

# **CFMC/WECAFC/OSPESCA/CRFM/CITES**

## **DRAFT NON-DETRIMENT FINDING FORMAT FOR THE CARIBBEAN QUEEN CONCH (*STROMBUS GIGAS*)**

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Table 1: Proposed Non-detriment Finding Format for Queen Conch Producing and Trading Countries
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## List of abbreviations

AC	Animals Committee	
Cartagena Convention	Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region	
CBD	Convention on Biological Diversity	
CFMC	Caribbean Fisheries Management Council	<a href="http://www.caribbeanfmc.com">www.caribbeanfmc.com</a>
CIRCABC	Communication and Information Resource Centre for Administrations, Businesses and Citizens	
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna.	
CoP	Conference of the Parties (CITES)	
CRFM	Caribbean Regional Fisheries Mechanism-CARICOM	<a href="http://www.crfm.net">www.crfm.net</a>
EC/EU	European Community/European Union	
IOC	Intergovernmental Oceanographic Commission	
ISSC-MAP	International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants	
IUCN	International Union for Conservation of Nature and Natural Resources	
IUU	Illegal, Unreported & Unregulated Fishing	<a href="http://www.fao.org/fishery/iuu-fishing/en">www.fao.org/fishery/iuu-fishing/en</a>
MA	Management Authority	
MEP	Maximum Estimated Production	
MSY	Maximum Sustainable Yield	
NDF	Non-Detriment Finding	
Res. Conf.	Resolution of the Conference of the Parties (CITES)	
SA	Scientific Authority	
SPAW Protocol	Protocol Concerning Specially Protected Areas and Wildlife	
SRG	Scientific Review Group	
TRAFFIC	Trade Records Analysis of Flora and Fauna in Commerce	
ü. NHN	Above the base height level	
UNEP	United Nations Environment Program	
UNODC	United Nations Office on Drugs and Crimes	
USA	United States of America	
WCC	World Conservation Congress	
WCMC	World Conservation Monitoring Centre	

## 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 1950<sup>th</sup>, 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 its 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 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 licensing 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) advise 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 or populations listed in this Appendix are banned from international trade.
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 strict 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) and an export permit 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.. As early as 1985, CITES had already listed queen conch as threatened by trade. In 1992, the USA proposed to downgrade the listing of queen conch to Appendix II of CITES. This proposal was adopted and queen conch became the first large-scale fisheries species to be regulated by CITES.

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 its 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 2<sup>nd</sup> 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.

## **1. 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 and 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 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 conch fishery in most producing countries is very closely linked with the spiny lobster fishery as it often concerns the same artisanal fishers and gears and both species are harvested at the same time. In major lobster producing countries, queen conch is regarded as an (essential) by-catch. In some countries, 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 it appears quite habitat sensitive, displays limited geographical mobility and requires a certain high population density 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 food source (Randall, 1964; McCarthy, 2008). The most important among the that contribute to the overall mortality are:

- Habitat 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 1980<sup>th</sup> the first 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 increases in price levels, stimulating a further intensification in overall harvest activities.

## **2. 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 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 and which will show that the products to be exported originate from a well managed and sustainable resource, and that their harvest has (had) no detrimental impact on the survival of the species or its function in the ecosystem.

CITES does not provide a standard model for NDFs, but rather provides concepts and non-binding guiding principles which the SA should take into considering 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 found it difficult to produce 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 the CITES Appendixes.

The present study is a further extension of activities in the field of queen conch conservation and trade by organizations like FAO, 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.

### **3. 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, 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 Res. Conf.16.7 CITES provides certain concepts and non-binding guiding principles which the SA should take into considering producing a 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.

#### **4. Relevant Information for a Queen Conch NDF**

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 very 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.
- 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 set 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 (56 adults/ha).

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 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 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 arts (scuba, hookah):
- Individual non-transferable quotas for industrial vessels;
- Exclusive zones for artisanal fishers.

## **5 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; various papers.
- 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 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 are CITES approved;
- Include most of the concepts that are can considered relevant in a queen conch NDF. Notable gaps include socio-economic indicators and the evaluation of impact on the habitat;
- Provide 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;

- Lead to a NDF which can be used as quick risk assessment and early warning system, particularly in the absence of pertinent information;
- Has been subject to extensive reviews and trials;
- Offers good possibilities to be used on a national as well as regional level;
- Rosser in his 2008 paper to the Cancun meeting gives the rationale 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 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 Indispensable Indicators for a minimum review which in large part adopted and slightly extended in view of specific queen conch sector characteristics.

### **5.1 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), is put in the context of the queen conch sector.

There is appears no need to make a preliminary assessment of the sustainability of the species as it is assumed that the possibility to obtain an outright positive NDF 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.

Furthermore, commercial culture and ranching activities are very few and currently not significant in the scheme of things. They may grow in importance in the future as a market for their products, and at the price levels they require, 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.

The interpretation of the data gathered and recommendation made by the Scientific Authority as part of a NDF will be the responsibility of the local CITES official(s). However,

The proposed format is made up of 10 information categories, which are divided in a number of sub-categories. Each sub-category is accompanied by a description of its purpose and the information required.

A substantial number of sub-categories can be answered by ticking the respective box of a multiple choice list.

In other cases the description provides basic information on the issue at hand and for which a quantitative reply is preferred.

## 1. General Considerations

This category provides a quick impression on the status of the resource and sets the context.

- 1.1 Species identification: Under CITES it is important that the species is identified beyond doubt. In the case of queen conch there is no problem. Regional differences in the number of *Strombus* species that have been found locally.
- 1.2 Application data accuracy: The quality and quantity of information is proportionally to the degree of resource affectation. For CITES this indicator is important for the level of precaution that will be necessarily applied to any TAC.
- 1.3 Considerations of entire harvest: CITES makes it clear that not only trade but all factors that contribute to the species' mortality have to be considered in the evaluation.

## 2. Biological Characteristics

A lot of scientific data have been published on the biological characteristics, but there are still plenty of grey areas as a result of gaps in overall knowledge, local differences a result of ecological factors and the fact that scientists cannot always agree on the methodologies or protocols that should be applied.

- 2.2 Population density: CITES has indicated that a population density of 56 adult queen conch per hectare would be the threshold at which reproduction at sustainable levels would be guaranteed. However, results of other field surveys report densities of 200 ind./ha (Stoner and Ray-Culp 2000) and 100 ind/ha (QCWG, Miami, May 2012). Various densities are being handled throughout the region, but there appears to be an overall consensus that a minimum of 100 ind/ha should be set as the standard. The situation was described in detail in a recent NMFS finding on a Petition to list the queen conch as threatened or endangered under the Endangered Species Act (ESA) (pag. 18-20).
- 2.7 Significance for ecosystem: The information on the role which a species plays in an ecosystem and the consequences which its removal would have on the ecosystem is scarce. The two reasons for which the IUCN Guidelines deliberately left out this question are

also applicable to queen conch, namely, on the one hand, that a narrow interpretation has no direct impact on the threat to a species. On the other hand, the question cannot be answered for the great majority of species because the necessary information is not available (Leader-Williams 2002; M Rose, 2014). The question is considered relevant, however, and has been included in the format.

### 3. National Status:

In this section significant data on the size, age structure and the distribution of the population or the species are described. The probability that the species can persist is strongly influenced by its age structure, sex ratio, abundance and density.

- 3.1 National distribution: The species characteristics and population dynamics are complex due to a distinct geographic identity of the species, which frames growth, reproduction and recruitment according to local habitat and environmental conditions (Ehrhardt, 2008). This has a particular significance in the case of setting size and weight limitations. For instance, In Nicaragua, the standard is three 100% clean fillets make up one pound, while in Colombia this is about 4.5 fillets and in Belize it is reported to go down to as much as 7 fillets
- 3.8 Social impact of resource exploitation: The author agrees with Rose on the need to bring economic and social issues into the equation of sustainable development and not to look at environmental issues only as CITES does. Successful implementation and compliance of a management scheme may strongly depend on the make-up of the local social structure. This is of particular importance in the case of queen conch which constitutes an economic lifeline for about 20,000 artisanal fishers in the region and is deeply rooted as an economic activity as well as traditional food source.

### 4. Queen Conch Management Plans:

The CITES approved guidelines clearly encourage the adoption of adaptive management practices and the development of effective and reliable monitoring and feedback mechanisms, with corresponding precautionary harvest levels.

- 4.2 Management plan: Countries that are signatory of the CITES convention are obliged to have management plans for Appendix

listed species. The absence of a management plan and monitoring mechanisms is sufficient cause to stop exports.

- 4.6 Confidence in effectiveness of harvest management: Confidence in the management of the harvest is a key factor in the sustainable exploitation of the resource. Confidence and effectiveness go hand in hand.

## 5. Queen Conch Harvesting

There is general consensus that the fishing effort in the recent past has been excessive and that management is required.

- 5.1 Although fishing effort within the queen conch sector is diversified and four sub-groups (industrial, artisanal, subsistence and recreational) are officially registered, fishers from all four basically show the same characteristics in terms of gear and employment conditions.
- 5.8 The landings by independent artisanal fishers show a substantial and sustained increase in most countries over the last ten years.

## 6. Monitoring of Harvest

The existence of monitoring constitutes a core activity for CITES. Monitoring the impacts of any harvests through fishery dependent and independent data, trends in population dynamics, shifts in markets and the impact of any external factors on the overall sustainability of the species, is essential in order to be able to recommend any future adjustments in the management strategy and measures.

- 6.1 Monitoring methods used: CITES has used the criteria of population density levels and export quantities to judge the status of the conservation of the species and monitoring should, therefore, primarily focus on those factors that interfere directly in these criteria. It is important to identify, develop and/or refine time consuming and cost-effective monitoring systems.

## 8. Trade Data

Trade data will provide an overview of the various products that are processed on the basis of queen conch, tendencies in terms of market movements, offer and demand, as well as in the volumes and value of the respective products. 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.

- 8.5 IUU trade: The mere existence of catch and trade quotas, combined with inadequate control mechanisms encourages the IUU trade. Although most of the NDF attention focuses on trade in meat, it is likely that pearls and operculum represent a significant part of the trade's value, but goes largely unreported. Particularly in the area of the lucrative pearl trade this constitutes a major challenge..
- 8.6 Demand has been increasing steadily from the major international market (USA), and local (tourist) markets. Prices have shot up as a result of the growing imbalance between offer and demand. In a number of countries, local consumption is more significant than exports.



## Main References

Aiken, A Kong, S Smikle, RS Appeldoorn and G Warner. 2006. Managing Jamaica's queen conch resources. <http://www.jamaicachm.org.jm/Article/October2006.asp>.

Barnutty, R., Sánchez, 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. CIPA-INPESCA

Barnutty, R. 2006. Informe nacional de la pesquería del caracol rosado (*Strombus gigas*) en la Republica de Nicaragua. Grupo de Trabajo de información y datos pesqueros. Mejora de la situación y tendencias de capturas del caracol reina en la region del Caribe. Proyecto Prepa-VIII FAO/OSPESCA. Nicaragua.

### CITES Publications:

- Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity. Montreal: Secretariat of the Convention on Biological Diversity, 2004
- AC19 Doc. 8.3 (Rev.1): Review of Significant Trade in specimens of Appendix-II species (Resolution Conf. 12.8 and Decision 12.75)
- AC25 Doc.13: Non-detriment findings (Decisions 15.23 and 15.24)
- AC25 Inf.2: Lessons learnt for non-detriment findings
- AC26/PC20 Doc. 8.4 Draft Guidance on the making of Non-detriment findings; Dublin 2012
- CoP16 Inf.11: Proposed guidance for making non-detriment findings for agarwood-producing species
- Res. Conf.8.6: Role of the Scientific Authority
- Res. Conf. 9.24 Rev.16: Criteria for amendment of Appendices I and II
- Res. Conf.10.3: Designation and role of the Scientific Authorities
- Res. Conf.11.11 Rev.15: Regulation of trade in plants
- Res. Conf. 12.8 and Decision 12.75, 2003. Review of Significant Trade in specimens of Appendix-II species. Nineteenth Meeting of the Animals Committee, Geneva.
- CoP15 Doc. 16.2.2, 2010. Strategic matters - Capacity Building. International expert workshop on non-detriment Findings
- Res. Conf.16.3: CITES Strategic Vision: 2008-2020
- Res. Conf.16.7: Non-detriment findings, 2003
- NDF Cancun Workshop Doc. 1, 2008.
- NDF Cancun Workshop Doc. 3, 2008. Format for the preparation of case studies.

Davis, M., 2005. Species Profile, Queen Conch, *Strombus gigas*. Southern Regional Aquaculture Center (SRAC).

De Jesús, A.E, J González, A Oliva, A Pelayo and G. Medina. 1999. Advances over some ecological aspects of queen conch, *Strombus gigas* L. in southern Quintana Roo, México. Proc. Gulf. Carib. Fish. Inst. 45: 932–943.

Ehrhardt, E., Valle-Esquivel, M. 2008. Conch (*Strombus gigas*) Stock Assessment Manual, CFMC.

FAO. 2007. Report of the regional workshop on the monitoring and management of queen conch, *Strombus gigas*. Kingston, Jamaica, 1-5 May 2006. FAO Fisheries Report No. 832.

FAO. 1995. Code of Conduct for Responsible Fisheries.

FAO. 1997. Fisheries management. FAO Technical Guidelines for Responsible Fisheries. No. 4.

FAO, 2002. Fisheries Technical Paper 424. A fishery manager's guidebook. Management measures and their application. Cochrane, K./FIRM

FAO. 1999. Guidelines for the routine collection of capture fishery data. FAO Fisheries Technical Paper 382.

FAO. 2003. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2.

FAO Fisheries Circular No. 1012, 2005. Manual for the monitoring and management of queen conch. By Paul Medley, Consultant

FAO, 2005. Putting into practice the eco-system approach in fisheries.

FAO, 2004. World markets and industry of selected commercially-exploited aquatic species: Caribbean queen conch (*Strombus gigas*). Chacallal, B. et al.

FAO, 2009. Circular de Pesca y Acuicultura No 1042. Conversion factors for processed queen conch to nominal weight.

Foster, S.J. & Vincent, A.C.J. 2013. Making Non-Detriment Findings for seahorses – a framework, Version 3.0. Project Seahorse, Fisheries Centre, The University of British Columbia. 65 pp.

Galo, M and N Erhardt. 2006. Informe nacional sobre las pesquerias del caracol gigante *Strombus gigas*, en la Republica de Honduras. COPACO Meeting, Merida, Nov, 2006.

Hutton, J.M. (2002): The contribution that well-managed international trade can make to species conservation. In: Rosser and Haywood (2002): Part 1, Chapter 1.2

James, M., Wood, J. Marine Invertebrates of Bermuda - Queen Conch (*Strombus gigas*).

Mundy-Taylor, V, Crook, V., Foster, S. Fowler, S., Sant, G., Rice, J. 2011. CITES Non-detriment Findings - Guidance for Shark Species. A Framework to assist Authorities in making Non-detriment Findings (NDFs) for species listed in CITES Appendix II.

National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce, 2014. Notice of 12-Month Finding on a Petition to List the Queen Conch as Threatened or Endangered Under the Endangered Species Act (ESA). [Docket No. 1206013478-4863-03]; RIN 0648-XB140

Phillips, M., Bissada-Gooding, C, Oxenford, H. 2011. Preliminary Investigation of the Movements, Density, and Growth of Juvenile Queen Conch in a Nursery Area in Barbados. CERMES.

Prada, M., Castro, E. Taylor, E., Puentes, V., Appeldoorn, R., Daves, N., 2008. Non-detrimental findings for the queen conch (*Strombus gigas*) in Colombia. NDF Workshop Case Studies #3.

Rose, M. (2014). Non-detriment findings in CITES(NDFs); Version 1.2

Rosser, A., Haywood, M., 2002. Checklist to assist in making non-detriment findings for Appendix II exports. Guidance for CITES Scientific Authorities. Occasional Paper of the IUCN Species Survival Commission No. 27.

Rosser, A.R. 2008. The CITES-IUCN Checklist as an example of a methods for making NDFs, and the principles that were deemed important. International Expert Workshop on CITES Non-Detriment Findings.

Schippmann, U. (2008): Factors to be considered during a CITES Non-Detriment Finding. Cancun presentation.

Stoner, A.W and M Ray-Culp. 2000. Direct evidence for Allee effect in an over-harvested marine gastropod: density dependent mating and egg laying. Mar. Ecol. Prog. Ser. 202.

Theile, S. (2001): Queen Conch fisheries and their management in the Caribbean. TRAFFIC Europe

Wijnstekers, W. (2011): The Evolution on of CITES - 9th edition. International Council for Game and Wildlife Conservation, Budapest

## Useful Web Sources

<p><a href="http://www.strombusgigas.com">:www.strombusgigas.com</a></p>	<p>Caribbean Fishery Management Council (CFMC), and affiliated institutes studies and recommendations for a regional management regime for <i>Strombus gigas</i>.</p>
<p><a href="http://www.pnas.org">www.pnas.org</a></p>	<p>Global Seagrass Trajectories Working Group/National Center for Ecological Analysis and Synthesis, USA</p>
<p><a href="http://www.seagrasswatch.org">www.seagrasswatch.org</a> (SeagrassWatch)</p>	<p>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.</p>
<p><a href="http://www.seagrassnet.org">www.seagrassnet.org</a> (SeagrassNet)</p>	<p>SeagrassNet is a global ecological monitoring program that investigates and documents the status of seagrass resources and the threats to this marine ecosystem.</p>
<p><a href="http://www.coralwatch.org">www.coralwatch.org</a> (CoralWatch)</p>	<p>Provides hands-on monitoring and education tools to increase awareness of reefs and monitor coral health.</p>
<p><a href="http://www.crfm.net">www.crfm.net</a></p>	<p>Caribbean Regional Fisheries Mechanism- CARICOM</p>
<p><a href="http://www.fao.org/fishery/iuu-fishing/en">www.fao.org/fishery/iuu-fishing/en</a></p>	<p>Illegal, Unreported &amp; Unregulated Fishing</p>
<p><a href="http://www.cites.org/eng/prog/ndf/index.php">http://www.cites.org/eng/prog/ndf/index.php</a></p>	<p>CITES' Non-detriment Findings</p>
<p><a href="http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/taller_ndf.html">http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/taller_ndf.html</a></p>	<p>International Expert Workshop on CITES Non-Detriment Findings. Cancun, Mexico, November 17th to 22nd, 2008</p>
<p><a href="http://www.strombusgigas.com/Meeting%20Panama/fao/Annex_QCEW_Recommendations_En.pdf">http://www.strombusgigas.com/Meeting%20Panama/fao/Annex_QCEW_Recommendations_En.pdf</a></p>	<p>Recommendations of the Queen Conch Expert Workshop, Miami, USA, 22–24 May 2012</p>

### **For executive introduction:**

The development of a NDF should ideally take place before any listed species that is destined to be exported has been fished and landed. This is particularly important because NDFs, in addition to outright positive or negative findings, may come with conditions, such as improving management through restrictions on catch, the requirement of monitoring and control systems to ensure compliance, and/or the need for traceability from catch to consumer. The advantage of an NDF with conditions is that it strongly encourages the introduction of the precautionary principle (Res. Conf.9.24 Rev.16).

### **5 question**

**The existence of adaptive management actions and the monitoring constitute the core of a NDF and are particularly important for the assessment of facts and circumstances that impact on the sustainability of the species.**

**CITES has used the criteria of population density and trade quantities to judge the status of exploitation and conservation of the species.**

**NDF is a risk assessment** NDFs provide an opportunity to perform a relatively quick risk assessment by the nature of its format and a management tool as its level of credibility and reliability are the best indication for the application of the precautionary principle.