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### **THE SITUATION OF THE QUEEN CONCH (*Strombus gigas*) STOCK OF BELIZE**



Photo credit: Belize Fisheries Department. 2012.

Technical document being submitted to NOAA Fisheries in rejection of the petition to list the Queen conch (*Strombus gigas*) as endangered or threatened species under the Endangered Species Act of the United States.

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## Table of Contents

1. BACKGROUND .....	3
2. OBJECTIVE OF THIS TECHNICAL REPORT .....	4
3. WHAT IS NOAA FISHERIES BEING ASKED TO DO .....	4
4. STATUS OF THE QUEEN CONCH STOCK IN BELIZE .....	4
5. BELIZE’S QUEEN CONCH STATUS PRESENTED AT INTERNATIONAL FORA.....	7
6. STRATEGIC MANAGEMENT RESPONSE .....	8
7. SUSTAINABLE AND RESPONSIBLE USE OF THE QUEEN CONCH .....	9
8. SOCIO-ECONOMIC IMPORTANCE OF THE QUEEN CONCH FISHERY .....	12
9. CONCLUSION.....	12
10. BIBLIOGRAPHY .....	13
11. APPENDICES.....	13

## 1. BACKGROUND

In July 1996, Belize agreed to the Declaration of San Juan; the Declaration urged the Member States to embark on initiatives to better manage the Queen Conch of the region. Subsequently, the Belize Fisheries Department with the support of the CARICOM Fisheries Resource Assessment and Management Program (CFRAMP) implemented the first National Queen Conch Survey in 1996. The general objectives of the survey were to estimate conch abundance in the commercially important fishing grounds, to identify juvenile conch grounds for protection and to construct a baseline biological database.

In 2003, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which is responsible for the international trade of animal and plant species conducted a Queen conch review in response to various recommendations made to ensure the sustainability of the species. As a result of this exercise CITES grouped Queen Conch producing/exporting countries under 3 appendices and submitted recommendations to these countries to improve the management and export of Queen Conch meat. Belize was placed in Appendix II on the list of countries and CITES Resolution Conf. 12.8 outlined short and long term actions that needed to be taken by Belize.

The CITES recommendations to Belize were as follows: to establish a catch quota, establish meat conversion standards and continuously assess the Queen Conch population. In response to these recommendations in 2003 the Belize Fisheries Department sought and received the assistance of Dr. Richard Apeldoorn (University of Puerto Rico) to develop the methodology and to carry out a National Queen Conch Population Assessment. The objectives were estimate Queen Conch abundance and potential yield and to identify juvenile conch grounds for protection. The assessment was successfully carried out with the participation of members of the technical staff who received some training in the data processing, analysis and interpretation of results. A technical report was produced and submitted to CITES Secretariat.

In 2004, the Belize Fisheries Department and the Caribbean Regional Fisheries Mechanism (CRFM) conducted another Queen Conch population assessment. The results of the Queen Conch assessment of 2003 and 2004 were used to declare the first conch quota and revision of the conch fishery regulations.

In May 2006, the CITES Secretariat submitted a letter to Belize CITES focal point, which informed Belize that no further action was required by the Animals Committee or by the Secretariat with respect to its fulfilments of the requirements to engage in a fishery.

Despite the positive notification received from the CITES Secretariat in 2006, the Belize Fisheries Department has continued carrying out bi-annual National Queen Conch Surveys and the technical staff continued receiving training in stock assessment; the last survey was done in 2012. After the completion of each survey a Technical Report was prepared and submitted to the CITES Secretariat to provide an update on the status of the Queen Conch stock.

This technical report forms part of Belize's response to a petition made on March 2012 to NOAA Fisheries by Wildearth Guardians to list the Queen conch as endangered or threatened under the Endangered Species Act of the US and to which NOAA published a positive 90-day finding in August 2012.

## 2. OBJECTIVE OF THIS TECHNICAL REPORT

The objective of this technical report is to provide an accurate documentation of status of the Queen Conch Stock in Belize and details regarding the management interventions by the Government of Belize and the Fishing Community to ensure the Stock's sustainability. The need for this report arose from the observation that the information presented for use in NOAA's revision process in response to a petition to list the Queen Conch as endangered or threatened under the ESA of the US, is outdated, inaccurate and does not represent a true picture of the Queen Conch Stock in Belize.

## 3. WHAT IS NOAA FISHERIES BEING ASKED TO DO

NOAA Fisheries is being asked to kindly take into consideration this technical report as the revision process for the Queen Conch is being executed since it provides updated and accurate information on the status and management of the Queen Conch in Belize. This is especially given the fact that the material currently being considered is outdated, inaccurate and does not represent a true and accurate status of Belize's Queen Conch stock.

## 4. STATUS OF THE QUEEN CONCH STOCK IN BELIZE

The Queen Conch Stock in Belize is characterized as healthy and robust. The National Fishery has shown a stable and increasing trend in Queen Conch Meet landings over the past 27 years. This performance in the fishery is associated to various contributing factors including a management regime that prohibits fishing in no-take zones within the marine reserve network, protecting nursery areas and spawning populations, important habitats necessary for the survival of the species throughout its life cycle and reproduction, minimum size and weight limit regulations, closed fishing season, implementation of quota system that regulate the amount of conch meat harvested annually, increased monitoring, control and surveillance and full participation and cooperation by fishers and the fishermen cooperatives.

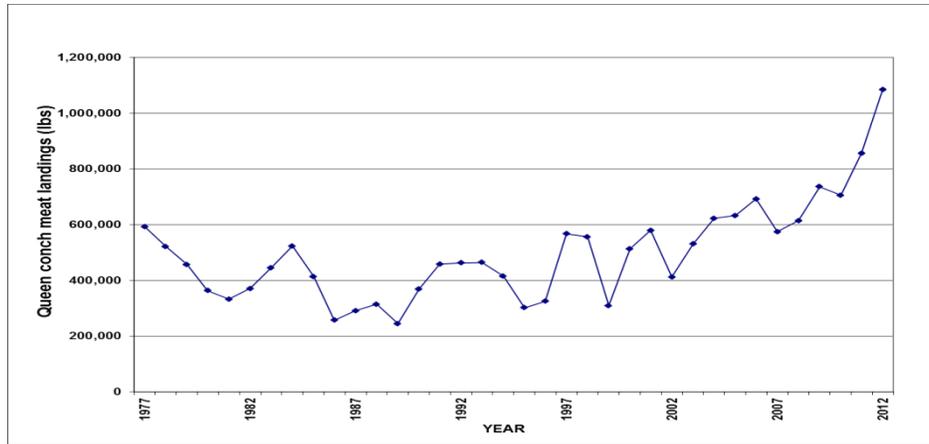


Figure. 1 Increasing trend in Queen Conch meat landings.

Queen conch meat landings have historically increased parallel to an increasing Fishing Effort (FE) as shown in Figure 2. Given this fact it is safe to assume that this fishery is responding well to a consistently higher fishing pressure over time which indicates the robustness and good health of the Queen Conch stocks. The current management regime is being further strengthened by the proposed introduction of limited entry system for the fishery by year 2015. This will formally abolish the “open access” nature of the fishery in Belize, which is consistent with the Precautionary approach recommended by the FAO Code of Conduct for Responsible Fisheries.

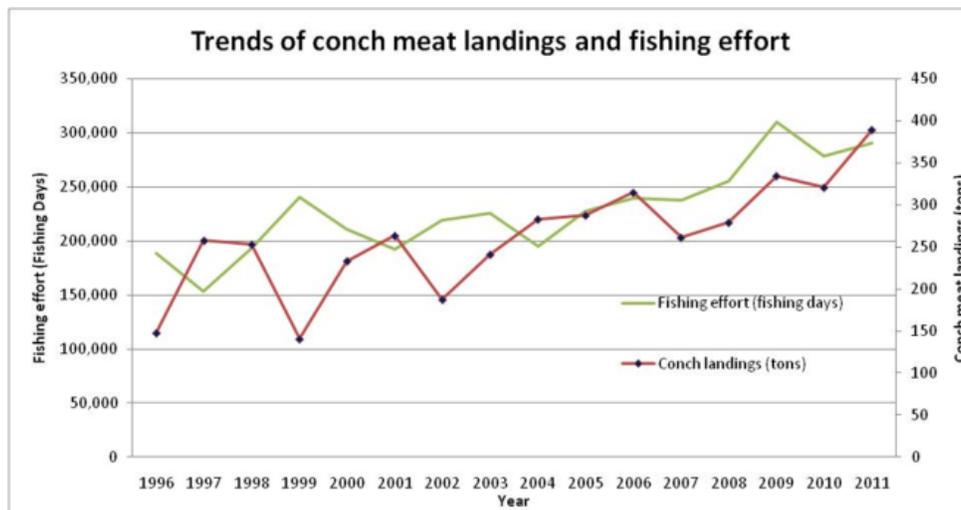


Figure 2. Queen conch meat landings versus FE

Table 1 shows some results of the Queen Conch surveys carried out during the period of 2006 to 2012. The table shows that sample size range from 4,949 to 6,612 individual Queen Conchs. Since 2008, an increasing pattern was observed in the national density, percentage of legal-size individuals and mean shell length.

The average Queen Conch density increased from 88.3 in 2008 to 337 individuals/hectare in 2012; representing an increase of 282%. It is also noted that the percentage of legal-sized conch

increased from 20.4% in 2008 to 28% in 2012. This higher percentage of Queen Conch available to the fishery helped justify an increase in the Total Allowable Catch (TAC) limits established per annual fishing season.

Table 1. Historical Queen Conch population survey results

Year	Sample Size(n)	Avg Density	% Sub-legal conch	% Legal conch	Mean Shell Length
2006	5,545	106.3	54	46	N/A
2008	6,612	88.3	79.6	20.4	134
2010	6,596	332.0	75	25	141.2
2012	4,949	337.4	72	28	153

This sustained increase in density indicates that the Queen Conch stock is not only healthy, but that the current fishing effort is within safe limits allowing for higher annual recruitment levels in the shallow fishing grounds where the Queen conch is traditionally fished in Belize.

Another important indicator that reinforces the health status of the Queen Conch stock is the observed increase in mean shell length from 134 mm in 2008 to 153mm in 2012 ( Figure 3). It is worth mentioning that any decline in mean shell length over time could be interpreted as a sign of overfishing of the stock. In this case an increasing trend in the shell length over a 4-year period proves that Belize’s Conch fishery is robust and healthy and is certainly being managed in a sustainable manner.

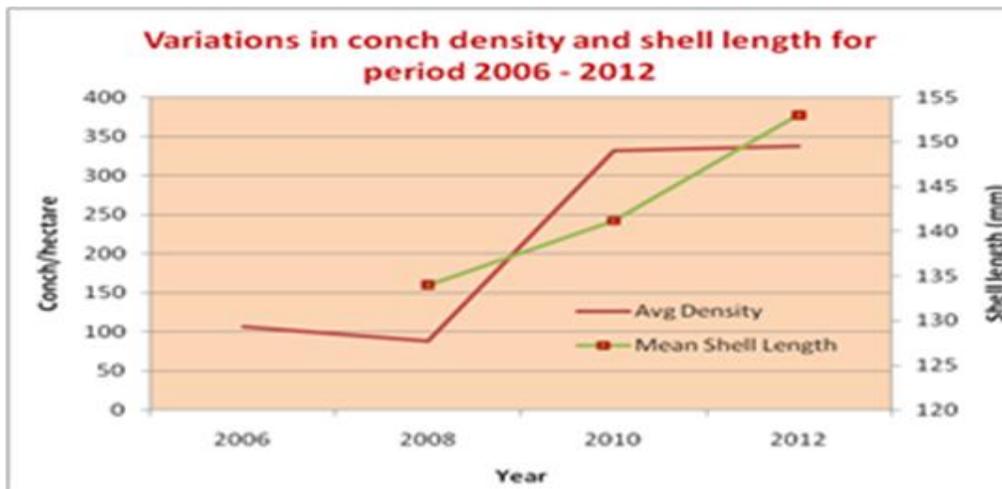


Figure 3. Increasing trend in Queen Conch average density and mean shell length.

## 5. BELIZE'S QUEEN CONCH STATUS PRESENTED AT INTERNATIONAL FORA

In May 2012, Belize participated and contributed to the Queen Conch Expert Workshop (QCEW), which was organised by the Caribbean Fisheries Management Council (CFMC) in Miami, USA. In this meeting Belize presented a status report on its Queen Conch Stock. The workshop participants included renowned Queen Conch experts/scientists including Dr. Paul Medley (Chairperson), Dr. Tom Demeulenaer (CITES Secretariat), Manuel Perez Moreno (OSPESCA), Dr. Martha Prada (Colombia), Steven Smikle (Jamaica), Dr. Nelson Ehrhardt (University of Miami), Mauro Gongora (Belize), Renaldi Barnutti (Nicaragua), Dr. Alan Stoner (NOAA); Dr. Eric Castro (Colombia), Miguel Rolon (CFMC), Diana Martino (CFMC). This Workshop resulted with several key recommendations made to improve the overall management of the Queen Conch Stocks regionally.

As a follow up to the QCEW, the CFMC along with the Food and Agriculture Organization – Western Central Atlantic Fishery Commission (FAO-WECAFC), Caribbean Regional Fishery Mechanism (CRFM) and the Central American Organization for Fisheries and Aquaculture (OSPESCA) organized a meeting of the Queen Conch Working Group (QCWG) to review and validate the recommendation of the QCEW. The QCWG Meeting was held in Panama in Oct 2012. Again, Belize participated and contributed to this meeting through a presentation on the status of its Queen Conch Stock. The meeting participants included two representatives (Fisheries and CITES representatives) of the CRFM and OSPESCA Member States, Cuba, Dominican Republic, Mexico, USA, Venezuela, representatives of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Food and Agriculture Organization (FAO), CFMC, CRFM, OSPESCA, Japan International Cooperation Agency (JICA), Pew Foundation, Dr. Paul Medley (UK) and Dr. Nelson Ehrhardt of the University of Miami. In addition, five Belizean Fishermen Representatives attended the meeting as members of the Belizean Delegation. Belize was instrumental in the development of the amendments made to the QCEW original recommendations.

Most recently, Belize participated in the 16<sup>th</sup> Meeting of the Conference of the Parties (CoP) of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) that was held in Bangkok, Thailand in March 2013. Belize's delegation to the meeting comprised of four persons namely; Wilber Sabido (Chief Forestry Officer), Beverly Wade (Fisheries Administrator), Mauro Gongora (Fisheries Officer) and Gail Scott (Consultant). One of Belize's primary interest at the meeting was the development of the draft decision of the CoP regarding the management of the Queen Conch. It is noted that on Belize's request, the chairperson of Committee I of the CITES Cop 16<sup>th</sup> Meeting established a working group (Chaired by Colombia and co-chaired by Belize) and was tasked to review the recommendations of the QCEW held in Miami in May 2012 and the subsequent amendments to the recommendations made in October 2012 in Panama at the QCEG meeting.

The objective of participating in the QCEW and QCWG was to present the status of the Queen Conch Stock to the experts/scientists and other participants and to engage in constructive discourse on the current conditions and the management of the Queen Conch Stock in an effort to strengthen Belize's Management Regime via the recommendations made. It is noted that in

both for Belize was commended and congratulated for its efforts and good work in the sustainable management of the Queen Conch and no specific recommendations for improvement on the management of the species in Belize were made. It is suffice to say that the cited experts/scientists were satisfied with all the efforts Belize has made thus far in the sustainable management of its Queen Conch Stock.

## 6. STRATEGIC MANAGEMENT RESPONSE

The management of the Queen Conch fishery in Belize has its origin in 1977 when a new Fisheries Act and Fisheries Regulations were signed into law. The first Fisheries Regulations for the Queen Conch fishery included only a minimum size of 7 inches in shell length and minimum weight of 3 ounces (market clean weight) and a closed fishing season extending from July 1 to September 30<sup>1</sup>.

In 2003, Statutory Instrument No. 90 was signed into law prohibiting fillet and diced conch to curb the harvesting of undersize Queen Conch. The use of SCUBA gear for commercial fishing was also prohibited. From 2004 onwards, the harvesting of conch was guided by a National Quota System which was determined by the national Queen Conch stock assessments results. Currently, the national quota is divided amongst the main fishing cooperatives and this ensures that 90 – 95% of all conch produced in Belize is delivered to the fishermen cooperatives and minimizes illegal harvesting of conch.

In 2011 and 2012, the Fisheries Department conducted a revision of the principal Fisheries Act and the Subsidiary Laws and developed a draft Living Aquatic Resources Bill and updated set of Fisheries Regulations. These are expected to be signed into law in 2014. The new Aquatic Resources Act includes all the main elements of a modern and robust fisheries law. It includes: basic definitions; objectives of the law and principles governing conservation and management (including those embedded in principles such as the Precautionary Approach, Ecosystems Approach and the protection of biodiversity); fisheries management planning (including species protection); different types of fishing; the role of cooperatives; the role of a fisheries advisory board (or council); record of fishing vessels; monitoring, control and surveillance; jurisdiction and evidence issues; offences and penalties; and a new expansive regulation-making power. On the international level, the new Act addresses issues such as binding global treaties, in particular the 1982 UN Convention on the Law of the Sea, the FAO Compliance Agreement, the 1995 UN Fish Stocks Agreement, the International Convention on the Regulation of Whaling, the FAO Port Measures Agreement, the Convention on Biological Diversity, CITES, the Bonn Convention, the RAMSAR Convention, and the World Heritage Convention. Non-binding instruments are also considered, in particular, the Code of Conduct for Responsible Fisheries, the International Plans of Action adopted by FAO, and UN General Assembly resolutions addressing fisheries issues.

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<sup>1</sup> SI 71 of 1978

Belize showed marine conservation leadership in the Caribbean and Central American regions in 1987 when it established its first marine reserve (Hol Chan Marine Reserve). Since then a marine reserve network has been established and managed over the years. Currently, there are 9 marine reserves strategically positioned along the Belize Barrier Reef and its 2 offshore atolls. These protected areas have been used as important fisheries management tools employed by the Government of Belize (GOB) to assist in the protection and conservation of many commercially important species and their natural habitats. It is noted that Appledorn (2004)<sup>2</sup> concluded that adult conch densities within Marine Protected Areas (MPAs) are proportionally higher than areas outside MPA's suggesting that MPA's could be positioned to protect the most productive areas and hence offer an added degree of precaution within the overall management of the stock.

In 2011, the GOB through the Belize Fisheries Department, and with the assistance of Environmental Defense Fund, piloted a right-based approach to fisheries management called the Managed Access Program in two of its marine reserves (Glovers Reef and Port Honduras Marine Reserves). This program grants access to fishing within the general use zone of a marine reserve and empowers fishers to become better stewards of their resources through their full participation in the monitoring and reporting of commercial species catches. This has also resulted in a decline in illegal and unreported fishing as fishers demonstrate increased buy in to the co-responsibility necessary for the sustainable use and management of the resources. After two years of successful implementation of the program, the GOB has decided to roll-out this approach to its entire marine reserve network.

In 2012, Belize declared the largest atoll in the western hemisphere as a marine reserve (Turneffe Atoll Marine Reserve) adding an additional protected area to the already declared eight (8) marine reserves (Multiple Use Reserve); one national park, two Natural Monuments and two Wildlife Sanctuaries (Non-Extractive reserves).

## 7. SUSTAINABLE AND RESPONSIBLE USE OF THE QUEEN CONCH

Belize is one of the very few countries where fishing for Queen Conch is done exclusively by free-diving only. Harvesting of Queen conch is managed through a strict quota system that allows a percentage of the TAC to the fishermen cooperatives. Table 2 shows the Queen conch meat quota allocated to each registered and functional fishermen cooperative. The allocation of the quota is based primarily on historical production volume, current membership level, processing and storage capacity of each individual fishermen cooperative.

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<sup>2</sup>Appledorn R. 2004. Analysis of the 2004 Belize Conch Survey Data. Technical Document

Cooperative	Allocated Conch Quota 2012-2013 Season (lbs)	Conch Meat Produced 2012-2013(lbs)	% of TAC
NORTHERN	671,830		63.5%
NATIONAL	365,010		34.5%
PLACENCIA	15,870		1.5%
RIO GRANDE	5,290		0.5%
<b>Total</b>	<b>1,058,246 Lbs</b>		<b>100%</b>

Table 2. Queen Conch quota percentage distribution by fishermen cooperatives.

The rules on the utilization and distribution of the National Queen Conch Quota is made official through the signing of a Memorandum of Understanding ( Figure 4), which stipulates guidelines for the production of the allocated quotas by fishing cooperative on a monthly basis ( Table 3).



Figure 4. Signed Queen Conch Quota Distribution MOU

The Belize Fisheries Department requires the submission of weekly reports and closely monitors landings to ensure that each fishing cooperative fully comply with the conditions of the MOU. If at any time in a month during the open fishing season a fishermen cooperative has filled its quota for that month then the concerned fishermen cooperative voluntarily cease to purchase Queen Conch meat from its fishermen members until its new quota for the next month become available.

Table 3. Queen Conch meat quota monthly disbursement by fishermen cooperative

Cooperative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Northern	37%	12%	9%	8%	10%	8%	7%	5%	4%
National	37%	12%	9%	8%	10%	8%	7%	5%	4%
Placencia	37%	12%	9%	8%	10%	8%	7%	5%	4%
Caribena	37%	12%	9%	8%	10%	8%	7%	5%	4%
Rio Grande	37%	12%	9%	8%	10%	8%	7%	5%	4%

The Belize Fisheries Department maintains an excellent good working relationship with the fishermen cooperatives. Belize's fishermen cooperatives play an important role in the management of the Queen Conch fishery. The fishermen cooperatives help in the sustainability of the Queen conch by accepting only high quality meat, fully comply with the minimum meat weight of 3 ounces, report landings and Catch Per Unit Effort data as required by the Fisheries Department and adhere to the agreed quota system. Figure 5 shows a poster on the Standard Queen Conch Meat and Minimum Weights according to processing level.

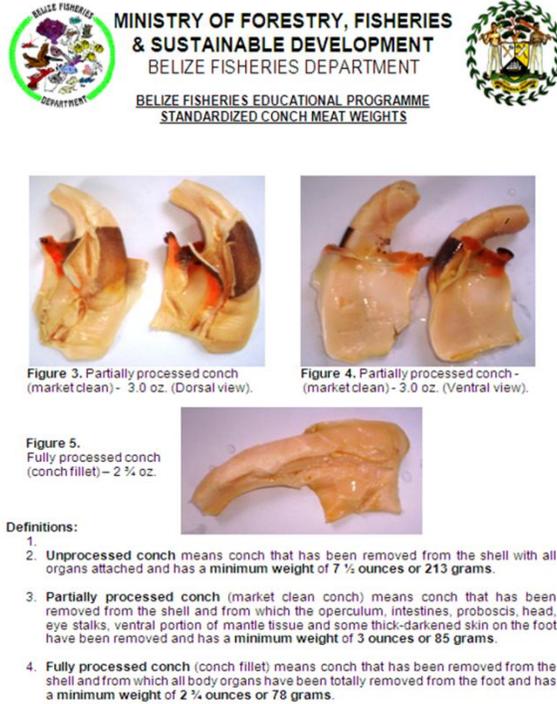


Figure 5. Queen Conch standard meat weights

## 8. SOCIO-ECONOMIC IMPORTANCE OF THE QUEEN CONCH FISHERY

Even though social and economic information will not be taken into consideration by NOAA Fisheries in the Queen Conch review process, it is important to note that Belize's Queen Conch fishery is significant in the livelihoods of many coastal residents who receive important social and economic benefits from the fishery.

The Queen Conch remains Belize's second most important commercial fishery. In 2012, conch meat landings amounted to 1,085,444 lbs (increase of 26.7% compared to 2011) and exports amounted to 1,087,250 lbs (increase of 37.4% compared to 2011), which generated earnings of \$11.96 million (increase of 46.1% compared to 2011). Some 2,759 licensed fishermen participated in Queen Conch fishing activities and approximately 12,910 Belizeans are direct beneficiaries (fishermen families and dependents) of the fishery. In addition, up to 1000 Belizeans may be employed in the processing, marketing, service industry and other sectors.

It is noted that in coastal communities such as Corozal, Sarteneja, Chunox, Copper Bank, Caye Caulker, Belize City, Dangriga, Hopkins, Seine Bight, Placencia, Mango Creek, Monkey River and Punta Gorda, fishermen are highly dependent on Queen conch fishing for their livelihoods.

## 9. CONCLUSION

The Government of Belize would like to emphasize its position that the Queen Conch stock is healthy and that its fishery continues to be significant to the country's national economy. Furthermore, Belize has demonstrated its continued commitment to the sustainable use and management of the Queen Conch through the adoption and implementation of an advanced management regime.

The Government of Belize would take this opportunity to re-state that the information produced by WildEarth Guardians is outdated and does not accurately reflect the current status of the Queen Conch stock in Belize. Consequently, NOAA is being requested to kindly consider the information provided in this report, which represents the efforts made to sustainably manage Queen Conch stock in Belize.

Belize continues to avail itself to regional and international cooperation in the conservation and sustainable use of this very important resource. The Government looks forward to a thorough revision process which takes into consideration all information being provided on the Queen Conch status in Belize. This is especially important given the efforts made to ensure its sustainability and its continued contribution to the livelihood of the Belizeans and national economy.

## 10. BIBLIOGRAPHY

- a) Belize Fisheries Department. 2012. National Queen Conch Survey Report (Unpublished).
- b) Belize Fisheries Department. 2010. National Queen Conch Survey Report (Unpublished).
- c) Belize Fisheries Department. 2008. National Queen Conch Survey Report (Unpublished).
- d) Belize Fisheries Department. 2006. National Queen Conch Survey Report (Unpublished).
- e) Appeldoorn R. 2004. Analysis of the 2004 Belize Conch Survey Data. Technical Document (Unpublished).
- f) Belize Fisheries Department. 2003. National Queen Conch Survey Report (Unpublished).

## 11. APPENDICES

- a) Appendix I: CITES List of Recommendations
- b) Appendix II: CITES Letter 2006 sent to Belize