A SUSTAINABLE FUTURE FOR QUEEN CONCH

NEW APPROACHES TO THE CONSERVATION AND SUSTAINABLE DEVELOPMENT OF STROMBUS GIGAS AND RELATED SPECIES

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INTRODUCTION

This paper outlines a new approach to the conservation and sustainable development of Queen Conch and related marine shell species. We hope this new approach will secure income and employment for thousands of Caribbean conch fisher-folk and their families whose livelihoods are threatened by both environmental pressures and increasingly complex regulatory controls.

The mollusk, known internationally as the Queen Conch or Pink Conch, and scientifically as the *Strombus gigas* of the Strombidae family, is a Caribbean marine animal of great importance to the diet and livelihood of thousands of families throughout the Caribbean. On the one hand increased demand has impacted negatively on the supply of *Strombus gigas* while on the other hand current harvesting methods are very inefficient thus failing to maximize the value of the whole animal and causing huge amounts of wastage. This document, drafted by Caribbean-based Strombus Gigas Alliance outlines an innovative strategy in support of sustainable harvesting and protection of the species for international trade.

Strombus Gigas Alliance (SGA) is an international Non-Government Organization (NGO) concerned with promoting the sustainability of the Queen Conch and related marine animals. SGA aims to establish new commercially sustainable markets for the Queen Conch and its by-products and more rationale and efficient regulatory controls of this valuable resource. Our efforts, and those of our affiliates and members, include research into breeding, reseeding, habitat protection and advancements in value added shell product harvesting of *Strombus gigas* and other related marine animal species. SGA membership includes representatives from the Bahamas, Belize, Columbia, France, Germany, Honduras, Italy, Puerto Rico Switzerland, Singapore, Thailand, Turks & Caicos, United Arab Emirates, the United Kingdom and the United States of America.

Our sponsors include private individuals and organizations working with the Queen Conch and the value-added by-products of the species. Our long-term mission is to promote a prosperous and sustainable Strombus gigas industry. SGA also wants to ensure that regulations affecting the global trade of the Queen Conch better reflect the long-term cultural and socio-economic needs of the communities whose livelihoods depend on the continued harvest of this species.

SGA in order to further its objectives will work closely with organizations like the Caribbean Fisheries Management Council (CFMC) via the International Queen Conch Initiative, the Ministries of Fisheries of CARICOM (Caribbean Community), the Caribbean Regional Fisheries Mechanism (CRFM), the Organization of the Fisheries and Aquaculture Sector of Central America (OSPESCA), Oceana (conservation group), the Food and Agriculture Organization of the United Nations Fisheries and Aquaculture Department (FAO) and relevant regional government agencies (ie: Ministry of Fisheries).

BACKGROUND

In 1985 the *Strombus gigas*, Queen Conch, was first noted in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) document, followed by inclusion in the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention) in 1990, which also included the Queen Conch in Annex II of its Protocol Concerning Specially Protected Areas and Wildlife (SPAW Protocol). The fisheries of the world were beginning to acknowledge the importance of this species and started actions towards the protection of future harvests. The majority of the debate and policy planning related to *Strombus gigas* have, to date, focused almost exclusively on conch meat as the tradable commodity and have not looked in detail at all the valuable by-product.

Following the destruction of Queen Conch fisheries in Florida and other U.S territories in the Caribbean from over, the United States of America in 1992 recommended to the Convention on International Trade in Endangered Species (CITES**)** that Strombus gigas be included in the Appendix II of CITES.

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

An Appendix II listing in CITES raised awareness of the possibility of extinction of the species if previous harvesting practices were not changed. Of note is that the listing protects the commercial significance and continued availability of the conch meat product. Up to this point, the USA was the largest consumer and importer of conch meat; however, the depletion of their own conch resources sent ripples of concern for this highly significant commercial species. The consideration for the future of conch fishing was commendable and adopted into legislation to include readily recognizable specimens of the species, I.E.: live specimens, meat, shells, pearls, carvings and all other parts of wild, ranched, or maricultured origin. According to CITES 2009, "When a species is included in one of the Appendices, all parts and derivatives of the species are also included in the same Appendix unless the species is annotated to indicate that only specific parts and derivatives are included". Seven years after the first mention of Strombus gigas in a CITES document the inclusion of all parts of the species came under the legislation.

Since 1995, CITES has encouraged review of the biological and trade status of the queen conch under the Significant Trade Review process and has included local, regional, national and international organizations to assist with ensuring that the species is harvested in a sustainable manner. In the 20 years since the Appendix II listing some of the more significant protection measures have been Marine Protected Areas, Harmonized Fisheries Regulations (size, weight,

catch quotas, lip thickness, fishing gear usage), Seasonal Closures, Data Collection on catch and export as well as research on the Strombus gigas reproduction, growth, and pearl development. CITES regulations have provided the governance and control for the export and import of this commercially threatened species (Conch Heritage Network). Management plans have been implemented for the protection and sustainability of this listed species to ensure future harvests and trade. According to NOAA (2009) import data of Queen Conch meat to the United States showed a substantial reduction from 1998 to 2009; 1,832,000 kg to 387,000 kg respectively. The USA is now joined by the European Union (EU) as the primary importers of conch meat despite the 80% decrease of conch meat imports over the past twelve years (NOAA 2009). Other indicators of continued sustainability efforts for the species will be discussed later in this brief.

HISTORICAL AND CURRENT USES

Fossil evidence indicates that the Queen Conch first appeared about sixty-five million years ago (Conch Facts.com). It has been harvested as a food source for approximately 5000 years. The conch meat has been highly valued for several centuries dating back to Pre-Columbian times (Brownell and Stevely, 1981). Commercial harvest and inter-island trade have been recorded since the Mid-18th century when the Turks and Caicos Islands shipped dried conch meat to the neighbouring island of Hispaniola, now known as the Dominican Republic and Haiti (Ninnes, 1984).

Conch shell mounds, archaeologically known as middens, can be found around the Caribbean also dating back to Pre-Columbian/Pre-Hispanic times; 3000BC-1492AD. The middens found on land and underwater do not biodegrade or decompose. They remain as waste after claiming the meat. Picture 1 displays a Pre-Columbian conch shell midden in the British Virgin Islands. Picture 2 shows a 2000 year old conch shell midden at a newly recognized archeological site in Belize.

Picture 1

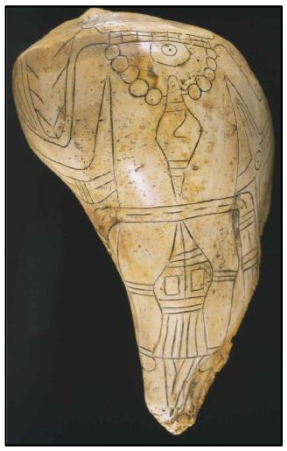
Pre-Columbian conch shell midden (platform) on East End of Anegada, British Virgin Islands (source: www.flmnh.ufl.edu).

Picture 2

2000 year old conch shell midden at the Marco Gonzalez Maya Site, Ambergris Caye, Belize (source: J. Brown, 2010, with permission)

Approximately 2000-3000 years ago conch shells became useful as building materials, cooking pots, dippers and cups, chisels, knives, scrapers, fish hooks, earrings, buttons, pendants and more. Picture 3 shows a Pre-Columbian engraved conch shell cup. Once the ancient, indigenous cultures developed the skills of carving and tool making very little of the conch animal was wasted.

Picture 3



Conch shell engraved cup from Craig Mound at Spiro, Oklahoma, USA (source: http://www.lithiccastinglab.htm)

Modern uses of the Queen Conch include not just the meat, but also follow the historical uses for both the shell and the pearl. Picture 4 displays a conch shell cameo trimmed in nine carat gold from the late 1800‟s. The elusive conch pearl, one found in every 10 000 shells (HBOI, 2009), has gained a place in history with the regal example of the Queen Mary Conch Pearl Broach (see Picture 5).

In the Caribbean the conch is well known as an artisanal catch and is a popular handicraft product as well as other artisanal uses. Picture 6 shows Queen Conch shell being sold on the internet as a lamp.

Picture 4

Antique 9k gold and pink conch shell cameo pin c 1880, (source: www.ebay.com)

Picture 5

Queen Mary Conch Pearl Broach, 1901-1915 (source: Smithsonian Institution)

Picture 6

Conch shell lamp by a local craftsman in Cruz Bay, St. John, Virgin Islands (source: http://seestjohn.com)

CURRENT HARVESTING PRACTICE

The Queen Conch thrives in the sandy, shallow, warm waters of the Caribbean at depths less than 100 meters, which are abundant with sea grass and algae. This relatively slow moving animal has always been vulnerable to predators, especially humans. For an animal that has been harvested for 5000 years, modern man has not yet learned what our indigenous ancestors practiced; that sustainability of a species should include total usage of the animal. Instead, the discard from current fishing practices endorses mounds of wasted by-products (see Picture 7).

Picture 7

Piles of empty Strombus gigas shells at the Southwest Cay of Pedro Bank, Jamaica (Source: A. Tewfik)

Throughout the millennia we have finally learned that overfishing and commercial exploitation has led to a decline of the Strombus gigas species. Yet it is necessary to kill the animal in order to gain the meat product. The purpose of the CITES Appendix II listing was to protect the future of the conch meat harvest under the auspices of sustainability. The meat is the main product of this commercially exploited species; the remainder is considered to be the derivatives or by-products and "are rarely the results of a direct harvest" (Mulliken, 1996; Chakalall and Cochrane, 1996). The by-products includes the conch shell, the undesirable meat scrapings (tissue loss) and the pearl, if one should happen to be found. Once the meat is removed from the shell, current approved fishing practices allow the shell to be discarded at sea.

"Local fishers report that, if freshly cleaned conch shells are discarded in the sea, living conch will in fact abandon the area" (Julie Gauthier, personal communication, December 2002). The traditional means of harvest and wasted by-products have become detrimental to the limited habitats that nurture the Queen Conch to maturity. This acceptance of wasteful fishing practices has provided fishers with the option to waste a majority of the animal at sea thus hindering repopulation in the vicinity. Though not currently illegal, the disproportional wasted parts of the animal are a recurrent theme with human predators, I.e.: As with the shark hunt, cut off the fins and discard the carcass.

The meat is then processed either at sea or on land. Depending on the desired level of processing

the original tissue weight of the animal can be reduced by 50% or more (Thiele 2001). Table 2 outlines the classifications of processing commonly used.

Table 2: Processing grades and tissue loss of Queen Conch in the Jamaican processing industry

Processing	Grade	Tissue Loss
Unprocessed	Dirty conch	None; animal is simply removed from shell
50% cleaned		Removal of operculum (claw) and viscera (bag)
65% cleaned	Semi-fillet	All the above plus head (eyes, stalks and proscobis) and parts of the mantle (skirt)
85% cleaned		All the above plus verge, mantle and part of the skin
100% cleaned	Fillet	Only the pure white meat remains

(Source: Tewfik, 1996; Smikle, 1997 in Thiele, 2001)

Some commonly acknowledged facts about current harvest methods of the Queen Conch are outlined below:

- The meat is the commercial product of the *Strombus gigas*; the remainder is called the by-product (Chakalall & Cochrane, 2009; Medley 2008).
- Each mature conch (3-5 years on average) with shell and animal is approximately two pounds, or 908 grams.
- Depending on the size and age of the animal, and the processing practice, the meat accounts for only 15% of the weight of a live animal (Formoso, 2001).
- The „meat weight" is averaged between 72-78g per animal for processed meat and 183g per animal for unprocessed or dirty meat (Thiele 2001), see Appendix B.
- 500 kg of unprocessed Queen Conch meat is harvested from approximately 3,500 animals, assuming an average meat weight of 143g (Theile 2001).
- 500 kg of 100% cleaned Queen Conch meat at an average of 72g would equal almost 7,000 animals (Theile 2001).

The above facts can be translated into the following mathematic equations; 908 grams of live conch, minus 72 grams of average meat weight, equals an industry approved accepted waste of

836 grams per animal harvested, or 92% of derivatives supporting an 8% commercial meat catch.

Referring back to the 2009 data on the reduced American imports of conch meat, 387 000 kg would require slightly more than 5.4 million animals to be caught, killed and discarded for only 8% of the total allowable catch. Commercial profit must be extremely high to accept 85-92% wasted by-products. It is our position, Strombus Gigas Alliance (SGA) that this cannot be what was conceived of or intended by the drafters of the Appendix II legislation in 1992; something has to change.

Paul Medley (2008) highlights the significant points of the convention for Appendix II species as shown in the text box below. The first point of clarity (2) is the requirement of an export permit, to be obtained in advance of fishing, processing and exporting. The next point (2a) states the export permit is granted if regulatory authorities deem the export of the product will not be detrimental to the species survival. SGA questions if the stipulation "non-detrimental to the survival of the species" includes acceptable harvesting methods which allow a majority discard. The third area of importance Medley stresses is the need to limit the Total Allowable Catch so the species does not become endangered, thereby preventing commercial harvest indefinitely.

Significant Points of Appendix II Listing

"2. 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; …", and

"3. …[Appendix II species exports] 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." (Paul Medley, 2008)

Whether at sea, discouraging future habitation of the species, or on land by creating wasteful mounds of non-degradable by-products, the stipulation of an export permit for the "garbage of the harvest" seems short-sighted; hence this proposal to gain support for amending the CITES Appendix II regulations.

The primary responsibility of the CITES Authorities is the implementation of the export permit system protecting the species for the main product; the meat (Medley 2008). The animal, as a

whole entity, has not been considered for a permit. Instead, it is divided into commercial meat products and wasted by-products under the same governance. Relegated for secondary economics (handicrafts, jewelry, building materials) the derivatives are also regulated and restricted by the CITES agreement (Mulliken,1996; Chakalall and Cochrane, 1996). Unfortunately this regulation has led to the seizure of thousands of shells annually and the nominal production of artisanal products. "German Customs authorities seized between 1997 and 2000 a total of 4,640 Strombus gigas shells, mostly from tourists that returned from their holiday destination with one to three shells in their luggage" (F. Boehmer, CITES Management Authority of Germany, pers. comm., Oct. 2001 in Thiele 2001). Other EU countries, as well as American and Canadian authorities have also enforced the CITES rules and confiscated the by-products. Thiele further states that the control of shells unwittingly exported by tourists is a major administrative burden for CITES Management Authorities (2001). Conch shells are difficult to regulate and monitor and, if salvaged as a wasted by-product, time and effort are wasted to maintain compliance to the CITES regulations. Furthermore, issuing export permits to tourists is considered problematic as regulatory authorities may not be available or located near tourist centers.

Another complication with export permits is with the countries that have elected not to join sustainability efforts or sign with CITES. Cargo containers of conch shells end up in Asia where the import and export laws do not protect the use of the species in the marketplace. Nor do they assist in the sustainability of the species. SGA's position is for CITES abiding countries and organizations to step up and do more towards the sustainability of the Strombus gigas in a commercially marketable and tradable manner.

STROMBUS GIGAS ALLIANCE MISSION AND GOALS

SGA's mission is to conserve Queen Conch and related marine shell products and promote the sustainable livelihoods of conch fisher folk and their communities.

Objectives

- To encourage sustainable production and harvesting of queen conch and related marine shell products
- To increase income and employment of conch fishermen and their families through the better use of by products and derivatives
- To develop and promote industry best practices and quality standards

- To promote national and international regulations that ensure the long term survival of the species

Overall Activities

SGA is a Non-Profit organization that will support the following activities directly related to its mission.

- Research & Development
- Design and Innovation
- Marketing, Branding and Intellectual Property
- Community Development and Training
- Benefit Sharing and Corporate Social Responsibility
- International Trade and Regulatory issues
- Funding and Technical assistance

SGA Goals

Strombus Gigas Alliance is directed by the following goals for sustainability of the Queen Conch:

1. To promote better harvesting and collection practices in existing Queen Conch harvesting areas (fishing practices)
2. To improve monitoring of supply and demand for the Queen Conch and its products (data collection)
3. To collect and disseminate information on the economic and social importance of Queen Conch harvesting (education)
4. To promote new technologies which enrich existing Queen Conch habitats (research)
5. To support and/or develop sustainable aquaculture facilities (farming and mariculture)
6. To promote value-added production of Queen Conch derivatives (total usage for sustainability)

7. To develop local businesses and new trade markets for value-added products (commercial development)

8. To seek reform in the licensing and certification process for the Queen Conch (update regulations for improved sustainability)

9. To ensure an equitable share of the benefits from the Queen Conch trade remains within the Caribbean communities (ethical business practices)

Each of the SGA goals is tied to ensuring the sustainability of the Queen Conch species and improving the commercial trade of the species in a sustainable way. Current regulations governing trade of the Strombus gigas was drafted to enable continued trade of the conch meat; the remainder of the animal has become caught in the definitions of the regulations guiding the Appendix II CITES listing, thus hindering authentic sustainability for the species. Each of the SGA goals requires time, money and effort to effect change. As an international NGO we seek your endorsement for the following recommendations aligned to our stated goals.

1. Fishing Practices

a) Current harvesting practices endorse a majority loss of the animal. The meat product accounts for only 8-15% of the catch, wasting 85-92% of a potentially tradable commodity called the by-product.

b) At sea harvesting methods create underwater middens or mounds (graveyards) from discarding the shells overboard discouraging future conch habitation.

c) Conch shell middens on land are also a missed opportunity to enhance commercial trade of the species. Historical discards of shells prove they do not biodegrade, yet we let the shell lay waste.

d) Minimum size limits and the pre-mature catch of juvenille animals is not easily regulated or enforced.

<u>SGA Recommendation for Sustainability – Mandatory onshore shell landings</u>
Onshore shell landings or barge landings will control the size limits of the individual animal. Shell sizes can be measured if they are landed (FAO, 2007b). It would prevent juvenille conch from pre-mature harvest and may be a useful control in the non-commercial and local usage sectors. A regulation requiring fishers to only take conch with a flared lip or applying a minimum lip-thickness is the most promising measure of size since shell length does not increase after maturity (Medley, 2008). The landing of shells would discourage the creation of

undersea middens and conch mounds encroaching on the useable habitats. Most importantly, 100% of the animal is available for total usage as commercially tradable commodities.

2. Data Collection –Supply and Demand

a) Minimum size requirement can also be easily enforced

b) Determine age of individual animals to prevent pre-mature harvest

c) Accurate count as opposed to estimates and mathematical equations for approximated catch quotas. An accurate count may also be useful for habitat seeding programs

d) Gain information on specific catches matched to specific harvest areas

e) Trace the supply chain for accurate counts of meat export and local usage (fishing families, local restaurants, tourism). Local usage and unreported harvest is often blamed for export supply shortages though data is difficult to gain.

f) Potential to gain and share data on future trade of derivatives; dirty meat, shells, foot, pistol and pearls

SGA Recommendation for Sustainability – Simplified data collection
Onshore and barge shell landings would provide the simplest solution. Regulations for size and age could easily be enforced, as well as accurate counts for catch quotas from specific habitat and harvest areas. Data collected could also provide the necessary information for projects focused on reseeding habitats.

3. Education (Knowledge Capital)

Education is an important component for effecting change. In the past 20 years since the CITES Appendix II listing education efforts on the Queen Conch have brought in seasonal closures, restrictions on gear use for fishing, total allowable catch limits, the provision of Marine Protected Areas and fisheries management plans. The programs are working (CITES Trade Review, 2012). The development of Marine Protected Areas has provided spawning and growth habitats in many locations (See Appendix A, Mexico, Belize, Honduras and Guatemala). Other evidence, in 2012 and 2013, is when the conch harvest was closed two months early in Belize when the catch limit had been reached early. Currently, the Queen Conch population is reported to be stable according to the San Pedro Sun Newspaper, September 06, 2012 issue documenting a recent conch survey (see Appendix C).

a) As education is gained, the information must also be learned and applied (I.e.: Conch mounds are not degradable and inhibit future habitation). Can we train conch fishers to conduct their vocation in a more sustainable way? Most certainly, but it will take education as well as support for impending change.

b) The following is a direct quote from the conservation group Oceana, "Conch shells are made primarily of a mineral called aragonite. Each mineral layer is reinforced by layers of protein, similar to the way a brick wall is reinforced by mortar. As a result the conch's shell is more than 100 times stronger than pure mineral aragonite, and its construction has inspired engineers in the development of stronger ceramics" (Oceana, 2012). The sharing of this information leads one to contemplate what more uses can be found for this strong shell.

SGA Recommendation for Sustainability – Knowledge Building

Education needs to be shared. We support the collection and dissemination of educational materials and information. We focus on the economic and social importance of the Queen Conch and plan to use this information in ways that will promote sustainability of the species. Education spurs inspiration. We look forward to the inspirations that will come from the sharing of new knowledge and the plans to implement consistent sustainability with fisher folk and their communities.

4. Research

a) At research facilities in the Turks and Caicos and the Harbor Branch Oceanographic Institute (HBOI), much research has been conducted on the reproduction of Strombus gigas; the fertilization of egg strands, reseeding habitats with juvenile conch and the study of developmental stages from growth to maturity. For the past 32 years it has been possible to cultivate the Queen Conch though the application has been under-utilized for sustainability.

b) Another research advancement is the technological discovery for removing the conch meat without "knocking" or breaking the conch shell. The shell remains undamaged for other uses.

c) Cultured conch pearls – Conch pearls occur in a variety of colors, gaining their hue from the interior color of the conch shell. Most popular is the pink conch pearl though they also develop in white, red, orange, yellow or brown (HBOI). Florida Atlantic University's HBOI has conducted research with the Gemological Institute of America (GIA) to create cultured conch pearls. Dr. Héctor Acosta-Salmón and Dr. Megan Davis claim that the most significant outcome of their research is the 100% survival rate of the host conch. Furthermore, that same conch will produce another conch pearl when it is reseeded after the first pearl has been harvested. This is epitome of sustainability for a commercially tradable by-product.

SGA Recommendation for Sustainability – Promote research
Each of the three examples of recent research works to support sustainability of the species. SGA encourages new technologies and research while keeping in mind the economic factors that support sustainability of the species.

5. Farming (Aquaculture) and Mariculture

By definition, mariculture is the cultivation of sea animals and plants in their usual habitats, generally for commercial purposes. Similarly, aquaculture is the farming of ocean and freshwater plants and animals for human consumption (Microsoft Word definitions, 2012). Both these terms are attached to the Appendix II restrictions governing the Queen Conch. Should the Queen Conch ever become an Appendix I endangered species, mariculture or conch farming may be the only resource in the future. SGA is an advocate of mariculture and believes the restrictions have been applied indiscriminately to this species.

The Caicos Conch Farm was instrumental in supplying research to the study of the Strombus gigas as well as public awareness with its educational tours aimed at tourists. August 2012, the Caicos Conch Farm closed. The research has been done and is promising to others who can continue the quest of sustainability.

SGA Recommendation for Sustainability – Support farming and mariculture
The research conducted at the Caicos Conch Farm, and further research conducted in Florida and the Bahamas, has paved the way for the Dutch who are now planning to start a hatchery and grow-out farm in Bonaire. Hatcheries are important for increasing the number of egg strands which contain the eggs that develop into larvae and grow into the shelled animals. The grow-out farm is then essential to assist the juvenile conch in becoming a mature Queen Conch ready for harvest or to re-seed existing habitats. A mature Queen Conch is ready to breed ensuring a continuous supply of egg strands for a hatchery. It can also be harvested for meat. Applying the new advances of removing the conch meat from the shell, the shell remains undamaged for alternate uses. The cultured pearl is another marketable asset of mariculture technology. These results are a product of research and mariculture.

6. Total usage for sustainability (stop the waste of by-products)

SGA promotes the value-added production of Queen Conch by-products. Too much of the Queen Conch is wasted when the meat alone is harvested. If this practice does not change the harvesting of the Queen Conch as we know it will not be sustainable. The restrictions of the CITES legislations following the Appendix II listing is for the sustainability of a species for commercial trade. SGA supports trade; not waste.

a) Encourage all meat processing to be conducted locally (on shore) and develop uses for the conch meat tissue waste. Tissue waste or dirty conch is essentially protein. It can be used as bait in other fishing endeavours, food for domestic animals and perhaps garden fertilizers. Even the operculum can be used in shell craft, jewelry, mosaics and the like.

b) Revitalize artisanal uses for conch shells. Currently, pristine shells are sold as cleaned, natural shells, decorative art pieces, I.e.: lamps, bowls, folk instruments, shell art and hand carved jewelry. Research now proves a reliable means to expand this market.

c) Support alternative shell uses for the wasted derivatives. In construction they can be used for landfill, landscaping, road way development, breakwaters. Venezuela and parts of Asia are already introducing ground conch shells as building materials and interior materials for floor tiles and Formica-type counter tops. Spa products such as exfoliant treatments and skin creams are also made from the shells of the Queen Conch. Even the health food market has found shell uses as whole food supplement capsules and include conch nutrients such as amino-acids and antioxidants (Eichler, 2007).

d) Encourage the international trade of conch pearls. The rarity of this semi-precious gem (1 in 10 000) has created a market anxious for the exposure it had in Edwardian Era. The host conch now has a 100% survival rate and prospects to re-seed for future pearls. The advancements of research for conch pearl development proves the species is no longer threatened if pearl trading is recognized and removed from the governing legislation of the CITES Appendix II listing.

SGA Recommendation for Sustainability – Total usage

The above examples are some of the ways to include total usage as the key factor of sustainability. Commercially, it is termed "value-added" (products). SGA supports value-added products and is ready to assist new ventures in the commercial marketplace with the derivatives of the meat harvest.

7. Commercial and Trade Development

As discussed in previous goal points, new markets for commercial development are primed and ready to be serviced. SGA is willing to be a part of that and assist new ventures to grow. Value-added products from the "by-products" of the wasted conch has the marketability that can provide sustainability for the species in an entirely new way. SGA wants to assist the Caribbean nations to develop local businesses from the by-product of the Strombus gigas and direct the profits back into the Caribbean communities.

SGA Recommendation for Sustainability – Commercial trade and development

Future education and research for sustainability are all part of the process for new markets in commercial trade and development. SGA would like to see the Queen Conch surpass the status of artisanal uses only and be elevated to the regal opportunities of history, but those days are gone. Our efforts are better served with educating others for changing laws and developing a commercial trade market. We would like to augment the conch meat marketplace while enhancing the authentic sustainability of the species by creating employment and business opportunities in the communities where the Queen Conch is harvested. We aim to share research and education in a functional way and encouraging the adoption of zero waste. This means adopting an attitude of zero waste for a species that has waited many millennia for us adopt it completely. We wish to assist in the development of business ideas that may change the face of fisheries but are reliable in sustainability and proven by research.

8. Update regulations for improved sustainability

It remains unfortunate that the country which promoted the Stormbus gigas, Queen Conch, to the Appendix II CITES listing, is the same country known for the majority of conch meat imports, closely followed in recent years by the European Community. SGA promotes sustainability and is attempting to prove the sustainability of new developments for the trade of the by-products of this species, currently hindered by CITES regulations. Unfortunately derivatives are already abandoned during the harvest of the conch meat. SGA believes that some of the regulations are now in need of change; proof is found with ongoing research, technological advances and newly recognized fishing practices for sustainability of the species. We believe that the Appendix II listing was only meant for the trade in meat yet as an Appendix II listing, the Queen Conch derivatives have been unintentionally caught in the CITIES regulations.

a) SGA is seeking endorsement for the refinement of conch fishing regulations to require onshore shell landings. We can assist in transforming local fisheries into sustainable fisheries.

b) Removing the terms mariculture and ranched (aquaculture) from the Appendix II legislation would provide the opportunity to continue research towards future sustainability of this species. Research has already proven technological advances in hatchery (egg strand to larvae) and grow-out stages for re-seeding of habitats.

c) Developing new commercial markets with the detritus or by-product from the conch harvest is more than difficult. SGA is hindered on this as the CITES Appendix II listing does not allow the development of new commercial markets for waste products unless exemptions are granted and amendments approved. It is for this reason that we propose the Convention of Parties (CoP16) for CITES in March 2013 consider providing an annotation to amend the use of derivatives of

the Strombus gigas.

d) Research findings also prove that it is possible to cultivate the Queen Conch. Does the market want meat, shells and pearls? Research has made the improbable very much possible. Yet all of the trade of by-products remains under the restrictions of CITES legislation that endorses meat harvest for trade which maintains an 85-92% loss of the individual animal.

SGA Recommendation for Sustainability – Update or amend regulations

Change the fisheries regulations for the catching and harvesting of conch. CITES regulations were adopted when gear restrictions were applied; onshore shell landings can become a requirement too, and SGA can help. Data collection for size, age and mature catches could all be documented as well as catch quotas match with specific habitat areas and possible needs for reseeding. Onshore and barge shell landings would increase the conch industry with artisanal uses, alternate uses, and the development of new local businesses. Removing or amending the regulations and terms governing ranching (farming) and mariculture from the 1992 regulations specified in the CITES Appendix II controls would enhance mariculture and aquaculture as have been documented above with proven research records towards better sustainability than the current regulations require.

9. Ethical business practices

The Strombus gigas is found in nature in localized areas protected by the Mesoamerican Reef. In the past 20 years the Caribbean nation states have learned the needed lessons and have worked towards sustainability of this species. Now, as trade in this commodity is governed by CITES, unfortunately, the majority of the associated profits from the Queen Conch go towards export, shipping, imports to foreign nations and end suppliers. Very little financial gain remains in the Caribbean communities. SGA proposes that adopting a habit of total usage, more local business and jobs can be created in local communities; hence more profits remaining in the communities working with the Queen Conch.

SGA Recommendation for Sustainability – Ethical business practices

SGA wants to ensure an equitable share of benefits, prosperity, and financial trade remains within these Caribbean communities. If SGA recommendations are implemented, then changes will take place. We will be available to assist.

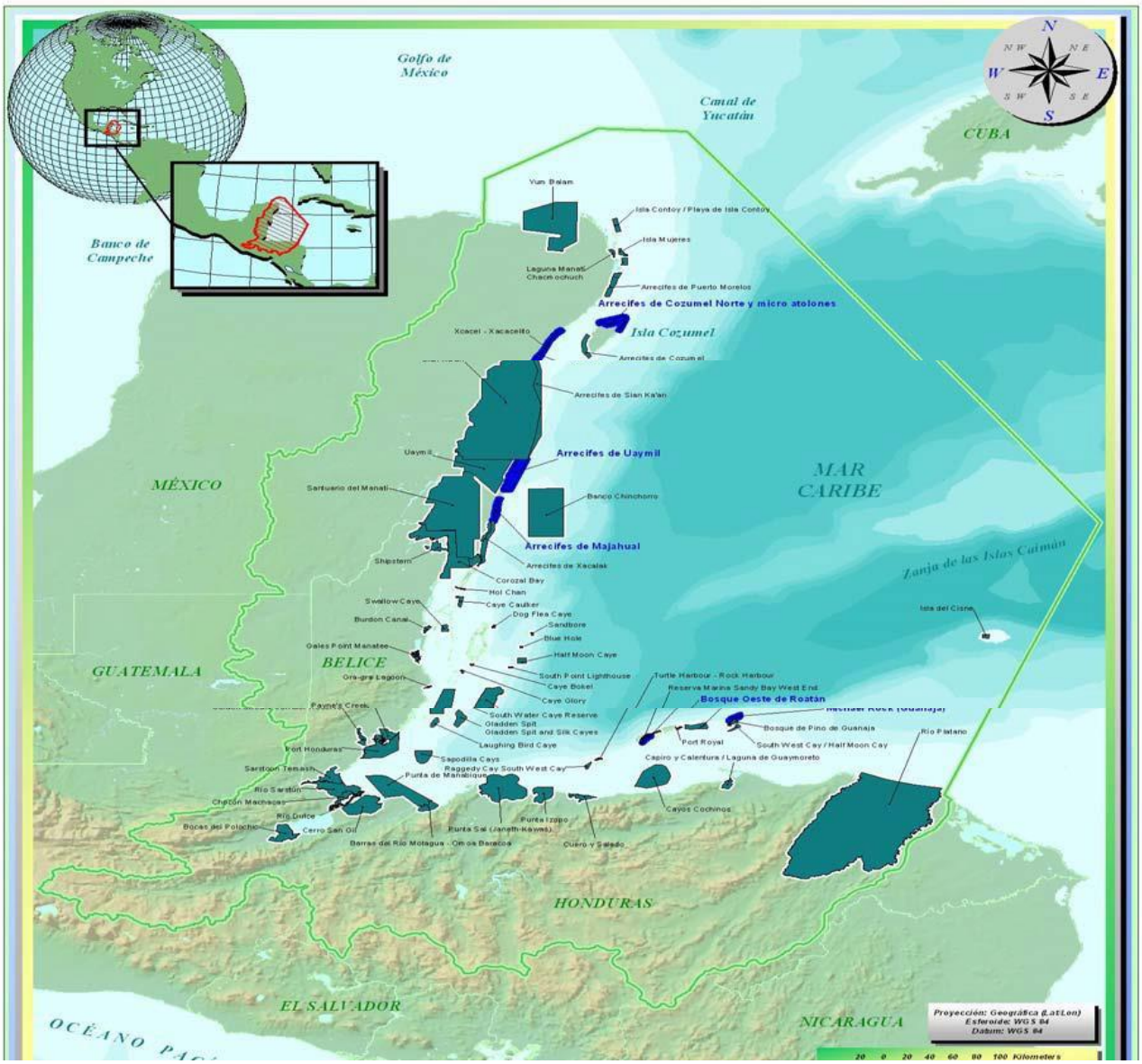
SUMMARY

The 1992 Appendix II listing was a necessary wake-up call for Strombus gigas fisheries. Today, we have research proving the suggestions we have forwarded can provide more sustainability for

the product, the by-product and the species as a whole animal than is currently being enforced by regulations. We propose a change in the methods of commercial meat harvesting and encourage the inclusion of by-products for commercial trade. We also welcome the landing of shells to protect habitats from building middens of shells. Onshore and barge landings would allow for shell size measurements and data collection as well as the collection of shells for artisanal and alternative uses. Adopting a habit of no waste would encourage total usage of each animal and improve the sustainability of the species as a complete product for marketable trade. Mariculture and aquaculture for the Queen Conch are truer forms of sustainability for a commercial product than current fishing practices and the restrictions should be removed from the governing legislation. Advances in technology for breeding and pearl harvesting, fishing efforts, environmental improvements, marine protected areas, and marine management plans have paved the way for our suggestions for the next 20 years of Queen Conch management. We formally request the wastage be stopped and consideration given to our recommendations.

Appendix A

Marine Protected Areas, Mexico, Belize, Honduras and Guatemala



Source: Prioritizing Marine Protected Areas in the Mesoamerican Reef Fund, 2007

Appendix B

MINSITRY OF AGRICULTURE AND FISHERIES
BELIZE FISHERIES DEPARTMENT

BELIZE FISHERIES EDUCATIONAL PROGRAMME
STANDARDIZED CONCH MEAT WEIGHTS

All fishermen are advised of the following conch terms and their definitions.

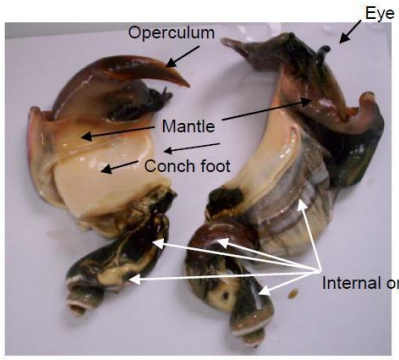


Figure 1. Unprocessed conch - 7 ½ oz.

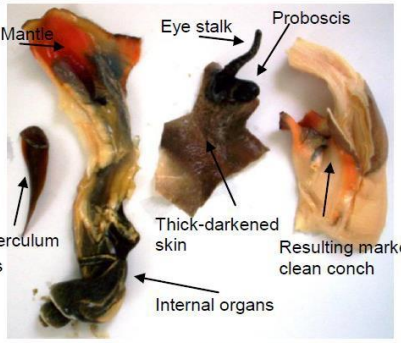


Figure 2a. Organs removed to produce a partially processed conch (market clean).

Figure 2b. Partially processed conch (market clean) - 3.0 oz. (Dorsal view).

Figure 2c. Partially processed conch - (market clean) - 3.0 oz. (Ventral view).

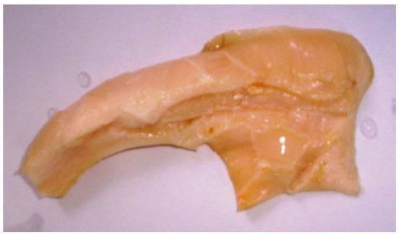


Figure 3.
Fully processed conch (conch fillet) – 2 ¾ oz.

Definitions:

1. **Unprocessed conch** means conch that has been removed from the shell with all organs attached and has a **minimum weight** of **7 ½ ounces or 213 grams**.

2. **Partially processed conch** (market clean conch) means conch that has been removed from the shell and from which the operculum, intestines, proboscis, head, eye stalks, ventral portion of mantle tissue and some thick-darkened skin on the foot have been removed and has a **minimum weight** of **3 ounces or 85 grams**.

3. **Fully processed conch** (conch fillet) means conch that has been removed from the shell and from which all body organs have been totally removed from the foot and has a **minimum weight** of **2 ¾ ounces or 78 grams**.

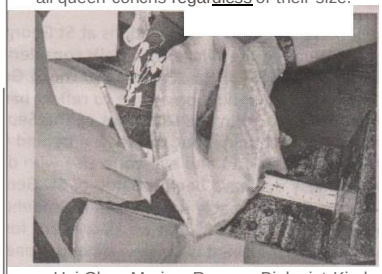
Appendix C

San Pedro Sun Newspaper, Stable Conch Population, Sept. 06, 2012

September 6, 2012

Conch Survey conducted countrywide

The Fisheries Department is working within the various marine reserves countrywide in conducting their bi-annual national conch survey. The survey, which should be completed next week, is conducted in compliance with Appendix Two of the Convention on International Trade in Endangered Species (CITES) and is intended to make stock assessment of the Queen Conch scientifically known as strombus gigas. The two marine reserves on Ambergris Caye, Hoi Chan and Bacalar Chico have been working in various areas inside and outside of the reef to inventory all queen conchs regardless of their size.

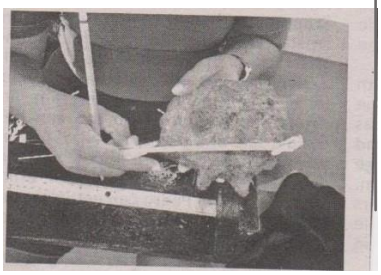


Hoi Chan Marine Reserve Biologist Kirah Forman explained that because the flesh of the queen conch ts one of the biggest fishery products exported from Belize, it is important for the country to provide critical information to CITES to show that the conch population is still sustainable. Because the queen conch is listed by CITES as endangered, Forman said that it is essential that Belize reports to CITES that Belize is monitoring the conch abundance and sustainability.

Forman explained that the methodology used to conduct the conch survey is similar to that used at Hoi Chan Marine Reserve when doing their conch abundance survey before and after the official conch season

Continued on Pase 12

ConchSurvey Continuedfrom Page 3



in Belize each year. "We run transect lines inside and outside of the reef... inside the reef we run 200 meter transect lines and two meters wide on each side of the line in a grid pattern,we measure every single conch (queen conch) within the transect" explained Forman. Two measurements are taken from the conch, the first measurement is the length of the conch from tip to base and the second is the thickest partof the flair lip of the conch.The survey off Ambergris Caye is held from the Belize/Mexico border where Bacalar Chico Marine Reserve starts and every two miles southward thereafter until they eventually pass the HoiChan Marine Reserve.Forman said that they emphasize on holding a stock count in the fore reef (front part of the reef) is because,"Belize claims to have a deep stock of conch so we want to also be able to show that the deep stock is replenishing the back reef where most of the conch fishing is done."

While Forman could not give preliminary findings so far on the nationalconch survey around Ambergris Caye, she said that around the Hoi Chan Marine Reserve the population can be described as "stable." The national conch survey is done every two years from the northern coastal tip of the country to the southern coastalend. Hol Chan conducts their own conch abundance survey inside and outside the protected areas at the beginning and the end of the conch season. The national survey off Ambergris Caye is conducted over a span of two weeks ,just ahead of the opening of the official conch season which is scheduled to open on October 1".

Appendix D

Synopsis of CITES Trade Review 2012 of the Strombus Gigas

The following is a concise summary of the Strombus gigas (Queen Conch) Levels of Concern in conch harvesting countries, taken directly from the 2012 CITES Trade Review (AC26/PC20 Doc. 7 Annex 5, pp 44-83).

A) The following independent countries are all Parties to CITIES
Antigua and Barbuda (Least Concern if documents were submitted, 2001)
The "Lobster and Conch Resource Assessment Unit" (RAU) of the of the Fisheries Resource Assessment and Management Programme of the Caribbean Community (CFRAMP) undertook various activities relevant to the conservation and management of Queen Conch, including assessment studies in Antigua and Barbuda (AC22 Inf.4, 2006). Trade has not been of great importance and it appears the review had little impact on harvest level for Antigua and Barbuda.

Bahamas (Possible Concern, 2003)
Daily landing forms are used to collect catch and effort statistics from vessels at landing sites in Abaco, Grand Bahamas and New Providence. In addition, all licenced processing facilities are required to submit Monthly Purchase reports that details species, source and cost of all purchases (AC22, Inf. 4, 2006). Virtually all (95%) of trade from the Bahamas has been reported as imports by the US. Trade has increased somewhat since the Bahamas was removed from the review in 2006. In 1997 and 1998 trade was far below the quota set, whereas the quota for 2005 was exceeded by 192,188 kg. A fishery data collection programme existed by 2003 and an initiative is ongoing to improve the system. In 2005, a Management Plan existed which was partially implemented at that time. This included planning of abundance survey intended for the establishment of conservative quotas (AC22, Inf. 4, 2006). Bahamas worked with CRFM on implementation of recommendations and they had applied for funding for a proposed project on "Rehabilitation and management of the Queen Conch resource in member States of CARICOM". Joint surveys were carried out with FAO (AC22, Inf. 4, 2006). The Review may have helped to stimulate efforts to improve management of the species in the Bahamas, although it is unclear how much progress has been made in this to date.

Barbados (Possible Concern, 1999)
Oxenford *et al*.'s survey of catch (2007) showed that the majority of harvested specimens were immature (71%). A third of fishermen interviewed considered that there had been a decline in population. In Barbados there is only a small-scale, non-commercial fishery for conch. Given the lack of exports of the species (it would appear that the country is a net importer), it is unlikely that there has been a significant impact of the review on population or management of the species. Barbados requested removal from the process in 2003 and 2004 on the basis that it did not export meat. Barbados was removed from the process in 2006.

Belize (Possible Concern, 2003)
Marine reserves and no-take zones were apparently having a beneficial effect on the stock. The Maximum Sustainable Yield of the legal size population (>18 cm) was calculated to be around 190,000 kg (AC19 Doc 8.3, 2003). Conch catch and export quotas were to be reviewed on a bi-annual basis and adjusted according to the results of the biomass surveys (AC22 Inf. 4, 2006). The

second review report suggested that there was significant illegal fishing activity in Belize's waters. The conch fishery is the second most valuable fishery after spiny lobster. In 2003 export of 240 t had a value of 2.06 million dollars and at that time 1800 full time fishers were employed (AC19 Doc 8.3, 2003). In 2004 Belize (*in litt.* to the CITES Secretariat) expressed concern that, a trade restriction in respect of Queen Conch would "present major socio-economic difficulties for almost 2,000 active Belizean artisanal fishermen" given the importance of the Queen Conch fishery in Belize.

Brazil (Least Concern, 2003)
Very little is known about the population in Brazil, which is at the southernmost extent of the range. According to the responses to the first review recommendations there was no commercial exploitation of *Strombus gigas*, only incidental capture. Little information is available on management but there is no evidence of trade. It is unlikely that the review has had any impact.

Columbia (Possible Concern, 2003)
On the basis of surveys in 2007 the potential population was estimated at more than 10.7 million individuals, with 56% adults and 44% juveniles (Prada *et al* 2008). Colombia voluntarily closed its fishery between 2004 and 2007 because of lack of stock assessment on which to base management and because of illegal trade. The closure remained in place until well after the country was removed from the review, indicating that Colombia was taking the management of this species seriously and that the management measures that were established were a real step towards sustainable management. Quotas for meat, pearls and shell are set and have been posted on the CITES website.

Costa Rica (Least Concern, 2003)
The harvest and export of *S. gigas* is prohibited in Costa Rica although subsistence fishing reportedly occurs illegally in small quantities for domestic consumption (AC 19. Doc 8.3). It is unlikely that review has had any significant impact on the population or management of the species in Costa Rica.

Cuba (Possible Concern, 2003)
Cuba's fishery of Queen Conch has undergone declines leading to temporary closures of the fishery even before the Review. In 2003 the harvest was restricted to six areas with a quota system to manage fishing. Abundance surveys have been made including research and monitoring cruises in traditional fishing areas. Quotas have been based on abundance surveys (AC19 Doc 8.3, 2003). Quotas have been posted on the CITES website since 2005.

Dominica (Possible Concern, 1999)
Dominica participated in regional management planning for the species under auspices of CFRM, and reported that they undertook public education and awareness building activities. Despite the lifting of the trade suspension there has been no trade reported since 2006 and given the lack of exports it is unlikely that any of the activities have been a result of the review.

Dominican Republic (Urgent Concern, 2006)
By the end of 2005 an "Assessment of Conch resources in the Dominican Republic" was underway as well as other activities funded by the Caribbean Regional Fisheries Mechanism (CRFM) (AC22 Inf.4, 2006) and they were removed from the review. No quotas have been posted on the CITES website and it appears that trade has been minimal since Dominican Republic was removed from

the review. The Review appears to have had a major impact on harvest and trade in *Strombus gigas* in the Dominican Republic.

Grenada (Suspended from Trade)
Meat is consumed locally, especially in the tourist industry (AC19 Doc 8.3, 2003). It would appear that there was little trade from Grenada prior to the recommendations given in the second round of the Review and it is unlikely that these or the trade suspension will have had or will have any impact on trade from Grenada.

Honduras (Urgent Concern, 2003)
In the early 2000s there was evidence that significant portions of Queen Conch meat landed in and exported from Honduras have been fished illegally in waters under the jurisdiction of neighbouring States. Since 2000 Honduras has become the largest exporter of Queen Conch meat. The majority of Queen Conch meat exported from Honduras is imported by the US. In 2006, Honduras was considered to have undertaken all recommendations issued in 2003.

Jamaica (Least Concern, 2003)
Jamaica has been compliant with CITES and became a Party 1997. Funding for conch fishery enforcement by the Fisheries Division has been lacking, coupled with longstanding personnel shortage, resulting in poor enforcement (Aiken *et al* 2006). Quotas have been posted on the CITES website since 2000 and show a gradually decreasing trend (from 1,216,000kg to 350 000kg).

Mexico (Least Concern, 2003)
All Queen Conch meat harvested in Mexico is consumed nationally. Shells from Mexico have been reported in trade. Mexico has reported the import of just over 184 t of meat since 2001, mainly from Cuba and Honduras. Recent studies have looked at genetics of the Mexican populations, their connectivity and connections to other Caribbean populations to help determine how the populations should be managed (e.g. see Paris *et al*. 2008, Zamora-Bustillos *et al* 2011). Changes in the status and management of the species in the country have been as a result of domestic measures independent of the Review.

Nicaragua (Possible Concern 2003)
The species is harvested mostly for export, but also consumed locally (AC19 Doc 8.3, 2003). It is assumed that the considerable export quota for "scientific" meat and trimmings has helped fund monitoring activities. Nicaragua collaborated with Honduras, Columbia, Belize and Jamaica on scientific matters concerning *S. gigas* (AC22 Inf 4). Management measures introduced by Nicaragua appear to be in response to the review. However quotas and trade increased significantly once the review had been completed.

Panama (Least Concern, 2003)
The densities were among the lowest reported from the Caribbean region due to long-term overexploitation of the species (AC19 Doc 8.3, 2003). Panama is not reported as trading in Queen Conch. The Review does not appear to have had any impact on the status or management of the species there.

Saint Kitts and Nevis (Possible Concern, 2003)
Nevis appeared to be a regional settlement area for Queen Conch larvae (AC19 Doc 8.3, 2003). According to Saint Kitts and Nevis exports increased significantly in the later 2000s. There was effective co-ordination with the CFMC through the CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP) (AC22 Inf.4, 2006). There is no evidence to assess the impact of the Review on the population; if any improvement has been brought about because of trade, it would appear the EU food sanitary provisions had a greater effect by closing the main markets in France. Trade has increased since the completion of the Review.

Saint Lucia (Possible Concern, 2003)
Trade has not resumed since the trade suspension recommended by the Standing Committee in 1999 was lifted in 2002 however has led to a "thriving illegal trade" between Saint Lucia and Martinique (SC46 Doc. 16.2 Annex, 2002). Since 2003 the only exports reported by Saint Lucia have been in tens of shell and pearls, often as personal items.

Saint Vincent and the Grenadines (Possible Concern, 2003)
In response to the second Review recommendations Saint Vincent and the Grenadines said that they had adopted a policy not to allow exports to exceed the 2002 levels (which were almost 70,000kg according to their reported exports), The preparation of the management plan for the species appears to have been at least in part prompted by the Review. It is not clear to what extent the plan has subsequently been implemented.

Trinidad and Tobago (Possible Concern, 2003)
In response to the second recommendations it was reported that a project had been initiated to develop marine fishery policy and finalize fisheries management act, providing legislative and management framework for implementing CITES recommendations. A Fisheries Monitoring Surveillance and Enforcement Unit was also said to be being established (AC 22 Inf. 4, 2006). According to Georges *et al.* (2010) there is no management of the conch fishery or regulations pertaining specifically to conch harvesting or sale. There are also no fishery landings or sales records for conch meat or shells in Tobago and there is no commercial export, although shells purchased by tourists presumably leave the island as personal effects.

Venezuela (Least Concern, 2003)
Apart from in 1999 Venezuela has not had a legal fishery for Queen Conch since 1991. The Review is unlikely to have had any impact on the status or management of the species in the country.

B) Haiti is an independent country, though not a party to CITES.
Haiti, Non-Party to CITES (Urgent Concern, 2003, Suspended from Trade)
Surveys carried out in 2007 and 2009, which were undertaken in response to the Review recommendations and funded by the Queen Conch exporters (Association des Exporteurs du lambi en Haiti) found that Queen Conch populations in Haiti were low and dominated by immature individuals. Suspension of trade remains in place.

C) The following countries are the governance of France
Guadeloupe, France (Least Concern, 2003)
There is little information available on status of the species, although it was apparently overexploited with local populations unable to meet the high local demand requiring import of meat from elsewhere (AC 19 Doc 8.3). The Review would appear to have had negligible impact on management of the species.

Martinique, France (Least Concern, 2003)
High domestic consumption has depleted local populations and created a market for Queen Conch meat harvested from other parts of the Caribbean, mainly Jamaica (AC19 Doc 8.3, 2003). The recreational harvest of Queen Conch is restricted to three animals per person and day; there is no closed season (AC19 Doc 8.3, 2003). As Martinique is an importer rather than exporter of Queen Conch, the Review is likely to have had little impact on Queen Conch populations there.

Montserrat, France (Least Concern, 2003)
As Montserrat is an importer rather than exporter of Queen Conch, the Review is likely to have had little impact on Queen Conch populations there.

D) The following countries are under the governance of The Netherlands
Netherlands Antilles, Netherlands
The Netherlands has been an importer of the species since 1995. It is unlikely that the Review has had an impact on status or management of the species there. (Bonaire, Curacao)

Aruba, Netherlands (Least Concern, 2003)
The fishery has remained closed since 1987. Ho (2011) notes that although the species is protected in Aruban waters, freshly harvested shells are abundant and evidence of ongoing illegal harvest, although there is no indication of illegal trade. The current aim of management and of the study conducted by Ho (2011) for the Department of Agriculture, Husbandry and Fisheries of Aruba is to reopen the fishery when stocks are stable and large enough to allow a sustainable harvest.

E) The following countries are under the governance of the United Kingdom
British Virgin Islands, UK (Least Concern, 2003)
According to the BVI's response to the first review recommendations it does not commercially export *Strombus gigas.* In fact BVI is a net importer with almost 10,000 kg being reported as exported to BVI since 2002, mainly from St Kitts and Nevis. Given the lack of exports it is unlikely that the review directly influenced improved management measures.

Cayman Islands, UK (Least Concern, 2003)
The Cayman Islands are considered a significant consumer of Queen Conch meat, with demand largely exceeding the islands' supply and foreign imports make up the major proportion of the Queen Conch meat consumed (AC19 Doc 8.3, 2003). By 2006 surveys indicated fluctuating but decreasing populations, with a ca.50% relative decrease in observed average conch densities in the Cayman Islands (Anon, no date). Given the lack of trade from the Cayman Islands and the primarily domestic consumption, it would be unlikely that these were as a result of the review process.

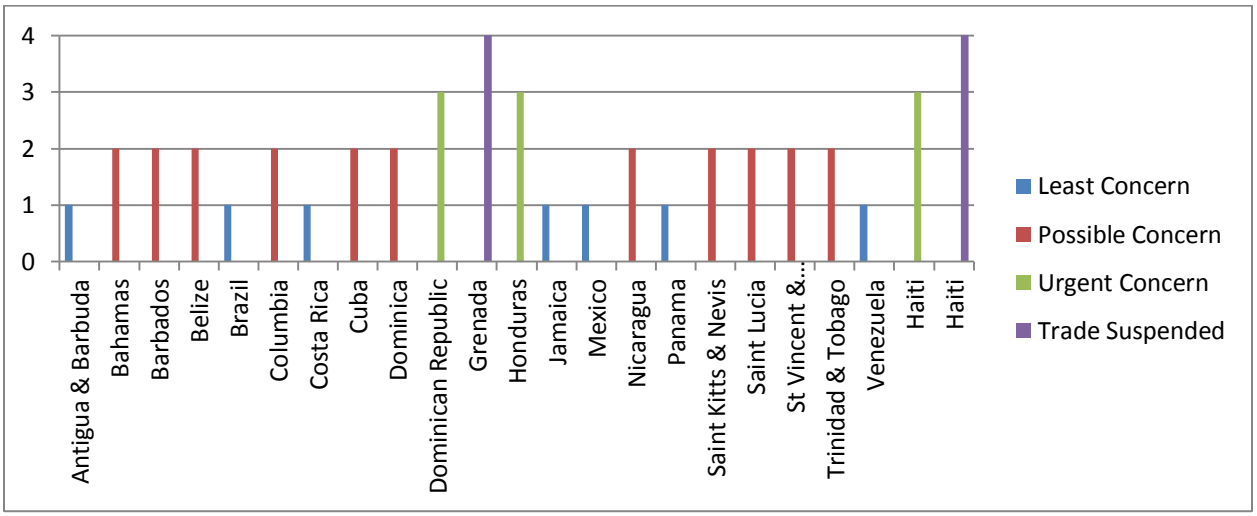
Turks and Caicos, UK Non-Party to CITES (Least Concern, 2003)
Turks and Caicos Islands are the third largest exporter of conch meat, with fairly stable exports of around 300 t per year. The Turks and Caicos Islands have one of the longest catch-effort time series data, which date back to 1974. Between 2000 and 2001, the Department of Environment and Coastal Resources conducted visual stock assessment surveys in the main fishing area on the Caicos Bank in order to validate the findings of the dynamic biomass model which is used to set yearly quotas (AC19 Doc 8.3, 2003). Quotas for wild harvested and ranched specimens have been posted on the CITES website since 1997.

F) The following countries are under the governance of the United States of America
Puerto Rico, USA (Least Concern, 2003)
No export of Queen Conch from Puerto Rico has been reported since 1998. Puerto Rico has been a major importer for the past decade. The Queen Conch fishery is currently banned but this is a result of domestic US policy rather than the Review. The Caribbean Fisheries Management Council has been preparing a recovery plan for the Queen Conch. A total ban is now in place in EEZ of the US Caribbean waters with the exception of St. Croix (US Virgin Islands), where fishing is still permitted (NOAA, 2012).

United States of America (Least Concern, 2003)
In 1986 the US banned all harvest of continental populations of Queen Conch. Although a range State, the United States is not an exporter of *Strombus gigas* but rather the major importer. The Review appears to have catalyzed its involvement in regional management for the species, through provision of financial and technical support.

United States Virgin Islands, USA
Trade has been mostly reported as exports from Saint Kitts and Nevis to the Islands. The Caribbean Fisheries Management Council (CFMC) regulates Queen Conch fisheries in the federal waters, i.e. from nine nautical miles to the edge of the US Exclusive Economic Zone or 200 nautical miles. All fishing is currently prohibited within the US EEZ with the exception of Lang Bank, St. Croix. Further regulations also apply.

Level of Concern, CITES Trade Review 2012 – Independent Countries



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