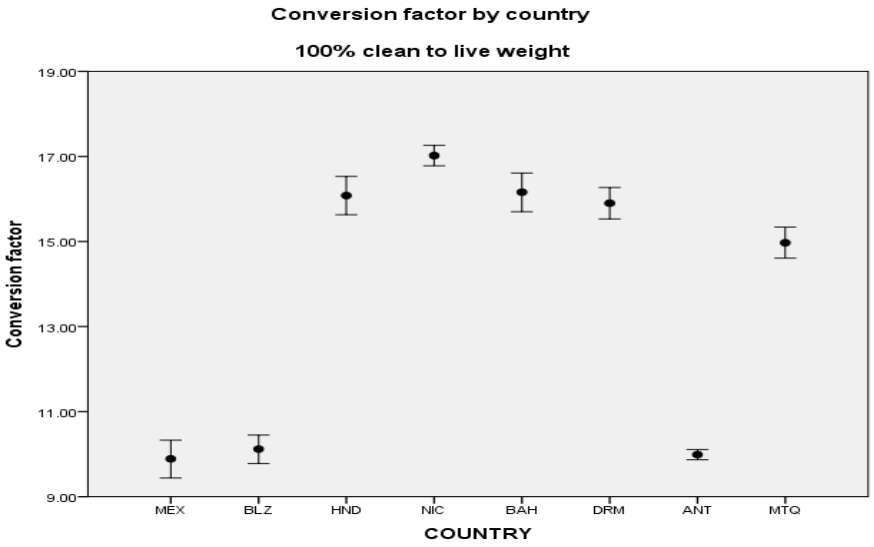

Figure 4. Conversion factors and confidence limits (95%) by country for 100% clean meat weight to live weight. Position of the countries in the x axis according to the geographical position. (ANT= Antigua & Barbuda, BAH= The Bahamas, BLZ= Belize, DRM= Dominican Republic, HND= Honduras, MTQ= Martinique, MEX= Mexico, NIC= Nicaragua,)

DISCUSSION AND RECOMMENDATIONS

Despite the short time available before the regional workshop and limited updated data available, this study made possible to have a regional approach on conversion factors with data from nine countries. Although some significant statistical differences were noted in some of the cases presented, there is the need to agree on common regional conversion factors to finally obtain a clear picture of historical and current harvest of queen conch in the region. The proposed conversion factors could be improved in the future if countries will make available new information collected according to the same criteria that have been adopted for the field surveys campaigns that have been carried out in 2007 and 2014.

The main recommendations are then:

- Proposed common regional conversion factors:

Processing grade	Conversion factor
Dirty meat	**5.3**
50% clean	**7.9**
100% clean	**13.2**

- If the above conversion factors will be endorsed by the 2nd Working Group meeting on queen conch, all countries and territories are requested to report to FAO in which processing grade their original had been submitted or provide the whole historical data series on queen conch harvest in live weight according to the newly agreed conversion factors;
- Countries should continue to collect weight data by processing grades to update and improve the proposed conversion factors

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ANNEX 1 TERMINOLOGY

- Lip thickness: thickness of the shell lip measured in the mid-lateral region, roughly 40mm inward from the edge of the lip.
- Live weight: nominal weight
- Knocking/breaking: standard method used by divers in harvesting queen conch meat. The conch meat is extracted by cutting a small hole in the fourth whirl of the spire and subsequently severing the columnar muscle attached to the central axis.
- Nominal weight: Complete animal, including the shell
- Shell length: length of the shell from the apex of the spire to the end of the siphonal canal
- Without processing meat (dirty): Animal without the shell
- 50 percent clean meat: Removal of the operculum (claw) and the visceral bag.
- 65 percent clean meat: All of the above, plus the "head" (eyes, stem and proboscis) and part of the mantle
- 85 percent clean meat: All of the above, plus the edge, the mantle and remaining parts of the skin
- 100 percent clean meat (fillet): Only the white meat remains

ANNEX 2 ADDITIONAL DATA PROVIDED BY THE COUNTRIES

THE BAHAMAS

The Bahamas contributed with 262 samples of queen conch from February, April, May and June 2014 (Table 1). Additional data consisted of lip thickness (mm) and sex but the latter for 248 individuals only.

Table 1. Sample size in number of individuals. The Bahamas 2014.

	feb	**apr**	**may**	**jun**	**Total**
2014	53	104	51	54	262

Figure 1 shows the sex composition by month. The samples were predominantly of males in June only.

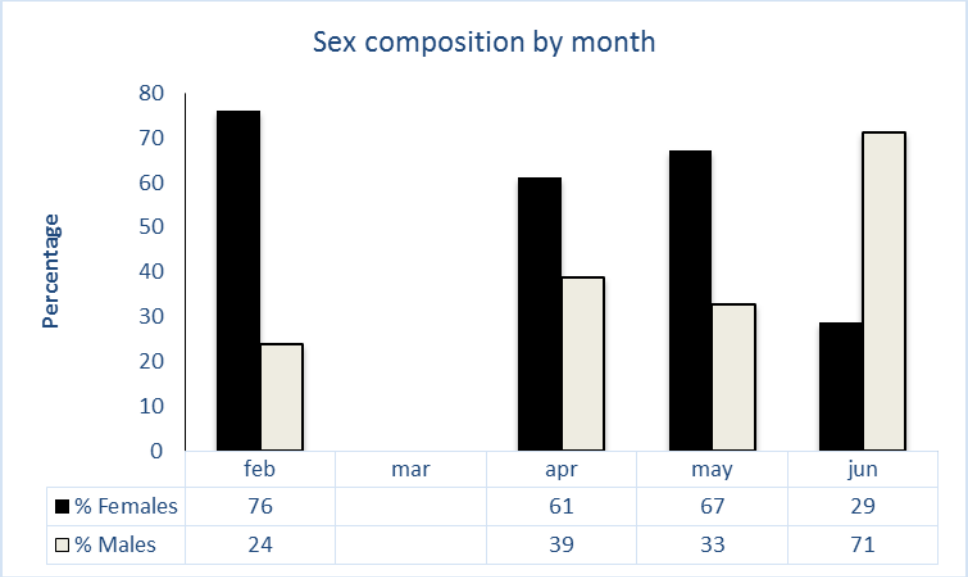


Fig. 1 Sex composition of the queen conch samples collected in The Bahamas. Feb, Apr, May, Jun 2014.

Figure 2 shows the weighted average lip thickness (mm) for each of the months sampled and Figure 3 the lip thickness frequency distribution.

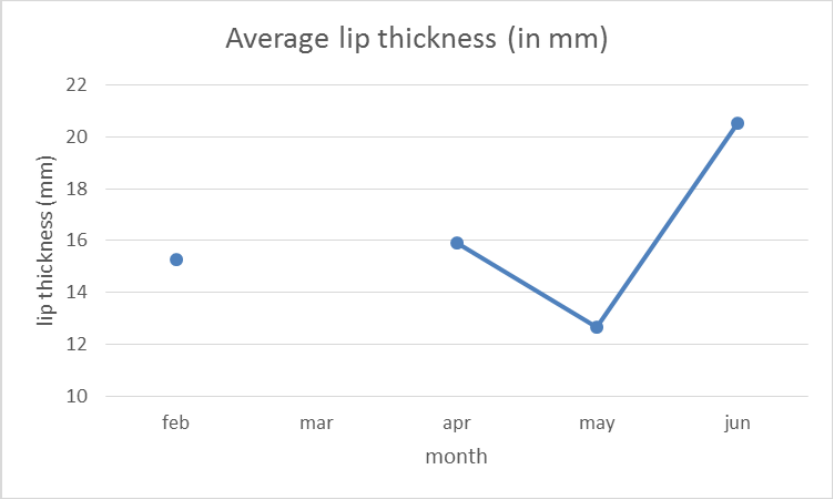


Fig. 2 Queen conch lip thickness weighted average. The Bahamas.

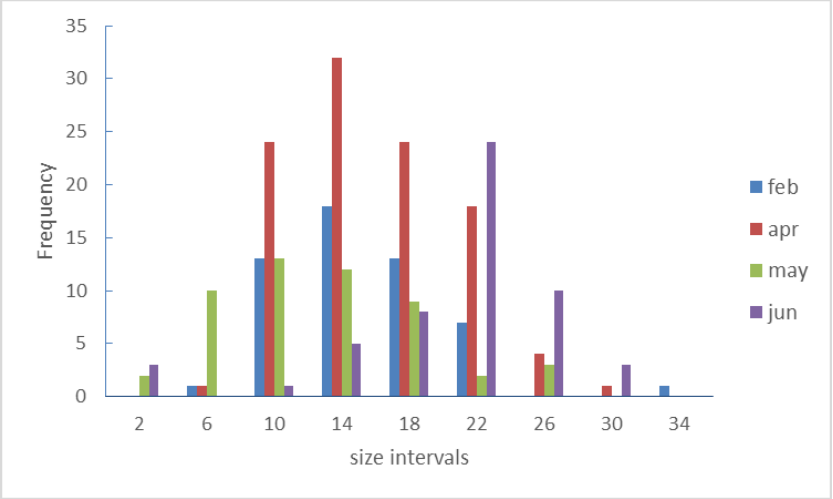


Fig.3 Queen conch lip thickness frequency distribution.
The Bahamas, Feb, Apr, May and Jun 2014.

BARBADOS

Barbados contributed with 300 samples from 2008 to 2014. Additional data consisted of lip thickness (mm), shell Length (cm) and sex. Table 2 shows the number of samples by month and year.

Table 2. Sample size in number of individuals. Barbados 2008-2014.

	jan	feb	mar	apr	jun	jul	aug	sep	oct	nov	dec	Total
2008									12	39		51
2009	3	14				24	22	9	12	44	5	133
2010	12	10	10	12	20	10		15				89
2014					6	8	13					27
Total	15	24	10	12	26	42	35	24	24	83	5	300

Table 3 shows the number of males (M) and females (F) in the samples.

Table 3 Number of males (M) and females (F) of queen conch samples. Barbados. 2008-2014.

	2008		2009		2010		2014		TOTAL	
	F	M	F	M	F	M	F	M	F	M
Jan			2	1	11	1			13	2
Feb			10	3	2	8			12	11
Mar					5	5			5	5
Apr					4	8			4	8
Jun					3	17	2	4	5	21
Jul			16	3	4	6	2	6	22	15
Aug			7	6			6	7	13	13
Sep			6	3	4	11			10	14
Oct			7	2					7	2
Nov	8	5	9	6					17	11
Dec			3	1					3	1
Total	8	5	60	25	33	56	10	17	111	103

Figure 4 shows the lip thickness frequency distribution by month and year sampled. The lip thickness frequency distribution by year is in Figure 5. Figure 6 shows the sample size and lip thickness weighted average by year and total.

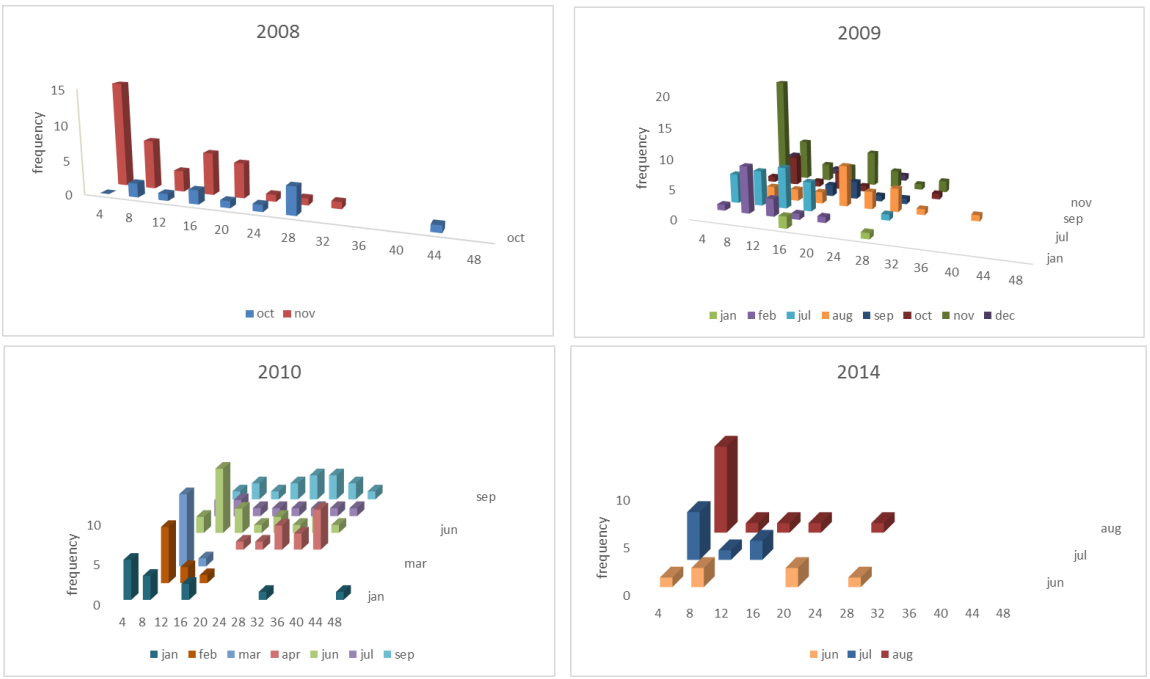


Fig. 4 Queen conch lip thickness frequency distribution by month and year. Barbados 2008-2014.

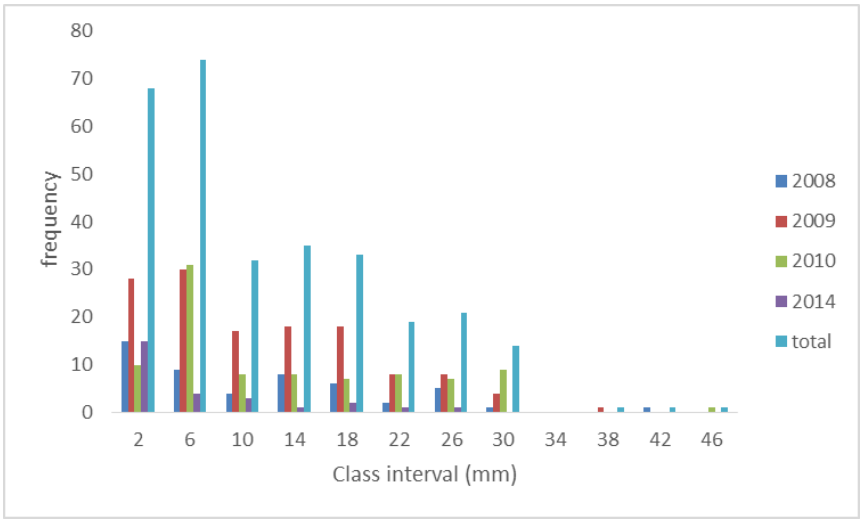


Fig. 5 Queen conch lip thickness frequency distribution by year and total. Barbados 2008-2014.

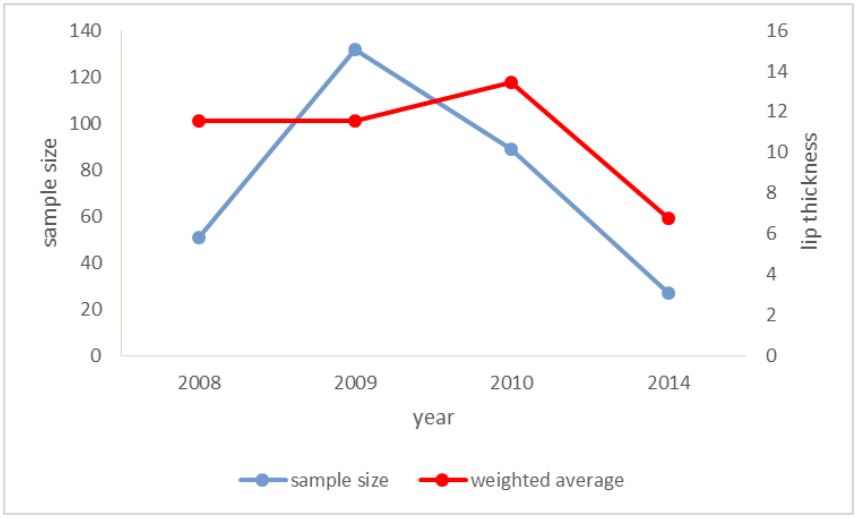


Fig. 6 Sample size and queen conch lip thickness weighted average. Barbados 2008-2014.

Figure 7 shows the shell length frequency distribution by month and year sampled. Figure 8 shows the frequency distribution of the queen conch shell length (in cm) by year and Figure 9 shows the sample size and shell length weighted average by year and total.

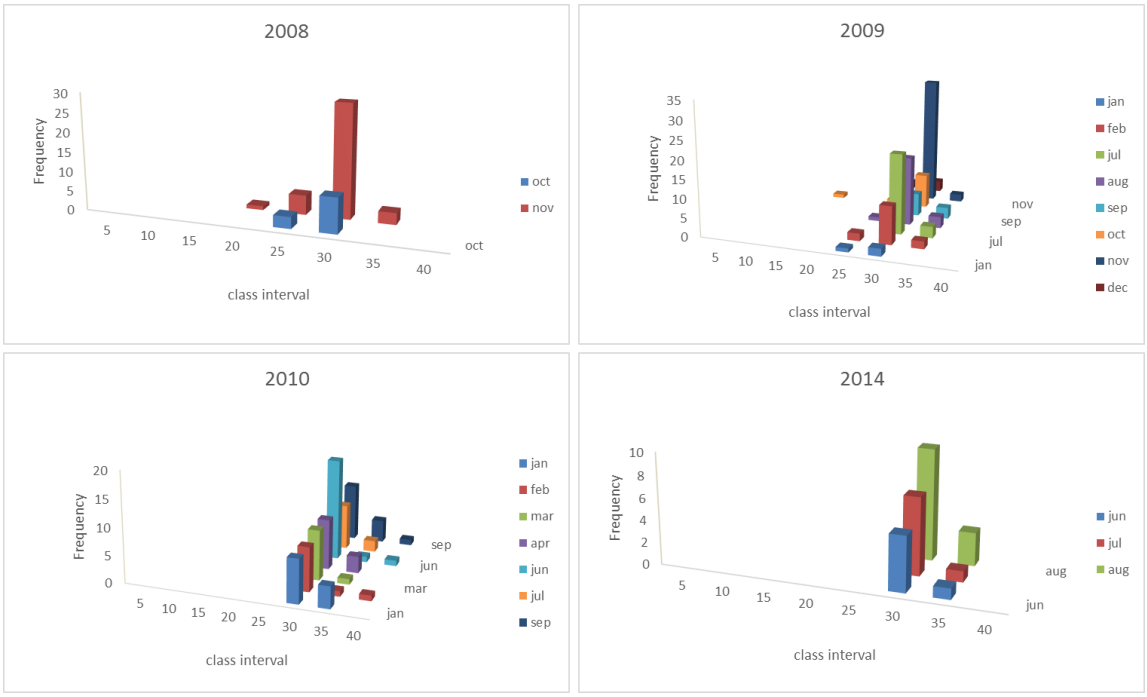


Fig. 7 Queen conch shell length frequency distribution by month and year. Barbados 2008-2014.

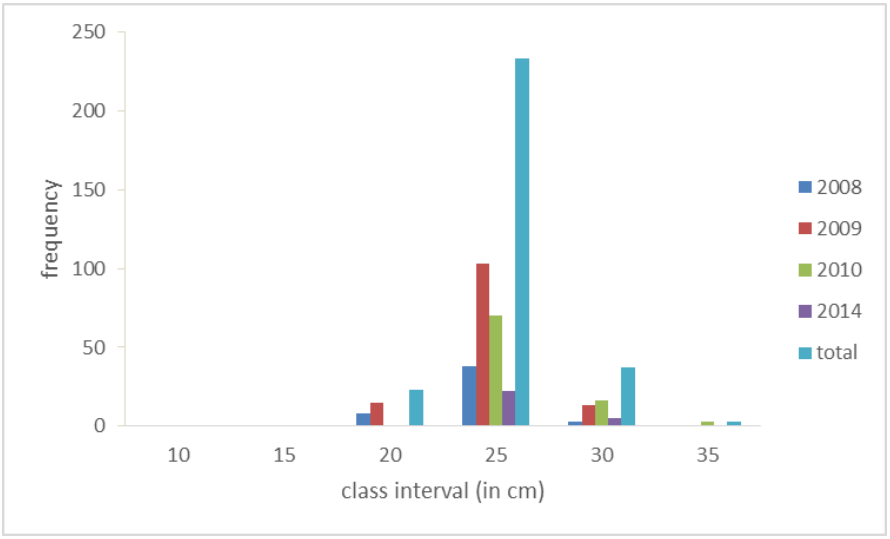


Fig. 8 Queen conch shell length frequency distribution by year. Barbados 2008-2014.

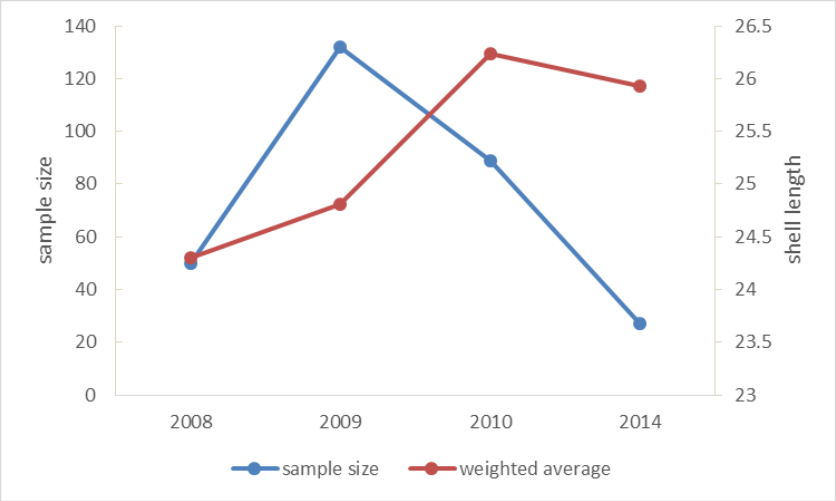


Fig. 9 Sample size and queen conch shell length weighted average. Barbados 2008-2014.

Figure 10 shows the relationship between queen conch lip thickness and shell length (pooled data).

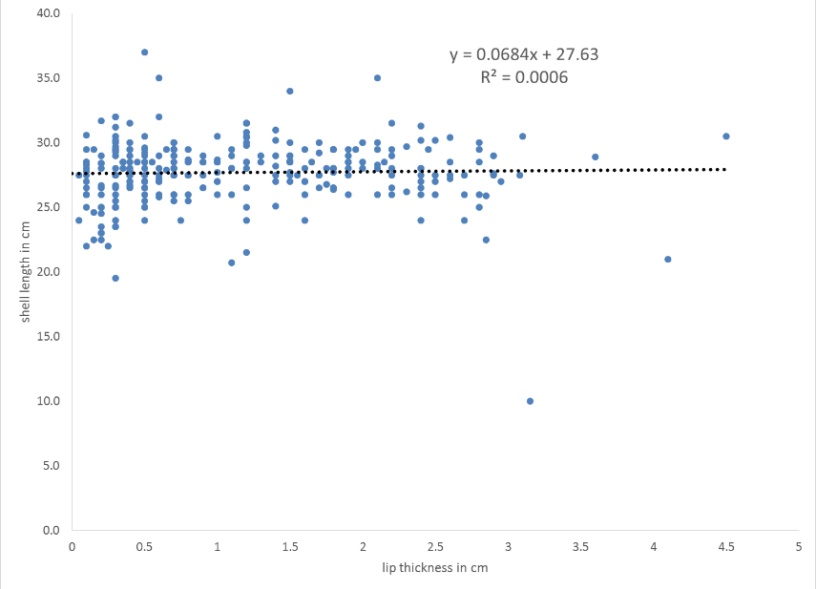


Fig. 10 Lip thickness and shell length relationship (Barbados, pooled data 2008-2014)

BELIZE

Belize provided shell length data of 400 samples collected in October 2014. Figure 11 shows the shell length frequency distribution.

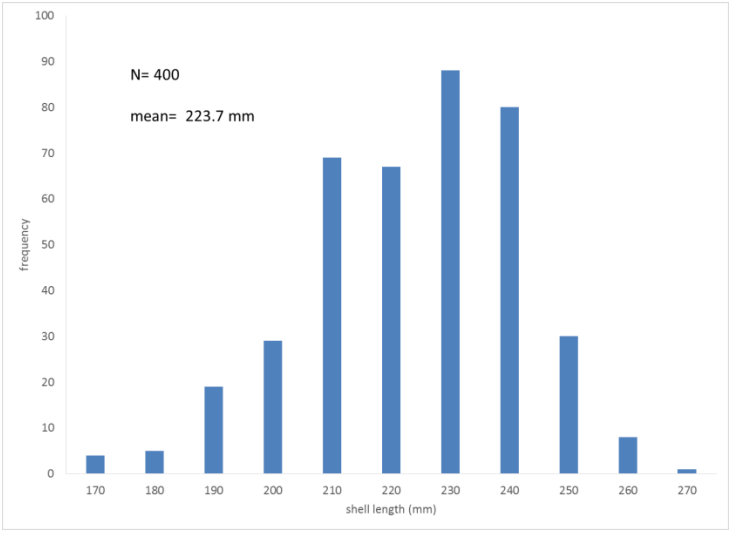


Fig.11 Shell length frequency distribution. Belize, October 2014.

HONDURAS

Honduras provided sex, shell total length, lip thickness and lip length data of 406 individuals. Table 4 shows the sample size by sex, the average lip length and thickness and the shell length. Figure 12 shows the frequency distribution of the shell length by sex.

Table 4. Sample size, average lip length and thickness and average shell length by sex. Honduras. 2007

Sex	Sample size	Average lip length in mm	Average lip thickness in mm	Average Shell length in mm
Female	186	77.1	7.7	206.1
Male	220	75.1	7.9	201.2
Total	406	76.0	7.8	203.5

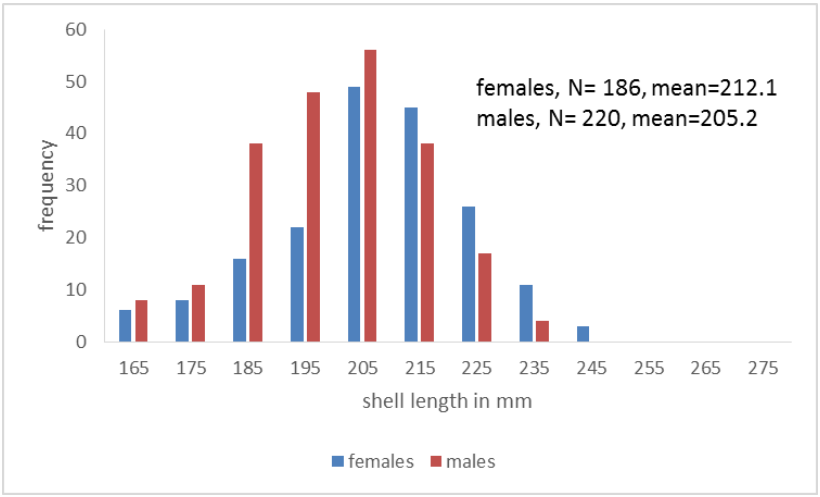


Fig.12 Shell length frequency distribution by sex. Honduras, 2007.

Figure 13 shows the frequency distribution of the lip thickness. Figure 14 shows the lip length frequency distribution.

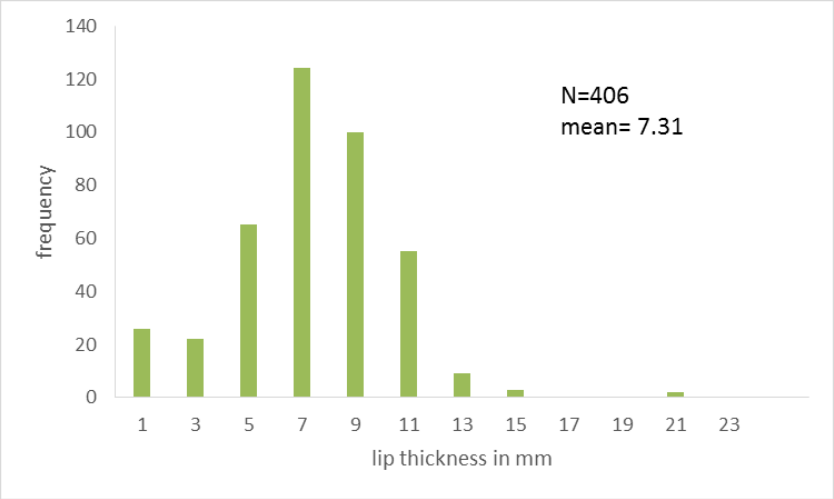


Fig.13 Lip thickness frequency distribution. Honduras. 2007.

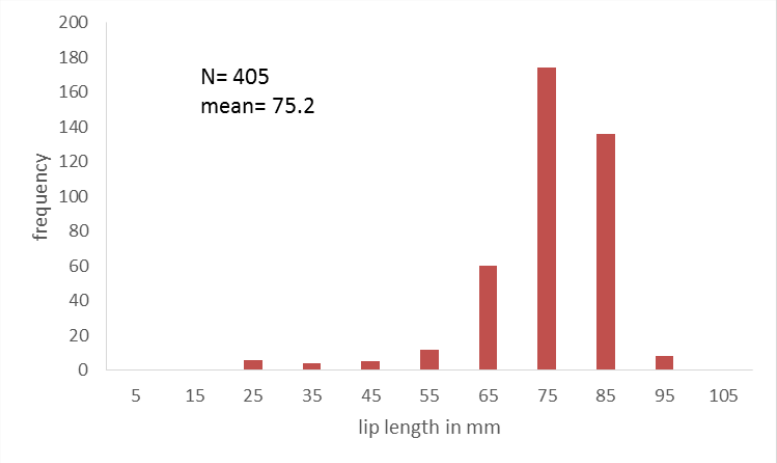


Fig.14 Lip length frequency distribution. Honduras. 2007.

Figure 15 shows the relationship between queen conch lip thickness and shell length.

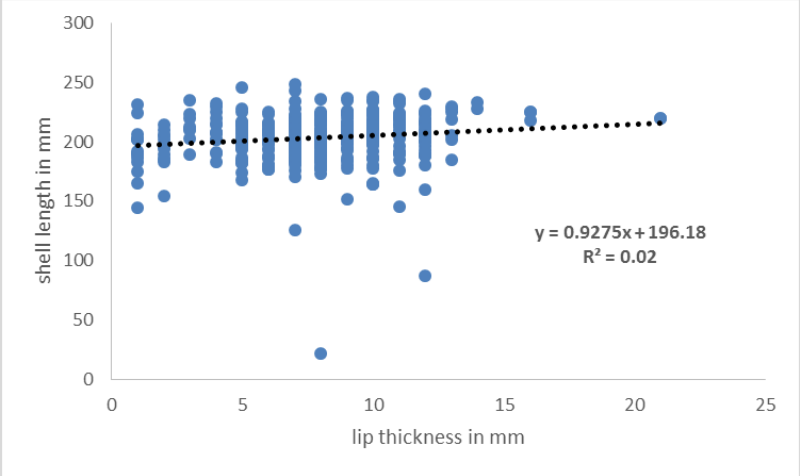


Fig. 15 Shell length and lip thickness relationship. Honduras 2007.

MARTINIQUE

Martinique provided sex and maturity stages, shell length and lip thickness data of 210 individuals collected in October 2014. Table 5 shows the sample size by sex and maturity stages. In addition, Table 6 shows average lip thickness and average total length by sex and maturity stages.

Table 5 Sample size by sex and maturity stages of queen conch. Martinique. October 2014.

Maturity Stage	Female	Male	Total
Adult	70	95	165
Juvenil	1	1	2
Old adult	18	17	35
Subadult	5	3	8
Total	94	116	210

Table 6 Average lip thickness and average total length (in mm) by sex and maturity stages of queen conch. Martinique. October 2014.

Sex and maturity stages	Average lip thickness in mm	Average total length in mm
FEMALE	22.2	255.3
Adult	21.1	258.1
Juvenil	4.0	266.0
Old adult	32.2	241.9
Subadult	6.0	261.8
MALE	23.0	248.1
Adult	21.3	249.3
Juvenil	19.0	227.0
Old adult	35.9	240.8
Subadult	7.0	256.3
TOTAL	22.7	251.3

Figure 16 shows the lip thickness frequency distribution by sex and Figure 17 shows the shell total length frequency distribution by sex. Figure 18 shows the relationship between queen conch lip thickness and shell length.

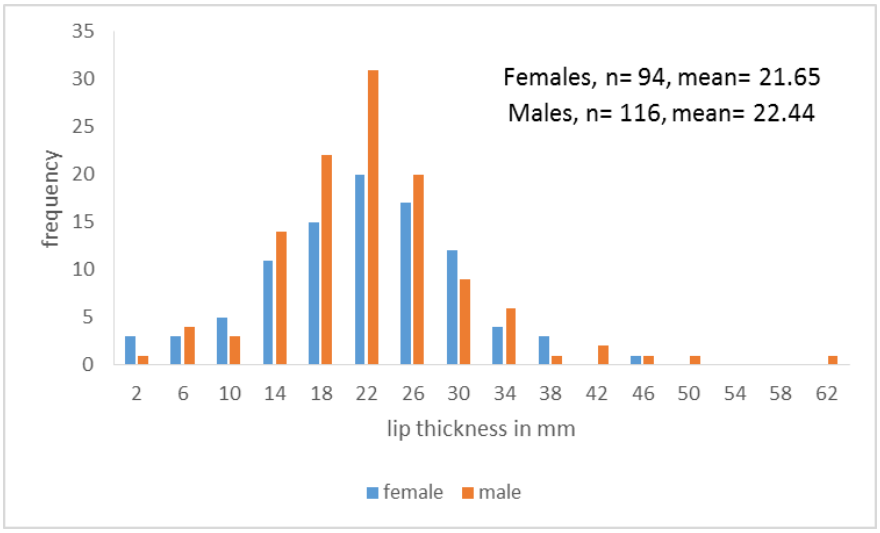


Fig. 16 Lip thickness frequency distribution by sex. Queen Conch. Martinique. October 2014.

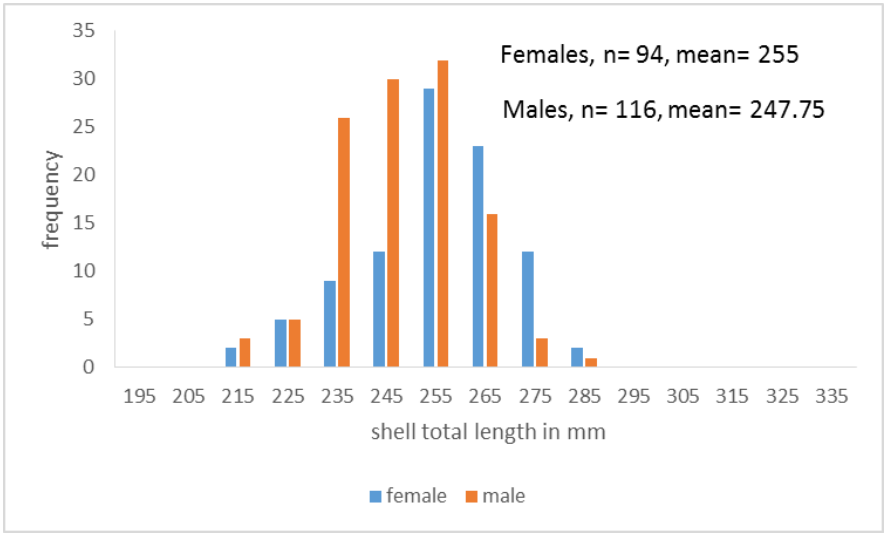


Fig.17 Shell length frequency distribution by sex. Queen Conch. Martinique. October 2014.

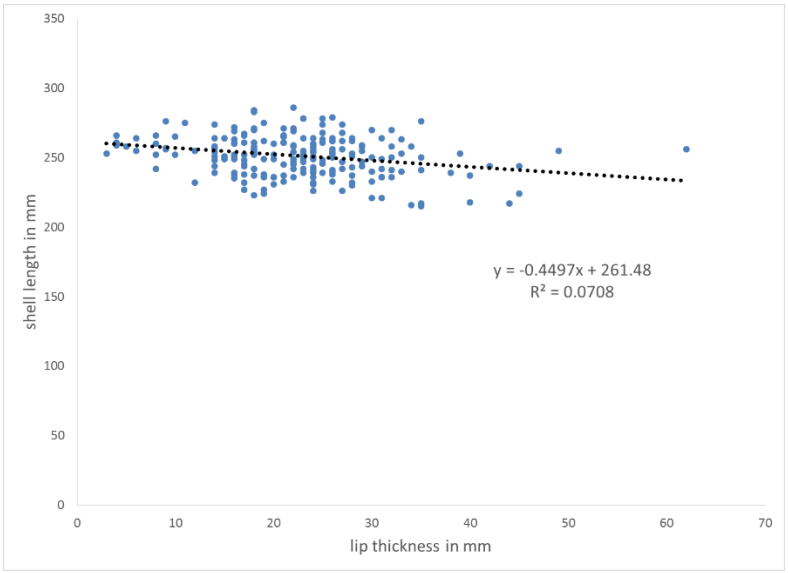


Fig.18 Shell length – lip thickness relationship. Queen Conch. Martinique. October 2014.

MEXICO

Mexico provided sex and maturity stages, shell length and lip thickness data of 304 individuals collected from May 2008 to April 2009 from Chinchorro Bank. Table 7 shows the sample size by sex and maturity stages. Table 8 shows average lip thickness and average shell total length by sex, maturity stages and total.

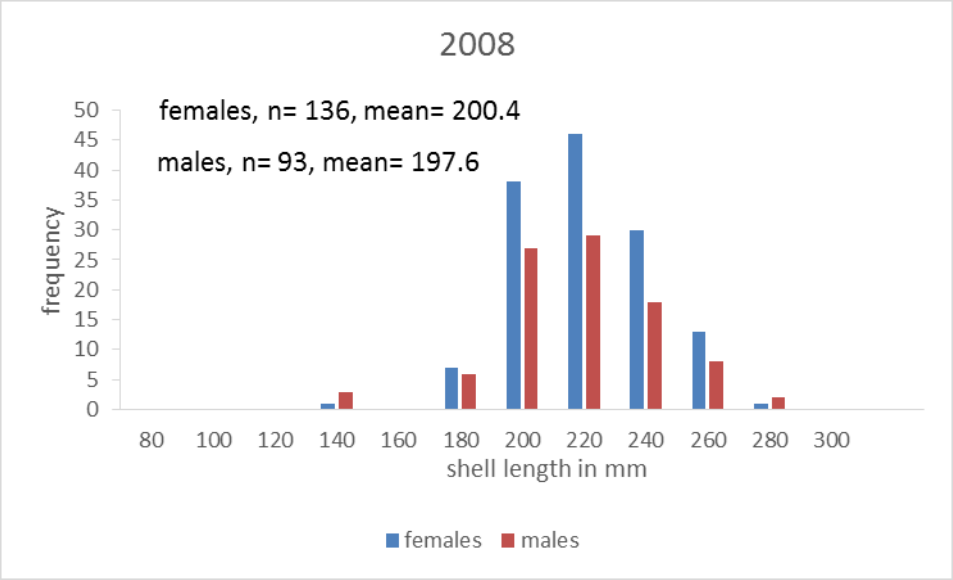
Table 7 Sample size by sex and maturity stages of queen conch by month and year. Mexico. May 2008 – Apr 2009.

	2008								**Total 2008**	**2009**				**Total 2009**	**TOTAL**
Sex and maturity stage	may	jun	jul	aug	sep	oct	nov	dec		jan	feb	mar	apr		
FEMALES	12	18		15	2	19	21	19	106	21	17	21	25	84	190
10	1	1					10	7	19	8	3	7	9	27	46
25							4	4	8	6	3	2	2	13	21
50	2					13	4	1	20	4	5	2	5	16	36
75							1	6	7		2	3	4	9	16
100		1						1	2	1	2	4	4	11	13
<25		2							2						2
<50	2	2		3		4	1		12	2	2	3	1	8	20
>50	5	10		12		2			29						29
>75		2					1		3						3
Incipient	2								2						2
Juvenil					2				2						2
MALES	7	13		11	3	12	9	10	65	11	12	14	9	46	111
10	1						3		4	2	2	2	1	7	11
25							4	3	7			2	2	4	11
50		3				9	2	1	15	1	4	4	2	11	26
75	1							4	5	1		4	1	6	11
100										4	2	2	2	10	10
<25		1							1						1
<50	2	3		2	1	1		2	11	3	4		1	8	19
>50	3	6		9	1	2			21						21
Juvenil					1				1						1
UNDETERMINED						2		1	3						3
10								1	1						1
50						1			1						1
<50						1			1						1
Total	19	31		26	5	33	30	30	174	32	29	35	34	130	304

Table 8 Average lip thickness and average shell total length (in mm) by sex and maturity stages of queen conch. Martinique. October 2014.

	FEMALE		MALE		UNDETERMINED		TOTAL	
	Average shell total length in mm	Average lip thickness in mm	Average shell total length in mm	Average lip thickness in mm	Average shell total length in mm	Average lip thickness in mm	Average shell total length in mm	Average lip thickness in mm
2008	212.0	15.6	209.2	18.5	209.5	10.5	210.8	16.6
may	215.2	23.3	219.6	22.2			217.2	22.8
jun	211.1	15.7	188.8	17.1			201.7	16.3
jul	211.5	15.5	196.8	19.9	233.0	18.0	207.1	17.7
aug	223.5	23.0	217.2	21.8			220.8	22.5
sep	206.1	14.2	219.3	21.0			212.1	17.3
oct	205.8	11.6	215.2	18.9	189.5	6.0	208.2	13.9
nov	216.7	12.8	211.1	12.2			215.0	12.6
dec	206.6	11.3	210.4	12.8	199.3	6.0	207.1	11.3
2009	215.4	12.5	212.9	13.1	174.0	28.0	214.2	12.8
jan	197.2	8.0	204.7	15.8	174.0	28.0	199.0	11.2
feb	221.2	17.2	213.2	17.2			218.0	17.2
mar	225.0	7.5	215.2	5.9			221.1	6.9
apr	218.1	16.8	218.3	15.5			218.2	16.5
TOTAL	213.3	14.4	210.4	16.7	205.6	12.4	212.0	15.2

Figure 19 shows the shell total length frequency by sex for 2008 and 2009 and Figure 20 the lip thickness frequency distribution by sex for the same years.



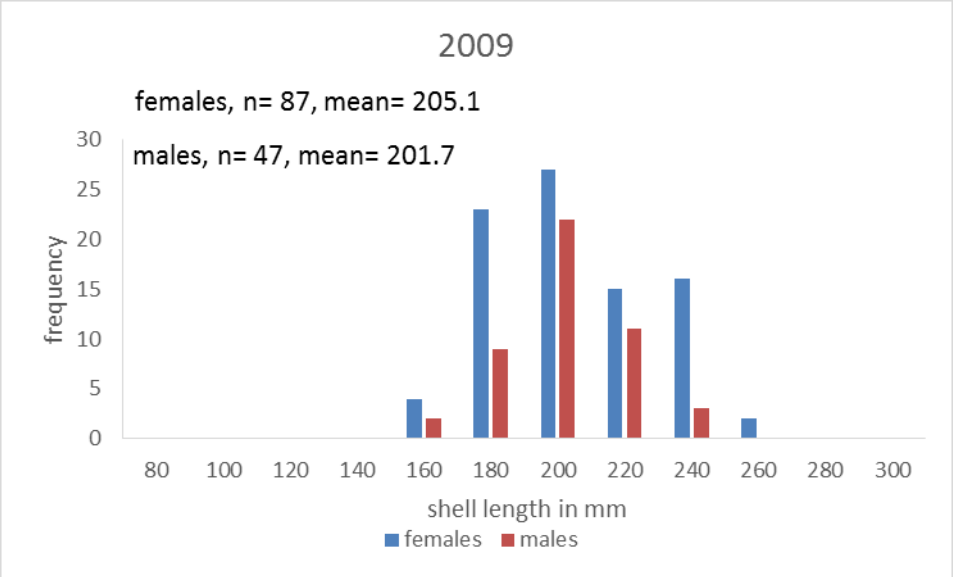


Fig. 19 Shell total length frequency distribution of queen conch by sex in 2008 (above) and in 2009 (below). Mexico. Pooled data May 2008 - Apr 2009.

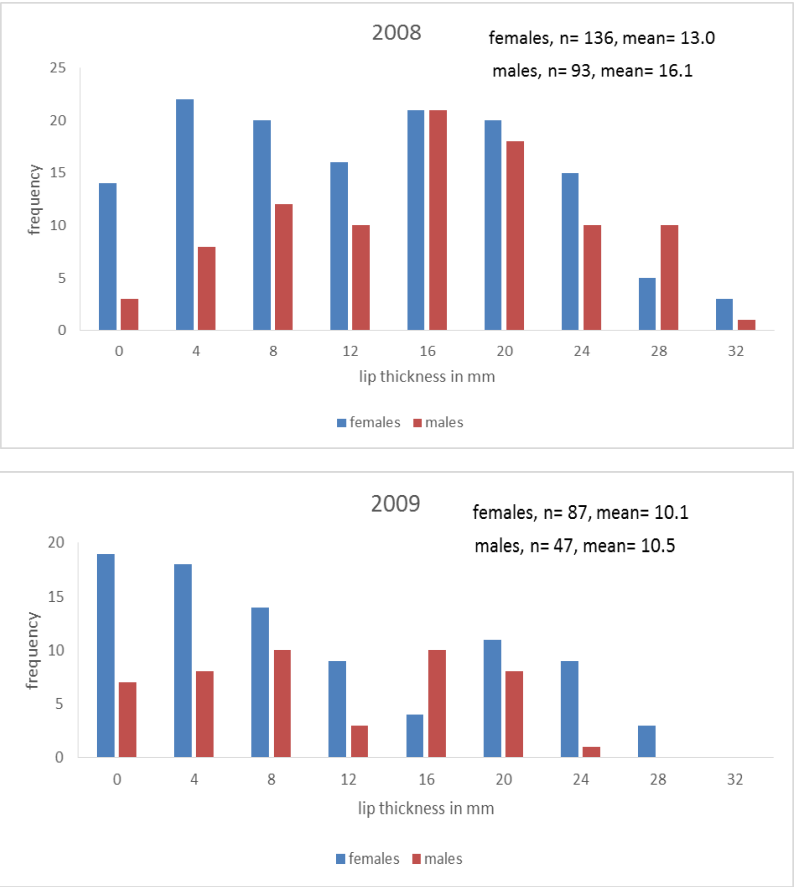


Fig. 20 Lip thickness frequency distribution of queen conch by sex in 2008 (above) and in 2009 (below). Mexico. Pooled data May 2008 - Apr 2009.

Figure 21 shows the relationship between shell length and lip thickness.

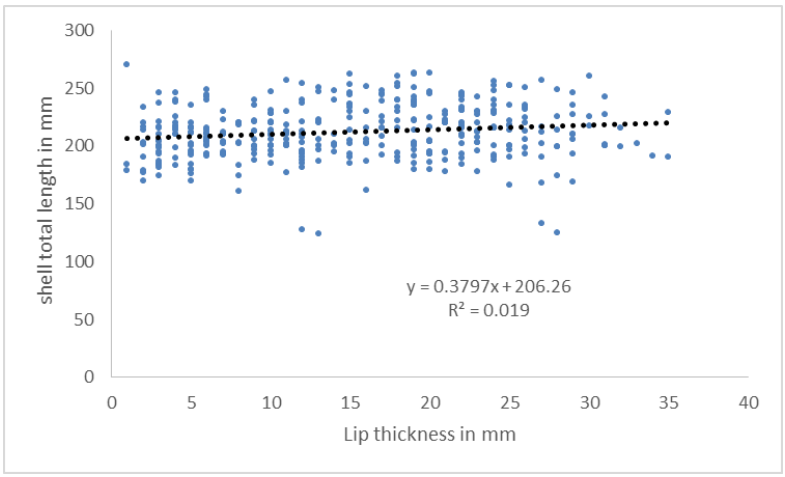


Fig.21 Shell length – lip thickness relationship. Queen Conch. Mexico.
Pooled data. May 2008 - Apr 2009.

NICARAGUA

Nicaragua provided 712 lip thickness and shell total length samples collected in May and June 2007. Table 9 shows the sample size by sex and maturity stages. Table 10 shows the average total shell length and lip thickness by sex and maturity stages for May and June of 2007.

Table 9 Sample size by sex and maturity stages of queen conch.
Nicaragua. May and June 2007.

sex	Maturity stage	Total
FEMALE	I	17
	II	68
	III	255
Total female		340
MALE	I	19
	II	109
	III	244
Total male		372
TOTAL		712

Table 10 Average shell total length and lip thickness (both in mm) of queen conch by sex and maturity stages.Nicaragua, May and June 2007

		May		Jun		TOTAL	
sex	**Maturity stage**	**Average lip thickness in mm**	**Average shell length in mm**	**Average lip thickness in mm**	**Average shell length in mm**	**Average lip thickness in mm 2007**	**Average shell length in mm 2007**
FEMALE	I	16.5	209.3	19.0	236.0	18.1	226.6
	II	22.3	223.5	23.7	231.2	23.1	228.0
	III	24.3	230.3	24.9	232.5	24.4	230.7
Total female		23.8	229.0	23.7	232.3	23.8	229.9
MALE	I	23.8	204.4	19.8	213.7	21.9	208.8
	II	24.3	212.0	24.4	217.3	24.3	213.4
	III	24.1	220.7	24.6	218.2	24.2	220.1
Total male		24.2	217.6	24.1	217.5	24.1	217.6
TOTAL		24.0	222.9	23.9	224.9	24.0	223.5

The shell length frequency distribution by sex is in Figure 22 and the lip thickness frequency distribution in Figure 23. The relationship shell length – lip thickness is shown in Figure 24.

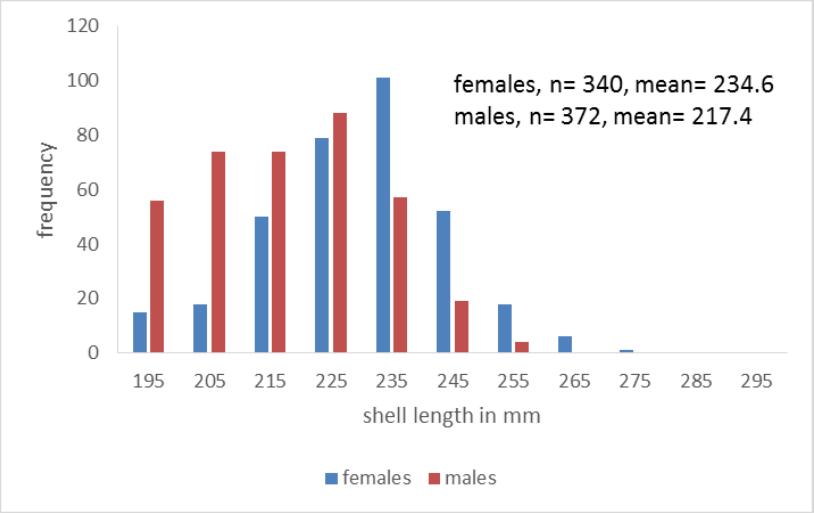


Fig. 22 Shell total length frequency distribution of queen conch by sex. Nicaragua. May-Jun 2007

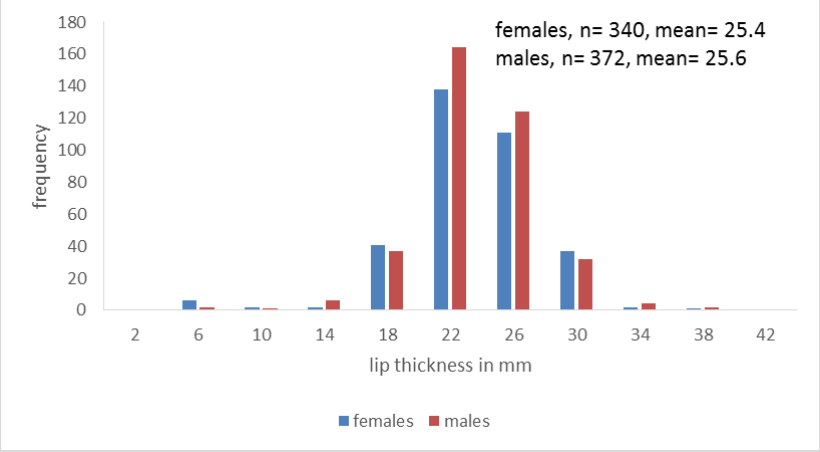


Fig. 23 Lip thickness frequency distribution of queen conch by sex. Nicaragua. May-Jun 2007

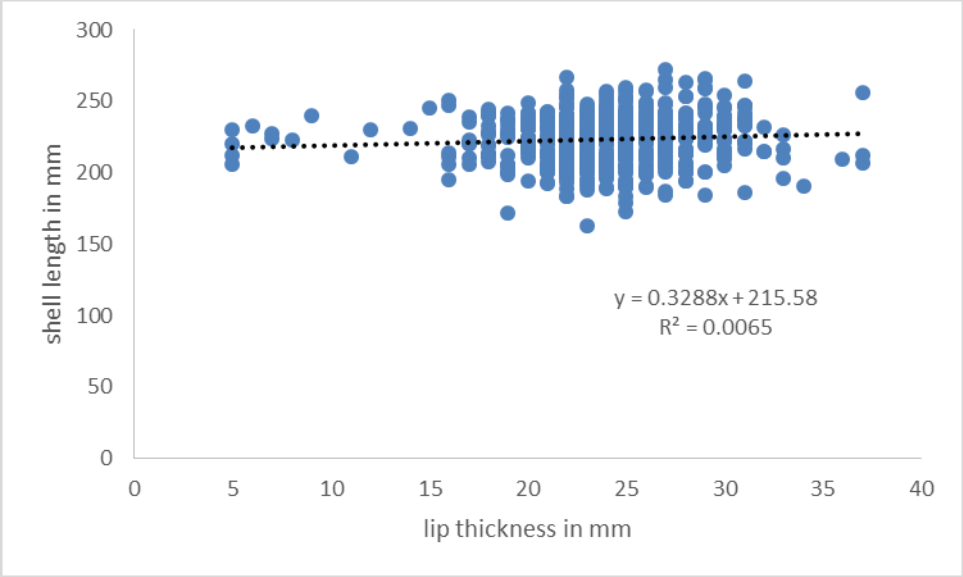


Fig. 24 Shell length - Lip thickness relationship of queen conch. Nicaragua. May-Jun 2007

APPENDIX 8

TERMS OF REFERENCE
(Period 2015 - 2018)

CFMC/OSPESCA/WECAFC/CRFM/CITES WORKING GROUP ON QUEEN CONCH

Convener: Miguel A. Rolón (CFMC)

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[1].

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 16th Conference of Parties to CITES on "Regional cooperation and management of and trade in queen conch (S*trombus gigas*)" (Thailand, 2013), and WECAFC 15 Recommendation (WECAFC/15/2014/3) "on the management and conservation of Queen Conch in the WECAFC area" (Trinidad and Tobago, 2014).

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. Share and disseminate available data and information on queen conch biology, ecology, management, fisheries, trade and other relevant areas.
2. Develop common methodologies for assessment and monitoring of queen conch stocks and promote the involvement of the private sector in data collection.

[1] 6.4 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, 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.

3. Monitor changes in distribution of queen conch stocks and populations in the Caribbean region.
4. Compile and analyze data on queen conch catch and effort and aquaculture production in the range states and monitor changes.
5. Compile information about the social and economic importance of queen conch fisheries, and provide advice for policy decision making accordingly.
6. Provide advice on the implementation of national and regional management measures and regulations for queen conch to countries and regional organizations.
7. Establish communication between the members of the working group and interested parties and stakeholders, including the private sector.
8. Develop and implement a work plan that will be monitored and evaluated by the WECAFC SAG and Commission.
9. Report to CFMC, OSPESCA, WECAFC and CRFM at each of their sessions (on the outcome of each Working Group meeting).
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.

4 Mode of Operation

4.1 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.

4.2 Role of the FAO/WECAFC Secretariat

The 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.

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

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

- Providing technical assistance and support;
- Facilitating procurement of funding for working group activities;
- Co-coordinating the activities of the working group;

- Facilitating the decision-making process at the Subregional level.

4.4 Role of the convener

The working group convener 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 clear publications and messages produced by the working group, and
- take a leading role in securing funding for working group meetings.

5 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 via the WECAFC Secretariat.

6 Working Group meetings

The Working Group should meet physically once every two years. 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.

APPENDIX 9

WORK PLAN

CFMC/OSPESCA/WECAFC/CRFM/CITES Working Group on Queen Conch (QCWG)

The joint Working Group intends to carry out the following activities in 2015 - 2018:

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).	March 2015	CFMC & 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 16 Decisions and WECAFC 15 recommendation WECAFC/15/2014/3.	January 2015 – December 2018	WG members
3. Report to the: - 28th meeting of the Animals Committee: 30 August-3 September 2015 on progress with the implementation of the CoP16 Decisions, and the outcomes of the Working Group (through Colombia?). – 7th meeting of the WECAFC Scientific Advisory Group (SAG), November 2015. -16th session of WECAFC, March/May 2016. - 17th meeting of the Conference of the Parties to CITES, September/October 2016, South Africa.	As deadlines for reporting require	CITES authorities of QC range States attending these meetings; CITES and WECAFC Secretariats
4. Develop and adopt a sub-regional regulation for Queen Conch (under the Memorandum of Understanding between CRFM and OSPESCA)	January 2015 onwards	OSPESCA & CRFM with member countries
5. Increase awareness and build capacity among fishers on Safety-at-Sea and particular address risk management in compressed air diving for Queen Conch; fishers organizations should be used/involved as much as possible for these activities.	January 2015 onwards	NOAA/CFMC and FAO with the fisheries authorities in the region
6. Begin a review of options for the development of an auditable "chain of custody" procedure to track catches from their catch location to their eventual destination (implementation of Recommendation 28, b. of the Expert Workshop).	January 2015 onwards	NOAA/CFMC with CITES, WECAFC/FAO and the authorities in the region
7. Finalize and publish the regional management and conservation plan for review and adoption by WECAFC 16, as well as for endorsement by CRFM, OSPESCA and CFMC at appropriate levels.	January 2015 onwards	CFMC, WECAFC, and CRFM, OSPESCA and the authorities in the region
8. Request OSPESCA members to adopt the regional management and conservation plan as binding sub-regional instrument	May 2016 onwards	OSPESCA
9. Organize national level consultations to discuss Working Group proposed management and conservation measures for building awareness, increasing buy-in and contributing to future compliance.	March 2015 onwards	WG members (national fisheries and CITES authorities)
10. Support national authorizes and fisherfolk organizations to implement the plan after its adoption	May 2016 onwards	WG members (national fisheries and

		CITES authorities), CRFM, OSPESCA, CITES, CFMC, FAO/WECAFC
11. Disseminate the proposed format for Queen Conch NDFs to the scientific and management authorities in the region.	January 2015 – June 2015	WG members, CITES and FAO/WECAFC
12. Disseminate the guidance on the regionally agreed conversion factors for conch meat to all relevant stakeholders, and promote its application.	January 2015 – June 2015	WG members, CITES and FAO/WECAFC

ANNEX 1

National Status Reports

Antigua and Barbuda
Bahamas
Barbados
Belize
Caribbean Netherlands
Colombia
Cuba
Dominican Republic
Grenada
Honduras
Jamaica (not submitted)
France (Martinique & Guadeloupe)
Mexico
Nicaragua
Panama
Saint Lucia
Saint Vincent and the Grenadines
Turks and Caicos Islands (not submitted)
United States of America

The Status of the Queen Conch Fishery of Antigua and Barbuda

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A. HILL
Environment Division, Victoria Park Botanical Gardens, St. John's, Antigua

1. Statistics: annual catches, conversion factors, and data collection system

In 2012, 17 full time conch-fishing vessels plus 4 part time vessels landed 582 metric tons of conch meat (digestive gland removed or 50% clean) with an ex-vessel value of EC$11 million (US$4.1 million); the live weight equivalent (including shell) using a mean conversion factor of 6.77 was 3,937 metric tons. Landing for 2012 was the highest recorded and coincided with the following: the second highest recorded catch rate (19.5 kg of 50% clean meat per 80 cubic-feet SCUBA tank); the highest mean number of SCUBA tanks used per vessel (7.4); the highest mean number of SCUBA divers per vessel (3.6); and the highest adult densities observed for the southern portion of the Antigua and Barbuda Shelf (> 170 adults / ha). At the same time there was no significant increase in the mean number of 80 cubic-feet tanks used per diver per day (2.1) or the number of units fishing for conch. In 2013, vessels allowed to fish for conch was capped at 25 as a precautionary measure with the passage of the *Fisheries Regulations, No.2 of 2013*. The Antigua and Barbuda Shelf is one of the largest in the Eastern Caribbean (3,400 km^2) and most of the conch fishing areas are primarily at 27 metres.

In 2011 and 2012, the following conversion factors for live weight determination were developed for the following WECAFC proposed processing grades (Horsford et al. 2012, Horsford et al. 2013): dirty meat, 5.47 and 50% clean meat, 6.77; plus a conversion factor for 75% clean meat, 9.99, for the local market. Conversion factors were also developed for the different maturation stages (juvenile, sub adult, adult and old adult) and for shell weight, to allow for proper estimates of the value and quantity of illegal conch in cases where shell middens are the only evidence.

In order to assess the status of the resource and monitor landings, a data collection programme was initiated in 1995. This includes monitoring landings, exports, catch per unit effort, biological data (weight, sex, maturity of samples, level of compliance, etc.), as well as economic data (costs and earnings). In addition, a database of violations is also kept to readily identify repeat offenders and to guide monitoring, control and surveillance strategies. A census of active fishing vessels is conducted annually and involves validation at various steps: 1) visual census of fishing vessels; 2) survey of vessel registry; 3) survey of vessel licensed; 4) survey of catch and effort data; and 5) survey of breaches of fisheries legislation.

2. Policy and Legislation

The *Fisheries Act, No.22 of 2006* and the *Fisheries Regulations, No.2 of 2013*, are currently the primary legislative basis for fisheries management and development. Both legislation came into force in February 2013 and: 1) move the conch fishery from an "open access" to a "limited entry" management regime through the requirement for a special permit, 2) require

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mandatory training and / or certification of fishers (basic first aid, CPR for diver, diver safety, conservation measures, etc.), 3) establish a closed season from 1st July to 31st August of every year, 4) establish a minimum shell lip thickness of 5 mm for conch to be harvested, and 5) mandate increased fines or other measures for repeat offenders (a "three strikes" approach). The legislation also prohibit: harvest of conch with shell less than 180 mm; or conch whose meat weight is less than 225 g without digestive gland. There are provisions for prohibited gears (e.g., hookah compressor diving rig) and protected areas. The Cades Bay Marine Reserve was established in 1999 (approx. size: 19.43 km^2) primarily to protect conch nursery areas (e.g., seagrass meadows). The Act also makes provisions for the State to take action against citizens of Antigua and Barbuda that are involved in IUU fishing outside Antigua and Barbuda waters. In terms of fines, the Act allows for compounding of offence, whilst the regulations make provision for a maximum fine of EC$50,000 (US$18,519) with respect to conservation measures. In the case of prohibited gear (e.g., hookah), a maximum fine of EC$100,000 (US$37,037) can be imposed.

With respect to CITES enabling legislation, the Environment Division (the local CITES Management Authority), has drafted an integrated environmental management bill that addresses the legislative requirements of the Convention; the Environmental Protection and Management Bill (2013), is currently on the order papers for Parliament.

3. Fisheries Management and Conservation Activities

The shift towards collaborative co-management (where government and stakeholders share decisions) started in 1999 in an effort to improve overall governance of the conch fishery as well as fulfil CITES obligations (Horsford and Lay 2013). Originally, the governance approach was "consultative", however as CITES obligations grew, it was realised that only through collaboration could parties achieve the desired goal of sustainability (in terms of resource status and international trade). In 2011 and 2012, the collaboration extended to include the active participation of conch fishers in fisheries research (Horsford et al. 2012, Horsford et al. 2013). This was in response to the rising costs associated with managing a CITES Appendix II species for an artisanal fishery. The active participation of fishers in research allowed for greater "buy-in" with respect to management decisions regarding measures such as limited entry, size restrictions and closed season (Horsford and Lay 2013). For example, the mean rate of compliance for the past decade regarding size restriction (meat weight) was 88%, indicating most conch had the opportunity to reproduce at least once before capture (Horsford 2010).

Antigua and Barbuda's Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing outlines various strategies to improve compliance with management measures for the queen conch. These include: mandatory conservation awareness and diver safety programmes, increased fines, catch-certification programme with respect to exports, and the setting of compliance or performance targets for the fishery (e.g., a compliance rate of 85% or greater with respect to the minimum size). In recent times, the tourism sector has been targeted to improve compliance rates given their impact on local demand; by addressing the "demand side of the equation", avenues for illegal products are reduced. Measures taken include providing a list of approved suppliers and conservation awareness (brochures, talks, etc.).

4. Consumption and Trade

Since the harmonisation of European Community food safety regulations in 1993, exports of conch meat have been negligible due to the stringent technical requirements. Prior to this process, as much as 23.5% of the conch landings were exported to the French overseas

territories in the region. In 2013, conch fishers collaborated to explore alternative markets, such as the United States of America, for value added products; 95% clean conch meat was shipped as oppose to the traditional 50% clean meat.

Import and export of conch meat is negligible; hence mean annual domestic consumption based on production is about 0.97 kg conch meat (digestive gland removed or 50% clean) per capita. This is equivalent to 6.58 kg live weight per capita or about 3 adult conch per capita. While the rate appears to be relatively high, it has to be viewed in the context of the demands of the tourism sector; visitor-arrivals (air and sea) are in the range of 1 million and resident population is only 90,000 individuals. In 2008 and 2011, conch consumption was abnormally high (2.10 and 2.02 kg conch meat respectively) as lobster divers diverted effort to conch to adjust for low lobster demand from the tourism sector; the global economic downturn coincided with decline in the national economy and stay-over visitor arrivals.

5. Research and Stock Assessment

A morphometric study conducted in 2011, indicated that the mean shell lip thickness for conch collected from commercial fishing trips was 25.0 mm (N = 785, $S.D.$ = 5.5 mm) indicating that divers were targeting an old population (Horsford et al. 2012). This value was almost double the maturity criterion of 13.5 mm lip thickness proposed by Avila-Poveda and Baqueiro-Cárdenas (2006) from histological study of conch gonads and quintuple the 5 mm proposed by Appeldoorn (1988) for the onset of maturity. The presence of extensive deep-water conch resources and the demographics of commercial landings suggest that conch resources overall were relatively healthy. These findings are consistent with earlier studies where no significant negative trends were detected with respect to the catch per unit effort, depth dived or 50% clean meat weight landed (Horsford 2004, 2008 and 2010). Despite the favourable stock assessment, the fisheries authority has taken steps to limit entry into the fishery as well as limit total fishing effort as a precautionary measure given the sedentary nature of the species. These measures are in response to renewed interest to export to traditional markets (e.g., European Union) as well as alternative markets (e.g., Canada, United States of America).

In order to ensure conch production and international trade is sustainable in the long run, the fisheries authority is moving towards setting a total allowable catch and an export quota. Information on domestic consumption by residents and visitors is critical to the process given the demands of the tourism sectors. In order to determine the fore mentioned consumption rates, market surveys were administered to the following groups in 2014: conch vessel owners / captains; fish processors; middlemen; street vendors; hoteliers; restaurateurs; and managers of supermarkets and fish shops. The results of the survey will be available in 2015.

6. Non-Detrimental Findings

There is currently no standard format for non-detrimental findings (NDFs) assessments. The Fisheries Division, as the national CITES Scientific Authority, currently utilises the annual stock assessments to justify that conch exports originate from a sustainable resource and that exports are non-detrimental to the stocks.

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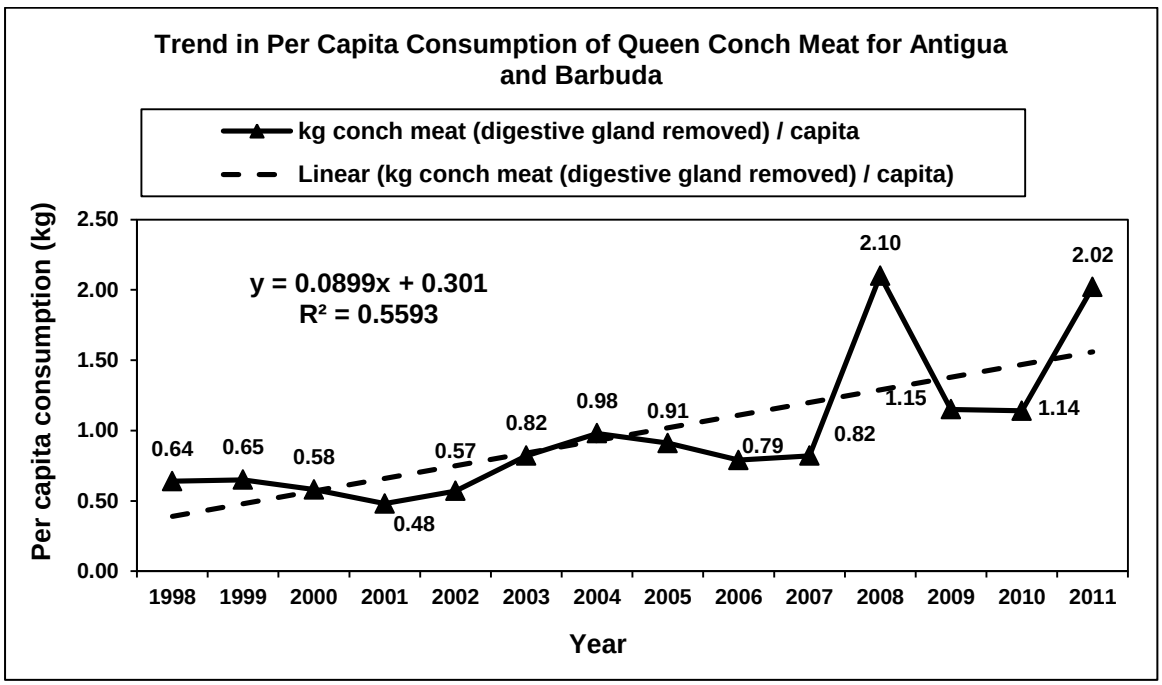
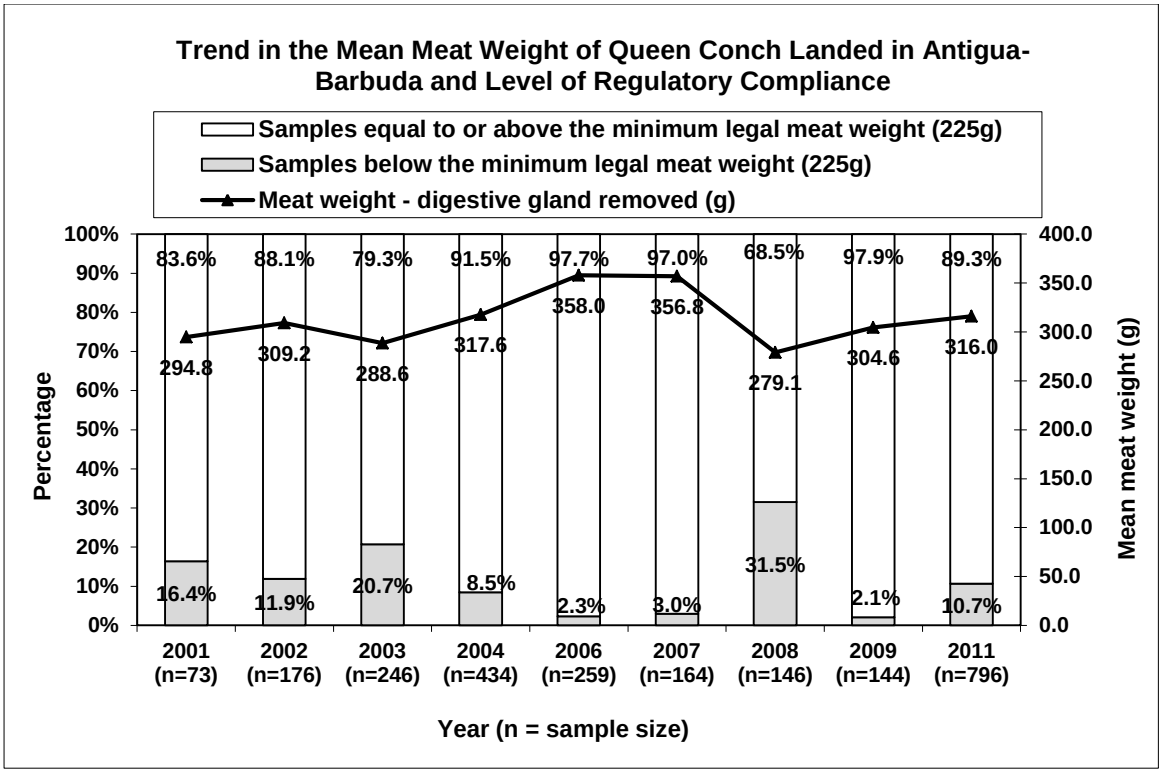
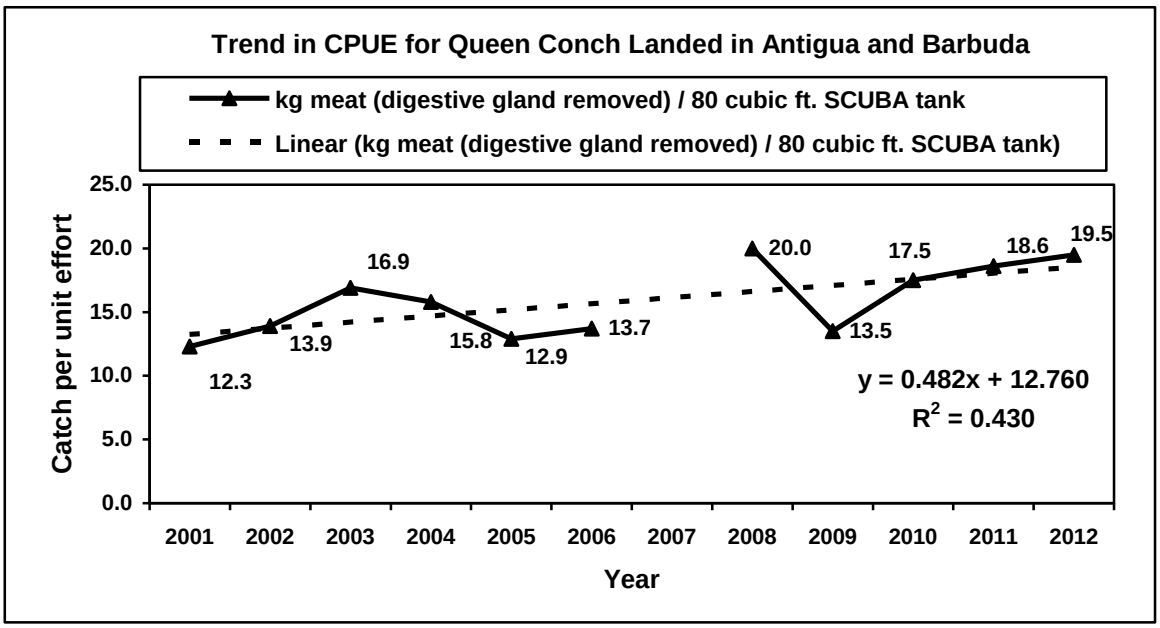



Trend in the Mean Meat Weight of Queen Conch Landed in Antigua-Barbuda and Level of Regulatory Compliance
Samples equal to or above the minimum legal meat weight (225g)
Samples below the minimum legal meat weight (225g)
Meat weight - digestive gland removed (g)
Percentage
Mean meat weight (g)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
83.6%
88.1%
79.3%
91.5%
97.7%
97.0%
68.5%
97.9%
89.3%
294.8
309.2
288.6
317.6
358.0
356.8
279.1
304.6
316.0
16.4%
11.9%
20.7%
8.5%
2.3%
3.0%
31.5%
2.1%
10.7%
2001 (n=73)
2002 (n=176)
2003 (n=246)
2004 (n=434)
2006 (n=259)
2007 (n=164)
2008 (n=146)
2009 (n=144)
2011 (n=796)
Year (n = sample size)


Trend in CPUE for Queen Conch Landed in Antigua and Barbuda
kg meat (digestive gland removed) / 80 cubic ft. SCUBA tank
Linear (kg meat (digestive gland removed) / 80 cubic ft. SCUBA tank)
Catch per unit effort
25.0
20.0
15.0
10.0
5.0
0.0
12.3
13.9
16.9
15.8
12.9
13.7
20.0
13.5
17.5
18.6
19.5
y = 0.482x + 12.760
R2 = 0.430
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Year

Bahamas national report 2014-CFMC/OSPESCA/WECAFC/CRFM working group on queen conch

L.G. GITTENS[13]

Department of Marine Resources
Ministry of Agriculture, Marine Resources and Local Government
Nassau, Bahamas

1.0 Statistics: annual catches, conversion factors, and data collection system

Queen conch landings in The Bahamas have a mean of 5107 tons/yr since 2000 and with 5613 t recorded for 2013. These figures are based on a conversion factor of 7.5 applied by the Food and Agriculture organization. The Bahamas does not apply a country specific conversion factor, however Bahamas specific conversion factors are under development and are likely to result in a refinement of landings records.

Landings data have been collected by data collectors who visit landing sites to conduct trip interviews and inspect catches. Coverage by data collectors is limited; however, landings data are supplemented by purchase reports submitted by processing plants that are located on most islands with major fishing communities. Data collected include total weight of conch landed, the local value of landings, landings by major-island and fishing effort. Commercial export amounts and value are also recorded and are considered accurate due to an export quota system in place as well as controls necessitated by CITES.

Conch is traded within The Bahamas mainly in the form of conch meat. On the local market only the mantle, a portion of skin and white muscle tissue are left intact. However, exported conch is fully cleaned with only white muscle tissue remaining. Conch shells are also sold locally mainly to tourist and exported as personal possessions. Occasionally, "conch trimmings" such as mantle and skin remnants are exported. Trade in shells and conch trimmings does not result in additional mortality as these are merely by-products of conch that were caught for the forms of meat in trade previously described.

2. Policy and Legislation

Bahamian legislation governing conch fisheries include the Fishery Resources (Jurisdiction and Conservation) Act 1977, the resulting Fisheries Resources (Jurisdiction and Conservation) Regulations 1986, the Wildlife Conservation and Trade Act 2004 which incorporates CITES into Bahamian law, and the Archipelagic Waters and Maritime Jurisdiction Act 1993.

Policy also allows only Bahamian citizens to take part in commercial fishing unless the individual is in possession of an appropriate permit from the Immigration Department allowing them to work in fishing. However, there are avenues for foreign participation in the processing sector.

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With regards to the Fishery Resources (Jurisdiction and Conservation) Act 1977 and the Wildlife Conservation and Trade Act, enforcement is the responsibility of the Department of Marine Resources, the Royal Bahamas Defence Force, the Royal Bahamas Police Force and the Customs Department. In addition, Agricultural officers are empowered to conduct enforcement according to The Wildlife Conservation and Trade Act 2004. The Department of Marine Resources is the scientific authority in relation to CITES, whereas the Department of Agriculture is the Management Authority.

3. Fisheries management and conservation activities

The Bahamas is currently in the midst of strengthening efforts to curtail foreign poaching. There are on-going discussions among top decision makers aimed at increasing fines and penalties for foreign poaching. There have also been bilateral talks and agreed actions between the governments of The Bahamas and Dominican Republic aimed at reducing and eliminating poaching by Dominican fishers.

Fisheries management requires stakeholder involvement to be successful. Some of this is borne out in The Bahamas through cooperation between key NGOs, the private sector. There is an ongoing "Conchservation" campaign led by the Bahamas National Trust that aims to bring public awareness to conch conservation issues.

MPAs are also a major conservation effort undertaken by the Bahamas. They cover approximately 1% of The Bahamas' EEZ which includes 5% of the near-shore environment. In addition, there are continuous efforts particularly by The Bahamas National Trust and the Department of Marine Resources to increase the number of MPAs. Thus far there are no conch specific MPAs. Most MPAs are aimed at protecting multiple species including conch and conch habitat.

4. Consumption and Trade

Most conch is consumed within The Bahamas. Meat exports were introduced in 1992 and continue to take place with the USA being the primary (99%) export market. In 1992 0.5% of landings were exported. By 2011 36% of recorded landings were being exported. During 2013 there were 1768 metric tons (using FAO conversion factor of 7.5) which represents 31.5% of landings. Exports for 3013 were valued at $3.18 milion.

5. Research and stock assessments

Conch fishing grounds on the Little Bahama Bank were surveyed by Community Conch during 2014. Results of these surveys are expected to be available by the end of 2014.

Community Conch conducted queen conch density surveys in the Jumentos Cays and Ragged Islands during 2013. Mean density of conchs was 122/ha. Though this is high there were also indications that recruitment to the area has slowed.

During 2014 The Bahamas initiated studies to develop conversion factors for queen conch trade reporting purposes. Preliminary analyses have shown that conversion factors vary between 12.5 and 16.7 for exported filleted meat conversion to whole weight and that it is best to use fishing ground specific conversion factors. However, when one considers the alternative of continuing to use the conversion factor currently in use by the FAO (7.5) then it becomes clear that simply using a mean value for all fishing grounds would be an

improvement if fishing ground specific conversions is not practical.

During 2014 data was also collected to further explore the relationship between operculum size and conch maturity. The results from a separate study indicate that there is a strong relationship between operculum size and lip thickness in The Bahamas (Mueller and Stoner 2013). The use of opercula in this manner can potentially allow the development of a new management tool. If fishers are compelled to leave the operculum attached to the meat when landing conch, then enforcement officers can still ascertain whether conch are of legal standards even when the shell is absent.

6. Non-Detriment Findings

The Bahamas uses an export quota system to limit exports to safe levels. At the moment, safe levels of export are determined based on the precautionary approach and the observation that landings have remained stable over the last 20 years. The Bahamas welcomes regional efforts to standardize and improve non-detriment findings.

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Barbados National Report

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1 Statistics: annual catches, conversion factors, and data collection system

1.1 Annual catch statistics

The conch is considered a very minor fishery resource in Barbados and is therefore not a target of the official landings data collection system. Species-specific conch landings were not even recorded until 2009 and, since then, most of the conch catch still bypasses the official collection system for fishery landings, because it is landed at unmonitored beaches and sold privately. As such the FAO records of conch landings going back to 1950 for the island cannot be verified. However, Oxenford et al. (2008) provided an extremely crude estimate of landings for the artisanal fishery in Barbados and these were presented by Oxenford and Willoughby (2013) to be around 3,300 - 5,800 animals per year. Based on a mean live animal weight (nominal weight) of 2,316 g for a relatively small sample of harvested conch (n=231), this would equate to an estimate of 7.64 - 13.43 mt of live conch being landed by the current small scale commercial fishery, plus an additional small but unknown amount from unregistered recreational fishers who occasionally take conch. This suggests that the FAO data (mean record over 3 yr period 2009-2012 is 2.66 mt) are likely underestimating current landings.

Although queen conch is harvested in Barbados primarily for its meat, which is sold privately to local customers, whole shells (from very small juveniles up to mature adults) are also marketed, mostly through shell vendors selling from road side stalls to tourists. The majority of these shells are likely taken out of the island under the personal export allowance. There is no known use of the opercula or of the shells to make jewellery and other items.

1.2 Conversion factors

No conversion factors are currently applied to official landings data for conch in Barbados. However, conversion factors between whole live animals (nominal weight) and body weight without the shell (dirty meat, Figure 1) have been calculated for a sample of harvested conch (n=231) collected between 2008-2014 from a single fisher. A smaller sample of 27 whole live animals (nominal weight) and their processed meat as it is generally sold in Barbados (85% cleaned meat weight) (Figure 1) has also been collected. The relationships between size (shell length and shell lip thickness) and nominal weight, and between nominal weight and meat weight (dirty meat, 85% cleaned meat) for these samples are provided in Figure 2 and the basic descriptive statistics for the weight data are given in Table 1. The calculated conversion factor for the dirty meat weight to nominal weight for Barbados queen conch is also summarised in Table 1.

Figure 1. Photographs showing processing of queen conch in Barbados: *left* - whole meat (dirty meat); and *right* - 85% cleaned meat

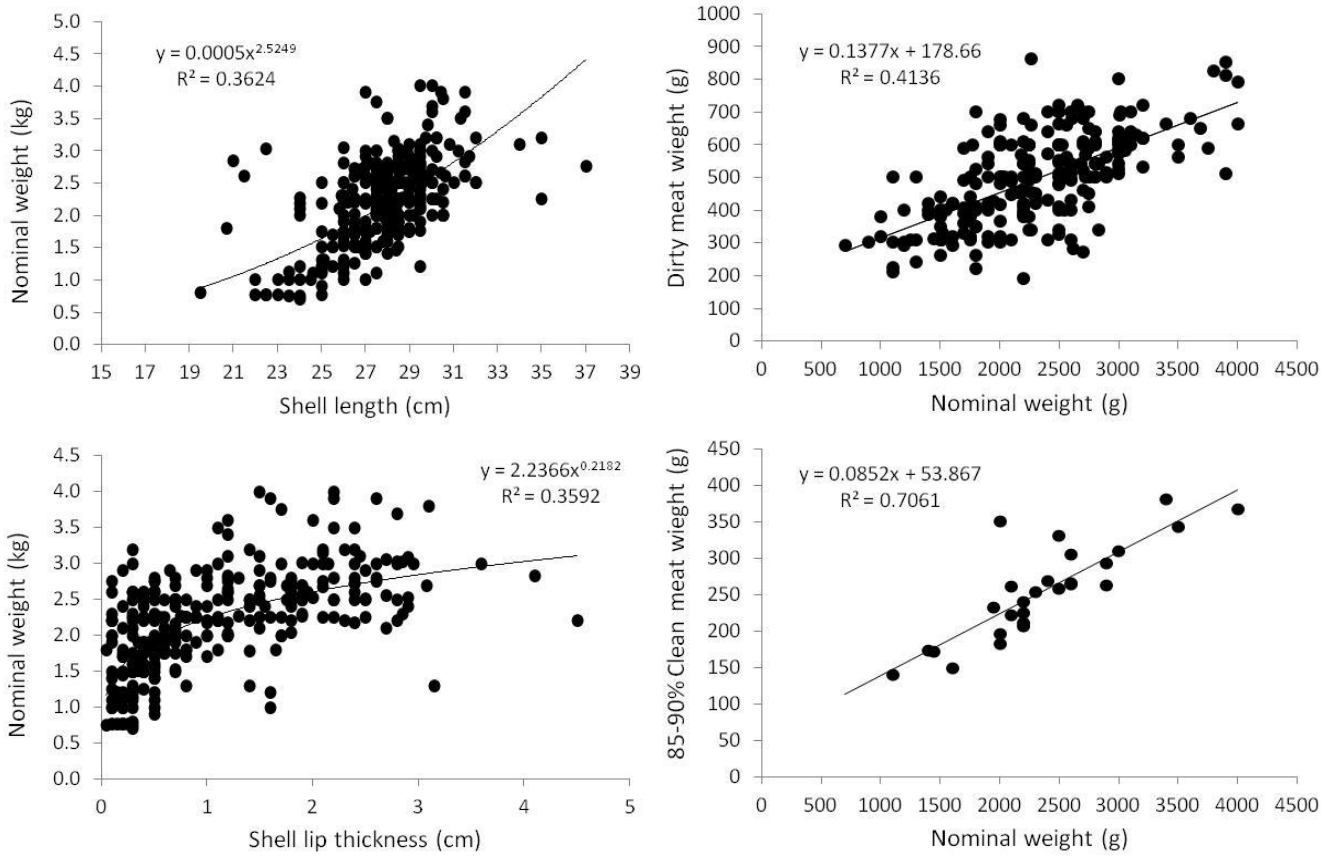

Figure 2. Relationships between queen conch size and weight, and nominal weight versus meat weights for conch harvested in Barbados

Table 1. Descriptive statistics and conversion factor for queen conch samples from Barbados.

Parameter	Nominal weight (g)	Dirty meat weight (g)	85% cleaned meat weight (g)	Conversion factor for dirty meat weight to nominal weight[1]
Sample size	231	231	27	231
Mean	2316	498	255	4.8
Standard Deviation	631	135	66	1.27
Sample Variance	398030	18250	4341	1.61
Minimum (g)	700	190	140	-
Maximum (g)	4000	862	381	-
Confidence Level (95.0%)	81.8	17.5	26.1	0.16

[1] Calculated by Manuel Perez and presented at 2nd CFMC/WECAFC/OSPESCA/CRFM Working Group on Queen Conch, Panama, November 18-20, 2014

1.3 Data collection system

As outlined in section 1.1, there is currently no effective system for collecting catch and effort data from the conch fishery. However, the chief fishery officer reports that there are plans to implement a cost-effective monitoring and data collection programme for conch involving stakeholders (Willoughby 2007).

2. Policy and Legislation

Barbados supports many international and regional legal instruments, voluntary guidelines and declarations of relevance to queen conch fisheries and trade. Barbados ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1992 and passed the International Trade in Endangered Species of Wild Fauna and Flora Act, 2006 in Parliament on February 7, 2006. The Act provides for the implementation of the provisions of CITES in Barbados. Under this Act, Section 5 (1) a) the 'Scientific Authority' is charged with the responsibility of advising the Management Authority, the Ministry of Environment, on: iv) *whether a proposed importation, exportation, re-exportation or introduction from the sea, of specimens specified in the Second and Third Schedules will be detrimental to the survival of that species, and on suitable measures to be taken to ensure the protection of the species.* As such the trade in queen conch is monitored. CITES Export and Import Permits are required for trade in conch meat, but under the Personal and Household Exemptions Rule up to three queen conch shells per person can be carried without a permit.

Barbados has also ratified or acceded to: the United Nations Convention on Law of the Sea (UNCLOS) and the Convention of Biological Diversity (CBD) in 1993; the Agreement Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Species in 2000, and the Specially Protected Areas and Wildlife (SPAW) protocol of the Cartagena Convention in 2002. Barbados has also signed the 2010 Castries Declaration on Illegal, Unregulated, Unreported (IUU) Fishing and is guided by the FAO Code of Conduct for Responsible Fisheries. It has not yet acceded to the Port States Measures Agreement, although signing on to the Agreement is currently under active consideration.

As reported by Oxenford and Willoughby (2013), the Fisheries Division has produced an information brochure on conchs for the general public, making the CITES regulation on trade clear and encouraging harvesters to cease from taking juveniles.

Progress has also been made with regard to improving management. The over-arching national Fisheries Management Plan (FMP) is currently being updated in line with the development of a new Fisheries Sector Management and Development Policy and new draft Fisheries (Management) Regulations, 2014, under the Fisheries Act. These draft regulations, if passed, will provide much greater support for sustainable management of queen conch. For example, specific permission will be required from the Minister to harvest this species. Furthermore, the Minister will be empowered to declare areas and/or seasons closed to fishing for specified species or for specified gear, paving the way to protecting conch breeding aggregations and juvenile nursery areas.

3. Fisheries management and conservation activities

Apart from the policy, legislation and management planning described in Section 2, there has been progress in two areas of relevance to the recommendation of WECAFC/15/2014/3 'On the Management and Conservation of Queen Conch in the WECAFC Area'.

Firstly a preliminary species-specific management plan for the queen conch fishery was drafted with stakeholder input at a SIDA/UNEP-CEP/FAO-funded queen conch management workshop (Oxenford and Bissada-Gooding 2008, Oxenford and Parker 2009), This plan follows the basic template adopted at the FAO WECAFC Regional Workshop on the Monitoring and Management of Queen Conch held in Jamaica (FAO 2007), and is intended as a companion document to the over-arching Barbados FMP. There has however been no progress in finalising or implementing the plan, due to limitations in human and financial resources.

Secondly, data have been provided to FAO/WECAFC to contribute to the development of a regional conversion factor for meat weight to whole live weight (see Section 1.2).

4. Consumption and trade

Barbadians eat very little conch. Based on the crude estimates of landings (7.76 – 13.43 mt), an absence of conch imports and an estimated local population size of 289,680 people (CIA World Factbook 2014), the per capita consumption would be 0.03-0.05 kg per year.

5. Research and stock assessment

Despite being a minor fishery with no export, the conch fishery and the conch resource have been the subject of research lead by the University of the West Indies (UWI) and funded in part by the Government, in an attempt to inform the development of policy and improvement in legislation towards meeting Barbados' obligations and commitments to CITES, SPAW, UNCLOS and the Code of Conduct for Responsible Fisheries. As outlined by Oxenford and Willoughby (2013) these studies include: a description of the fishery and marketing of queen conch (Oxenford et al. 2007, 2008); fishery independent abundance surveys (Oxenford et al. 2010, Valles and Oxenford 2012); and determination of movement patterns, behaviour and reproductive biology (Bissada-Gooding and Oxenford 2010, Phillips et al. 2011, Bissada 2012).

In addition, UWI is engaging in collaborative research on reproductive behaviour (see Aldana Aranda et al. 2014) and larval recruitment of queen conch with partners across the region, contributing to the development of the regional management plan and harmonised regulations for queen conch.

6. Non-Detriment Findings

Under Barbados' International Trade in Endangered Species of Wild Fauna and Flora Act, 2006 the national Scientific Authority is required to advise on whether trade in a species is detrimental. However, in the absence of any export of conch products from Barbados (apart from the personal allowance of shells), no attempt has been made to undertake a Non-Detriment Finding for the local conch resource.

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Belize National Queen Conch Report 2014

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1. Statistics

The Queen conch remains the second most commercially important fishery of Belize. Some 965,069 lbs of conch meat (85% market clean; CF) was produced in 2013. This production volume showed a decrease of 11.1 % in production compared to 2012. The conch season in Belize opens from 1st October-30th June of each year allowing fishermen to harvest conch from the main fishing grounds along the Belize barrier reef and in the three offshore atolls.

Since the mid-1980's to present conch meat landings have gradually increased in response to increases in fishing effort over the same time period (see figure 1). Catch per unit effort is collected monthly from fishermen fishery product delivery slips from the two main fishermen cooperatives in Belize City. National conch underwater visual surveys are done every two years. During the 6-week survey period, fisheries staff collect field data in the marine reserves network and in open fishing grounds and the data is analyzed and used to estimate the Total Allowable Catch (TAC). During these surveys, conch density, distribution by habitat type and biological data such as shell length and lip thickness is collected.

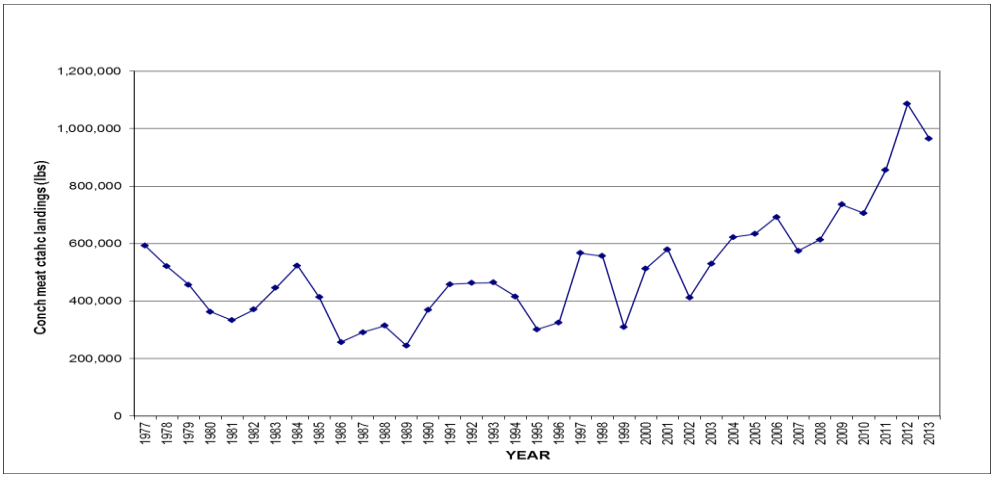

Figure 1. Queen conch meat landings show general increasing pattern since 1986.

During the fishing season conch meat landings are closely monitored to ensure that all fishermen cooperatives comply with their assigned quota limits by month and once the overall quota for any fishermen cooperative has been exhausted then that cooperative voluntarily ceases to accept conch meat from their fishermen members. The conch fishing season closes when the national conch quota has been filled by the fishermen cooperatives.

2. Policy and Legislation

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The Queen conch remains a priority fishery for the Government of Belize because of its national importance to the livelihoods of thousands of Belizeans and also due to its contribution to the national economy. The policy objective for this fishery continues to seek its sound management, conservation and sustainable use. The conch fishery regulations include a minimum size limit of 7 inches in shell length, a minimum weight of 3 ounces for market clean conch meat (85% processed conch meat), 2.75 ounces for conch fillet (100% processed conch meat), a closed fishing season extending from July 1 to September 30 and prohibition of possession of diced conch meat. The conservation and preservation zones (no take or replenishment zones) within marine reserves continue to provide refuge, feeding and nursery grounds to the Queen conch.

Belize continues to comply with the 2003 CITES recommendations to maintain monitoring, control and periodic assessment of the conch stock. National conch reports with details of results of bi-annual national Queen conch underwater surveys are submitted to CITES in a timely manner. Queen conch meat continues to be exported only by registered and operating fishermen cooperatives of Belize. This policy is not envisioned will change in the near future.

3. Fisheries management and conservation activities

The management regime for the Queen conch fishery is based on multiple approaches that include a closed fishing season, minimum weight and shell lengths, monitoring of catch landings, control of quota limits and enforcement of regulations and the use of marine reserve network and manage access program as fishery management tools. The Manage Access program is a right-based management tool that was first implemented in 2011 in two pilot sites (Glovers Reef and Port Honduras Marine Reserves). This program has produced excellent results such as increased compliance with fisheries regulations and reporting of catch landings in addition to an increase in biomass availability to the extent that the Government of Belize has decided to roll-out the program to a national scale in early 2015.

All conch shipments prior to export require inspection and sampling by Fisheries Department personnel to ensure compliance with minimum weight limits and before CITES export certificates are issued by the Management Authority.

The Belize Fisheries Department participated in a recent field study and gathered field data to determine conch meat conversion ratios that will allow the estimation of unprocessed or "dirty" meat weight from the 85% processed conch meat that is normally landed by fishermen. This conversion factor has been communicated to CITES and FAO as required.

The Queen conch stock of Belize is considered healthy, robust and growing. The current management regime in place has produced excellent results and therefore the Belize Fisheries Department will continue to implement and strengthen management measures, monitoring, control and enforcement of regulations in the years ahead.

4. Consumption and Trade

Given that the Queen conch fishery is export oriented, the national consumption of conch meat is only about 5% of total catch landings. This conch meat is consumed by restaurants in

the major tourism locations such as San Pedro Town, Caye Caulker Village, Placencia Village and in Belize City.

In 2013, the fishermen cooperatives exported 952,450 lbs. of market clean (85% processed) conch meat and 8,050 of fillet conch to the U.S.A. valued at US$5.47 million and US$52,325.00, respectively. No conch meat was imported into Belize.

5. Research and stock assessment

The most recent National Queen conch underwater survey was carried out in the month of September 2014. A total of 6,803 Conchs were observed and measured during the study period, shell sizes varied from 15 mm to 290 mm, the mode was 150 mm, while the mean length was **140.8 mm** (sd = 37.7). It was observed that 85 % of the conchs that were sampled were less than 178 mm and 15% were considered legal size conchs (Figure 2).

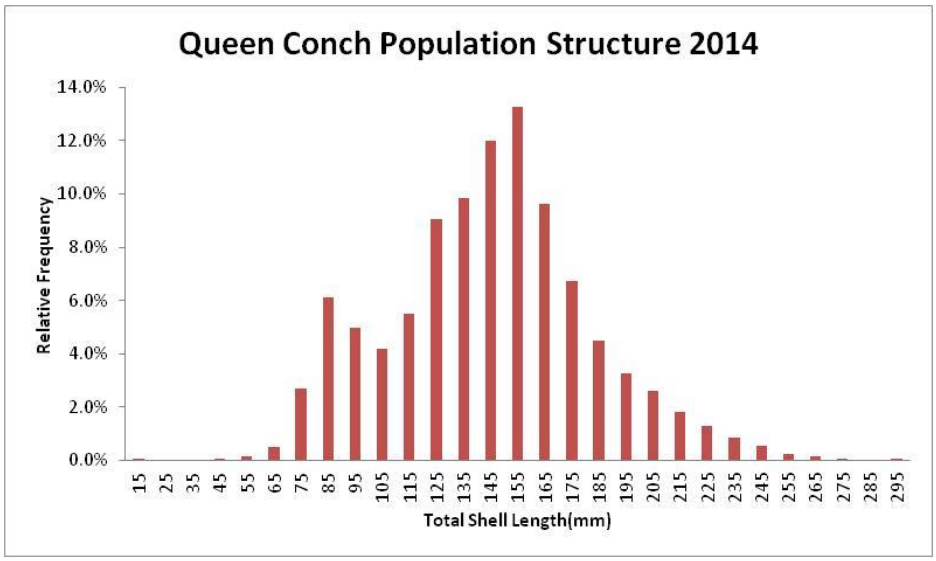

Figure 2: Population structure of the Queen Conch - 2014

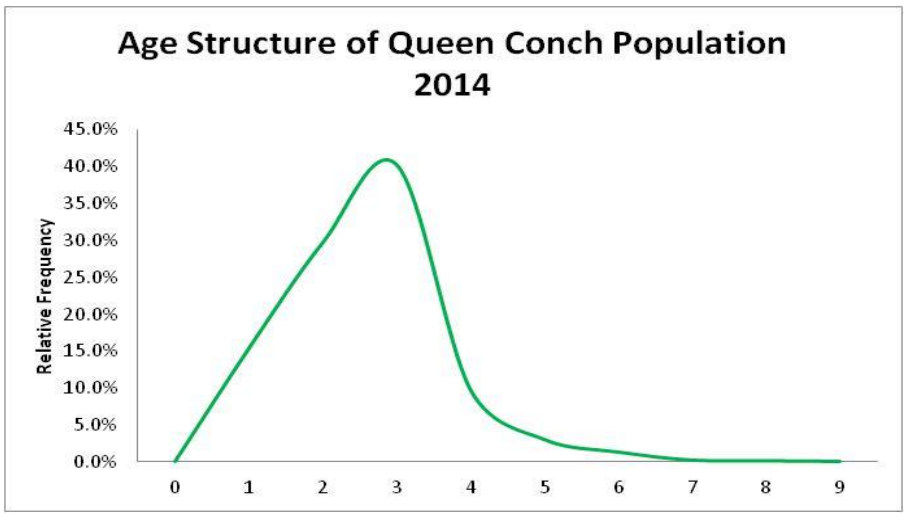

Figure 3: The age structure of the conchs sampled in 2014.

The analysisshow that 15.4% of the conchs sampled were 1+ years, while 29.8% were considered at 2+ years and 40.3% were estimated at 3+ years. The remaining 4.8 % were represented by the older conchs (Figure 3).

The national Queen Conch mean density was estimated at 386 conchs/ha. The Maximum Sustainable Yield (MSY) was estimated using the Fox Model which resulted in 592,787 kg (1,304,132 lbs). The Maximum Economic Yield (MEY) was estimated at 912,892 lbs (Figure 4).

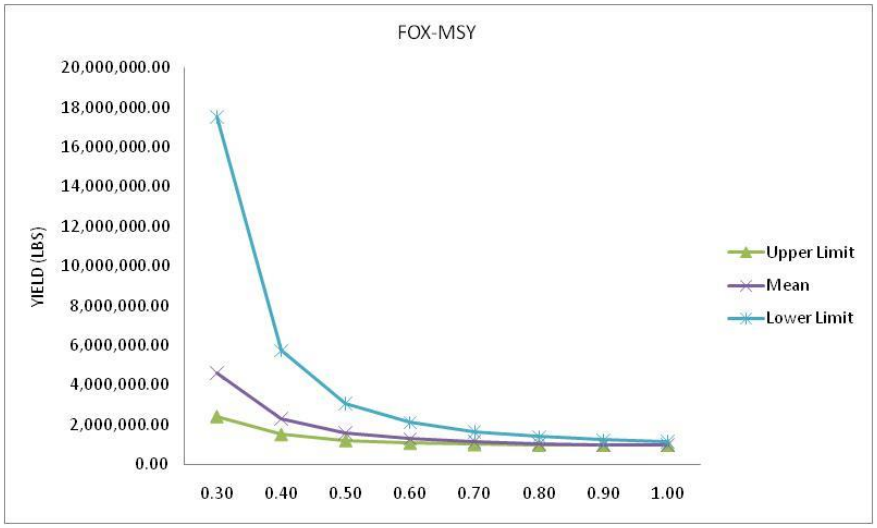

Figure 4. Fox Model and yield estimate

The National Queen conch quota for the 2014/15 fishing season was set at 850,000 lbs of 85% processed conch meat.

6. Non-Detriment Findings

The 2014 National Queen Conch survey report is currently being prepared and the Belize Fisheries Department will submit its Non- Detriment Findings (NDFs) to CITES by mid-January 2015. No difficulties were experienced in the survey or in the data analysis process.

National report on the status of the Queen Conch fisheries of the Caribbean Netherlands

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1. Statistics: annual catches, conversion factors, and data collection system

Annual catch statistics

Bonaire
Since Queen Conch has been legally protected on Bonaire since 1985 there is only illegal poaching taking place of which there are no catch statistics available.

Saba
Currently there is no commercial or subsistence Queen conch fishery on Saba. Recreational fisheries do take place and fishermen occasionally catch Conch in their lobster traps. No catch statistics are available.

St. Eustatius
2 tons of 100% clean meat

Conversion factors
Up to date in the Caribbean Netherlands no studies have been carried out to determine the conversion factor.

Data collection system
Since there is no legal Queen Conch fishing in Bonaire no catch data is being collected. On Saba persons who collect Queen Conch must report their catch at once to the manager of the Marine Park. As there is no enforcement of this rule this is not being done.
St. Eustatius has a daily logbook system which gives an indication about the catch.
Although the relationship with 1 of the conch fishers is good, the logbook system has not worked perfectly, but will be a requirement for keeping future permits.

2. Policy and Legislation

Policy
The current policy for Bonaire is to keep the fisheries closed and to stop illegal unsustainable poaching activities. For Saba the policy is to keep the recreational fisheries possible around the island of Saba and to establish the Saba Bank as a conch reserve. For St. Eustatius it is promote a small scale export fishery, based on a quota system. This quota will be divided under interested fishermen.

Legislation
Since there are 2 government layers (national and public entity) in the Caribbean Netherlands there is national and island legislation. On each of the 3 islands this legislation varies and

Saba is the only island which has a fishery ordinance, although just as on Bonaire and St. Eustatius conch related legislation is included in the Marine Environment Ordinance.

National

Visserijbesluit BES article 3.1.a

For everyone in the fishing zone (EEZ waters outside the territorial waters), and for license holders in the territorial sea, it is forbidden to fish for:

a. sea snails belonging to the species *Strombus gigas* of less than 18 cm in (shell) length; in the case that sea snails have already been removed from their shell, the minimum weight of the meat should be 225g;

The Netherlands strives to update abovementioned legislation as soon as possible and include a closed season and a minimum lip thickness.

Nature conservation framework Act BES:

Art. 7a. Trade in specimens listed in Annex I, II or III of the CITES Convention, shall be in accordance with the provisions or Article III, IV or V of this Convention, notwithstanding the exceptions of Article VII, second, third, fifth and sixth paragraph, of the CITES Convention.

2. For transit or transshipment as per Article VII of CITES, a specimen must be provided with an export permit or re-export certificate in accordance with the provisions of Article VI of the CITES Convention.

Bonaire

Island Resolution Marine Park Bonaire (A.B. 2010, nr. 14) article 12

1. It is forbidden, without a permit by the Executive Council, to gather karkò (S*trombus gigas*, Queen Conch).
2. The Executive Council will grant a permit as referenced in paragraph 1, only after consultation with the Nature Management Commission Bonaire and then only in compliance with the conditions set by the Commission.

Bonaire strives to take the fishery legislation out of the Marine Environment Ordinance and create an adequate fishery ordinance.

Saba

Marine Environment Ordinance Saba (A.B. 1987, no. 10) article 6

The collection of sea snails (conch) in the marine park is only allowed in accordance with the following provisions:

(a) it is forbidden to catch conch using SCUBA or Hookah equipment,
(b) it is forbidden to catch conch smaller than 19 cm (7,5 inches) or conch which do not have a well-developed lip,
(c) it is prohibited to take more than 20 conch per person per year,
(d) the collection of conch is only for private use and consumption,
(e) deleted,
(f) persons who collect conch must report their catch at once to the manager of the Saba Marine Park.

Saba strives to update and modernize their current fishery ordinance and incorporate regulations to conch fishing.

St. Eustatius

Marine Environment Ordinance (A.B. 1996, No. 03) article 7

The collection of sea snails (conch) in the marine park is only allowed in accordance with the following provisions:

(a) it is forbidden to catch sea snails using SCUBA or Hookah equipment,
(b) it is forbidden to catch sea snails smaller than 19 cm (7,5 inches) or sea snails which do not have a well-developed lip,
(c) it is prohibited to take more than 20 conch per person per year,
(d) The collection of conch is only for private use and consumption,
(e) deleted,
(f) persons who collect conch must report their catch at once to the manager of the St. Eustatius Marine Park.

St. Eustatius strives to take the fishery legislation out of the Marine Environment Ordinance and create an adequate fishery ordinance. Clauses b & f of the current Ordinance will be changed. SCUBA equipment will be allowed and "the manager of the St. Eustatius Marine Park" will be changed to the department of fisheries. Clause d shall be deleted.

3. Fisheries management and conservation activities

Bonaire

The management organisation, STINAPA Bonaire together with IUCN ran a 3 year Conch restoration project with an awareness as well as a scientific component. The objective was to inform people of the vulnerability of the stock and the need for a closed fishery.
The current effectiveness of the management measures is very low. The reason for this is that the lack of enforcement capacity (and jail cell capacity) is not driving poachers to stop their practices.

Saba

Illegal, unreported and unregulated fishery was banned in 1996 on Saba and the Saba Bank. Clause d, and f of the Marine Environment Ordinance are not being enforced.

St. Eustatius

There are 2 MPA's which are protected but these areas are not really rich conch areas. St. Eustatius has completed a conch survey which has determined the abundance and distribution of conch around the island and thus gives an indication of the amount of conch that can be sustainably caught in St. Eustatius.

4. Consumption and Trade

Bonaire

No conch export. Import of frozen product from CITES approved countries (Jamaica, Honduras). and occasionally illegal fresh product is being brought in from the Aves islands Venezuela.

Saba

No Queen Conch export. It is uncertain if there is import.

St. Eustatius

Until 10-10-2010 there used to be export to neighboring island St. Maarten. This changed when St. Maarten became a different custom territory and CITES permits were required. It is unlikely that there is Queen Conch import.

5. Research and stock assessment

Bonaire

In August of 2010 a 3 year Queen Conch restoration project has started in the main conch habitat of Bonaire (Lac Bay) funded by IUCN and the postcodeloterij. The project focusses on: (1) establishing a conch monitoring system and baseline understanding of Queen Conch abundance and reproduction; (2) building a strong working relationship with the local fishermen; and (3) building awareness of conch.

Queen Conch population size and age structure is being investigated through an extensive capture, mark and recapture program. To date almost 5000 Queen Conch have been tagged with a large majority of those being juvenile Queen Conch (~88%). Only 225 sub adult conch have been found in all of Lac Bay, and only 8 that could be considered sexually mature. This is no doubt due to the fact that larger conch have been the target of unsustainable poaching. In coordination with the outreach campaign, the local management authority is liaising with island officials to ensure the adequate enforcement of CITES import regulations of conch (i.e. permits and labelling). Furthermore the sale of conch in restaurants and groceries is being monitored to ensure legality. Tourists are being targeted trough several websites, including "adopt a conch" (http://conchbonaire.org/), a Facebook page (www.facebook.com/people/Karko-Bonaire) and of the on-island awareness campaign, conform the RARE-PRIDE formula. The institution involved is Stichting Nationale Parken Bonaire (STINAPA)

With the launch of this project the enforcement of the law aimed at protecting conch has again been the focus of attention.

Saba

Since 2013 Queen Conch density surveys using a novel towed video system have been conducted to determine abundance and presence on the Saba Bank. These surveys are almost completed. The outcome will determine the current status of the conch stocks.
Spawning season has been looked at. Genetic samples have been taken for population studies and gonads for size at maturity.

Since 2012 a fisheries monitoring program (port sampling) is in place on Saba collecting basic data on effort, catches, species composition and length frequency of the lobster trap fishery, redfish trap fishery and trolling/hand line fishery. The current program would also be adequate in the future to monitor conch catches if this fishery is ever reopened in the future. The institution involved are the Saba bank management unit and Institute for Marine Resources and Ecosystem Studies (IMARES).

St. Eustatius

In 2012 a pilot study was conducted on St Eustatius to develop a method to determine the abundance and distribution of conch around the island using a towed video. The trials were successful and a full survey was finished early 2014.
Spawning season has been looked at. Genetic samples have been taken for population studies and gonads for size at maturity.

6. Non-Detriment Findings

Since Bonaire and Saba do not export Queen Conch no NDFs have been conducted for these islands. On St. Eustatius a NDF was made for the 1st time this year.

Manejo y Conservación de la Pesquería del Caracol Pala (*Strombus gigas*) en Colombia

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1. Estadísticas

Actualmente la Autoridad Nacional de Acuicultura y Pesca AUNAP emite todo lo referente a las estadísticas pesqueras, a través de los boletines emitidos por el Servicio Estadístico Pesquero de Colombia-SEPEC. En el 2014 se creó una base de datos con información independiente de la pesquería sobre valores de densidades por sustratos, estratos de profundidad y abundancias de caracol pala. Sin embargo, como consecuencia del cierre de la pesquería en el Archipiélago de San Andrés, Providencia y Santa Catalina solo se tienen registradas para el año 2013 y 2014 la cuota autorizada de 16 tm en Banco Serrana y para pescadores artesanales.

2. Política y Legislación

La actividad pesquera en Colombia está regulada por el Estatuto General de Pesca, Ley 13 de 1990, y su Decreto Reglamentario 2256 de 1991 que crea el Comité Ejecutivo para la Pesca, integrado por las autoridades pesqueras y el Ministerio de Ambiente (Autoridad administrativa CITES), y es el encargado de definir anualmente las especies a ser aprovechadas y las cuotas globales de pesca. Sin embargo, las entidades del gobierno han venido tomando medidas de manejo desde 1977 con el fin de lograr el menos y más adecuado manejo del recurso. Una primera intención para proteger el recurso se dio con la resolución del INDERENA que ordena el cierre de la pesquería en el Archipiélago Nuestra Señora del Rosario y San Bernardo. Posteriormente según el acuerdo INDERENA No.007 de 1990 se estableció la prohibición de capturar juveniles por debajo de un peso de 100 gr limpio, así como, la prohibición de utilizar equipos de buceos autónomos, semi-autónomos y compresores a bordo de las embarcaciones para la extracción del recurso. Mas adelante el Instituto Nacional de Pesca y Acuicultura INPA, mediante la Resolución No. 179 de 1995 determinó un periodo de veda desde el 1° de Junio hasta el 31 de Octubre de cada año. Colombia ha mostrado un gran compromiso en la adopción de instrumentos regionales, tales como: a) Declaración de Rio, que entró en vigor en 1992; b) Convenio de Diversidad Biológica, ratificado por la Ley 165 de 1994; c) Convención Internacional sobre Comercio de Especies de Fauna y Flora Silvestres –CITES- ratificada por la Ley 17 de 1981, y d) Protocolo Sobre Áreas y Fauna Especialmente Protegidas en la Región del Gran Caribe –SPAW-, aprobado por la Ley 356 de 1997.

La gobernabilidad de las pesquerías en el Archipiélago constituye un modelo único en el país. La Ley 47 de 1993, que tiene por objeto dotar al Archipiélago de un estatuto especial que le permita su desarrollo dentro del marco fijado por la Constitución Política de 1991 en atención a las condiciones geográficas, culturales, sociales, y económicas especiales ordenó la creación de la Junta Departamental de Pesca y Acuicultura – JUNDEPESCA-, y la delegación de las funciones del extinto Instituto Nacional de Pesca y Acuicultura -INPA- en el Gobierno Local. Este novedoso esquema de descentralización pesquera que se hizo efectiva desde Mayo del 2000 fue fortalecido por la Ley 915 de 2004 que dicta el Estatuto Fronterizo para el Desarrollo Económico y Social del Archipiélago. Por consiguiente, muchas

de las funciones en materia pesquera contempladas en la Ley 13 de 1990 "Estatuto General de Pesca" y su decreto reglamentario 2256 de 1991 son ejecutadas por el Departamento y JUNDEPESCA.

Dentro de las funciones ejercidas por el Departamento, se destaca: 1) Adelantar las investigaciones que permitan identificar y cuantificar los recursos pesqueros, así como aquellas dirigidas a perfeccionar los procesos tecnológicos en las fases de extracción, cultivo, procesamiento y comercialización. Adicionalmente, recursos pesqueros como el caracol pala y los tiburones, que se encuentran amparados por fallos de acción popular proferidos por el Tribunal Contencioso Administrativo de San Andrés, Providencia y Santa Catalina, que ordenan su protección y la realización de estudios científicos que aporten información de utilidad para su manejo y conservación.
Consecuentemente y debido a la fuerte presión pesquera que ha tenido lugar en el Archipiélago la pesquería estuvo cerrada entre 2005 y 2007 como consecuencia de una evaluación realizada por el comercio significativo de CITES, reabriéndose sólo para los Bancos de Serrana y Roncador entre 2008 y 2010. Para el presente año durante el mes de mayo la Secretaría de Agricultura y Pesca del Archipiélago de San Andrés, Providencia y Santa Catalina mediante Acta de comité de verificación resolvió levantar la medida de suspensión de pesca de caracol pala para los pescadores artesanales, con una cuota global de 16 tm limpio y solo en el área del banco de Serrana. En un periodo comprendido entre el 20 y el 31 de mayo y del 1° de noviembre al 31 de diciembre de 2014.

En el momento el Ministerio de Agricultura y Desarrollo Rural adelanta la formulación de la "Política Nacional de Pesca y Acuicultura", en donde se pretende regular, ordenar, administrar, desarrollar y aprovechar de forma sostenible los recursos pesqueros, complementando lo establecido en la ley 99 de 1993. La Ley 13 de 1990 es la que faculta a la AUNAP para regular el ejercicio de la actividad pesquera y acuícola, así como ejecutar los procesos de administración, fomento y control, con el fin de asegurar el aprovechamiento sostenible de los recursos pesqueros. Y a su vez es el Comité Ejecutivo para la Pesca (CEP) el encargado de proponer las cuotas globales de pesca y algunas medidas de manejo, teniendo como base las mejores evidencias científicas suministradas por la Autoridad de Pesca y otras entidades. Está conformado por el director de Cadenas Pecuarias, Pesqueras y Acuícolas del Ministerio de Agricultura y Desarrollo Rural o su delegado, el Director de Asuntos Marinos, Costeros y Recursos Acuáticos del Ministerio de ambiente y Desarrollo Sostenible o su delegado, y el representante legal o su delegado de la Autoridad pesquera, hoy AUNAP (Esquivel *et al*., 2014). La información es analizada durante reuniones interinstitucionales con los Institutos de Investigación, las ONG, y la academia que trabajan en pesca. A su vez, la información estadística es recopilada por el Servicio Estadístico Pesquero de Colombia (SEPEC) y el Programa de Observadores Pesqueros de Colombia (POPC), la cual es analizada por los Técnicos investigadores de la Oficina de Generación del Conocimiento de AUNAP.

3. Actividades de ordenamiento y conservación de la pesquería

Sumado a las resoluciones establecidas por el Ministerio de Agricultura desde 1997 en donde se fijan las cuotas anuales de pesca para diferentes zonas del país. Siendo el Archipiélago de San Andrés, Providencia y Santa Catalina una importante zona de cría y explotación de tan importante recurso se han tomado medidas especiales tendientes a la conservación y aprovechamiento sostenible, tanto a nivel local como a nivel nacional. Como es el caso de la zonificación de las Áreas Marinas Protegidas y la designación de la Reserva de Biosfera

SEAFLOWER según la declaración de la UNESCO del 9 de Noviembre de 2000. Particularmente, en el archipiélago de San Andrés sucedió algo *suis generis* producto de una acción legal instaurada por pescadores de la región, en donde el Tribunal administrativo sentencio el cierre indefinido de la pesquería en el AMP sectores sur y centro. En las demás áreas solo podrá haber pesca cuando los estudios científicos lo determinen. Con base en lo anterior, la autoridad de pesca – INCODER- en reunión realizada el día 18 de abril de 2013 con el Juez Contencioso Administrativo de San Andrés y comité de verificación, tomó la decisión de realizar el cierre de esta pesquería hasta obtener los resultados de la próxima expedición científica de distribución y abundancia del recurso. En consecuencia, el Comité Ejecutivo para la Pesca –CEP, recomendó medidas especiales de administración para el recurso caracol pala en el Departamento Archipiélago de San Andrés, Providencia y Santa Catalina. Estableciendo que la cuota determinada es exclusiva para pescadores artesanales del Archipiélago de San Andrés, Providencia y Santa Catalina y que su capturada solo podrá ser en el área del Banco de Serrana. De igual manera, se determinó que la comercialización de la cuota de caracol pala autorizada es solamente para el mercado nacional, prioritariamente en el Archipiélago de San Andrés, Providencia y Santa Catalina-Resolución No. 1680 de 2013- (Esquivel *et al*., 2014).

La pesquería ha permanecido cerrada durante los años 2010, 2011 y 2012. Abriéndola para el sector artesanal durante un breve periodo en el cual se alcanzó la cuota asignada, durante 2013 y 2014. Actualmente la AUNAP viene desarrollando una fuerte estrategia de educación ambiental dirigida a la población infantil de las islas de San Andrés, Providencia y Santa Catalina enfocando la importancia de conservar y proteger tan importante recurso que ha estado presente en la historia y cultura de los isleños.

Además la Secretaría de Agricultura y Pesca tiene un Programa de repoblamiento de caracol pala de zonas de mayor abundancia (Banco Serrana) a zonas de baja abundancia (isla de Providencia).

4. Consumo y Comercialización

Para 2001, el Instituto Nacional de Pesca y Acuicultura INPA destinó una cuota de 30 tm para los pescadores artesanales de la Guajira, abolida en 2006 luego de que la CITES planteó el cierre de la pesquería ocasionado por la carencia de información sólida que permita generar acciones de manejo del recurso. En el archipiélago de San Andrés, Providencia y Santa Catalina el caracol pala está arraigado en su cultura, siendo su extracción y comercialización principalmente artesanal. Sin embargo, a partir de 1975 se inicia la pesca industrial que ha ejercido una fuerte presión sobre este organismo, alcanzando un máximo de 800 tm en 1998 que se redujo drásticamente a 200 tm en 1990 tm. CITES por su parte en el 2003 registró que Colombia exportó alrededor de 800 tm de carne de caracol entre 1995 y 2001, principalmente a Estados Unidos (Valderrama y Hernández, 2000; CITES, 2003).

La información remitida por la SAP-SAI (2013) no reportó las capturas de Caracol Pala para el 2012, pero sí las capturas de lo que se ha capturado en el 2013. La captura se hizo entre los meses de enero a abril por los pescadores artesanales de San Andrés y Providencia, la cual llegó a aproximadamente 17.5 tm de carne limpia, motivo por el cual se dio la recomendación del cierre de la pesca de este recurso (Esquivel *et al*., 2014). Durante el presente año se levantó la medida de suspensión de la pesca de caracol pala en el Archipiélago a partir del 20 hasta el 31 de mayo y del 1° de noviembre al 31 de diciembre; debido a que la veda se efectuará en el periodo comprendido entre el 01 de junio y el 31 de octubre. El ciento por

ciento (100%) es para consumo local, de los cuales alrededor del ochenta por ciento (80%) se comercializa en hoteles, restaurantes y establecimientos de la isla de San Andrés.

Es de resaltar el auge adquirido por los comerciantes de perlas que según Prada *et al*., (2009) con destino a Japón principalmente, seguido de Suiza y Estados Unidos en el periodo comprendido entre 2000 y 2011.

5. Investigación y evaluación de la población

Son muchos los estudios realizados de forma independiente por las autoridades pesqueras, ambientales y las academias. A partir del 2003 en el Archipiélago de San Andrés, Providencia y Santa Catalina se dio inicio a la realización de expediciones inter institucionales enfocadas a evaluar tan importante recurso de manera independiente de la pesquería y se dio continuidad a estimar las densidades en todo el área marítima de San Andrés, Providencia y Santa Catalina a partir del 2007 como consecuencia de una acción popular en San Andrés Islas. Los últimos estudios encaminados a la evaluación del caracol pala han sido llevados a cabo por parte de la Secretaria de pesca y Agricultura de la Gobernación de San Andrés, CORALINA, AUNAP y Universidad Nacional. En octubre de 2011 se llevó a cabo una expedición a los cayos del Norte en donde se evaluaron puntos determinados en estudios previos. Esta información permitió proponer la cuota máxima de captura de caracol en la pesca artesanal en 16 tm. Durante el año 2012 la AUNAP en asocio con La Universidad Nacional de Colombia-Sede Caribe realizó una pequeña expedición en los Cayos Albuquerque y Cayo Bolívar, situados al sur de la isla de San Andrés. Evaluando los mismos puntos monitoreados en años anteriores, se encontró una baja abundancia del recurso como consecuencia de la presión ejercida por la población de pescadores artesanales locales, soportando así la necesidad de continuar con el cierre de la pesquería por un tiempo prolongado (Forbes, 2011 y Rojas *et al*., 2013). Más recientemente la Secretaria de Pesca y Agricultura de la Gobernación, CORALINA y la AUNAP, realizaron un estudio en octubre de 2013 para determinar el estado de la población de caracol pala en el banco Serrana, encontrando abundancias de adultos y juveniles por encima del RMS (Rendimiento máximo sostenible) (Forbes, 2013). Estas abundancias fueron mayores a las reportadas en la misma área por Castro *et al.* (2010).

6. Consideraciones finales

El gobierno colombiano dentro de su plan de desarrollo incluye de manera primordial el apoyo a la recuperación del sector pesquero en el país, teniendo como lineamientos la investigación y transferencia de tecnología. Sin embargo, a pesar de los esfuerzos y la intención de encontrar el modelo de manejo pesquero más adecuado que contribuya a la recuperación del caracol pala requiere de la cooperación regional para mitigar la presión que ejerce la pesca ilegal en la mayoría de los países del Caribe.

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ANEXOS

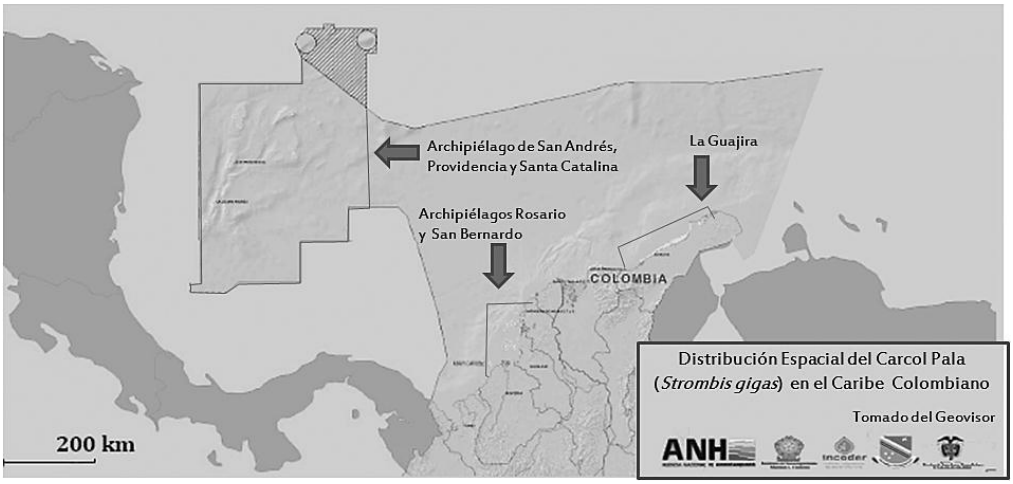

Figura 1. Zonas de pesca de caracol pala en Colombia (tomado de Castro *et al*., 2012).

Tabla1. Valores de densidad media de S. gigas reportados en el Caribe, especificando metodología. TLV (Transectos de Longitud Variable). (*) Zonas sobreexplotadas (Tomado de Archbold *et al.*, 2013)

Localidad	Densidad (Ind.ha^{-1})	Metodología	Referencia
Bahamas (Exuma Cays) Banco protegido	53,6	TLV	Stoner y Ray (1996)
Belice *	14,6	TLV	Appeldoorn y Rolke (1996)
Cuba Cabo Cruz Diego Pérez	 560 - 750 4520 – 5240	Transectos de 2 * 100 m	Alcolado (1976)
Puerto Rico Costa Oeste *	 8,5	TLV	Mateo (1997)
Turks y Caicos	237	Transectos de 2.44*180 m	Hesse (1979)
Venezuela (General) Nororiente Sur- suroeste	18,8 34,7 52,3	TLV	Schweiser y Posada (2002)
Colombia (Archipiélago Nuestra Señora del Rosario)	Época seca: 3,7 Época lluvia: 4	Circunferencia de 20 m de radio	Gómez *et al.* (2007)
Serrana Roncador Quitasueño	273 46,3 11,6	4 transectos de 30 * 8 m en cada estación de muestreo	Appeldoorn *et al.* (2003)
San Andrés Bolívar Alburquerque	14,5 9,3 8,2	4 transectos de 30 * 8 m en cada estación de muestreo	Forbes (2011)
Serrana Roncador Quitasueño	286,6 222,2 115,0	4 transectos de 30 * 8 m en cada estación de muestreo	Castro *et al.* (2011)
Providencia Isla PNN Old Providence	6,79 6,79	4 transectos de 30 * 8 m en cada estación de muestreo	Informe Técnico Gob. y Unal.
San Andrés Bolívar Alburquerque	51,8 7,1 29,5	4 transectos de 30 * 8 m en cada estación de muestreo	Archbold *et al.* (2013)

Informe de Cuba sobre el estatus el manejo del caracol rosado

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Estadísticas.

Las capturas de Cuba están referidas a peso de animal entero en su concha.
Factores de conversión.

- Masa sin proceso, factor de conversión 7.
- Masa desembarcada postcaptura.
- Masa semilimpia sin vísceras y sin manto factor de conversión 13,5.
- Masa 85 % limpia, factor de conversión 17,6.
- Masa 100 % limpia, factor de conversión 23.3.

Sistema de recolección de datos.

- Recolección diaria de los datos del peso de masa desembarcada y estimación de la captura del animal vivo en cada una de las Empresas Pesqueras que explotan este recurso, durante toda la campaña de pesca.

Política y Legislación.

- Regulaciones pesqueras establecidas
    - Talla mínima legal (TML) de captura (Cumplir ambas)
    - Amplitud del Labio de la Concha (AL) es superior a los 8mm.
    - Longitud Sifonal (LS) ó Total (LT) de la Concha, mayor a los 200mm**.**
    - Veda total del 1 de Mayo hasta 30 de Septiembre.
    - Pesca bajo cuotas por cada sitio dentro de cada zona.
    - Detener las pesquerías una vez alcanzada las cuota de captura asignada a un sitio.
    - Pesca a pulmón. No se permite el uso compresores o balones de aire comprimido
    - Limitar la pesca a profundidades entre 3 y hasta 10 m, lo que garantiza la no presencia de juveniles.

Estricto control por parte de los inspectores pesqueros para dar cumplimiento a las regulaciones establecidas sobre este recurso.

Las cuotas de captura son estimadas por el Centro de Investigaciones Pesqueras por sitios y zonas de pesca, Los resultados son enviados a Autoridad Administrativa CITES en Cuba (C.I.C.A.), perteneciente al Ministerio de Ciencia Tecnología y Medio Ambiente quienes emiten los Permisos de captura y cupos de exportación mediante Licencia ambiental por resolución, la que es enviada a Dirección de Ciencia y Regulaciones Pesqueras Ministerio de la Industria Alimentaria para hacerla llegar a las empresas pesqueras correspondientes

Actividades de ordenamiento y conservación de la pesquería.
El cobo se captura sobre cuotas estimadas en base a monitoreo anuales realizados por el Centro de Investigaciones Pesqueras de Cuba en cada sitio y zona de pesca, de acuerdo a parámetros biológicos y poblacionales encontrados en cada prospección.

Consumo y Comercialización
En Cuba no existe un hábito de consumo de esta especie por nuestra población, por lo que las producciones son destinadas a la exportación y al mercado interno para el turismo.

Investigación y evaluación de la población
En todos los sitios y zonas de pesca del cobo en nuestro país se realizan estudios de población para la estimación de las cuotas de captura. También se desarrollan trabajos sobre cómo mejorar la calidad del producto final e indicadores industriales, los cuales son realizados por investigadores del Centro de Investigaciones Pesqueras (CIP)

Informe Nacional Sobre la Pesquería del Lambí *(Strombus gigas)*, En la República Dominicana.

Introducción.

República Dominicana cuenta con 1.575 kilómetros de costa, compartidos con el mar Caribe y el Océano Atlántico. Su plataforma insular puede llegar a los 180 metros de profundidad, incluyendo los bancos sumergidos, contenidos en 11, 786 km cuadrados (PRODESPE, 1980). Amparada en la ley 573 del 1ero de abril del 1977 sobre mar territorial, la zona económica exclusiva se extiende un aproximado de 238,000 km.

El ambiente marino incluye praderas de hierbas marinas, ocupando unas 13 mil hectáreas, Arrecifes coralinos, fondos arenosos y fangosos, además de zonas de manglares, playas arenosas y costas rocosas.

Los Principales Recursos pesqueros en el país, son la Langosta espinosa, *P.argus,* lambí, *S.gigas,* además de peces Demersales y Pelágicos.

El S*trombus gigas,* es la única especie de este género con importante valor comercial en toda la región del Caribe, y según los datos del CODPESCA y anterior Departamento de Recursos Pesqueros, señala al lambí como una de las especies pesqueras más importantes del país.

Su captura se reporta desde 1968, Bonelly de Calventi (1977,1986) señala un aumento progresivo de este molusco desde esa época. PRODESPE (1981) reporta capturas importantes en Pedernales, Isla beta y el Banco de la Plata. Gómez Mena (1972), Díaz Carela (1977), e infante y Silva (1992), reportan aspectos de la pesquería de este molusco. Colom *et al* (1990), además de Infante y Silva (1991) realizaron análisis de captura del lambí, registrando además el volumen de su captura.
Silva (1991) Registra las principales especies marinas que componen las pesquerías Dominicanas, citando 4 especies de *Strombidos,* en la que el *Strombus gigas* ocupa el 95% de captura total de este grupo.

Appeldoorn (1993), Tejada (1992, 1995), Posada et, al.(1998), Mateo y Nemeth (2001), realizaron estudios y diagnósticos específicos de los aspectos poblacionales del *Strombus gigas,* en las locaciones de Parque Nacional Jaragua en la década de los años 90.

Mateo (2001 y 2004) inventario la actividad pesquera de en las comunidades de Mano Juan, Catunao y Bayahibe, en la zona del Parque Nacional del Este, además de realizar un estudio socio-económico de las pesquerías de lambí y la langosta en el Parque Nacional Jaragua.

Debido a un crecimiento de la población humana y una mejora en los precios creado por los mercados de exportación en los últimos 25 años, incentivo un crecimiento desproporcional del esfuerzo pesquero destinado a la captura del Lambí en toda la región del Caribe y por consiguiente una reducción en las densidades poblacionales del lambí.
Es por lo que 1992 la especie se incluyo en el apéndice II de CITES, y bajo este amparo en el 2003 fue puesta una moratoria de exportación a la República Dominicana, por mostrar indicios de extracciones perjudiciales del lamba. Dicha Moratoria continúan vigente.

Descripción de La Pesquería.

La pesquería en general esta poco organizada, pese que se ha mejorado desde el 2008, con la creación del CODOPESCA, con el inicio de los procesos de licencias a los pescadores y embarcaciones. Las faenas pesqueras se realizan normalmente en llanos arréciales y praderas de hiervas marinas, a profundidades que oscilan entre los 15 a 200 pies usando pequeñas embarcaciones de 10 a 20 pies de eslora.

El número de embarcaciones que se concentran en la captura de organismos demersales y bentónicos en las que se incluye el lambí, para el 2011 la flota estaba compuesta por 37 embarcaciones entre 7 y 25 metros, con un promedio de 20 embarcaciones auxiliares de 20 pies de eslora.

Actualmente la base de datos del CODOPESCA refleja un total 3,800 pequeñas embarcaciones, al 2011, estas entre 10 a 35 pies de eslora, fabricada de diversos materiales, como la madera y la fibra de vidrio, y una población de pescadores marinos de 8,175 diseminado por toda la geografía nacional. Pese a esto no se ha logrado establecer el número de pescadores que se dedican exclusivamente a la captura del lambí, ya que la pesquería en general son artesanales y multiespecíficas.

Los artes y métodos de captura del *Strombus gigas*, están concentrados en la utilización del buceo a pulmón y utilizando compresores. El buceo a pulmón está compuesto por un buzo y un ayudante que opera desde una embarcación con motor y/o remos, que solo requiere las habilidades del pescador. El uso de compresor está compuesto en algunas ocasiones por un buzo y 2 ayudantes y otras con un solo ayudante o aguantero.

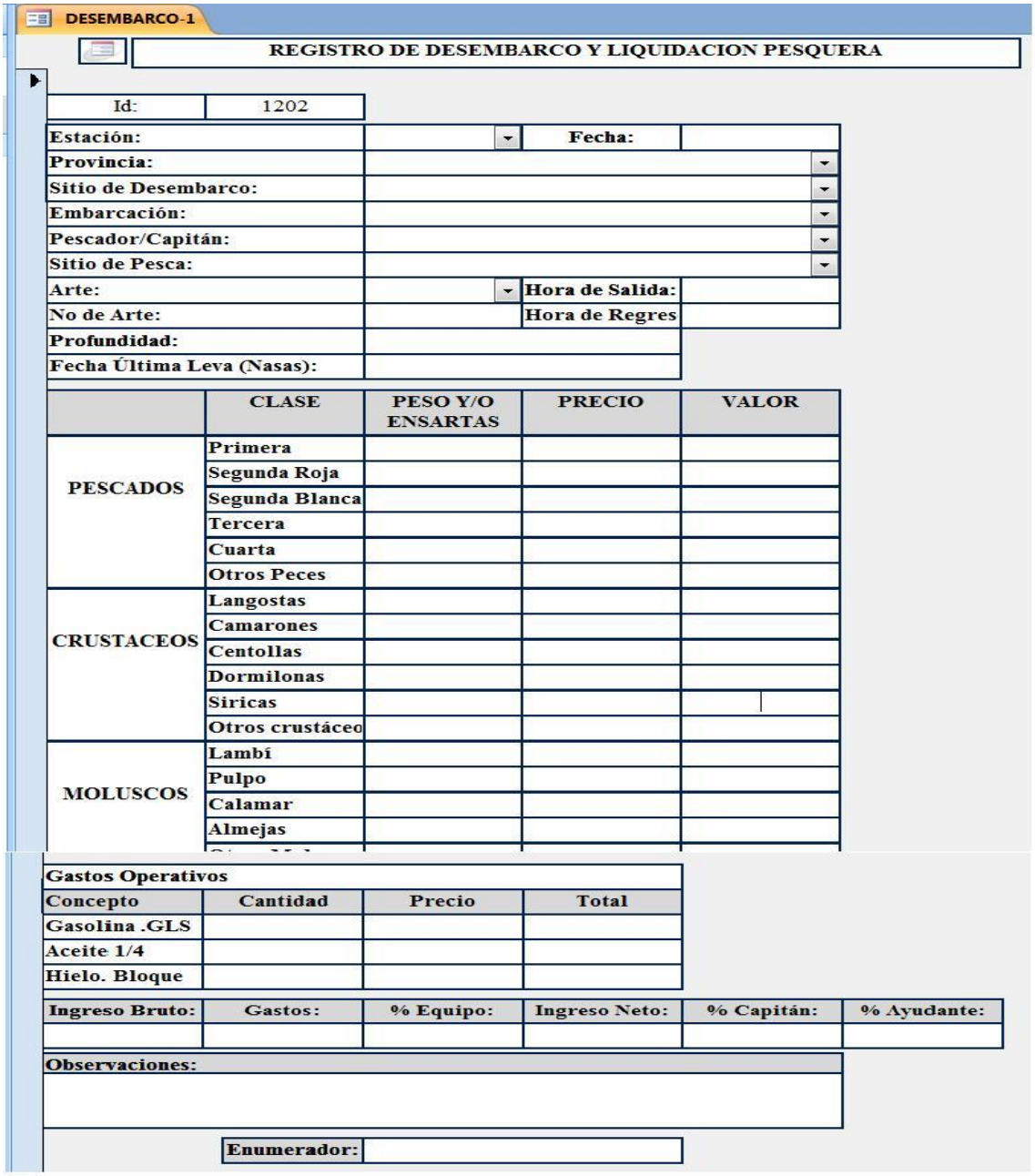
Las herramientas y equipos necesarios para el buceo, son el arpón, caretas, chapaletas, sacos, ganchos, un diafragma si es a compresor y esnorquel si es a pulmón.

Las faenas se realizan desde 15 pies en delante de pendiendo el método y equipo a utilizar, ya que los buzos a pulmón están limitados a unos 35 pies a diferencias de los que utilizan el compresor, que pueden baja a profundidades hasta de 200 pies.

Colecta de Datos.
Actualmente se observa una mejora en el levantamiento de la información, ya que desde la integración del CODPESCA, como autoridad pesquera nacional, se ha desarrollado un sistema de colecta de datos, en 164 puntos de desembarcos distribuidos en todo el territorio nacional; mediante el uso de un registro de Desembarcos y Liquidación pesquera, el personal designado por el CODOPESCA para tales fines, realiza entrevistas in-situ a los pescadores, requiriendo informaciones pertinente sobre las distintas pesquerías, incluyendo la del lambí. Dicha activad inicia en horas tempranas del día, en las que se realiza los desembarcos. La información pertinente es introducida en dicho formulario, refriere al tiempo de inicio y término de la jornada, tipo de embarcación, arte de pesca y sus componentes, lugares donde se realiza la pesca, profundidad volúmenes de captura y los aspectos logísticos de la pesca, es decir los costos de la jornada y los beneficios que esta genera.

Análisis de la información.
La información obtenida es introducida en una base de datos (Access), y luego pasada a Microsoft Excel, donde se somete a análisis las distintas pesquerías monitoreadas, incluyendo la ejercida al Lambí. Entro los resultados que se obtienen, están el peso total de la captura registrada, el esfuerzo realizado de cada lugar muestreado, que permite determinar

el índice de CPUE de cada lugar muestreado, además permite la estimación de la producción pesquera, y la valoración económica del recurso.
En el caso del lambí, todavía no se ha podido cuantificar y verificar los volúmenes de captura de este recurso proviene de la pesca ilegal, pese a un descenso sustancial en términos de esfuerzo y captura registrada.
Otros aspectos que el levantamiento de datos, no permite su identificación y analis es la determinación del esfuerzo dirigido a la captura del *Strombus gigas*, además de los sitios de pesca de este molusco, pese a que se realizo un censo en el 2003, de estos lugares, los mismos no están oficialmente identificados como zonas de explotación del Lambí.



DESEMBARCO-1

REGISTRO DE DESEMBARCO Y LIQUIDACION PESQUERA

Id:	1202		
Estación:		Fecha:	
Provincia:			
Sitio de Desembarco:			
Embarcación:			
Pescador/Capitán:			
Sitio de Pesca:			
Arte:		Hora de Salida:	
No de Arte:		Hora de Regres	
Profundidad:			
Fecha Última Leva (Nasas):			

	CLASE	PESO Y/O ENSARTAS	PRECIO	VALOR
PESCADOS	Primera			
	Segunda Roja			
	Segunda Blanca			
	Tercera			
	Cuarta			
	Otros Peces			
CRUSTACEOS	Langostas			
	Camarones			
	Centollas			
	Dormilonas			
	Siricas			
	Otros crustáceo			
MOLUSCOS	Lambí			
	Pulpo			
	Calamar			
	Almejas			

Gastos Operativos

Concepto	Cantidad	Precio	Total
Gasolina .GLS			
Aceite 1/4			
Hielo. Bloque			

Ingreso Bruto:	Gastos:	% Equipo:	Ingreso Neto:	% Capitán:	% Ayudante:

Observaciones:

Enumerador:

Estado de la explotación
La pesquería del lambí ha siso muy intensa en los 30 años, con un incremento del esfuerzo, incentivado por el crecimiento de la demanda de los mercados internacionales, trajo como consecuencia un crecimiento en los volúmenes de captura del Caracol Reyna al inicio de la

década del 2000, lo que obligo a las autoridades del CITES, interponer una moratoria de exportación hacia los mercados internacionales a varios países , incluyendo a la República Dominicana, en el año 2003, proponiendo recomendaciones a corto y a mediano plazo, para dar un uso sostenible del Caracol Rosado.

Además de la moratoria de exportación, CITES recomendó realizar investigaciones para evaluar el estado de las poblaciones de este recurso en el país. Se estableció un sistema de monitoreo y recolección de datos de captura. Es entonces que el año 2005, la entonces Dirección de Recursos Pesqueros, perteneciente al Ministerio de Medio Ambiente, en coordinación con CRFM y el apoyo de la NOAA, se inicio un proyecto de manejo del recurso, realizando un inventario sub acuático de las poblaciones del *S.gigas* en las zonas de el Parque Nacional Jaragua y del Este, estos en la zona del Mar Caribe. Los resultados preliminares muestran indicios de sobre explotación en los Stocks someros de lambí, en estas zonas. Cabe destacar que desde esa época no se han logrado realizar más estudios, por falta de recursos económicos, ya que nuestro persiste una crisis económica que limita el presupuesto para las investigaciones, además de las dificultades a acceder a fondos internacionales. En ese sentido en año 2011, el CODOPESCA elaboró que un perfil de proyecto sobre *Strombus gigas y* lo sometió a la secretaria CITES, a través de la Comisión Centroamericana de Ambiente y Desarrollo (CCAD), sin haber obtenido ninguna respuesta.

Pese a esto y a partir de la entrada en vigencia de la moratoria de exportación, la que aun está vigente, las capturas y el esfuerzo dirigido al *S.gigas* observan descensos importantes, reportando volúmenes de captura para los años del 2009 al 2011, de 368, 19.5 y 359 Tm, respectivamente.

Producción estimada de S. gigas para el periodo 2008-13

NOMBRE CIENTÍFICO	NOMBRE ESPAÑOL FAO	2008	2009	2010	2011	2012	2013
Strombus spp	Cobos nep (lambí)	1,634	2,278	2,564	1,870	2,187	2,218

Captura observada 2009-13

Provincia	Sitio de Desembarco	2009	2010	2011	2012	2013
Azua	Puerto viejo	-		7		
Barahona	Punta Inglesa	313	62	27		
Barahona	Caimán	-	292	74		
Barahona	Guarocuya	-	3	66		
Barahona	Los Coquitos	-	42			
Barahona	El cayo	-		2		
El Seibó	Los mameyes	203	222	49		
El Seibó	Rio yeguada	-		18		
Hato Mayor	Sabana de la Mar	37.950		1.591		25.363
Hato Mayor	Las Cañitas	-		1.364		
La Altagracia	Boca de Yuma	512	61	293		
La Altagracia	Juanillo	-	1.033	1.474		

La Altagracia	Cabeza de Toro	-		114		
La Romana	La Caleta	1.816	2.837	1.669		1800
La Romana	Bayahibe	-		9		
Monte Cristi	El embarcadero	349	-			
Monte Cristi	Los japoneses	236	30	878	1.444	
Monte Cristi	Playa de Buen Hombre	283	19	109		
Monte Cristi	Playa mi Popa	8	68	3		
Pedernales	El Can	6.590	4.698	4.457		
Pedernales	Playa Cabo Rojo	631	147	525		
Pedernales	Playa La Cueva	415	97	415		
Pedernales	Playa Pedernales	6.948	2.955	15.062	11.037	
Pedernales	Juancho		4.459			
Pedernales	Playa Trudillé	201	454	18		
Puerto plata	El Muelle de Luperon	13	81	2.731		
Puerto plata	Guzmán	6				
Puerto plata	La Ensenada	400	465	39		
Puerto plata	Muelle de Puerto Plata	311.000	779.279	327.955	482.236	587.352
Puerto plata	Playa El Castillo	65	1			
Puerto plata	Punta Rusia	388	555	48		254
Puerto plata	El pato	-	111	14		
Peravia	Matanzas	-	15	14		
San Cristóbal	Palenque	-				
Totales		368.327	798.850	359.023	494.717	

Marco jurídico y políticas pesqueras para *Strombus gigas*

La legislación vigente de manejo para el recurso lambí en la República Dominicana está contenida en la ley 307 del 15 de diciembre del 2004, que crea el Consejo Dominicano de la Pesca y la Acuicultura (CODOPESCA), en la que expresa en algunos de sus articulados las regulaciones generales para el uso del recurso Lambí; como son los artículos:

Art. 46 Queda prohibida la explotación no autorizada de todos los recursos biológicos acuáticos, tanto marinos como. Lacustres, así como de aquellos que gozan de protección legal en la República Dominicana o en virtud de convenios internacionales en los que el país es signatario y de los que el CODOPESCA pueda emitir por resolución en virtud de esta ley.

Art. 57.- El CODOPESCA determinará las limitaciones de captura o extracción del lambí (*Strombus gigas*) por tamaño y/o peso de la carne y época de reproducción.

Art. 58.- Queda prohibida la captura de los juveniles de *Strombus gigas* denominados futay y cotorrón.

Art. 59.- Se prohíbe la posesión, procesamiento y comercialización de los ejemplares de lambí cuyo peso sea menor de 227 gramos de carne (0,5 libras) y/o menos de 20cm. de longitud desde el ápice al canal sifonal de su concha.

Otras mediadas existentes es el decreto 499-09 del 7 de julio del 2009, que establece lo siguiente:

Establece:

1) Una veda nacional y estacional del 1º de julio al 31 de octubre de cada año.
2) Prohíbe la captura y comercialización de la carne durante el período mencionado.
3) Talla de captura de 180 mm de longitud de concha (longitud total)
4) Pesca prohibida en Canal de Catuano (Parque Nacional del Este) y en isla de Alto Velo (Parque Nacional Jaragua).

Comercialización

Debido a la moratoria de exportación de lambí, desde el año 2003, este solo se está comercializando en el mercado local, compuesto por el turismo y consumidores locales.
El mismo se vende en distinto grados de de elaboración, pese a que ya no existe una industria para su procesado, se le observa en las grandes cadenas de supermercados entero o sucio en la mayoría de las veces, 75% de fileteado y menor cuantía 100% fileteado. En el caso del comercio turismo este es ofertado entero, para su posterior procesado en sus cocinas.

Es por ellos, que se carece de una información fiable que permita tener una idea clara, de cuanto es la pérdida de peso promedio por el quitado de tejido en la elaboración y poder aplicar los modelos disponibles para los factores de conversión, que permita estimar la relación carne procesada y la concha del caracol.

Actualmente se está abordando una estrategia dirigida a motivar el comercio y consumo responsable, coordinando acciones con ONG, empresarios pesqueros y sociedad civil, utilizando distintas vías de comunicación y divulgación como las redes sociales, radio ,televisión, prensa escrita, posters entre otros., que sirve como medios de sensibilización y denuncias al comercio ilegal.

Conclusiones.
La pesquería del Caracol Rosado (*Strombus gigas*) continua con problemas de organización, ya que el esfuerzo sigue concentrado en zonas someras y el continuo uso del compresor han influido en una disminución del recurso.

Pese a que el país, por medio a el CODOPESCA ha firmado convenio de entendimiento con diversos organismos regionales, como el OSPESCA, y el fortalecimiento del marco legal vigente, donde se abordan temas como la erradicación del uso del compresor y equipos de buceo (Scuba), para la pesca del Lambí. Se requiere mayores esfuerzos a nivel local para la ejecución de estas regulaciones.

Es indispensable lograr el cumplimiento de las regulaciones vigentes contenidas en la Ley 307 del 2004, que regula y ordena la pesca de República Dominicana, donde regulariza la pesca de juveniles del lambí, mediante talla mínima, establece zonas de exclusión pesquera para el Caracol reina, además de la aplicación de vedas estacionales.

Para lograr mejorías en las acciones de monitoreo, control y vigilancia, es primordial enfrentar los problemas que aún persiste en el sistema, hoy CODOPESCA, como el número limitado personal técnico, la falta de recursos para la capacitación del personal de campo, como los oficiales de pesca, la falta de apoyo logístico, para los trabajos continuos de las distintas pesquerías, como son el levantamiento de información y la aplicación de las distintas regulaciones.
Es de vital concluir y ampliar los estudios sobre densidad de poblaciones en los bancos de pesca más importantes y poder determinar la situación de la especie y poder emitir un informe de extracción.

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Grenada queen conch summary report

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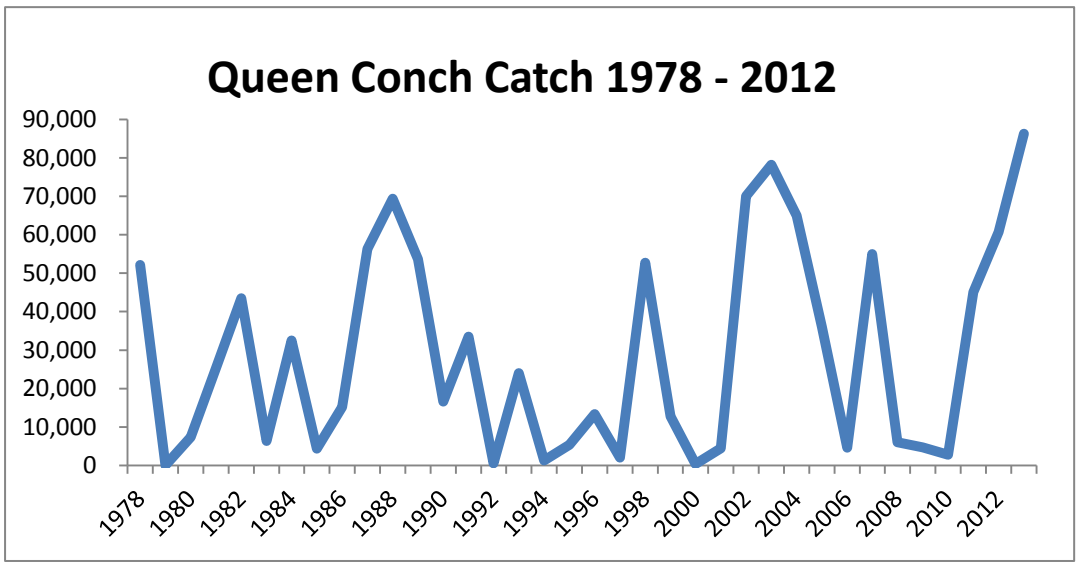
1. Statistics

1.1. Annual Catch Statistics

The current catch statistics reported in the FAO capture database for Grenada are accurate and up to date. The figure indicated in the catch data represents the dirty meat weight (i.e. shell and digestive gland removed) of conch landed.

Figure 1 Historic catch data for Queen Conch for Grenada 1978 - 2012



1.2. Conversion Factors

Grenada does not employ a conversion factor for conch. Conchs are proceed to 50% clean (i.e. mantle skirt and digestive gland removes) and are sold locally or export at that stage of processing.

1.3. Data Collection System

Conchs are primarily fished on the Eastern Coast of the island of Grenada from the communities of Calliste, Woburn and Petite Bacaye and around the islands of the Grenadines from the communities of Hillsborough and Bogles. Nationally, queen conch catch figures are recorded by designated fisheries data collect clerks at all the formal landing sights with the Grenville, Melville Street and Carriacou Fish Markets being the most frequently utilized sites. However, conch are frequently not brought to a landing site where data is collected, rather they are sold directly to restaurants, supermarkets, hotels and the general public. Conchs in Grenada are typically brought to the landing site as dirty meat (i.e. shell and digestive gland removed) at which point their weights are recorded.

2. Policy and Legislation

Grenada Fisheries Regulations Statutory Rules and Order # 24 of 1996 stipulates that:

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1. No person shall take, sell, purchase or have in his/her possession any "immature conch". Where immature is defined as:
   a. A conch with a shell smaller that 18cm (9¼ inches) in length
   b. A conch that does not have a flared lip
   c. A conch with total meat weight of less than 225 g (8 ounces) after removal of the digestive gland.
2. The Minister may by Notice published in the *Gazette* and in a newspaper printed or circulated in the State declare any period as a closed season for conch.

Although the regulation have made provision for the Minister to declare a closed season for conch, since this legislation has come into effect that has not been any instances where this provision has been utilized.

The above-mentioned Fisheries Legislations are actively enforced by various national law enforcement agencies (i.e. Police, Customs, Coast Guard and Fisheries Enforcement Officers) and in exigent circumstances; the Minister with the responsibilities for Fisheries may designate any additional persons.

3. Fisheries Management and Conservation Activities

In 2001, Grenada enacted Statutory Rules and Order (SRO) # 77 titled the "Fisheries (Marine Protected Areas) Order" which saw the formal establishment of three (3) Marine Protected Areas (MPAs); namely, Woburn/Clarks Court Bay Marine Protected Area, Molinière/Beauséjour Marine Protected Area and Sandy Island/Oyster Bed Marine Protected Area. These three MPAs are all multi-use protected area; however, conchs are fully protected within their boundaries. In addition the protection from physical extraction, the MPAs also protect habitats (e.g. seagrass bed and sandy lagoons) that are critically important for the different ontogenetic stages of the conch life history.

4. Consumption and Trade

4.1. Domestic

Over the past eleven years, 2002 to 2012 approximately one hundred and seventy five metric tons (175MT) of conch valued at just under One Million Nine Hundred Thousand Eastern Caribbean Dollars (i.e. XCD $1,854,214.25) was consumed locally. This figure accounts for a per capita consumption rate of approximately 0.16 kg/year.

4.2. Export

During that same period (i.e. 2002-2012) conch valued at just under Three Million Three Hundred Thousand Eastern Caribbean Dollars (i.e. XCD $3,275,714.58) was exported to markets in other Caribbean countries (e.g. St. Lucia and the French Territories), along with the USA and Canada. There is a deficiency in the data on the amount of conch that was exported for five years; how the value of the export was recorded. Given the variation in the price fro year to year, it is therefore impossible to extrapolate the exact quantity.

5. Research and Stock Assessment

The Grenada Fisheries Division undertook a formal queen conch stock assessment in the 1990s as part of the Caribbean Fisheries Resource Assessment and Management Program (CFRAMP); however, the analysis of the data was incomplete as the dataset was too large for the available software. Aside from this attempt, there has not been any systemic data been collected on biological components of the stock (e.g. reproduction or diseases).

Despite this fact, the fisheries division has made it a priority to include conch stock assessment as part of the biophysical monitoring program that are conducted within all existing MPAs as well as part of the baseline surveys that are conducted as part of the planning process for the

establishment of new MPAs. Outside of MPAs, the division is also in the planning stages for the execution of a comprehensive national fisheries independent conch stock assessment. The assessment is intended to provide information on the current status of conch stock and ultimately to direct the establishment of appropriate harvest control rules (HCRs).

6. Non-Detrimental Findings

Currently, Grenada depends exclusively on fisheries catch data for conch as the only indicator that is utilized to manage the fishery. This practice is proving to be problematic as there are deficits in the data collecting as statistically significant quantities of conch are landed at secondary (i.e. non-market) landing sites where data collection is minimal and in some cases absent. Another deficiency that has emerged is the fact that "catches per unit effort" (CPUE) data is not collected, which could be utilized as a proxy indicator for the availability of conch.

In order to combat these deficiencies, the fisheries division has taken the precautionary approach to the management of the fishery by protecting critically important habitats where conch have historically utilize within MPAs to ensure replenishment of fished stocks. The division is also about to undertake a comprehensive fisheries independent stock assessment to determine the status of existing stocks, which would guide the establishment of appropriate management measures (i.e. HCRs, seasons, size limits etc.) and assist in the development of non-detrimental findings for the fishery.

However, based on local knowledge generated from fishers, it appears that the status of the stock is in relatively healthy condition throughout its range within the fishery waters of Grenada. Nonetheless, the proposed surveys and assessments would confirm this finding.

Annex 1

Queen Conch (*Strombus gigas*) Landings and Export Data

Grenada: Total Conch Catch Data

Year	Quantity (lbs)	Value (XCD)
2002	70,049	$277,471.25
2003	78,155	$326,872.00
2004	64,943	$289,231.25
2005	35,980	$209,392.75
2006	4618	$27,709.50
2007	55,000	$299,000.00
2008	6,002.50	$36,015.00
2009	4,695.25	$26,771.50
2010	2,794.75	$11,593.75
2011	40,983.25	$159,881.75
2012	60,719.58	$370,399.31
Total	**423,940**	**$2,034,338.06**

Grenada: Total Conch Export Data

Year	Quantity (lbs)	Value (XCD)
2002	-	$280,213.98
2003	4,973	$402,557.92
2004	3,558	$417,444.00
2005	-	$495,413.76
2006	-	$466,187.71
2007	-	$334,111.60
2008	-	$399,986.62
2009	1,094	$421,209.00
2010	3,525	$29,400.00
2011	5,012.00	$25,690.00
2012	18,975.00	$3,500.00
Total*	**37,137**	**$3,275,714.58**

REPORTE NACIONAL DEL ESTADO DE LA PESQUERIA DEL CARACOL REINA (*Strombus gigas*) EN HONDURAS

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1. Estadisticas: Capturas anuales, sistema de colecta de datos.

Hasta el 2013 se estuvo realizando los trabajos destinados a colectar la informacion cientifica para el desarrollo de metodologias para la evaluacion efectiva de las poblaciones del caracol en Honduras.

Los informes del estudio fueron desde el 2006 al 2013, con excepcio del 2008, que no hubieron muestreos. Los reportes presentan la informacion sobre las areas de muestreo y del esfuerzo pesquero y la captura experimental con una cuota anual aprobada por CITES dentro del marco del Plan de Investigacion establecido en el Convenio entre la CITES y el Gobierno de Honduras firmado en la Reunion de Santo Domingo, Republica Dominicana, en Diciembre de 2005.

El convenio establece la suspension total o moratoria de las capturas y venta local o de exportacion de Strombus gigas hasta cuando no se entienda en forma inequivoca la forma en que se deba determinar la cuota que Honduras deba declarar anualmente a la CITES como recomendación que asegure que dicha cuota no es detrimental a la supervivencia de la especie.

La CITES aprobo que Honduras contara con una cuota anual de 210 toneladas metricas de producto 100% limpio con el proposito de realizar los estudios que lleven a la consecucion del conocimiento que permitira a largo plazo determinar dichas cuotas en la forma convenida.

En el ultimo reporte efectuado para el estudio fue realizado en el 2013 se realizaron cinco cruceros exploratorios y de pesca entre los meses de abril y septiembre con la participacion de 6 embarcaciones asignadas por el Gobierno de Honduras.

Muestras biologicas

Se recolectaron muestras biologicas de caracol de dos tipos: enteras y limpias. Las enteras son especimenes completos (concha y carne) sin ningun tipo de manipulacion mientras que las muestras limpias son el musculo o carne sin ninguna otra clase de tejido o viscera adjunta.
El total de muestras enteras recolectadas fue de 3,526 especimenes de caracol y de 10, 323 muestras limpias de caracol.

2. Politica y Legislacion

La Secretaria de Estado de los Despachos de Agricultura y Ganaderia a traves de la Direccion General de Pesca y Acuicultura (DIGEPESCA), es la autoridad superior en materia de pesca y sus conexos, pudiendo dictar medidas, fijar epocas de veda y demas requisitos necesarios para el aprovechamiento sostenible de los recursos hidrobiologicos en aguas jurisdiccionales del pais.

La SAG reconoce que es utilidad y necesidad publica, el aprovechamiento sostenible y la conservacion de los recursos pesqueros y acuicolas del Estado de Honduras.

Considera que el establecimiento de una de las medidas de ordenacion como son los periodos de veda es una medida que contribuye a la recuperacion de algunas especies sujetas a explotacion, y a la vez, permite que la reproduccion de sus poblaciones se efectue de forma natural.

Que el Codigo de Conducta para la Pesca Responsable de la FAO establece principios, de conformidad con las Normas del Derecho Internacional pertinentes, para que la pesca y las actividades relacionadas con la pesca, se lleven a cabo de forma responsable, teniendo en cuenta todos los aspectos biologicos, tecnologicos, economicos, sociales, ambientales y comerciales.

Que sirve como instrumento de referencia para ayudar a los Estados a estableces o mejorar el marco juridico e institucional necesario para el ejercicio de la pesca responsable, a formular y aplicar las medidas apropiadas.

Honduras tiene el Reglamento de la Ley de Pesca vigente que establece el periodo de licenciameinto con el fin de agilizar los tramites administrativos.

Las pesquerias de camaron, langosta, caracol, concha reina, pepinos de mar y algunas especies de escama, son recursos transfronterizos de la Region Centroamericana y del Caribe, por lo que es necesario la armonizacion y unificacion de las regulaciones asi como es con los periodos de veda.

En Honduras la politica y legislacion pesquera esta regida por la Ley General de Pesca y Acuicultura de 1959 pero actualmente esta en la etapa final de aprobacion en el Congreso Nacional la nueva Ley de Pesca y Acuicultura que se espera sea publicada en el 2015.

Anualmente la SAG emite los Acuerdos Ministeriales de Veda para todas las especies de importancia comercial y establece los requerimientos de pesca de cada especie, en el caso del Caracol Rosado hay un articulo donde se califica como veda indefinida de *Strombus gigas*.

3. Actividades de Ordenamiento y conservacion de la pesqueria

Debido a que la pesqueria esta en un proceso de evaluacion continua la autoridad pesquera (DIGEPESCA) da seguimiento a todo el producto obtenido en las exploraciones pesqueras del Proyecto de Investigacion de Caracol Reina. Se han establecido mecanismos de control.

La coordinacion tecnica del proyecto genera una seria de documentos que sirven de garantia que el caracol es capturado por las embarcaciones participantes en la investigacion, los cuales son evaluados por diferentes Departamentos tecnicos y legales de DIGEPESCA y que forman parte de un expediente, donde se solicita a la SAG que se extienda el Certificado CITES para la exportacion de caracol.

Todos los documentos generados por el Proyecto de Investigacion y que se integran al tramite de los Certificados CITES de Exportacion son los siguientes: a) documento que hace constar la cantidad de libras de caracol capturadas por barco en cada crucero extendido por el biologo enlace nacional; b) Formato de control de ventas, enviado por las plantas empacadoras al enlace nacional, c) Factura de control extendida por el Enlace Nacional, d) Coordenadas reportadas por el sistema satelital de la baliza, e) Recibo de pago por concepto de aporte al Proyecto de Investigacion generado por la planta procesadora que administra el estudio.

Cuando se realiza la solicitud de Certificado CITES y llegado el expediente al Departamento de Investigacion y Transferencia de Tecnologia de la DIGEPESCA se solicita al biologo encargado de la coordinacion de las actividades de campo del proyecto, un informe descriptivo referente al caracol que es objeto de tramite. Asi mismo, el consultor internacional encargado de la investigacion emite un documento donde se refiere al informe sobre las actividades realizadas por el Proyecto. Los documentos son evaluados por el Departamento de Investigacion de DIGEPESCA.

4. Consumo y Comercializacion (Exportaciones)

En el ultimo informe se reportaron 458,418.11 libras de caracol 100% limpio del total de la cuota de exportacion declarada por el pais y aprobada por CITES de 462, 970.75 libras de caracol lo que equivale 210 toneladas metricas.

Las exportaciones se han hecho a traves de seis plantas procesadoras que forman parte del Convenio de Cooperacion con el Gobierno de Honduras donde se comprometen a cumplir con los lineamientos para la compra y venta del producto, asi como apoyar con la logistica necesaria para llevar a cabo las actividades de la investigacion.
Las exportaciones tuvieron cuatro destinos; el 76% a Estados Unidos, el 23% a Curacao y el 1% a Islas Caiman.

5. Conclusiones preliminares de las Investigaciones al 2013

De acuerdo a los informes recibidos por el consultor internacional que realizo los estudios; el Plan de Investigacion propuesto a la CITES por Honduras en diciembre de 2005 se ha implementado en 2006, 2009 al 2013. El plan de muestreo e investigacion ha consistido en exploraciones cientificas y pesca de corroboracion comercial en forma coincidente en tiempo y espacio con un nivel masivo de esfuerzo de pesca para asi lograr completar el rastreo de los caracoles en las areas de pesca propuestas por Honduras a la CITES.

En el estudio del 2013 concluyen que la distribucion de frecuencias de densidades experimentales en algunos bancos de pesca muestran que las poblaciones han disminuido considerablemente, por sobre un 25%, la frecuencia de estaciones de muestreo en donde no se encontro caracol y en otra zonas donde tradicionalmente se presentaban mayores densidades poblacionales disminuyeron significativamente. Se cree que algunas de las regiones estan siendo afectadas por la falta de control y vigilancia en esas zonas donde se dan casos de explotacion del recurso por otros actores.

6. Consideraciones Finales

Los estudios anteriores no han sido concluyentes y aun no se tiene definido cual es el estado actual de las poblaciones de caracol, asi la definicion de una cuota que permita un uso sostenible del recurso.

En el 2014 no se continuo con el estudio, porque esta siendo evaluado por otros cientificos todos los anios de investigacion que se llevaron hasta el 2013 solicitado por la industria en coordinacion con la SAG-DIGEPESCA.

Para el 2014 se solicito a CITES la cuota anual pero no se utilizo hasta no tener los resultados del analisis de la investigacion y poder seguir con el siguiente paso que sera la elaboracion del Plan de Manejo Pesquero para la Pesqueria del Caracol Reina (*Strombus gigas*).

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FRENCH WEST INDIES

French West Indies 2014 Queen Conch report

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1. Statistics : annual catches, conversion factors, and data collection system

a. Annual catch statistics

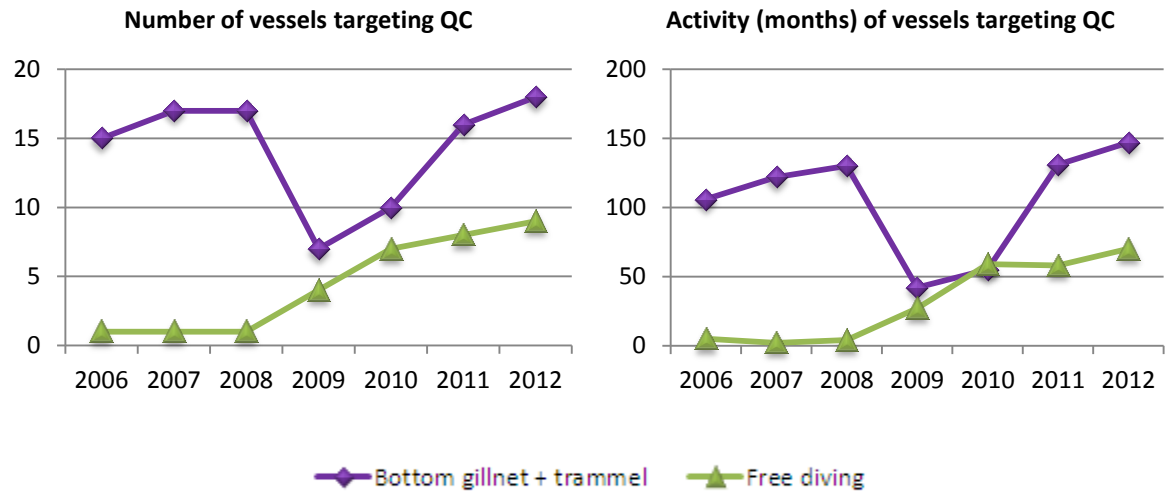
Table 1 : French West Indies catches of QC in the FAO Data Base (2006 - 2012)

Catch QC data in the FAO db (t)	2006	2007	2008	2009	2010	2011	2012
Guadeloupe	230	210	188	205	225	225	225
Martinique	50	42	34	25	25	25	25

(Source: FAO; origin: unknown)

In the FAO data base (table 1), the catches of Queen Conch (QC) are very high for Martinique and Guadeloupe and a lot more than it was ever estimate. The origin of these data is unknown.
Data collection systems were routinely implemented in the French West Indies in 2006. They collected data only on fleets and there activity during the first years. The catch and effort data collection start in 2008 in Guadeloupe and in 2009 in Martinique.
Three technics targeting QC are practiced by professional fishers in the French West Indies: free diving, trammel net and bottom gillnet.

Martinique



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Over the last years, nets and free diving have increased in the Queen Conch fishery. In seven years, the number of vessels using free diving increased considerably by 800%, comparing by nets use which increased by only 20% (figure 1). This evolution is in relation with an important recruitment of QC. Due to the small number of vessels in the QC fleet (27 vessels in 2012), the sampling rate does not allow for a relevant estimation of QC catches. In order to achieve this aim, it should be necessary to develop a specific sampling plan for QC.

In the figure 2 are presented the size (length and thickness) and weight (animal without shell) distributions, realized on a 210 animals sampling, collected in Martinique in October 2014. Animals are always longer than 215 mm, mainly thicker than 14 mm and weigh on average 500 g.

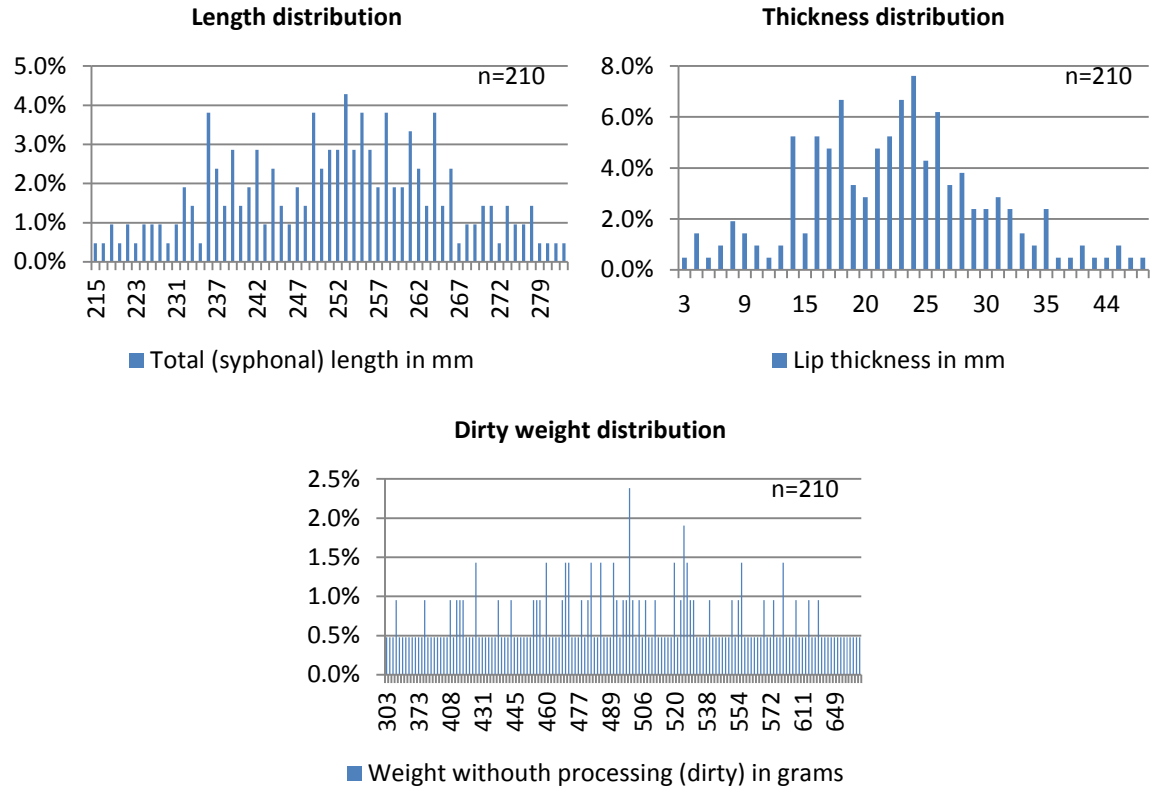

Figure 3 : Sizes and weight distribution of QC catches in Martinique (2014)

Different uses of Queen Conch animal are active in Martinique:

- Shells are used as decoration items by local population, also as garden backfilling and above all, by lime kilns. Most of the time, shells are given by fishers but they can also be sold around 0.02€ each for lime manufacturer. Before the industrial use of cement, there were 67 lime kilns listed in Martinique. Now, only 3 active lime kilns remain, used by a single fisher's family who wants to protect this historical endangered activity. In order to be operational, a lime kiln needs 1800 shells and can produce 1 ton of lime, packed in 10 to 20 kg bags and sold 1€/kg. Lime can be used by civil engineering, sugar cane industry and even by artists.
- Opercula are used by local crafts to design handmade jewelry and decoration items.
- Pearls are retailed by fishers to jewelry stores. As they purchased them without trade declaration, it is difficult to evaluate this market. For instance, a jewelry store

purchases 5 to 6 pearls a year from a Martinican fisher who collects the pearls from Saint Lucia and retails them 200 to 300€ each (but some pearls can be sold up to 3000€). In average, jewelry, like earrings or signet rings, can be sold up to 600€.

Guadeloupe

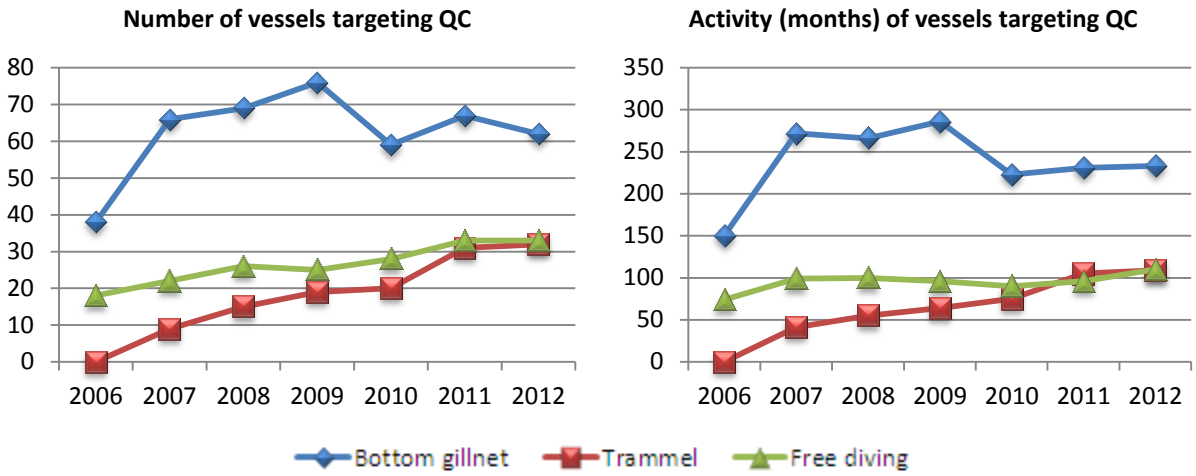

Figure 4 : Evolution of the QC fleets in Guadeloupe

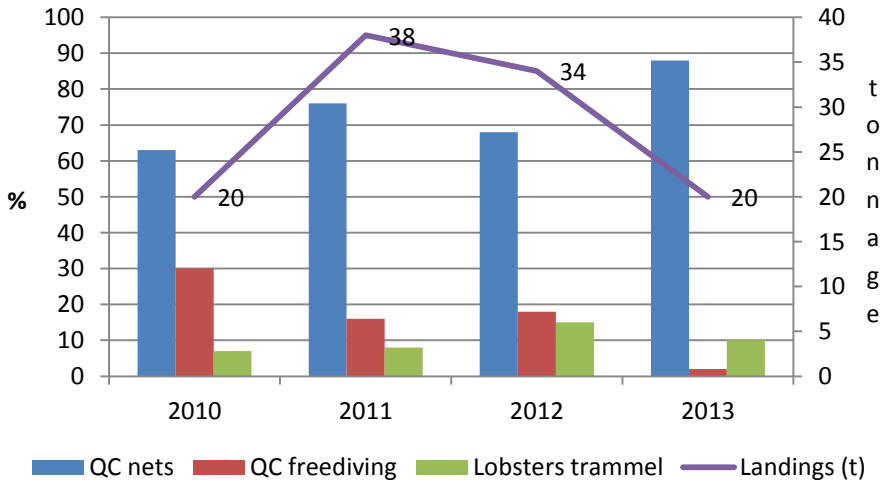

Figure 5 : Evolution of the QC landings per gear in Guadeloupe

As in Martinique, the number of vessels (+126%) and their activity are increasing during the last years. Trammel nets are slowly substituting bottom gillnets (figure 3). But more recently, the QC catches are decreasing. Free diving catches are the most impacted by this effect, giving more room for QC nets, on average, 75% of catches.

b. Conversion factors

Martinique

With the FAO/WECAFC support, IFREMER carried out a field survey in October 2014 on 210 animals. Queen Conch was directly collected with their shell to fishers. The sampling was made on three different days, in a period of one week. In the local processing grade, the visceral bag is removed but the operculum is not. So, animals had to be purchased to get data of the two missing processing grades: the 50% clean grade and the fillet.

With a sex ratio of 0.8 (1♂ : 1,2 ♀), the siphonal length average is 251 mm and the lip thickness average 23 mm. From the nominal weight, 82% of the animal is lost when the shell is removed, 88% for the "50% clean" grade (same rate for the local grade) and 93% for the fillet. The conversion factors are displayed table 2.

Table 2 : Conversion factors of different Queen Conch grades in Martinique (2014)

Processing grade	Description	Conversion factor applied to nominal weight
Nominal (live) weight	Complete animal, including the shell	
Without processing (dirty)	Animal without the shell	5.6
50 percent clean	Removal of the operculum and the visceral bag	8.6
100 percent clean (fillet)	Only white meat	15.0
Local grade	Removal of the visceral bag	8.4

c. Data collection system

Martinique

Since 2006, a fishery information system (FIS) designed by IFREMER, collects data in the French West Indies. With the help of four data collectors, to evaluate the number of fishing trips, phone surveys are conducted with captains, according to a stratified sampling with random draw selecting boats each week. Roughly 75 surveys on 1100 vessels are conducted each week, i.e. the sampling rate is around 6%. These surveys allow to reconstruct the activity of vessels for 7 days. Stratification is made on the basis of three criteria: the length of vessels, landing sites and fishing area (inshore *vs* offshore). The local production estimations are also made from phone surveys supplemented by observations and biological sampling from the main landing sites.

Guadeloupe

Compare to Martinique, the FIS methods used in Guadeloupe are different. Indeed, the number of fishing trips is calculated from the complete knowledge of individual consumption of fuel and the calendar of activity of each vessel.
Furthermore, a simple random sample of the main ports, made from Monday to Friday, allows assessing the average catch per fishing trip. These samples are supplemented by fishers' landing declarations with phone surveys.

Saint Bartholomew

A specific fishery information system has been implemented for the first time in 2014 on the island (not include in the Guadeloupean FIS data as previously). Surveys are conducted by the technical unit of the Natural Reserve, *l'Agence Territoriale de l'Environnement*. The

Queen Conch fleet includes two vessels using free divers and five vessels using nets. Free divers can catch up to 900 individuals by fishing trip. They are especially active at the end of the season or after strong swell conditions (when the conchs are easier to catch). Nets are set from 20 to 25 meters of depth, 600-750 m long, during three days and can catch up to 30 to 80 kg.

Policy and Legislation

Martinique

The Queen Conch fishing is regulated by law (decree n°99.4296 of 29/12/1999). The catch of juveniles, auricle unformed or cleaned meat weight under 250 grams, by professional and recreational fishers, is forbidden. Recreational fishers are allowed to catch only three individuals per person and per day. A new regulation is under discussion, between *la Direction de la Mer* (territorial administration) and *le Comité Régional des Pêches* (fishers representatives), to ban trammel net and implement a close season between April 1st and August 31th. Fishing with scuba diving is ban for all species including queen conch.

Guadeloupe

The decree n°2002-1249 of 19/08/2002 allows only professional fishing and forbids the catch of juveniles. Queen Conch can be retailed only if the total weight cleaned meat can be estimated to a minimum of 250 grams per individual. It is also forbidden to catch and sell conchs from January 1 to September 30 up to 25 meters of depth and from February 1 to September 30 beyond 25 meters of depth. Also, scuba diving is not allowed,.

Saint Bartholomew

So far, the island is under the guadeloupean fishery legislation with a specific close season from February 1 to August 31 (the French part of Saint Martin is also concerned). But from 1st January 2015, an independent legislation will take place and brings these following amendments:

- Queen Conch fishery is forbidden from April 1 to September 30 included ;
- Bottom gillnets is forbidden from February 1 to August 31 included ;
- Minimal mesh size: 120 mm ;
- Maximal nets length : 300 m / Maximal nets height : 80 cm ;
- Maximal fishing time : 3 days / 3 nights
- The catch of other conch species is forbidden.

2. Fisheries management and conservation activities

Martinique & Guadeloupe

In accordance with the WECAFC/15/2014/3 recommendation, the local regulation is undergoing discussion to improve and complete some articles.

During marine fisheries controls, about one hundred kilograms of under sized QC have been seized in 2013 in Martinique. Actually, poaching is a frequent activity practiced by professional fishers as well as recreational one. Seas police severely punishes even small poachers to dissuade them from capturing juveniles.

Since the 2012 first QC working group meeting, the enforcement of fishery regulations has been improved through annual fishery inspection plans both in Guadeloupe and Martinique aimed to coordinate efforts of every official services involved in this matter (customs, veterinary inspection, guards of MPAs, maritime affaires coastal units, navy).

Saint Bartholomew
With the new legislation, each professional fisher will have to declare all their Queen Conch catches.

Consumption and trade

Martinique
Imports are only from Jamaica. In 2011, Jamaica was the first mollusks supplier of Martinique in weight and the forth country of seafood imports in value. Queen Conch plays an important economic role between these two countries. In 2013, 308.5 tons were imported from Jamaica, (no refuse, no reexport, no destruction and no transformation). Almost 80% of this imported conch is frozen; the other 20% is dried, salted or pickled (2014 customs data). There is no export from Martinique, the local production is not even important enough for the domestic market. The average selling price of the local product is 21.38€/kg (by 2010 and 2011 data).
Illegal imports from other countries are difficult to estimate but 300 kg have been seized in 2013 and 1.36 t in 2014 for a 22,000€ fine.

Guadeloupe
Imports are also only from Jamaica. Over the last years generally in the French West Indies, imports are increased. In 2012, Guadeloupe imports 73 tons of QC from Jamaica, 179 tons in 2014. Every year around one ton of QC is seized by seas police.

3. Research and stock assessment

The production and fishing effort are monitored through the Fisheries Information Systems (FIS) in Martinique and Guadeloupe.

Martinique
A thesis is ongoing on sea turtles bycatch by QC nets. The experimental fishing program aimed at testing and comparing the trammel and "folle" nets (loose meshes 100 mm) selectivity according to the target species: lobster, fish and QC. Catches per unit effort of the experimental nets were compared to those of professional ones based on three parameters: height (high/low profile), meshing and incline (with/without floats). The first results show that a low profile "folle" net without floats should be the most efficient and selective gear.

Guadeloupe
A method for QC resource assessment was worked out by video transects by the regional committee of fisheries in 2008. Video surveys of fishing areas of the archipelago of Guadeloupe 2008-2012 pre and post fishing season get the following results:

- High variability of densities between fishing areas of the archipelago ;
- Average densities :
    - 105 ind./ha before fishing season ;
    - 72 ind./ha post fishing season ;
- Population structure (post fishing season) :
    - 11% adults ;
    - 33 % subadults ;
    - 56 % juveniles ;
- Positive effect of the closed season :
    - 50 adults/ha before fishing season ;

    - 8 adults/ha post fishing season ;
- No significant effect of MPAs on conch densities ;
- Small increase of average densities between 2008 and 2011.

Saint Bartholomew

A study was launched in May by *l'Agence Territoriale de l'Environnement*. The monitoring, based on a transect methodology developed by IMARES consulting firm (Sint Eustatius), establishes the distribution and abundance of conchs around the island, allows to identify breeding areas and seasons and to quantify landings and maturity stages of catches. No results are yet available.

4. Non-detriment findings

No results are yet available, the report is ongoing.

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Informe nacional sobre el estado del Caracol rosado (*Strombus gigas*) en México

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1. Estadísticas: captura anual, factores de conversión, y sistema de recolección de datos

Estadísticas de captura anual

Favor encontrar en el archivo Excel adjunto las estadísticas de captura actual del la base de datos de captura de la FAO. Se puede observar que el factor de conversión estándar '7.5' se aplico para la conversión de datos de peso vivo reportados por varios países. Verifiquen que los datos de captura anual pertinentes a su país coinciden con lo que se registran en las estadísticas nacionales oficiales. Revisen y agreguen cifras ausentes (marcarlos en rojo) especificando a que grado de procesamiento se refieren (ej. peso vivo, con o sin procesar/sucio, 50% limpio, 100% limpio) y, dado el caso, que factor de conversión fue aplicado.

Si dispone de información sobre el uso y procesamiento de las conchas, opérculos y perlas del Caracol Rosado, favor también incluir estos.

Respuesta: La CONAPESCA, tiene como uno de sus propósitos esenciales difundir en forma confiable y oportuna los principales indicadores de la actividad pesquera y acuícola en México, a través de la recopilación e integración de la información estadística emanada de los diferentes agentes que participan activamente en este sector, lo que permite conocer los fenómenos que comprende la pesca en su conjunto (ver **Anexo 1** con datos actualizados para el periodo 2010-2012).

Factores de conversión

Favor brindar en la segunda hoja de cálculo del archivo Excel datos sobre los factores de conversión por grados de procesamiento tal como se aplica en su país. Incluya también referencias e información adicional breve sobre los estudios llevados a cabo para determinar los factores de conversión.

Respuesta: Del 2007 al 2012 el INAPESCA realizó estimaciones anuales para el establecimiento de cuotas de biomasa aprovechable en Banco Chinchorro empleando las regresiones propuestas por Basurto, *et al* (1994):

$$Wt_x = 0.0163 Lt_x^{3.7485}$$

$$Wp_x = 76.251 + Wt_x 0.0665$$

Wt= Peso total (con concha)
Wp= Peso pulpa
Lt= Longitud total de la concha

Sistema de recolección de datos

Favor facilitar una breve descripción del sistema de recolección de datos utilizado en su país para recopilar y compilar las estadísticas de captura anual.

Respuesta: Los datos estadísticos se generan de la documentación oficial que se maneja de acuerdo a los formatos establecidos por el sector y conforme a lo señalado en el artículo 75, Capítulo Único, Título Octavo de la Ley General de Pesca y Acuacultura Sustentable (LGPAS), para acreditar la legal procedencia de los productos pesqueros y acuícolas que se capturan, el documento base es el aviso de arribo.

2. Política y Legislación

Esta sección deberá proveer información sobre el estatus y la implementación de políticas nacionales e instrumentos legislativos pertinentes a la Pesca y Comercialización del Caracol Rosado. Los esfuerzos de actualización de las políticas y la legislación y armonizar estos con los instrumentos legales regionales e internacionales acordados (incluyendo la Convención de CITES, UNCLOS, Acuerdos de Cumplimiento de la FAO, Acuerdos de Medidas del Estado Rector del Puerto) deben ser descritos.

Respuesta: En México, la pesquería de caracol rosado se desarrolló en los años setentas y principios de los ochentas. Al final de ésta década, la pesquería disminuyó y actualmente el aprovechamiento de la especie se encuentra regulado por la Ley General de Equilibrio Ecológico y Protección al Ambiente (LGEEPA), la Ley General de Pesca y Acuacultura Sustentables (LGPAS), la Carta Nacional Pesquera y la NOM-013-PESC-1994, donde se establecen la talla mínima de 20 cm y se prohíbe aprovechar en sitios con densidades menores a 0.0048 ind/m^2 (DOF, 1995; DOF, 2010 y 2012).

La especie principalmente se aprovechaba en dos zonas de pesca en Quintana Roo: En Banco Chinchorro, donde los pescadores (120 pescadores en 3 cooperativas) solicitaron una veda y ésta se aprobó a partir del 2012 y hasta febrero del 2017 con el objeto de que se restablezcan densidades mínimas de 0.0048 ind/m^2 (DOF, 2012). Por su parte, en Arrecifes de Cozumel los pescadores (15-30 pescadores en una cooperativa) decidieron no utilizar sus cuotas de aprovechamiento desde el 2005 debido a la escasez del recurso (Basurto, *et al*, 2007).

En la Península de Yucatán, la especie se encuentra protegida dentro de 14 Áreas Naturales Protegidas, cada una cuenta con una zonificación para proteger a las poblaciones que se distribuyen en ellas (http://sig.conanp.gob.mx/, 2014). Adicionalmente, en B. Chinchorro y Arrecifes de Sian Ka'an se establecieron zonas de refugio en las que no se realizará pesca comercial ni consumo doméstico desde 2013 y hasta el 2018 (DOF, 2013).

3. Resultado de la implementación de actividades de manejo

Esta sección deberá proveer información sobre la introducción de cualquier medida de manejo y conservación del Caracol Rosado de acuerdo a la Declaración de San Juan y la recomendación de la COPAC/15/2014/3 Sobre el Ordenamiento y Conservación del Caracol Rosado Dentro de la Zona de la COPACO.

El informe deberá también proveer detalles sobre la efectividad de cualquier medida de manejo (ej. vedas temporales, AMPS, vedas espaciales, sistemas de licencias/permisos, cuotas establecidas), así como el estatus y desempeño de sistemas de apoyo para seguimiento, control y vigilancia.

Respuesta: La especie se distribuye a lo largo del Golfo de México, tiene densidades bajas en Tamaulipas, Veracruz y Tabasco. En la Península de Yucatán tiene las siguientes temporadas de veda: Yucatán en veda permanente, en Quintana Roo veda del 1 mayo al 31 octubre, veda total en Banco Chinchorro; y en Campeche tiene veda del 1 enero al 14 marzo y 16 julio al 31 diciembre (DOF, 2012). Antes de la entrada en vigor de la veda, el INAPESCA realizó monitoreos del estado del recurso en A. Cozumel y B. Chinchorro previo a la autorización de tasas de aprovechamiento local (Basurto, et al, 2007, 2009, 2010 y 2011), estos monitoreos continúan hasta ahora con resultados preliminares alentadores en cuanto a la recuperación del recurso. La vigilancia se realiza en coordinación con la CONAPESCA.

Desde el 2008, Oceanus A. C. en conjunto con la Dirección de la ANP Banco Chinchorro, y los pescadores que hacían uso del recurso, implementan un programa de repoblación en la Zona Centro del Banco. Durante el programa se han translocado 10,000 ejemplares y se ha registrado un incremento en densidades de 0.002 a 0.036 ind/m^2 en 3 años con evidencias de reclutamiento (Oceanus, 2011).

En Quintana Roo, en la Áreas Naturales Protegidas (ANP) de A. Cozumel, B. Chinchorro y Puerto Morelos, se capacitaron a los usuarios del recurso para la conformación de Comités de Vigilancia Comunitaria con el apoyo de la Comisión Nacional de Acuacultura y Pesca (CONAPESCA), la Secretaría de Marina (SEMAR) y la Procuraduría Federal de Protección al Ambiente (PROFEPA).

Como resultado, se cuenta con un análisis del *modus operandi* de la pesca ilícita de la especie en A. Cozumel (CONANP, 2014). En B. Chinchorro se iniciaron 30 procedimientos jurídicos, cinco de los cuales terminaron en formal prisión. Además se realizaron operativos a comercios de venta y disuasión de más de 150 embarcaciones en el periodo 2006-2010 (García, *et al*, 2014). En Puerto Morelos de 2013 al 2014, se consignaron cuatro personas que realizaban pesca ilícita (CONANP, 2014a). Aunque los programas de vigilancia han permitido identificar el comercio ilegal de la especie, se requiere apoyo adicional para costear gastos de operación e incrementar su eficiencia. Adicionalmente se están implementando programas de educación ambiental para difundir la importancia del uso sostenible del recurso.

4. Consumo y Comercialización

Esta sección deberá brindar información sobre consumo doméstico del Caracol Rosado (kg/cápita/año) y comercialización (datos de importación y exportación – volumen y valor), así como mercados de exportación e importación.

Respuesta: Del 2000 al 2013, México autorizó 34 eventos de exportación de la especie (**Cuadro 1**), 24 de ellos de ejemplares pre-convención (piezas arqueológicas y artículos con propósitos educativos), y 10 exportaciones de ejemplares de vida libre. Los eventos originados en vida libre tienen dos destinos: 70,170 piezas y 10.7 ton. de concha de caracol a E.U.A; y 1400 conchas a Taiwán (DGVS, 2014). Tomando en cuenta que desde el 2012 la especie se encuentra en veda, cualquier exportación de conchas originarias de México posterior a esta fecha, se conforma por ejemplares inventariados capturados antes de la entrada en vigor de dicha veda (INAPESCA, 2014).

Adicionalmente hay 35 eventos de comercio ilegal registrados por los países importadores con destino a EUA (24,264 conchas y 31 tallas), a Reino Unido con 3 conchas, Austria con 9 conchas, Países Bajos con 11 conchas, Polonia con 12 conchas y Eslovenia con 2 conchas (UNEP-WCMC, consulta realizada en el 2014).

En cuanto a volúmenes y precio de ejemplares efectivamente exportados, no contamos con información a nivel de especie, pues *S. gigas* se encuentra clasificado en tres fracciones arancelarias genéricas: 0307.91.01 vivos, frescos o refrigerados; 0307.99.99 los demás, alimentos y bebidas; 0508.00.99 los demás productos de origen animal no expresados ni comprendidos en otras partidas (SE, 2014), lo que puede sobrestimar la información.

5. Investigación y evaluación de la población

Favor reportar sobre investigaciones recientes y encuestas para evaluación de la población del Caracol Rosado.

Detalles de toda actividad investigativa ya sea planificada o llevándose a cabo, incluyendo entre otros: evaluación de poblaciones, datos biológicos (ej. reproducción, enfermedades, recolección de datos ecológicos y socio-económicos, recolección de datos de procesamiento de mariscos, reservas marinas/.AMPs, también deberán proveer tecnología de pesca (de existir). Favor detallar que instituciones están involucradas. Deberán incluir referencias exactas de documentos publicados y/o informes, donde sea posible.

Respuesta. En México se cuenta con investigación reciente e histórica de esta especie en Yucatán y Quintana Roo (1986 a 2014). Las instituciones involucradas en la generación de información son el Centro de Investigaciones y Estudios Avanzados, Unidad Mérida (CINVESTAV, IPN), el Colegio de la Frontera Sur, Unidad Chetumal, el INAPESCA a través de los Centros Regionales de Investigación Pesquera de Puerto Morelos y Yucalpetén y la CONABIO. Los principales campos de investigación estudiados son: ecología poblacional, reproducción en cautiverio, genética, manejo poblacional, enfermedades (Baqueiro, *et al*, 2007) y educación ambiental (Aldana, *et al*, 2006) (ver listado de publicaciones en el **Cuadro 2** y en Peel, 2012). Algunas de las publicaciones más recientes tratan sobre biología reproductiva (Aldana Aranda, *et al*, 2014a), ecoetología con aplicación a los programas de conservación (Noguez y Aldana Aranda, 2014), Acuacultura (Chong, *et. Al*, 2014) y reclutamiento a través de la abundancia y distribución larval (Chávez, *et al*, 2014). El INAPESCA da continuidad a los aspectos pesqueros en Campeche Yucatán y en Quintana Roo particularmente en el Arrecife de

Cozumel (1986-2008) y Banco Chinchorro donde realiza monitoreos continuos de abundancias con un método estandarizado (1986-2014) replicado de forma anual (ver **Cuadro 3**, **Gráfica 1**).

Con base en estudios genéticos y de dispersión larval, se estima que la Península de Yucatán actúa como una meta-población que presenta intercambio genético (Rodríguez, 2000; Tello-Cetina, et al, 2005; Paris, et al., 2008; Zamora-Bustillos, et al, 2011).

En cuanto al desarrollo de técnicas para la maricultura de la especie, se ha realizado trabajo sobre la dieta de larvas (Brito-Manzano y Aldana, 2004) y juveniles (Padilla, 2013), así como el crecimiento experimental en condiciones de semi-cautiverio (Navarrete, 2001).

Respecto a evaluaciones socioeconómicas, los pescadores de B. Chinchorro hicieron una caracterización social de las comunidades aledañas a dicha ANP, donde el 81.4% de los pescadores son adultos de 30 a 60 años, 36% de los pescadores no cuentan con estudios completos y el 30.7% tiene estudios hasta secundaria (Sociedades Cooperativas Pesqueras, 2012).

6. Dictámenes de extracción no perjudicial

Favor informar sobre cualquier progreso efectuado en pro de los preparativos sobre Hallazgos No-Prejuiciosos (NDFs) y cualquier otro problema/limitantes encontrados a lo largo del proceso de preparación.

En caso de que su país haya preparado un informe NDF para el periodo 2011 – 2014 les solicitamos compartir una copia con nosotros

Respuesta: En México la utilización de *Strombus gigas* es básicamente para consumo nacional y el comercio de conchas es un producto secundario derivado del aprovechamiento de la carne para consumo interno. La pesquería de la especie se encuentra cerrada en su principal sitio de aprovechamiento (B. Chinchorro) desde el 2012 y previo a ello todo el aprovechamiento de ejemplares para consumo nacional ha sido autorizado con base en estudios puntuales de abundancia del recurso (Basurto, et al, 2007, 2009, 2010 y 2011). Por tanto, actualmente no contamos con NDF para el periodo solicitado. Algunos de los elementos mínimos que deben de ser considerados para emitir un NDF son: la distribución, el estado de conservación de la especie a nivel global, a nivel nacional y local, la densidad de ejemplares y qué proporción son adultos (considerando grosor del labio mayor a 5mm y largo total mayor a 20cm), la mortandad natural, la tendencia poblacional en el sitio de extracción, las técnicas de manejo y extracción; y de existir, información sobre extracción ilícita.

A fin de contar con material de apoyo para la realización de NDF, México organizó un Taller Internacional sobre Dictámenes de Extracción No Perjudicial (Cancún, 2008, http://goo.gl/FzFzEB) en el que Colombia presentó al caracol rosado como un estudio de caso dentro del grupo de trabajo 9 sobre Invertebrados Acuáticos. Este grupo de trabajo concluyó que para hacer un NDF es necesario considerar cuatro pasos: a) evaluación de riesgo, b) implementar medidas de manejo en los aprovechamientos, c) llevar un registro puntual de aprovechamientos y efectos en la población y d) revisar y refinar las medidas de manejo y evaluar nuevamente el riesgo.

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	País y código de origen		**Cantidad y Unidad**		**Código de destino y País**	
Exportación (Fuente: Aut. Adm. CITES)	México	W	70,170	Conchas	T	US
			10.7	Ton. Conchas		
		W	1400	Conchas	T	Taiwan
		O	48	Piezas	E, Q	Varios
Importación (Fuente: UNEP-WCMC Trade Database, nov, 2014)	Honduras	C	12.7	Ton. Carne	T	MX
	Belice	O	3.6	Ton. Carne	T	
	Honduras	W	30.5	Ton. Carne	T	
	Belice	W	56.1	Ton. Carne	T	
	Colombia	W	302	Especímenes	T	
	Colombia	W	630	Especímenes	S	
	Nicaragua	W	2.7	Ton. Carne	T	
	Belice	W	1000	Conchas	T	
	Cuba	W	13.1	Ton. Carne	T	
	Cuba	W	1	Concha	P	
	Rep. Dom.	W	3	Especímenes	S	
	Nicaragua	W	12000	Conchas	T	
Reexportación (Fuente: UNEP-WCMC, nov, 2014)	Nicaragua	W	12000	Conchas	T	US
	XX	W, U, O	41	Tallas	E, Q, P	
	XX	U	3	Conchas	E	
	XX	O	1	Producto de cuero	Q	

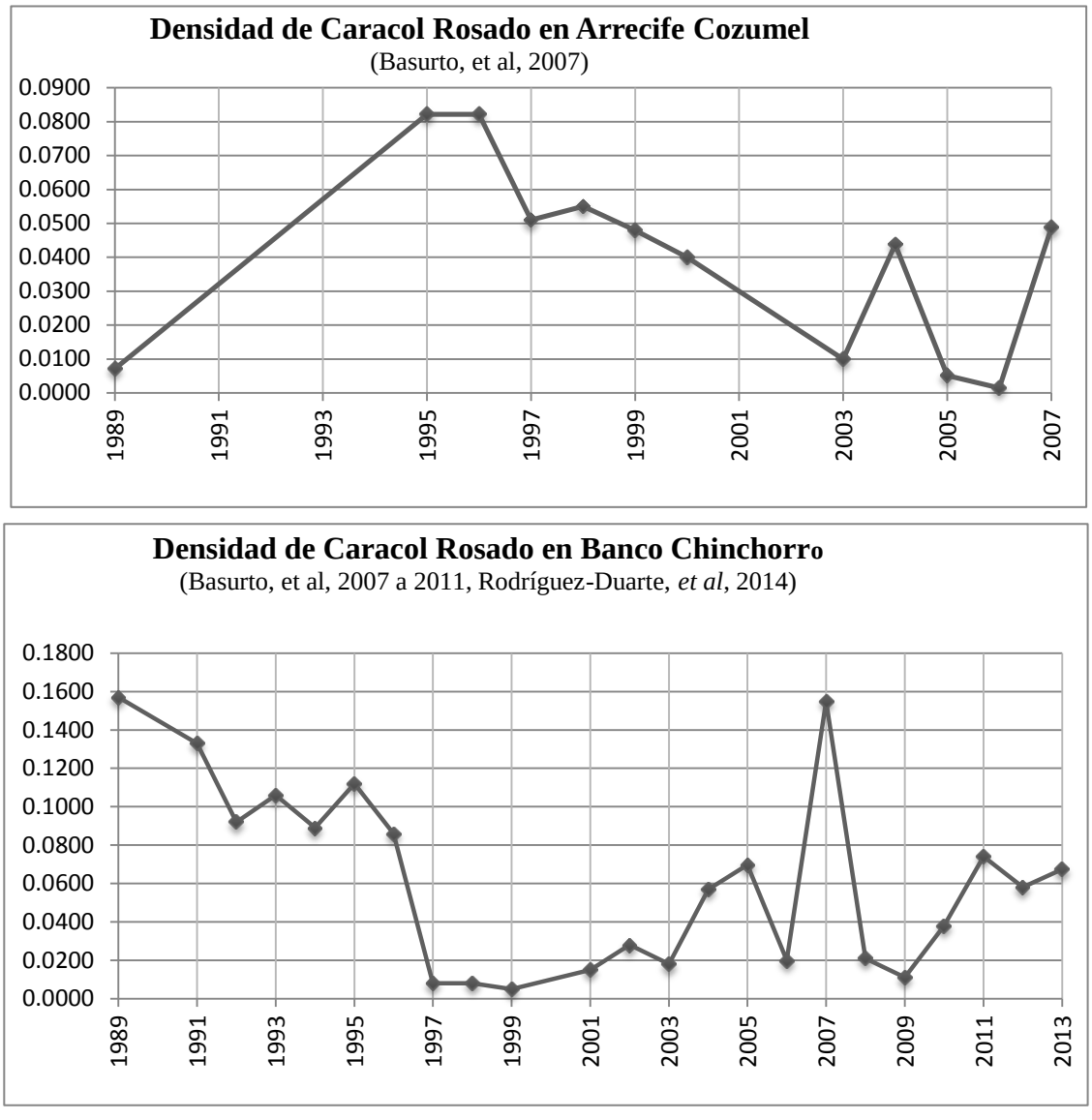
Cuadro 2. Compilación de algunas publicaciones sobre ecología poblacional, genética, manejo poblacional, reproducción en cautiverio y enfermedades sobre *Strombus gigas* en México.

Tema	Autores	Temas	Regiones
Ecología Poblacional	Aldana et al, 2014; Aldana-Aranda et al., 2003; Aldana-Aranda et al., 2003a; Aldana-Aranda y Pérez-Pérez, 2007; Baqueiro-Cárdenas y Aldana-Aranda, 2010; Barqueiro y Aldana, 2014; Basurto, et al, 2007; Basurto, et al, 2009; Basurto, et al, 2010; Basurto, et al, 2011; Castro et al., 2010; Cala y Navarrete, 2013; Chávez y Arreguín-Sánchez, 1994; Chávez-Villegas et al., 2012; Chávez-Villegas, 2011; Navarrete et al., 1992; Navarrete et al., 1994 Navarrete et al., 1999; Navarrete et al., 2000; Navarrete et al., 2003; Navarrete y Oliva Riviera, 1997; Navarrete y Valencia-Beltrán, 2003; De Jesús Navarrete y Valencia-Beltrán, 2013; Navarrete y Aldana-Aranda, 2000; De la Torre, 1982; Díaz Avalos, 1986; Díaz Avalos, 1991; Domínguez-Viveros et al., 1999; Navarrete y Pérez, 2007; Oliva-Rivera y De Jesús-Navarrete, 2000; Paris et al., 2008; Peel y Aldana, 2012; Peel, 2012; Pérez-Pérez y Aldana-Aranda, 2000; Pérez-Pérez y Aldana-Aranda, 2003; Rios-Lara, et al, 1998; Valle-Esquivel, 1998	Dinámica poblacional; Distribución de larvas, juveniles y adultos; Reproducción; Crecimiento; Conectividad de poblaciones; Efecto Allee	Península de Yucatán: Banco Chinchorro, Punta Gavilán, Cozumel, Puerto Morelos, Sian Ka'an, Xel-Há, Alacranes.
Educación Ambiental	Aldana et al, 2006	Educacion ambiental	Quintana Roo
Enfermedades	Barqueiro et al, 2007	Coccideas	Yucatán
Genética	Rodríguez, 2000; Zamora-Bustillos, et al, 2011; Tello, et al, 2005	Diversidad genética	Península de Yucatán.
Manejo Poblacional y sociedad	Sociedades Cooperativas Pesqueras, 2012; Aldana et al, 2003	Refugios de pesca	B. Chinchorro
Reproducción en cautiverio	Aldana et al, 1995; Aldana y Patiño, 1998; García-Santaella y Aldana, 1999; Brito-Manzano y Aldana, 2003; Padilla, 2013; Brito-Manzano y Aldana, 2004; Navarrete, 2001.	Dieta potencial para crías y juveniles, maricultura.	Laboratorio y Quintana Roo

Cuadro 3. Información poblacional de *S. gigas* en México, solo B. Chinchorro y A. Cozumel cuentan con monitoreos continuos. La información del resto de los sitios debe tomarse con precaución pues los métodos e intervalos de monitoreo no siempre son comparables (otros muestreos en ANP pueden consultarse en Aldana, et al, 2003). Las cifras con asterisco (*) reportan datos en otras unidades.

Estado y localidad	Periodo	Densidad (ind/m^2)	Tendencia	Referencia
Quintana Roo, B. Chinchorro	1989-2011,	0157 a 0.073	Decremento	Basurto, *et al*, 2007 y 2011
	2011-2014	0.073 a 0.0674	Estabilización	Rodríguez-Duarte, J. *et al* 2014
Quintana Roo, A. Cozumel	1989-2007	0.0024 a 0.048	Incremento	Basurto, *et al*, 2007
Quintana Roo, Punta Gavilán	1999, 2000	*k=0.44 (~75% de juveniles)	Incremento	Domínguez-Viveros, 1999; Navarrete, *et al*, 2000
Quintana Roo, Xel-Há	2009-2012	0.169 a 0.057	Decremento	Peel y Aldana, 2012; Aldana-Aranda, et al, 2014
Quintana Roo, Arrecifes	ene-oct,	*4834	No aplica	CONANP, 2014b

Estado y localidad	Periodo	Densidad (ind/m^2)	Tendencia	Referencia
de Xcalak	2014	ejemplares (la mayoría juveniles)		
Quintana Roo, Puerto Morelos	2000-2012	***0.10±0.22 a 0.43±0.82 larvas/10 m^3	Incremento	CONANP, 2014a
Yucatán, Arrecife Alacranes	1998-2000	0.004 a 0.014	Incremento	Ríos-Lara, *et al*, 1998, citado en Aldana, *et al*, 2003; Pérez y Aldana, 2003



Gráfica 1. Izq. Muestra el cambio en el tiempo de la densidad de ejemplares totales de caracol rosado (ind/m^2) en A. Cozumel. Der. Muestra el cambio en el tiempo en la densidad de ejemplares totales en B.

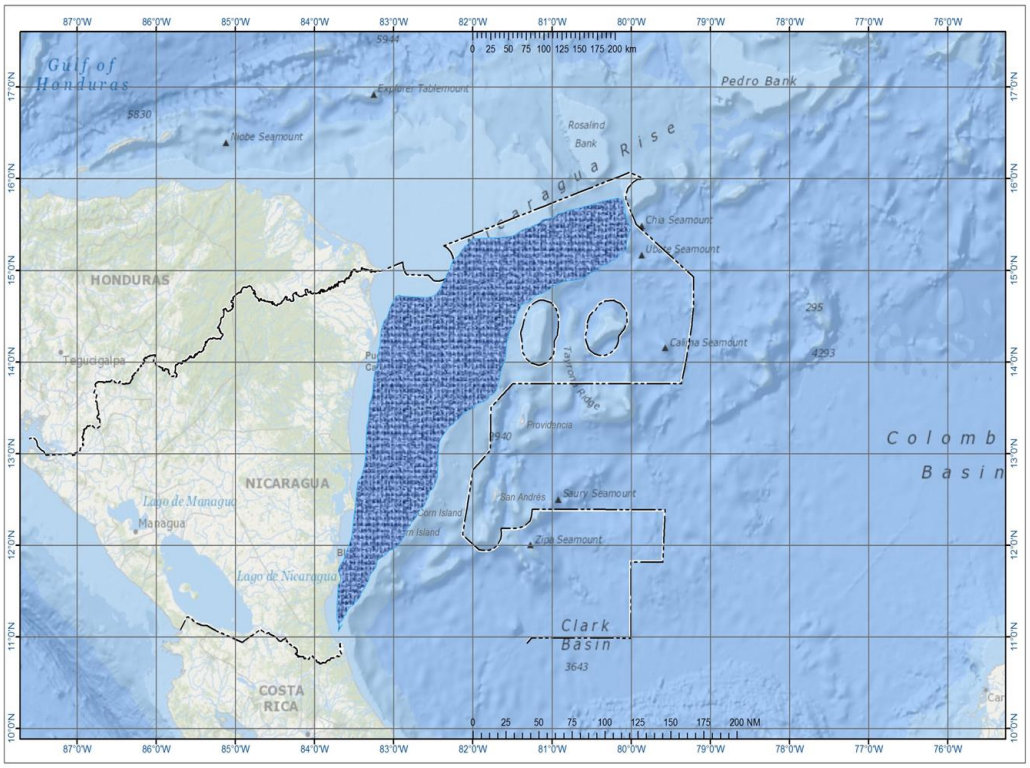
INFORME NACIONAL DE NICARAGUA

Autor: ***Renaldy Antonio Barnutty Navarro***[1]

I. Introducción

El recurso caracol reina ***Strombus gigas*** del Caribe de Nicaragua ha adquirido importancia comercial en los últimos diez años, su captura es realizada por los mismos pescadores que se dedican a la captura de langosta ***Panulirus argus*** quienes de manera complementaria capturan el caracol que se encuentra en las mismas áreas de distribución de la langosta, principalmente en los meses en que los rendimientos de pesca de la langosta son bajos y durante el periodo de la veda de este recurso. Los barcos industriales que participan en la pesca tienen un promedio de 20 m de eslora y llevan a bordo hasta 26 buzos e igual número de cayuqueros que apoyan al buzo en sus labores de pesca**,** la pesca artesanal utiliza embarcaciones de hasta 15 metros de eslora y llevan a bordo hasta tres buzos.

Según los resultados obtenidos en los monitoreos de exploración de esta especie (pesca comercial y monitoreos de pesca científica) realizados durante los años 2003-2004, 2005, 2009 - 2013 se puede afirmar que la especie ***Strombus gigas*** se encuentra ampliamente distribuida en el gran Caribe de Nicaragua, principalmente entre las coordenadas 12º 23´ 00´´ hasta los 15º 21´ 00´´ de latitud norte y los 81º 46´ 00´´ hasta los 83º 18´ 00´´ de longitud oeste, en profundidades que van de los 7 hasta los 35 m de profundidad. (Escoto y Barnutty, 2004, Sánchez et al 2005, Sánchez y Barnutty 2009, Núñez 2011 y Barnutty 2013) Mapa **1.**



Mapa 1. Áreas de distribución del caracol *Strombus gigas*
En el Caribe de Nicaragua

[1] Biólogo Pesquero del Instituto Nicaragüense de la Pesca y Acuicultura INPESCA

II. Estadísticas anuales de captura de caracol reina en el Caribe de Nicaragua.

En Nicaragua los datos oficiales relacionados con las estadísticas pesqueras de capturas, procesamiento y exportaciones del recurso caracol reina ***Strombus gigas*** son registrados de manera digital por los técnicos del Instituto Nicaragüense de Pesca y Acuicultura INPESCA desde el año 2000, en años anteriores los datos relacionados con las estadísticas de este recurso eran agrupados en la categoría de "otras especies" debido a que el caracol era de poca importancia comercial y las cifras de captura eran muy bajas.

A partir del año 2007 hasta la actualidad se observa un incremento en los desembarques los que han pasado de 46 toneladas de filete 100% limpios obtenidos en el año 2007 a 461 obtenidos el año 2013. (Figura 1.).

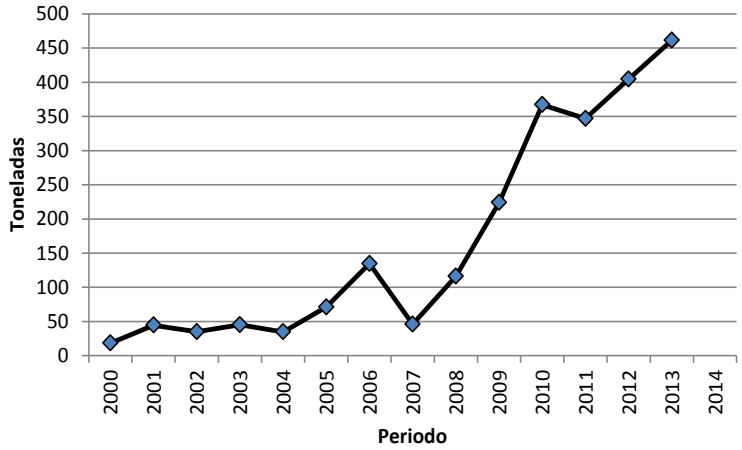


Figura 1. Desembarques totales del Caracol reina *Strombus gigas*
Del Caribe de Nicaragua en toneladas de filete 100% limpio.

Este incremento en los desembarques se da debido al interés que ha mostrado la industria pesquera desde el año 2007, principalmente por su alto valor comercial obtenido en el mercado internacional y también debido a que esta actividad sirve como una alternativa de trabajo para los pescadores buzos de langosta durante el periodo de veda, es importante considerar el incremento de las zonas de pesca que ha obtenido Nicaragua gracias al reintegro de aproximadamente 90,000 Km^2 en la zona del mar Caribe, en dos sentencias emitidas por la Corte Internacional de Justicia de la Halla en juicios internacionales llevados a cabo con honduras en 2007 y con Colombia en el año 2012 las cuales fueron favorables a Nicaragua, esta situación ha motivado a la administración pesquera del país a realizar estudios científicos con los cuales se pueda saber el estado actual del recurso caracol en lo que se refiere a su biología, abundancia y distribución en toda su área de distribución incluyendo la zona que fue reintegrada. Con los resultados positivos obtenidos en los monitores de pesca científica realizados se demuestra que existen buenas abundancias del caracol en las zonas exploradas, por tal motivo el INPESCA solicitó a la CITES un incremento de la cuota de exportación del país, la cual para el año 2014 es equivalente a 590 toneladas de filete 100% limpio para la pesca comercial y 45.5 toneladas que son utilizadas con fines de pesca científica.

En lo que se refiere a las exportaciones en el año 2013 se alcanzó un máximo de 640 toneladas de filete 100% limpio que incluyen la pesca comercial y la pesca científica, con un valor de 9 millones de dólares americanos. (Figura 2).

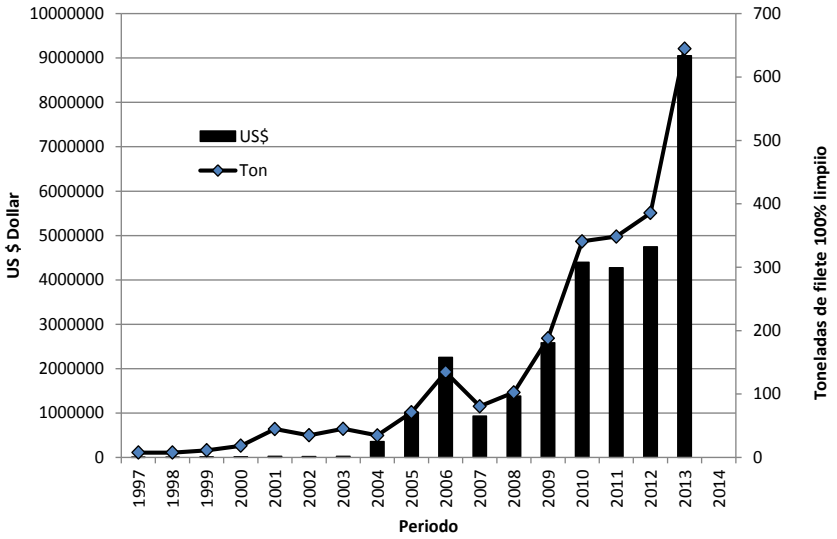


Figura 2. Exportaciones de filete 100% limpio de caracol reina del Caribe De Nicaragua y valor de las exportaciones en US$.

III – Factores de Conversión

En los años 2004 y 2005, se realizaron muestreos en plantas de proceso con el fin de calcular por primera vez los factores de conversión de los distintos grados de elaboración al peso del filete 100% limpio (Barnutty R., Sánchez R., y Gutiérrez R. 2005), sin embargo en los muestreos realizados en ese entonces no se incluyó el peso nominal de la especie, en vista de estas circunstancias y como resultados del Taller Regional de Caracol organizado por FAO / OSPESCA en la ciudad de Panamá en fechas 1 y 2 de febrero del año 2007, se orientó a tres países, entre ellos Nicaragua, hacer un plan de muestreos biológicos de caracol en plantas de proceso para poder hacer efectivo el cálculo de los factores de conversión que incluyeran el peso nominal de la especie..

Los muestreos biológicos del caracol *Strombus gigas* del mar Caribe de Nicaragua en sus distintos grados de procesamiento se realizaron siguiendo las recomendaciones del Taller Regional de caracol organizado por FAO / OSPESCA en la ciudad de Panamá en fechas 1 y 2 de febrero del año 2007.

El programa de muestreo biológico se realizó en la planta procesadora de mariscos Central American Fisheries (CAF) ubicada en Corn Island en el Caribe sur de Nicaragua entre los meses de mayo y junio del 2007 (treinta días de trabajo de campo). Esta planta procesadora es el único lugar del país en la actualidad donde se realiza un aprovechamiento integral del caracol. Los pescadores artesanales desembarcan todos los caracoles enteros vivos en su concha lo que permitió obtener los datos necesarios para el cálculo de los factores de conversión de los diferentes grados de corte y limpieza de la carne al peso vivo o nominal de los caracoles.

Las muestras vivas de caracol rosado *Strombus gigas* procedieron de la pesca artesanal de Corn Island producto de viajes diarios a los bancos de pesca cercanos a la isla y venta diaria del producto a la planta procesadora de mariscos.

Resultados obtenidos:

Se muestrearon un total de 712 individuos de los cuales 340 fueron hembras y 372 machos. La longitud sifonal para las hembras se estuvo en un rango de 188 a 272 milímetros y para los machos estuvo entre los 163 y 257 milímetros con un promedio de 230 y 218 mm respectivamente, la longitud sifonal y el grosor promedio del labio para sexos combinados fue equivalente a 223 y 24 mm respectivamente.

Se obtuvo el peso mínimo, máximo y promedio nominal y de la carne en sus diferentes grados de corte y limpieza (peso entero de la carne con vísceras, peso del filete 50 y 100% limpio. En la tabla 1 se presentan los valores obtenidos para sexos combinados.

Tabla 1. Pesos mínimos, máximos y promedios en gramos del peso nominal (animal entero con concha), peso de la carne con vísceras, peso del filete 50% y 100% limpio en ambos sexos del caracol *Strombus gigas* en muestreo de la pesca artesanal de Corn Island en el mar Caribe de Nicaragua en mayo y junio de 2007.

Observaciones en (g)	Mínimo	Máximo	Promedio
Peso nominal	1046	3657	2275
Peso entero de la carne con vísceras	215	804	422
Peso filete 50% limpio	107	432	226
Peso filete 100% limpio	58	305	138

Los valores del peso promedio nominal y de los diferentes grados de corte y limpieza de la carne presentados en la tabla 3 fueron utilizados para calcular los factores de conversión con relación al peso vivo o nominal de los caracoles, los que se obtuvieron de la división entre los porcentajes de perdida de tejido y los porcentajes del tejido restante o remanente. Los factores de conversión obtenidos se presentan en la tabla 2.

Tabla 2. Factores de conversión de la carne de caracol en sus distintos grados de elaboración al peso nominal.

Para pasar de:	A peso nominal (en libras) multiplicar por el factor:
Peso de 100% carne, vísceras, piel y uña	4
Filete 50% limpio	9
Filete 100% limpio	16

IV. Política y legislación

La definición legal de las primeras medidas de ordenación para el caracol reina *Strombus gigas* fueron establecidas en el año 2003 mediante el Acuerdo Ministerial *DGRN-PA-N° 341-2003* donde se implanto una veda total durante el período comprendido del primero de junio

al 30 de septiembre inclusive (4 meses), así como una talla mínima legal de 200 mm de longitud total o sifonal.

El 14 de abril del año 2005 se aprobó un nuevo Acuerdo Ministerial el (*DGRN-PA-Nº 407-05*), que modificó parcialmente el Acuerdo Ministerial Nº 341 del 2003, estableciéndose que se mantiene período veda de 4 meses y como talla mínima legal, la medida igual o mayor a 200 mm de longitud total o sifonal, en combinación con la medida igual o mayor a 9.5 milímetros de grosor de labio, medida desde la parte más gruesa del labio.

Las cuotas anuales de exportación de este recurso son establecidas anualmente por medio de Resoluciones Ejecutivas de INPESCA con la aprobación del Ministerio de los Recursos Naturales y el Ambiente MARENA y de la autoridad administrativa CITES de Nicaragua, las cuotas recomendadas están basadas en los resultados de los estudios de monitoreo de la abundancia en términos de densidad, distribución y estructura de la población.

Desde el año 2003 Nicaragua ha establecido controles para las exportaciones de la carne del caracol, para lograr dichos controles el INPESCA ha establecido coordinación con el Ministerio del Ambiente y los Recursos Naturales MARENA y con la autoridad administrativa del CITES en Nicaragua.

V. Actividades de ordenamiento y conservación de la pesquería de caracol reina.

Nicaragua es país parte de la Convención Internacional de Especies Amenazadas de Flora y Fauna Silvestre (CITES) desde el año 1977. Y ha venido cumpliendo con los reglamentos y procedimientos recomendados por esta convención para el manejo sostenible del caracol rosado, de igual manera el país participa de manera activa en todas las reuniones y talleres internacionales que han sido organizados en la última década por la CITES, COPACO, FAO, OSPESCA y el CFMC, los que tienen como finalidad la ordenación y seguimiento de la pesquería de este importante recurso pesquero.

En el año 2004 dando seguimiento a la Conferencia Internacional sobre el Caracol Reina "Declaración de San Juan, Puerto Rico de 1,996 y cumpliendo con los exámenes significativos de CITES para esta especie, Nicaragua elaboro un Plan de Acción para el manejo de la explotación del caracol *Strombus gigas*. (Pérez y Barnuty 2004). Como resultado de la implementación de este plan de acción Nicaragua ha presentado informes de los avances del cumplimiento de las recomendaciones emitidas por el comité de fauna, los que son enviados por la autoridad administrativa CITES del país y contienen de manera ordenada toda la información referida a todas las actividades que Nicaragua ha venido realizando en los últimos años, así como una recopilación de la documentación que demuestra el interés y la preocupación que nuestro país tiene en promover y garantizar el aprovechamiento sostenible de este recurso pesquero.

Participación activa en el proyecto de FAO relacionado con la mejora de la situación y tendencias de las capturas del caracol reina en la región del Caribe en el cual Honduras, Belice y Nicaragua determinaron los factores de conversión del caracol reina *Strombus gigas* de sus diferentes grados de elaboración al peso nominal. (FAO, Circular de Pesca y Acuicultura N° 1042, año 2009).

Medidas de ordenación vigentes en Nicaragua para el caracol reina

1. Veda total durante el periodo comprendido del primero (01) de junio al treinta (30) de septiembre.
2. Talla mínima legal igual o mayor a 200 milímetros de longitud sifonal de la concha, en combinación con la medida igual o mayor a 9.5 milímetros de grosor de labio, medido en la parte más gruesa del labio.
3. Establecimiento de las coordinaciones necesarias entre el INPESCA y las plantas procesadoras y dueños de embarcaciones que exploten este recurso para asegurar la continuidad de las investigaciones y colecta de datos, así como la implementación del Plan de Acción.
4. Cuotas anuales de exportación.

Los inspectores de pesca de INPESCA ubicados en la zona del Caribe dan seguimiento al cumplimiento de las reglamentaciones establecidas y que permiten preservar el recurso caracol.

VI. Sistema de recopilación de datos de la pesquería del caracol.

Nicaragua cuenta con un sistema de colecta de datos de desembarques de caracol reina desde 1997. Esta colecta de datos se hace en las plantas procesadoras por medio del cuerpo de inspectores de pesca de la Dirección de Monitoreo, Vigilancia y Control de INPESCA de acuerdo a rutinas establecidas en la colecta de las estadísticas de todos los recursos pesqueros nicaragüenses. También existe control de las estadísticas de exportación, tanto en INPESCA como en la oficina CITES-Nicaragua a partir de los permisos de exportación autorizados. INPESCA maneja una base de datos estadísticos pesqueros automatizada de los desembarques, industrialización (procesamiento) y exportación. Los monitoreos en el mar y muestreos en plantas de procesamiento son realizados por biólogos del Centro de Investigaciones Pesqueras y Acuícolas CIPA del INPESCA.

VII. Estado actual del conocimiento del recurso Caracol *Strombus gigas* del Caribe de Nicaragua.

Los trabajos de investigación del caracol reina *Strombus gigas* del Caribe de Nicaragua fueron iniciados por el Centro de Investigaciones Pesqueras y Acuícolas CIPA de INPESCA durante los años 2004 y 2005, periodo en el cual se inició con exploraciones en el área de distribución para obtener información de la biología, abundancia y distribución del recurso, explorando por primera vez el área ubicada alrededor de los Cayos Misquitos desde la posición 14°00´00¨ hasta los 15°00´00¨N.

En los meses de abril, julio y noviembre del año 2009 se llevó a cabo un programa de investigación del caracol que incluyo la realización de tres cruceros de pesca científica de doce días de duración cada uno y se logró explorar una zona más amplia de las aguas marinas del caribe, en total se realizaron un total de 123 estaciones de pesca. El primer crucero se realizó en las coordenadas que va desde los 12º 23´ 00´´ hasta los 13º 58´ 00´´ de latitud norte y desde los 82º 14´ 00´´ hasta los 83º 18´ 00´´ de longitud oeste, en un rango de profundidad de 40 a 89 pies y se obtuvieron densidades de 176 ind/ha (caracoles adultos) por hectárea, el segundo monitoreo se realizó en las coordenadas que van desde los 14º 07´ 00´´ hasta los 14º 59´ 00´´ de latitud norte y desde los 82º 12´ 00´´ hasta los 83º 05´ 00´´ de longitud oeste y la densidad promedio obtenida fue de 267 ind/ha (caracoles adultos). El tercer crucero se realizó en las coordenadas van desde 15º 00´ 00´´ hasta los 15º 59´ 00´´ de latitud norte y desde los

81º 46´ 00´´ hasta los 83º 05´ 00´´ de longitud oeste obteniéndose una densidad promedio de 190 ind/ha (caracoles adultos).

En los tres cruceros se logró muestrear un total de 1,157 individuos adultos y se obtuvo que el 90.5% tuvieron una talla media de longitud sifonal o total de 200 mm con una moda de 230 mm siendo los límite de confianza al 95 % para ambos sexos de ± 2.7. El grosor del labio por sexos separados dio como resultado un promedio aritmético para hembras y machos de 17 y 20 mm con límites de confianza al 95 % de ± 1.27 y ± 1.28 respectivamente. En lo que respecta a la madurez sexual de todos los individuos muestreados se observó que para ambos sexos el 84% fueron adultos con estadio de madurez sexual III y éstos se encontraron representados en toda el área de estudio. Los estadios II y I representaron el 6 y el 10 % respectivamente Figura 1, 2 y 3. Barnutty R. y Sanchez R. 2009.

Durante los años 2012 y 2013 se continuó con la realización de los monitoreos en el mar en donde se obtuvieron los resultados que se presentan en la tabla número 2.

Tabla N° 2 Comparación de los principales resultados obtenidos en monitoreos de pesca cientifica realizados en los años 2009, 2012 y 2013

	Agosto 2,009	Diciembre 2,012	Mayo 2,013
Area total explorada en (Mn^2)	250	250	220
Numero de estaciones	48	48	44
Unidad de area de muestreo (Mn^2)	0.083	0.083	0.083
Caracoles observados	5978	3828	4331
Caracoles capturados	561	286	336
Esfuerzo depesca (horas)	19.72	16.5	19.24
Densidades individuos/ha según el metodo de estimacion de Michael King	**136**	**96**	**119**
Longitud sifonal (mm) ambos sexos			
Minima	107	180	155
Promedio	228	232	222
Maxima	290	265	267
Grosor de labio (mm) ambos sexos			
Minima	2	1	1
Promedio	19	10	15
Maxima	37	28	35
Madurez sexual ambos sexos (% maduros)	93	65	85
Porcentajes de Juveniles capturados (Grosor de labio menor a 9.5 mm)	11	34	20

VII. Literatura consultada

Escoto y Barnutty, 2004. Resultados de la pesca exploratoria del caracol rosado *Strombus gigas*, en el Caribe de Nicaragua en los años 2003 y 2004.

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Pérez y Barnutty 2004. Plan de acción para el manejo de la explotación del caracol *Strombus gigas* en el caribe nicaragüense.

Sánchez R y Barnutty R. 2009. Resultados finales de los cruceros de pesca científica realizados en el Caribe de Nicaragua para estudiar las poblaciones del caracol rosado del Caribe *Strombus gigas*, en los meses de mayo, julio y noviembre de 2009.

Sánchez et al 2005. Programa de Monitoreo del Caracol Rosado *Strombus gigas* en el Mar Caribe de Nicaragua en el Período de mayo a junio del 2005.

Informe Nacional de Panamá

1. Estadísticas: captura anual, factores de conversión, y sistema de recolección de datos

Estadísticas de captura anual
No se dispone de información, esta especie se encuentra en veda mediante el Decreto Ejecutivo Nº 98 de 17 de noviembre de 2009 (G. O. 26413 de 24/11/2009). La veda tiene como término el 24 de noviembre de 2014. Ninguna de las Oficinas Regionales de la Autoridad de los Recursos Acuáticos de Panamá reporta datos de captura de esta especie, sólo se tiene disponible información sobre decomisos.

Factores de conversión
Para el caso de Panamá esto no aplica dado que este recurso se encuentra en veda en todo el país desde hace varios años.

Sistema de recolección de datos
No se disponen de datos sobre captura de esta pesquería, entendiendo que existe una veda

2. Política y Legislación

Mediante el decreto ejecutivo de No. 159 del 31 de diciembre del 2003, se estableció un período de veda por cinco años para captura, posesión y comercialización del Caracol Marino, Strombus spp. Pero durante este periodo (2003-2008), no se pudo controlar la venta de este producto en locales comerciales.

A pesar de la limitada información existente, la pesca de este recurso se volvió a regular por el Decreto Ejecutivo No. 98 de 17 de noviembre de 2009. Que estableció un período de Veda del Caracol Marino, *Strombus spp*., de cinco años en la República de Panamá, esto incluye la captura, posesión y comercialización hasta el 17 de noviembre del 2014.

La Autoridad de los Recursos Acuáticos de Panamá cuenta con cuatro Direcciones encargadas de velar por el cumplimiento de las normas establecidas en este decreto y son:

- Dirección General de Investigación y Desarrollo, la cual es la encargada de fomentar, coordinar y ejecutar programas de investigación y desarrollo para la evaluación del recurso.
- Dirección General de Ordenación y Manejo Integral, la cual es la encargada de orientar y reglamentar las actividades pesqueras, fundamentándolas en consideraciones técnicas y científicas, con el propósito de asegurar y mantener la producción a un nivel de óptimo de aprovechamiento.
- Dirección General de Fomento a la Productividad y Asistencia Técnica, la que supervisará la aplicación del presente Decreto, elaborando un programa de divulgación de la norma coordinando su implementación a nivel nacional.
- Dirección General de Inspección, Vigilancia y Control, es la responsable de hacer cumplir las normas de ordenación y levantar los expedientes de los decomisos.

3. Actividades de ordenamiento y conservación de la pesquería

El caracol reina se encuentra distribuido en la República de Panamá de la siguiente manera en el Caribe, han sido localizados en dos regiones; en la Provincia de Bocas del Toro, en las cercanías de las zonas protegidas del Archipiélago, específicamente en la Isla del Escudo de Veraguas, Cayo de Agua, Bahía Azul y Punta Valiente; en esta región eran aprovechados durante todo el año.

El Decreto Ejecutivo Nº 98 de 17 de noviembre de 2009 (G.O. 26413 de 24/11/09), extiende el período de veda de cinco (5) años desde el 2009 para este caracol marino (Strombus spp.) establecido previamente mediante el Decreto Ejecutivo 159 de 31 de diciembre de 2003 (G.O. 24963 de 08/01/04). En el mismo se prohíbe su captura, posesión y comercialización, generando una multa desde cien balboas (B/.100.00) a mil balboas (B/.1,000.00) más el decomiso del producto para los extractores del recurso y de mil balboas (B/.1,000.00) a diez mil balboas (B/.10,000.00) a los comercializadores, más el decomiso del producto.

Sin embargo, existe información de que aún se desarrollan ciertas actividades de pesca de forma ilegal, para consumo local, en las zonas descritas anteriormente.

4. Consumo y Comercialización

No se dispone de información sobre el volumen del consumo local, ya que al encontrarse esta especie en veda, no es posible obtener este tipo de dato. Sin embargo, si se conoce que algunos buceadores venden directamente el caracol por libra a los intermediarios, hoteles y restaurantes; el precio estimado en tierra es de 1.50 a 2.00 balboas por libra (peso de la carne con vísceras). Esta información es verificable al momento de hacer los decomisos y elaborar los expedientes.

La Dirección General de Inspección, Vigilancia y Control de la ARAP, ha decomisado en este año 2013 aproximadamente 3 mil quinientas libras de cambute o caracol reina y las principales áreas de donde se han producido estos decomisos son: la Comarca Guna Yala y la provincia de Bocas del Toro. Fuente: Dirección General de Inspección, Vigilancia y Control de la ARAP.

En el 2014 se decomisaron 452 libras de carne de caracol. Durante un muestreo de los individuos decomisados (carne limpia y opérculo), se obtuvo los promedio de: 330.34 gramos de peso mínimo y un peso máximo de 615.1 gramos.

5. Investigación y evaluación de la población

La Dirección de Investigación y Desarrollo planifica dos investigaciones en futuro próximo:

- Determinación del Estado de distribución y abundancia de las Poblaciones de Caracol Reina, *Strombus gigas* en la República de Panamá, para el establecimiento de estrategias de manejo.
- Estudio de las masas ovígeras (huevos) de la cambombia *Strombus gigas* en Isla Colón, Bocas del Toro.

6. Hallazgos No-Perjuiciosos

Según información obtenida de la Contraloría General de la República de manera extraoficial no existen reportes de captura ni de exportación de caracol reina en los últimos años.

ANEXOS

Decomisos de caracol realizados en Panamá 2013-2014

NATIONAL SUMMARY REPORT
FOR THE
STATUS OF QUEEN CONCH FISHERY IN ST LUCIA

PREPARED BY:

Patricia Hubert-Medar
Fisheries Assistant

and

Sarita Williams Peter
Chief Fisheries Officer (Ag.)

1. Description of the national Queen Conch fishing industry

The Queen conch, *Strombus gigas* (Linnaeus, 1758) is one of the single species nearshore fisheries of Saint Lucia. For the most part, fishers harvest stocks using SCUBA gear. However, conch is still harvested with gill nets and by free diving in areas along the west and southwest coasts (Rambally, 1999).

Conch is commercially harvested by over 40 fishers at depths ranging from 11 m to 43 m. Fishers mainly operate out of fibreglass pirogues ranging in length from 7.02 – 8.45 m, powered by outboard engines of 115 – 250 hp. Walker (2003), reported that while conch is targeted commercially by some fishers throughout the year, other fishers focus their efforts on this resource during the low period for "offshore" pelagic species, for, on average, five months. Fishers of this resource can be divided into part-time and full-time. Full-time fishers conduct dives on an average of four times each week, alternating harvesting and rest days, whilst part-time fishers operate twice each week (DOF- Conch divers' survey, 1999).

Walker (2003), reported that the majority of divers conduct greater than three dives per trip and approximately 100 – 500 individual conch are landed per trip. However, the quantity of conch landed per trip is dependent on the number of divers and the number of dives conducted during the trip. Subsistence exploitation in shallower areas occurs, but the extent is unknown. Queen Conch fishing grounds are to the North West and South east of St. Lucia measuring a total of approximately 79,00ha.

2. Policy and Legislation

Fisheries Legislation
At the national level, Fisheries Regulations in place since 1994, provide protection for this resource. This legislation states:

I. No person shall -

a. take from the fishery waters, sell, purchase, or at any time have in his possession any immature conch; or
b. take from the fishery waters, expose for sale, purchase or at any time have in his possession any conch during the closed season for conch as specified by the Minister by notice published in the Gazette and in a newspaper which is printed or circulated in the State.

II. In this Regulation -

a. "conch" includes the whole or any part of any conch;

b. "immature conch" means a conch with -

i a total weight of less than one kilogramme;

meat weight of less than 280 grammes after removal of the digestive gland;
ii a shell which is smaller than eighteen centimetres in length; or

iii a shell which does not have a flared lip.

However, in 2000, the Department of Fisheries with assistance from FAO, embarked on an initiative to revise the fisheries legislation. The following are proposed amendments for the new fisheries legislation as they pertain to conch:

- Inclusion of a lip thickness in the definition of an immature conch (less than 5 mm).
- Removal of the stipulated shell length limit.
- Provision for closed areas.
- Provision for a national permit system for harvesting of conch.

Further, the current fisheries legislation allows a maximum fine of $5000.00 for each offence and/or incarceration. However, the newly drafted fisheries legislation proposes to increase the fines relating to various fishery offences.

Convention on International Trade of Endangered Species (CITES)
Saint Lucia is currently in the process of finalising and institutionalising national CITES enabling legislation. Fines being proposed in the draft CITES legislation range from EC$10,000.00 – EC$200,000.00, depending on the offence.
Apart from the three conch limit mentioned earlier, the import and export of all conch and conch products are regulated under the CITES restrictions.

Due to the nature of the fishery, the marketing system and an informal policy of the Department of Fisheries, the majority of conch harvested are landed whole (live) and then sold immediately. Additionally, the current legislation does not allow sport fishers to fish for conch.

3. Development Activities

In 2008 a Conch Study financed by the European Union under the SFA 2003 was conducted. The purpose of the study was to provide more rigorous, scientifically based information and analysis for effective management of fisheries resources in St. Lucia.

Although the study revealed that conch distribution, even within areas with suitable substrate, is patchy, eighty three percent (83%) of past fishers reported either no change or an increase in the size of adult and juvenile populations over time, none reported a decrease.(King-Joseph etal).

In an effort to address one of the recommendation of this survey, (DOF efforts at monitoring, regulating and enhancing the fishery should be intensified) (page 65), as well as alleviate the number of Decompression Sickness cases, the Department of Fisheries conducted training for conch divers leading to certification in Open Water, Advanced Open Water, provision of oxygen and the use of emergency oxygen. The training was offered at no-cost to the fishers. To qualify for the training fishers had to get approval from a dive medical consultant. This consultation was offered free of charge.

4. Fisheries management and conservation activities

Fisheries Management Plan
Two management objectives have been defined for this resource and are articulated in the *Plan for Managing the Fisheries of Saint Lucia (2001- 2005).* They include rebuilding the nearshore stocks and ensuring sustainable use of this resource. Options identified for attaining these objectives include initiating a flared lip thickness restriction, controlling effort through a licensing system, implementing closed areas and/or seasons, and co-management arrangements with resource users.

It should be noted that a fisheries policy is being drafted and the fishery management plan is currently being updated.

5. Consumption and Trade

Currently, the major market for conch meat is the local market, which serves both the tourism sector and nationals. The conch fishery is of great social and economic importance to the fishers and stakeholders actively engaged in the purchase and sale of conch. There are a number of vendors and restaurants who generate significant revenue from the sale of conch.

From a survey conducted by Walker (2003) the local markets identified for conch were the Saint Lucia Fish Marketing Co-operation, hotels, restaurants, seafood festival vendors and the public. This survey also revealed that there is a daily demand for the product, unlike in the past, when conch had to be enclosed in nearshore pens until sale was obtained.

Sale of conch shells, especially in the tourism sector is another area for economic benefits. Shells are polished and sold as souvenirs. In 2002, the Standing Committee of CITES withdrew recommendations to suspend imports of conch from Saint Lucia and COP 12 agreed that shells of the Queen conch would qualify as exempt from the provision of Articles III, IV and V of the Convention under the category of personal and household effect. Under Resolution, Conf. 12.9 "Queen conch (*Strombus gigas)* shell – up to three per person do not require export or import permits, or re-export certificates, for personal or household effects for the dead specimens, parts and derivates." Before 2002, the number of shells leaving the island was monitored by the provision of CITES permits. However, this avenue for recording trade in fewer than four shells no longer exists.

6. Annual catch statistics, research and stock assessment

Data collection

The main aim of the data collection system is to monitor the status of the stocks that are being exploited. The current fisheries data collection systems include several components such as gathering of data on catch, effort, registration of fishermen and vessels, SCUBA diving and snorkelling establishments, sports fishing vessels and spear gun fishers, in addition to licensing data of fishers and fishing vessels, dive and snorkel leaders.

Due to traditional practices in the fishery, collection of adequate data on landings of this resource has been challenging. However, during the jointly funded CFRAMP and Government of Saint Lucia funded conch biological data collection programme, sufficient data were collected and many lessons learnt. One such lesson is that it is essential that data collection for this fishery be undertaken as part of a collaborative framework between management agencies and fishers.

Stock Assessment

The management advice coming out from the 2008 of the CFRM Conch Scientific Working Group stated that in order to ensure the sustainability of the queen conch fishery and over time to rebuild the density of the stock, the following are recommended:

1. Fully enforce existing regulations, which make it illegal to harvest immature conch and allows for a close season by:

    - Developing and implementing a National Plan of Action for IUU[2] Fishing.
    - Improving on monitoring, control and surveillance capabilities of the enforcement agencies (Department of Fisheries, Saint Lucia Royal Police Force, Coast guard etc.)

2. Establish and enforce the total allowable catch (harvest quota), which initially should not be beyond 30 tonnes per year. Since the reduction of the catch should speed recovery and reduce the risk of further over fishing.

3. Limit entry into the fishery to traditional fisher to control the fishing effort.

However, there were data gaps that may have reduced the reliability of the data. After the Department conducted the surveys with fishers there were reports of over 3 times as much conch landed. As such, CPUE estimates may need to be adjusted. Additionally, the assessment was carried out estimating the conch stock density based on Jamaica's assessment. The results of the conch density survey conducted in St. Lucia in 2008 revealed an average density of 242 animals per ha for St. Lucia. It should be noted the South fishing ground density was 88 animals per ha and the North was 367 animals per hectare. As such the following are recommended future research:

Ø As suggested in the Third CRFM Scientific Meeting the inclusion of the following data may improve the reliability of the assessment:
    - o Catch and effort
    - o Abundance /Density survey
    - o Habitat mapping (both fished and non fished areas)

Ø The collection of catch and effort data on the conch fishery should be continued to include depth estimates.

Ø In the medium term the conch habitats in Saint Lucia should be mapped to account for patchy locations of animals and to determine ecological corridors.

Ø In the long term it is recommended that data on the density of conch in Saint Lucia be conducted regularly as to better estimate the existing biomass and the rate of increase of the conch stock in Saint Lucia.

Ø With the current location of the conch stock in Saint Lucia it would be difficult to conduct density surveys and habitat mapping in areas which are not currently fished because the depth becomes a limiting factor.

7. Final Considerations

[2] IUU - illegal, unreported and unregulated fishing

The following summarises the information on issues affecting the conch fishery:

- Although biological data have been collected in the past for this species, the collection of such data has not been sustained after the termination of externally funded projects.

  Morphological differences among various conch populations in Saint Lucia have implications for management measures e.g. especially for those relating to shell length and weight.

- Information on stocks is still scarce, especially information on density, abundance and distribution. Scarcity of this information limits the reliability of current stock assessments.

- The topography of the sea floor within Saint Lucia's Exclusive Economic Zone is a limiting factor to conduct surveys and presents a challenge in determining the true status of the stock.

- Although stocks are thought to be sustaining. The depth at which the conch is being fished possess threats to fishers health and is a limiting factor on the number of dives that are being conducted.

Turks and Caicos Islands National Report
Status of The Queen Conch Fishery

L CLERVEAUX

Department of Environment and Maritime Affairs
Ministry of Environment
Turks and Caicos Islands

1. Statistics: annual catches, conversion factors, and data collection system

The Department of Environment and Maritime Affairs collects data from the following sources:
Catch Data: Currently, Conservation, Environment and Scientific Officers collect catch landing data at the various landing sites throughout the country, from processing facilities, including total catch in poundage, effort data (via boat-day, man-day), morphological data, and location data and basic demographics.

Underwater Visual Census: Underwater surveys or visual census are carried out to help in estimating stock densities and distribution. The last underwater visual survey was conducted in 2001, which guided the MSY and TAC levels. Funds and resources have been secured and survey of the conch habitats began in October 2013 and should be completed by early 2015. Initial data collected through the survey were analysed at the tenth annual CRFM Scientific meeting in June 2014.

Local Consumption: The last detailed survey conducted was in 2004-2005, which sought to obtain a better understanding of how much conch was being consumed locally to ensure that the allocated quota for local consumption is in line with the TAC level of 300,000 pounds. Local restaurants are also required to submit data on locally purchased seafood to DEMA to further guide the sustainable management of the species.

2. Policy and Legislation

DEMA manages the conch fishery with a combination of legislation, quotas and a closed season. The Fisheries Protection Ordinance stipulates a size limit of seven inches in shell length or eight ounces of raw meat per harvested animal. A legislative review, with the intention of amending the Fisheries Protection Ordinance is underway, which aims to implement more biologically relevant management measures. The closed season for the Queen Conch extends from July 15th to Oct 15th yearly for exports only, and therefore conch can still be fished and consumed locally.

CITES Convention

Although the Turks and Caicos Islands is not a signatory to the CITES convention, the TCI monitors export of all CITES listed species of which the queen conch is the main specie. The TCI reports catch and management plans to the CITES Secretariat annually, in order to facilitate trade with CITES Signatory Countries. To maintain continued compliance with CITES rules, The TCI has drafted an endangered species bill, which seeks to formalise and guide the establishment of both Scientific Authority Committee, as well as Management authority. The Endangered Species Bill has been reviewed by and should possibly begin

implementation in the near future.

The CITES Scientific Committee membership of scientific professionals from both the private and public sectors, reviews stock assessments to determine a Maximum Sustainable Yield (MSY) and to make recommendations to set the commercial quota or Total Allowable Catch (TAC) for the species. Once the quota is reached, the export market is closed for the remainder of the season.

3. Fisheries management and conservation activities

TCI has taken an ecosystem approach to fisheries (EAF), which incorporates a vast network of Protected Areas. Since 1992, the TCIG has created 35 Protected Areas, of which 10% are entirely Marine Protected Areas, and the vast percentage contain marine components. A stringent licensing system is also in place which allows for a limit to the number of commercial licenses issued under the Fisheries Protection Ordinance. With recommendation from The Turks and Caicos Islands Scientific Authority and The Fisheries Advisory Committee, the queen conch quota for the 2012-2013 fishing season was reduced from 1,600,000 set at a TAC of 800,000 lbs, including an allocation of 500,000 lbs for export and 300,000 lbs for local consumption. Furthermore, the quota for wild conch shells has been set at 1,000,000 (one million) and a quota for farmed products at 10,000 lbs. The precautionary amounts were set in place until the survey is completed to effectively determine the most sustainable path for the fishery.

The TCI will continue to work in accordance with CITES and other regional management initiatives through FAO, CRFM, CFMC and the queen conch working group among others, to sustainably manage the fishery.

4. Consumption and Trade

Although there has been a 300,000 pound annual quota for local consumption, data and information as to how much of that quota is consumed is very limited.

With regards to exports, all meat products were exported to the US market, whereas shells and shell products, pearls and opercula were exported to the South Korea, United States and Vietnam. Table 1 provides a breakdown of export quantities for different products for the year 2011-2012.

Table 3

	INDIVIDUAL	**Weight**

Scientific Name	DESCRIPTION	PIECES		
		Numbers	Lbs	Kg
Strombus gigas	Wild Fillet Conch Meat		112,990	51,251
Strombus gigas	Wild Caicos Clean Conch Meat		65,850	29,869
Strombus gigas	Wild Conch Trimmings		50,050	22,702
Strombus gigas	Wild Live Conch	2,000	-	-
Strombus gigas	Wild Conch Shells	83,392	-	-
Strombus gigas	Conch Operculum		4,217	1,913
Strombus gigas	Conch Pearls	137		

5. Research and stock assessment

The TCI through the Department of Environment & Maritime Affairs (DEMA) has in October 2013 begun the process of conducting a conch Visual Survey to assess the current status of the queen conch stocks throughout all fishing grounds. The preliminary results of the survey were brought to the CRFM 10th Annual Scientific meeting in June, which revealed that the stock assessments using the ASPIC modelling were not fitting correctly, and thus was recommended that the visual census is completed in order to calculate biomass. The visual survey is essential in order to establish the current distribution of queen conch on the Turks and Caicos Banks, to identify and assess the status of deep water stocks and to provide more accurate estimates of biomass and setting a sustainable TAC.

6. Non-Detriment Findings

The TCI has not prepared or submitted any NDF reports, but has however used the annual stock assessments from the catch and effort data to set TAC on an annual basis, which guides the export as well as the local consumption amounts.

The Scientific Authority has always recommended a precautionary approach because of the gaps of information from illegal poaching vessels originating from the Dominican Republic, domestic consumption data, and a dated visual census. As can be observed from table 2 below, the Scientific Authority provides recommendations to the Management Authority.

Table 4

Fishing Year	MSY	Assessment include Local Consumption	Suggested Quota by SAC (% of MSY)	Quota set by MA (% of MSY)	Landings	Exports (fillet meat)
2004	1,674,990	NO	1,423,741 (85%)	1,507,491 (90%)	1,500,008	601,476
2005	1,678,315	NO	1,426,567 (85%)	1,510,399 (90%)	1,488,171	590,559
2006	1,717,970	NO	1,528,993 (89%)	1,528,993 (89%)	1,501,831	611,548

2007	2,057,586	YES	1,444,874 (70%)	1,606,743 (79%)	1,606,911	643,164
2008	1,758,587	NO	1,442,041 (82%)	1,606,743 (92%)	1,604,967	606,626
2009	2,032,969	YES	1,557,660 (77%)	1,600,000 (79%)	1,666,413	613,732
2010	1,685,895	NO	NO RECOMMENDATION	1,600,000 (95%)	943,161	313,875
2011	1,628,963	NO	620,000 (38%) COMMERCIAL EXPORT 323,000 (20 %) DOMESTIC CONSUMPTION		499,830	

Since 2012, the TCI through the Department of Environment and Maritime Affairs has operated at %50 of the previous MSY level due to the fact that biomass data was outdated along with the assumed increase in local consumption, as well as habitat degradation from Hurricanes Ike and Hannah in 2008.

The final results of the visual survey will determine biomass on the conch habitats, thereby guiding the decision as to what level of harvest could be detrimental to the fishery both in the short and long term.

National Summary Report on the Status of Queen Conch Fisheries in St. Vincent and the Grenadines 2014.

By: Kris Isaacs

1. Data Collection System

The fish landing sites in St. Vincent and the Grenadines (SVG) are zoned and categorized (stratified). There are seven zones and thirty six (36) landing sites. Categorically, a site is designated as either primary, secondary or tertiary. The assignment into any one of these categories is based on three main variables, i.e., the number of fishing boats that regularly land fish at the site; the amount of fish landed; and the level of infra-structural development. There are two (2) primary sites (Kingstown and Barrouallie); fourteen (14) secondary and twenty (20) tertiary sites. In addition to these on-shore landing sites, several trading vessels take fish directly from the fishermen and they are also classified as landing sites.

The catch and effort data follows a stratified sampling methodology. In this approach the sampling frame (which is all the identified fish landing sites within the country) is first partitioned into groups or strata, and the sampling is then performed separately within each stratum. This method combines the conceptual simplicity of simple random sampling with potentially significant gains in reliability.

The sampling units (landing sites) are stratified prior to sampling into three groups (primary, secondary and tertiary) based on the variables mentioned above. The technique of simple random sampling is then used to select the days of the month each landing site is sampled. Sampling is not carried out on Saturdays, Sundays and major holidays, nevertheless, every day is considered as a potential fishing day. This simplifies data analysis and does not seem to be a great source of error since fishermen fish whenever they can regardless of what day it is.

An estimate of the amount of fish landed in the country is obtained by summing the totals of all the estimates for the individual landing sites.

2. Policy and Legislation

The Fisheries Act (1986) and *Regulations (1987),* which form part of the OECS harmonized legislation, covers, Fisheries access agreements fishing licensing, fish processing establishments, fisheries research, fisheries enforcement and the registration of fishing vessels. The legislation also specifies conservation measures such as prohibiting the use of any explosive, poison and other noxious substance for the purpose of killing, stunning, disabling, or catching fish; closed seasons, gear restriction, creation of marine reserves. The legislation gives the Minister responsible for fisheries, the authority to create new regulations for the management of fisheries when necessary. St. Vincent and the Grenadine's Fisheries regulations state that it is illegal to take, sell or purchase conch with a shell that is less than 7 inches in length or that does not possess a flared lip. It is also illegal to take, sell or purchase a conch with a total meat weight which is less than 225 grams (after removal of the digestive gland). *Fish Processing Regulations of 2001* makes provisions for the control of marketing, handling, transporting and storage of fish and the operation of fish processing establishments.

3. Fisheries Management and Conservation Activities

There have been no new recommendations on the management and conservation of Queen conch in SVG. Management measures which have been in place since the development of the Fisheries Regulations 1987 have held. Along with size and weight limits, regulations also make reference to ten Marine Conservation Areas (MCAs), nine of which are found in the Grenadines and one on mainland St. Vincent. The Queen conch is generally fished in the Grenadines, however anyone wishing to export conch must fill out a form at the Fisheries Division, which is then signed by the issuing management authority. Currently there are n quotas or closed seasons for the Queen Conch fishery. Support for Monitoring, Control and Surveillance comes in form of our Royal SVG Coast Guard, who act as the main enforcement arm for our fisheries rules and regulations and to a lesser extent, Wardens and Rangers who over-see some of the MCAs in the Southern Grenadines.

4. Consumption and Trade

Conch is mainly exported to other Caribbean islands and to the United States of America.

Year	Catch in Metric tonnes	Export in Metric tonnes
1990	7.50	4.90
1991	1.47	0.04
1992	1.92	0.01
1993	39.31	
1994	15.19	8.74
1995	7.74	6.04
1996	12.46	8.11
1997	8.20	
1998	20.80	0.49
1999	6.83	2.24
2000	6.91	4.57
2001	38.29	35.19
2002	35.93	33.59
2003	8.91	6.57
2004	17.25	13.70
2005	6.46	3.86
2006	3.59	2.39
2007	10.76	8.68
2008	4.16	0.80
2009	17.54	11.33
2010	39.19	27.95

Table 1: showing landings and exports of conch in SVG for 1990-2010

5. Research and Stock Assessment

The National Sea Turtle Conservation Programme which aims to conserve the present nesting and foraging populations of the sea turtle in SVG. Patrols are done mainly on the eastern side of the island due to the forceful wave action of the Atlantic Ocean which aides Leatherback turtles in their approach to the beach.

Under the Caribbean Fisheries Co-management Project (CARIFICO), St. Vincent and the Grenadines Fisheries Division has been able to continue in the development of the FAD fishery, something that SVG does not have a long history in. CARIFICO is a joint collaboration between the Caribbean Regional Fisheries Mechanism (CRFM) OECS member states, and was implemented on 1st May, 2013 and has a duration of five years. The project intends to develop and implement suitable fisheries co-management approaches in six OECS countries (including St. Vincent and the Grenadines) and appropriately share achievements and lessons learnt with other CRFM member states (CARIFICO, 2013). A baseline survey of FAD fisheries on the west coast of St. Vincent was conducted and steps were made in improving the system of ID for fishermen. Some consultations were also held with fishers to build consensus about co-management and explore possible supportive measures by the government authority.

In keeping with the goals and objectives of the SVG National Parks and Protected Areas System Plan 2010-2014, and supported by the Caribbean Aqua Terrestrial Solutions (CATS) Project, The SVG Fisheries Division, supported by the National Parks, Rivers and Beaches Authority have started activities towards the designation of the South Coast Marine Conservation Area (SCMCA) as St. Vincent's next marine park. There are 10 Marine Conservation Areas in St. Vincent and the Grenadines, however only one marine park (the Tobago Cays Marine Park), which is situated in the Southern Grenadines. This project will produce the first marine park on mainland St. Vincent. Among the activities undertaken so far were: a baseline assessment and mapping of coastal and marine resources within the SCMCA, assessment of additional and alternative livelihoods (also within the SCMCA) and an evaluation of national legal and organizational frameworks for MPA management within St. Vincent and the Grenadines. The project commenced in October of 2013 and is expected to run until December 2015. The project is also a step forward for St. Vincent and the Grenadines in fulfilling its commitment to the Caribbean Challenge Initiative (CCI) whose objective is that member countries must protect 20% of their marine and coastal habitats by 2020.

An ACP Fish II project on 'Training in underwater visual survey methods for evaluating the status of Queen Conch stocks' was conducted in August of 2013 to build the capacity of fisheries officers in the target group in using underwater visual survey methods for the management of *Strombus gigas*, queen conch within our Caribbean region. The implementation of the project involved Fisheries Officers undergoing training in the use of underwater visual survey techniques and a conch survey in the waters surrounding Union Island in the southern Grenadines. By bringing Fisheries experts from across the region together in one place, the idea was to build on the experiences and methodologies used in the other islands and share best practices in the use of visual survey techniques under the tutelage of key consultants. Ultimately it is also expected that this activity support the eventual objective of harmonizing visual survey techniques and assessments for queen conch in the region. Trainees on the workshop represented the following CARIFORUM member states: Antigua and Barbuda, The Bahamas, Belize, Dominican Republic, Grenada, Haiti, Jamaica, St. Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines.

6. Non Detriment Findings

No NDF report was prepared between 2011 – 2014.

References

CARIFICO. 2013. CARIFICO 1st Semi Annual Report of SVG 1st May – 30th Oct. 2013.

SVG National Parks and Protected Area System Plan 2010-2014.

The Status of Queen Conch Fisheries and National Summary Report of the United States of America

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The purpose of this document is to inform the Working Group on work progress and developments at the national level since the First International Queen Conch Conference, held in San Juan, Puerto Rico, in 1996.

1. Description of the national queen conch fishing industry

Queen conch is found in the U.S. Caribbean including southern Florida, the Islands of Puerto Rico and the U.S. Virgin Islands (USVI). The USVI is comprised of St. Thomas/St. John and St. Croix. The U.S. Caribbean Exclusive Economic Zone (EEZ) consists of those waters extending from the nine nautical mile seaward boundary of the Commonwealth of Puerto Rico and the three nautical mile seaward boundary of the territory of the U.S. Virgin Islands out to 200 nautical miles offshore. Fishing for or possession of queen conch in the U.S. Caribbean EEZ is prohibited, except in the area east of 64°34' W longitude, which includes Lang Bank east of St. Croix, USVI, during November 1 through May 31. The EEZ west of 64°34' W has been closed since 2005.

The State of Florida law prohibits harvest, possession, landing, purchase, sale, or exchange of queen conch from the land or waters of the State of Florida. It is not unlawful though to take or possess queen conch shells from the land or waters of the State of Florida, so long as such shells do not contain living queen conch at the time of taking and the queen conch is not killed to obtain its shell.

2. Policy and Legislation

Fishing for or possession of queen conch in the U.S. EEZ is prohibited, except in the area east of 64°34' W longitude which includes Lang Bank east of St. Croix, U.S. Virgin Islands, during November 1 through May 31. State of Florida law prohibits harvest, possession, landing, purchase, sale, or exchange of queen conch.

On November 5, 2014, the National Marine Fisheries Services (NMFS) announced a listing determination on a petition to list the queen conch (*Strombus gigas*) as threatened or endangered under the Endangered Species Act (ESA). The agency completed a comprehensive status report for the queen conch in response to the petition submitted by WildEarth Guardians. Based on the best scientific and commercial information available, including the status report, NMFS determined that the species does not warrant listing at this time. They concluded that the queen conch is not currently in danger of extinction throughout all or a significant portion of its range nor is it not likely to become so within the foreseeable future. The finding was published in the Federal Register on November 5, 2014.

The United States does not allow import of queen conch from Grenada and Haiti, in accordance with the current CITES recommendations to suspend trade in queen conch with those two

countries, based on their failure to implement recommendations under the Review of Significant Trade.

3. Development activities

It is hoped that once the U.S. stock is rebuilt, recreational and commercial fisheries could be reinitiated in areas that are currently closed to conch fishing. Commercial fishers from Puerto Rico and St. Croix have contributed with research to improve fishing regulations in the US Caribbean.

4. Fisheries management and conservation activities

In most of the U.S. Caribbean EEZ, the annual catch limit for queen conch is zero. Under the U.S. Code of Federal Regulations (CFR), no person may fish for or possess on board a fishing vessel a queen conch in or from the Caribbean EEZ, except in the area east of 64°34' W longitude which includes Lang Bank east of St. Croix, U.S. Virgin Islands (the St. Croix management area), during November 1 through May 31 (see 50 CFR 622.32, paragraph (b)(1)(iv)).

In the St. Croix management area, the annual catch limit is established at 50,000 pounds (22,680 kg). When the annual catch limit is reached or projected to be reached, as specified in U.S. regulations (see 50 CFR 622.49, paragraph (c)(2)(i)(A)), the Regional Administrator will close the U.S. Caribbean EEZ in the St. Croix management area to the harvest and possession of queen conch. For clarification, this catch limit applies to the only area in the U.S. Caribbean EEZ where fishing for queen conch is allowed, which is the area east of 64° 34' W, which includes Lang Bank east of St. Croix, USVI.

There is a quota of 50,000 pounds in the St. Thomas/St. John territorial waters. There is no quota in the state waters of Puerto Rico

The recreational bag limit for queen conch in or from the U.S. Caribbean EEZ where fishing is allowed, is 3 per person per day or, if more than 4 persons are aboard, 12 per boat per day. For a fisherman that has a valid commercial fishing license issued by the U.S. Virgin Islands, the commercial trip limit in the U.S. Caribbean EEZ is 200 queen conch per vessel per day, compatible with the territorial regulations of St. Croix (Federal Register 78 No. 177, September 12 2013).

Other pertinent U.S. regulations include:

50 CFR 622.37 Size limits. (g) Caribbean queen conch--9 inches (22.9 cm) in length, that is, from the tip of the spire to the distal end of the shell, and 3/8 inch (9.5 mm) in lip width at its widest point. A queen conch with a length of at least 9 inches (22.9 cm) or a lip width of at least 3/8 inch (9.5 mm) is not undersized.

50 CFR 622.38 Landing fish intact. (f) Queen conch in or from the Caribbean EEZ must be maintained with meat and shell intact.

50 CFR 622.41 Species specific limitations. (f) In the Caribbean EEZ, no person may harvest queen conch by diving while using a device that provides a continuous air supply from the surface.

5. Consumption and Trade

Overharvest of queen conch and population declines led to the closure of fisheries in many areas of its range by the 1980s. Despite local closures, harvest continued to increase throughout the 1990s, with average annual landings of nearly 30,000 metric tons. Much of the increase was driven by demand from Caribbean countries, as well as the United States, which during this time, imported approximately 80 percent of the annual queen conch catch.

In 1992, in response to concerns regarding high demand for the species and declining populations, the United States proposed to list the queen conch in Appendix II of CITES. This proposal was adopted during the CITES Eighth Conference of the Parties. CITES provided the first legal conservation framework for regulating international trade in queen conch products.

Between 1995 (the first year for which verified CITES data is available) and 2001, the international trade in queen conch dramatically escalated in volume. Exports of meat increased from 1.4 million kilograms in 1995 to nearly twice that volume in 2001.

Many countries continued to express concerns about overexploitation, illegal trade and subsequent enforcement problems. These concerns ultimately led to the inclusion of queen conch in the CITES Review of Significant Trade process which continued from 1995 to 2001. The review began with a thorough examination of the species' conservation and trade status, providing multiple opportunities for comment by the exporting and importing countries. As a result of these reviews, recommendations to suspend trade in queen conch were put in place for some range countries. Haiti and Grenada are the only two countries for which such recommendations remain in place.

Based on trade statistics from the U.S. Fish and Wildlife Service, U.S. imports of queen conch meat averaged 1.3 million kilograms per year from 2001to 2013. The highest levels were reported in 2001 (2,404,131 kg) and the lowest in 2007 (830,008 kg). In 2013, the most recent year for which data are available, 1,738700 kilograms of queen conch meat was imported into the United States (see Figures 1 and 2 attached). It should be noted that these data do not include exports from Jamaica, a major producer that previously exported to the United States, but no longer does. Although levels of trade decreased during the Significant Trade Review and in its aftermath, total international trade appears to be approaching the total level of this trade in 2001.

6. Data collection systems: annual catch statistics, research and stock assessment

A stock assessment conducted by NMFS was completed in 2007 and the results showed that the species was overfished and undergoing overfishing. The assessment recommended that additional data and information be gathered and recommended that a meeting to update information on the status of the species be convened in 2010. The United States is currently in year 9 of an expected 15-year rebuilding plan.

Catch statistics are collected in both Puerto Rico and the USVI through a trip ticket system. Commercial fishers are required to provide information on the fishing trip take every day. Fishers record the following information on the trip ticket : name(s) of fisher(s), date, pounds of fish or shellfish harvested by species (the trip ticket is species specific), gear used, number of gear units used (e.g., number of tanks used per fisher), and the area where fishing took place within a 8 x 8 km^2 grid. Fishers are required to mail in or personally deliver the trip tickets to the

local government agencies. The data are compiled at the Puerto Rico Fisheries Research Laboratory of the Department of Natural and Environmental Resources and the USVI Department of Planning and Natural Resources, respectively. The data are shared with the NOAA-Fisheries Southeast Fisheries Science Center in Miami and made available to fishery managers.

Southeast Area Monitoring and Assessment Program (SEAMAP) Caribbean continues to collect fishery-independent data on queen conch using transects stratified by depth and habitat over a spatially determined geographical areas. Data are collected on size of queen conch along the transects, as well as information on reproductive activity. Gordon *et al.* 2005 have shown marked increases in the numbers of queen conch along the transects in the USVI and Puerto Rico, respectively.

Recently García-Sais et al. (2012; http://caribbeanfmc.com/pdfs/reni-Fisheries%20Independent%20-%20Final%20Report.pdf) completed the first fishery-independent survey of queen conch in mesophotic reefs (30- 50 meter depths) off the west coast of Puerto Rico. The data collected provided information on the depth, habitat preference, numbers (juveniles and adults), density and abundance of queen conch in these mesophotic reefs. The data were provided to the stock assessment group (i.e., SEFSC) to determine its utility in conducting assessments.

The Department of Natural and Environmental Resources for the Commonwealth of Puerto Rico is currently carrying out a survey of the recreational fishery for queen conch and spiny lobster under the Marine Recreational Information Program. The survey will provide a snapshot of the number of recreational fishers, landing sites, catch estimate and catch identification, among other parameters needed to evaluate the queen conch stocks in Puerto Rico.

Figure 1. Total Annual U.S. Imports of Queen Conch Meat (kilograms)
Source: U.S. Fish and Wildlife Service

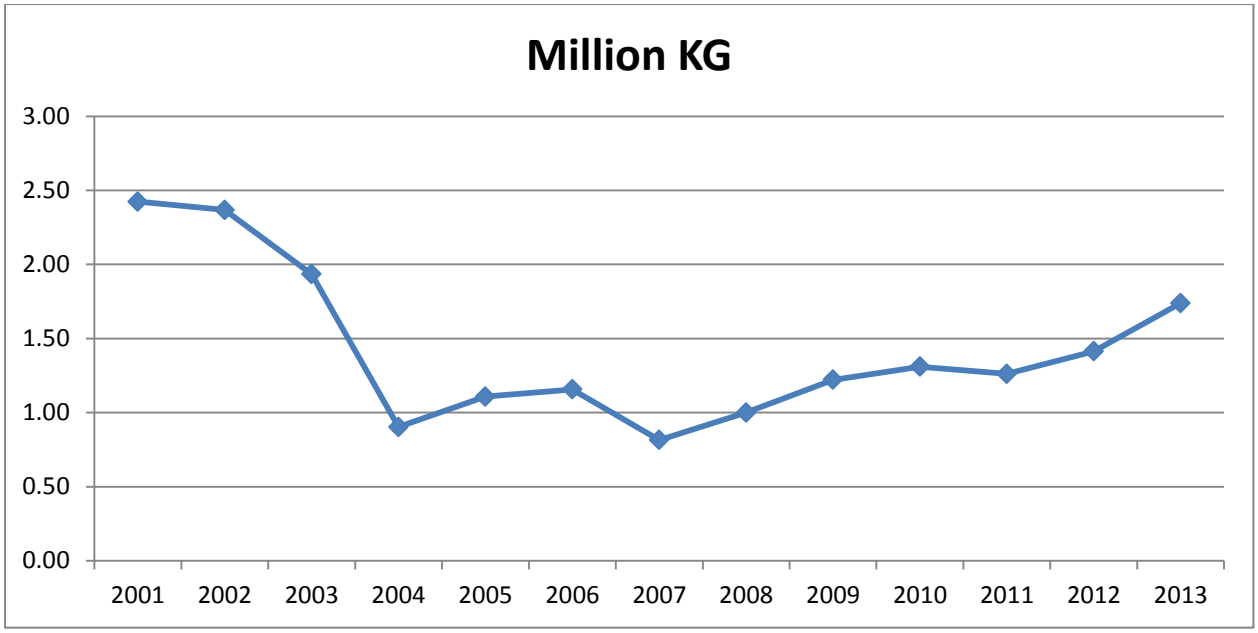
Million KG
3.00
2.50
2.00
1.50
1.00
0.50
0.00
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013

Figure 2. Annual U.S. Imports of Queen Conch Meat (kilograms) 2001-2013
Source: U.S. Fish and Wildlife Service

US Imports of queen conch 2001-2013															
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Antigua & Barb.					140	33	2	50	9		2	2		4536	4774
Aruba			5,805							2					5,807
Bahamas		192,880	125,723	57,692	91,568	164,268	146,208	124,618	186,128	275,796	219,554	243,599	260,980	380,121	2,469,135
Belize		274,738	169,616	171,526	229,092	239,131	272,174	166,783	243,175	301,347	331,300	328,031	479,724	386,334	3,592,971
Colombia		68,718	71,653	80,686	133,326	20,040			62,125	62,788	48,983	1,996			550,315
Dominican Rep.		568,830	558,005	491,333	700	38	5	8	109						1,619,028
Grenada		1			1		11	3			57	26			99
Haiti		1,091	7512	7,737		57	44				59				16,500
Honduras		922,278	1,020,204	810,724	2		187,913	150,799		23,443	136,324	197,255	151,718	184,798	3,785,458
Jamaica		45,360	40,000			130,896	12,258	7							228,521
Nicaragua		44,371	29,115	34,223	31,974	80,974	201,805	87,566	102,144	198,745	302,527	308,859	406,833	657,956	1,113,444
St Kitts & Nevis			2,089	2,358	7,461	15,010	16,004	12,412	12,015	12,000	6,818		9,500		86,167
St. Vincent & Gr.		1,471			8,077	3,907	2,348	1,453			45			6066	17,301
Trinidad & Tob.		1,584			454										2,038
Turks & Caicos		302319	337,931	278,324	400,510	453630	318,378	272220	394611	347,621	264,955	181,955	105,211	118,889	3,776,554
		2423641	2367653	1934603	903305	1107984	1157150	815919	1000316	1221742	1310624	1261723	1413966	1738700	17268112

The second meeting of the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch was held in Panama City, Panama from 18 to 20 November 2014. The meeting followed up on decisions by the 16th Conference of Parties of the Convention on International Trade in Endangered Species of wild flora and fauna (CITES) and a recommendation from the 15th session of the Western Central Atlantic Fishery Commission (WECAFC). The meeting reviewed a draft Regional Queen Conch management and conservation plan with 26 potential fisheries management measures and determined which measures will contribute most to the sustainability of the stocks and livelihoods of those involved in queen conch fisheries in the region. The meeting reached expert agreement on the use of regional harmonized conversion factors for the various degrees of processing of conch meat and on a format for Non-Detriment Findings (NDFs) assessments. The working group meeting was attended by 55 fisheries and CITES authority delegates from 22 countries and territories. The meeting was facilitated by the Caribbean Fisheries Management Council, CITES and FAO.