



**2<sup>ND</sup> MEETING OF THE CFMC/WECAFC/CITES/OSPESCA/CRFM  
WORKING GROUP ON QUEEN CONCH**

**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) which advises the MA on the effects of trade on the status of the species (Convention CITES, Article IX).

In order of degree of protection required, CITES has created three Appendices which list species or populations whose survival is in jeopardy based on their

biological and trade status. The respective Appendix stipulates specific control mechanisms that apply to the trade in that particular species or population:

1. Appendix I: Species 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 queen conch fishery in most producing countries is very closely linked with the spiny lobster fishery as it often concerns the same artisanal fishers and 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 of adults per hectare in order to maintain its reproductive capacity. Its major distribution in waters of less than 30 meter in depth is thought to be a result of the photosynthetic nature of its food source (Randall, 1964; McCarthy, 2008). The most important among the factors that contribute to overall mortality of the species, 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.

- Generally speaking, only queen conch meat is considered for NDFs, not so other (potentially –more- profitable) exports products, such as conch pearls and operculum, although they may be subject to voluntarily imposed export quotas.

It should be pointed out that the working group “Aquatic Invertebrates” of the NDF Workshop in Cancun recommended a positive NDF decision if population trends, despite harvests, are at least stable or measures have been 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 (rose, 2014) has been instrumental in the design of the format. The list of major categories has been adopted with minor changes. Rose also identified a number of Indispensable Indicators for a minimum review which in large part adopted and slightly extended in view of specific queen conch sector characteristics.

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

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

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

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

The proposed NDF format is made up of 10 information categories, which are divided in 58 sub-categories to make the complex queen conch ecology more accessible. Although the sub-categories closely follow the IUCN checklist, they were brought in line with those issues that have directly or indirectly a bearing on the sustainable exploitation of the queen conch as a species. The information generated will be expressed in a number of indicators, which in turn will be used to make and/or adjust management decisions. Indicators can be obtained from scientific research or other sources.

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

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

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

The ninth category deals with commercial culture and ranching activities. Currently, these are very few and not significant in the scheme of things. They may grow in importance in the future as a market for their products, 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.

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

In Table 1, the general categories and sub-categories are accompanied by a description of the specific content and a column denominated Indicators where the

requested information can be provided. In a number of cases the possible reply has been provided in a multiple choice format, in others a specific reply is requested based on a qualitative evaluation or on substantive quantitative data, backed-up by information on the methodology or protocol applied.

## **5.2 Proposed Queen Conch Checklist**

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

### **1. General Considerations**

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

### **2. Biological Characteristics**

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

### **3. National Status**

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

#### 4. Queen Conch Management Plans

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

#### 5. Queen Conch Harvesting

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

#### 6. Monitoring

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

#### 7. Control of Harvest

This section allows the SA to evaluate the part of the total estimated national resource of queen conch that is effectively being protected and which part is being harvested according to area and its respective degree of resource protection.

#### 8. Trade Data

Trade data will provide the SA with information on the trend in product movement and compliance levels. At the trade level the full extent of the species commercial potential in volume and value becomes apparent. Produced volumes should be compared to established quota and IUU included in the equation. Other issues of importance are trends in offer and demand as well as price levels on the international and intra-regional market. The occurrence of illegal, unreported and

unregulated (IUU) trade in the queen conch industry is notorious and exercises substantial negative pressure on the sustainable exploitation of the resource.

#### 9. Artificial Production / Culture

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

#### 10. Other Factors

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

### **6. Final Remarks**

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

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

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



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## 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>www.pnas.org</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>www.coralwatch.org (CoralWatch)</p>	<p>Provides hands-on monitoring and education tools to increase awareness of reefs and monitor coral health.</p>
<p>www.crfm.net</p>	<p>Caribbean Regional Fisheries Mechanism- CARICOM</p>
<p>www.fao.org/fishery/iuu-fishing/en</p>	<p>Illegal, Unreported &amp; Unregulated Fishing</p>
<p>http://www.cites.org/eng/prog/ndf/index.php</p>	<p>CITES' Non-detriment Findings</p>
<p>http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/taller_ndf.html</p>	<p>International Expert Workshop on CITES Non-Detriment Findings. Cancun, Mexico, November 17th to 22nd, 2008</p>
<p>http://www.strombusgigas.com/Meeting%20Panama/fao/Annex_QCEW_Recommendations_En.pdf</p>	<p>Recommendations of the Queen Conch Expert Workshop, Miami, USA, 22–24 May 2012</p>