CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

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Fourteenth meeting of the Conference of the Parties
The Hague (Netherlands), 3-15 June 2007

Interpretation and implementation of the Convention

Species trade and conservation issues

Sharks

REPORT OF THE ANIMALS COMMITTEE

1. This document has been submitted by the Animals Committee.

2. In Resolution Conf. 12.6 (Conservation and management of sharks), the Conference of the Parties:

   AGREES that a lack of progress in the development of the FAO IPOA-Sharks [International Plan of Action on the Conservation and Management of Sharks] *is not a legitimate justification for a lack of further substantive action on shark trade issues within the CITES forum;*

   INSTRUCTS the CITES Secretariat to raise with FAO concerns regarding the significant lack of progress in implementing the IPOA-Sharks, and to urge FAO to take steps to actively encourage relevant States to develop NPOA-Sharks [National Plan of Action for the Conservation and Management of Sharks]*;*

   DIRECTS the Animals Committee to continue activities specified under Decision 11.94 beyond the 12th meeting of the Conference of the Parties, and to report on progress at the 13th meeting of the Conference of Parties;

   DIRECTS the Animals Committee to critically review progress towards IPOA-Sharks implementation (NPOA-Sharks) by major fishing and trading nations, by a date one year before the 13th meeting of the Conference of the Parties to CITES;

   DIRECTS the Animals Committee to examine information provided by range States in shark assessment reports and other available relevant documents, with a view to identifying key species and examining these for consideration and possible listing under CITES;

   ENCOURAGES Parties to obtain information on implementation of IPOA-Sharks from their fisheries departments, and report directly on progress to the CITES Secretariat and at future meetings of the Animals Committee;

   URGES FAO COFI and Regional Fisheries Management Organizations to take steps to undertake the research, training, data collection, data analysis and shark management plan development outlined by FAO as necessary to implement the IPOA-Sharks;

   ENCOURAGES Parties to contribute financially and technically to the implementation of the IPOA-Sharks;

DIRECTS the Animals Committee to make species-specific recommendations at the 13th meeting and subsequent meetings of the Conference of the Parties if necessary on improving the conservation status of sharks and the regulation of international trade in these species;

RECOMMENDS that Parties continue to identify endangered shark species that require consideration for inclusion in the Appendices, if their management and conservation status does not improve; and

REQUESTS Management Authorities to collaborate with their national Customs authorities to expand their current classification system to allow for the collection of detailed data on shark trade including, where possible, separate categories for processed and unprocessed products, for meat, cartilage, skin and fins, and to distinguish imports, exports and re-exports. Wherever possible these data should be species-specific.

3. Recognizing that ongoing work was required, the Conference of the Parties adopted at its 13th meeting (CoP13, Bangkok, 2004) the following two Decisions concerning sharks:

Directed to Parties

13.42 Parties:

a) should request, through their delegations to the 26th meeting of the Committee on Fisheries (COFI) of the Food and Agriculture Organization of the United Nations (FAO) that FAO consider convening a workshop or consultation on the conservation and management of sharks, in time for output to be considered at the 14th meeting of the Conference of the Parties, inter alia *to:*

i) consider and review progress with the implementation of the IPOA-Sharks; and

ii) assess the effectiveness and efficiency of current conservation and management measures for sharks and identify any improvements needed;

b) are encouraged to improve their data collection and reporting to FAO of catches and landings of and trade in sharks, at the species level where possible, recognizing that inter alia this may be a first step towards the development and implementation of Shark Assessment Reports and National Plans of Action or other relevant national instruments;

c) that require assistance to build capacity to manage their shark fisheries are encouraged to seek such assistance from FAO or other appropriate organizations; and

d) should take note of the species-specific recommendations in document CoP13 Doc. 35 Annex 2 with a view to ensuring that international trade is not detrimental to the status of these species.

Directed to the Animals Committee

13.43 The Animals Committee, taking account of the work of the Food and Agriculture Organization of the United Nations (FAO) on the conservation and management of sharks and on CITES implementation issues relating to listed marine species, shall:

a) review implementation issues related to sharks listed in the CITES Appendices with a view inter alia *to sharing experiences that may have arisen and solutions that may have been found;*

b) identify specific cases where trade is having an adverse impact on sharks, in particular those key shark species threatened in this way;

c) *prepare a report on trade-related measures adopted and implemented by Parties that are aimed at improving the conservation status of sharks; and*

d) *report on the above at the 14th meeting of the Conference of Parties.*

4. At its 21st meeting (AC21, Geneva, May 2005), in response to these directions and in support of Parties, the Animals Committee established a working group and agreed to the following recommendations:

   a) The Secretariat should issue a Notification to the Parties as drafted by the working group and amended by the Committee, to seek information relevant to point a) of Decision 13.43, with the responses to be reviewed by the working group.

   b) The Secretariat should make document CoP13 Doc. 35 on Conservation and management of sharks available to the FAO Secretariat and invite FAO to make use of any sections it felt would help contribute to the planned FAO Expert Consultation on the Implementation of the FAO International Plan of Action for the Conservation and Management of Sharks.

   c) Parties should ensure that CITES Authorities consult with their fisheries agencies before the planned FAO Expert Consultation.

   d) The working group should review both the list of species prepared at the 20th meeting of the Animals Committee (AC20, Johannesburg, March - April 2004) and those listed in document CoP13 Doc. 35 with a final draft to be circulated before to the 22nd meeting of the Animals Committee.

   e) The working group Chairman should liaise with the representative of the United States of America in order to determine the best way to advance work on the application of Customs codes to shark products.

   f) The working group should continue its activities intersessionally by email and, subject to the availability of funds, at an intersessional meeting.

5. With the support of the United States and WWF International, the working group met intersessionally at Slimbridge, United Kingdom of Great Britain and Northern Ireland, from 4 to 6 April 2006. The working group was assisted by shark conservation and shark fishery experts as listed in the minutes of the working group meeting (see document AC22 Inf. 3). The meeting was organized by the Shark Specialist Group of IUCN and chaired by the Committee's regional representative of Oceania.

6. The intersessional working group reviewed:

   a) implementation issues through the analysis of responses to Notification to the Parties No. 2005/044 of 11 August 2005;

   b) trade-related threats to sharks; and

   c) the list of species prepared at AC20 and those listed in document CoP13 Doc. 35 in order to identify key species facing trade-related threats.

7. At the 22nd meeting of the Animals Committee (AC22, Lima, July 2006), the results of these three reviews and the related recommendations were reported in documents AC22 Doc. 17.2, AC22 Doc. 17.3 and AC22 Doc. 17.4 respectively for consideration by the Committee. The content of these documents is appended to this report as Annexes 1 to 3.

8. At AC22, the working group was reconvened by the Animals Committee with the following mandate:

   a) *Draft a report for the 14th meeting of the Conference of Parties concerning the implementation of Decision 13.43 based on documents AC22 Doc. 17. 2 [relevant to paragraph a)], 17.3 [relevant to paragraphs b) and c)], including clear conclusions and recommendations.*

b) *In compliance with Resolution Conf. 12.6 and based on document AC22 Doc. 17.4, draft a report that identifies key shark species for consideration and possible listing under CITES.*

c) *Formulate species-specific recommendations on improving the conservation status of sharks and the regulations of international trade in these species.*

d) *Review the shark listing proposals and associated annotations and decisions presented in Annexes 1 to 4 to document AC22 Doc. 21.2, and give technical and scientific input.*

9. Item d) in paragraph 8 above referred to draft proposals by Germany for the inclusion of spiny dogfish *Squalus acanthias* and porbeagle shark *Lamna nasus* in Appendix II of the Convention.

10. The working group considered the relevant documents, the issues therein and the mandate provided by the Animals Committee, noted the reservations of some working group participants regarding parts of these documents, and made a series of recommendations which were adopted by the Animals Committee to be reported by the AC Chairman at CoP14 in the form of draft decisions. Additionally, the Committee, through its working group, provided technical advice directly to the Management Authority of Germany regarding its draft amendment proposals.

Recommendation

11. The Animals Committee recommends that the Conference the Parties adopt the following decisions concerning the conservation and management of sharks:

Directed to Parties

14.xx When considering new CITES listing proposals, Parties should take note of the CITES implementation difficulties, in particular for making non-detriment findings for commercially-traded marine species, such as for shared stocks, migratory species and those introduced from the sea. Enforcement difficulties should also be considered as sharks are generally traded in parts (meat, fins, cartilage, etc).

14.xx Major shark fishing Parties (the 20 States that together catch 80 % of world landings of sharks and rays) should identify opportunities to improve, in consultation with FAO, their species-specific monitoring and reporting of catch, bycatch, discards, market and international trade data, and to report on progress in this respect at the 23rd and 24th meetings of the Animals Committee.

14.xx Parties that are key shark fishing and trading States, in collaboration where appropriate through Regional Fisheries Bodies and with FAO, should review or develop a five-year IPOA-Sharks implementation programme with specific targets for data collection and management action, and report on progress at the 23rd and 24th meetings of the Animals Committee.

14.xx Considering that international trade is having a detrimental effect upon the sawfishes (Pristidae), Parties are encouraged to consider the merits of a listing on the appropriate Appendix of CITES.

14.xx The United States of America should assess the population status and trade information on the leopard shark *Triakis semifasciata* for consideration of a possible listing under CITES Appendix III with an appropriate annotation.

14.xx Those Parties landing and exporting the following species and their products should request and adopt management advice from national and regional fisheries bodies in order to ensure that this exploitation and trade is sustainable, and report at the 24th meeting of the Animals Committee on the measures adopted, levels of landings and exports, and the status of these stocks and fisheries so that the Committee can continue to make if necessary species-specific recommendations to the Conference of the Parties on improving the conservation status of sharks and the regulation of international trade in specimens of these taxa:

a) *Centrophorus* spp. (gulper sharks);

b) *Galeorhinus galeus* (school, tope or soupfin shark);

c) Carcharhinidae (requiem sharks);

d) Rhinobatiformes (guitarfishes or shovelnose rays); and

e) Mobulidae (devil rays).

14.xx When making non-detriment findings for CITES-listed shark species, Scientific Authorities shall seek advice from the relevant national fishery authorities and regional fishery management organizations.

Directed to the Secretariat

14.xx The Secretariat is to send out a revision of Notification to the Parties No. 2005/044 on implementation of listings, focusing specifically on obtaining more case studies on the development of non-detriment findings, and identification tools and manuals for shark species, through consultation between Parties' Scientific and Fishery Authorities, and to present these together with the relevant outputs from the proposed Mexican Non-Detriment Findings Workshop (scheduled to take place in late 2007) to the Animals Committee for analysis at time for discussion at its 24th meeting.

14.xx Provided that external funding is available and in consultation with FAO, the Secretariat shall contract a consultant to prepare an analysis of the catches, production, markets, catch reporting arrangements, trade codes for shark products and export and import data for major shark fishing and trading Parties and other entities (including Regional Fishery Bodies - RFBs), and report on progress at the 23rd and 24th meetings of the Animals Committee.

14.xx The Secretariat shall liaise with range States[1] of the family Potamotrygonidae, relevant Regional Fishery Bodies, FAO and the ornamental fish industry to facilitate the organization of and seek external funding for a regional workshop that will report at the 23rd meeting of the Animals Committee. This workshop will:

a) review the distribution and status of the wild populations of this taxon, the role of captive breeding and trade records;

b) determine methods for setting sustainable species- and stock-specific catch quotas and other regulations;

c) in consultation with all relevant range States, jointly examine crossborder trade that may be facilitating illegal trade; and

d) develop a cooperative strategy for monitoring and regulating trade within South America and to other States, taking into consideration the contribution of captive breeding to *in situ* conservation.

14.xx The Secretariat shall, under the Memorandum of Understanding with FAO and in consultation with the appropriate CITES committees, bring to the attention of the FAO Secretariat the Animals Committee's concerns regarding the exploitation of and international trade in shark species and develop and implement a joint working programme as follows, reporting progress at subsequent meetings of the Animals Committee and the Conference of the Parties:

[1] Major trading States are Brazil, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela; other range States are Argentina, Bolivia, France (French Guyana), Guyana and Surinam.

a) encourage bilateral and multilateral co operation between Parties to enhance law enforcement and fishery management implementation;

b) encourage improved dialogue between CITES, FAO and Regional Fishery Bodies on shark conservation, management and international trade issues;

c) undertake analyses and associated research activity, in consultation with Regional Fishery Bodies, in order to determine the quantities of sharks that are discarded at sea, their estimated chances of survival in major fisheries and sea areas, and hence total shark mortality arising from discards, and possible mitigation measures; such analyses should, where possible, be undertaken at species level as well as for different sea areas and fisheries;

d) hold a joint workshop on the implementation of commercially-harvested shark listings, taking into account the outputs of the Mexican Non-Detriment Workshop, with particular emphasis on providing guidance on the development of non-detriment findings for sharks, including shared, migratory, straddling and high seas stocks; (should such a workshop be held and report before CoP14, then it would be able to inform potential debates at CoP14 on shark species listings) and

e) hold a capacity-building workshop using *Galeorhinus galeus* both as a case study for stock assessment and management measures for internationally-traded shared migratory coastal shark stocks, and in order to improve the management, monitoring and regulation of trade in this species.

Directed to the Secretariat and Parties

14.xx The Secretariat and the Parties shall promote and adopt the use of a simple standardised set of commodity codes for shark products from both CITES-listed and non-listed species that most commonly enter trade in order to differentiate between fresh/frozen and dried, processed and unprocessed meat, and fin products.

Directed to the Animals Committee

14.xx The Animals Committee shall examine at its 23rd and 24th meetings the information provided by Parties and the Secretariat in compliance with Decisions 14.xx to 14 xx, and report on the above at the 15th meeting of the Conference of Parties.

14.xx Noting the progress on identification manuals and other identification techniques already being made by Parties (e.g. Australia and the United Kingdom of Great Britain and Northern Ireland), the Animals Committee should encourage Parties to develop further identification tools and manuals for parts and products from listed and unlisted shark species, and make these available to the Secretariat for translation, publication and circulation of shark identification manuals into relevant languages.

COMMENTS FROM THE SECRETARIAT

A. The Secretariat notes that the Animals Committee proposes a large number of wide-ranging decisions directed mainly to the Parties and the Secretariat. They fall within the very broad mandate of the Parties, the Animals Committee, the Secretariat and FAO to take actions concerning the management and conservation of sharks, pursuant to Resolution Conf. 12.6 and Decisions 13.42 and 13.43. The Parties should nevertheless carefully consider the resource requirements and cost implications for implementing all suggested measures, which include various international workshops, potentially very comprehensive reviews, assessments and studies to be undertaken by Parties and the Secretariat, an ambitious working programme that the Secretariat should embark on jointly with FAO, and the development of identification tools and the translation and dissemination thereof by the Secretariat. The financial implications for the Secretariat of implementing the proposed work could be in the region of USD 0.5 million per annum, excluding staff costs, and are currently not contained in the budget proposed in document CoP14 Doc. 7.3.

B. It would be useful if the draft decisions could – to the extent possible – specify the Parties to which they are directed instead of referring to "major shark fishing Parties", "Parties that are key shark fishing and trading States", and "those Parties landing and exporting" *Centrophorus* spp., *Galeorhinus galeus*, Carcharhinidae, Rhinobatiformes and Mobulidae.

C. The draft decisions contain various detailed reporting obligations directed to Parties and the Secretariat. These will probably be challenging for Management Authorities to comply with because very few shark species are included in the Appendices of CITES, while many proposed actions should be taken by national fishery agencies and authorities, Regional Fishery Bodies and FAO. The Secretariat also notes that Resolution Conf. 4.6 (Rev. CoP13) (Submission of draft resolutions and other documents for meetings of the Conference of the Parties) states that "when drafting resolutions and decisions which require the gathering of information, a Party consider whether such information could be sought via the annual or biennial report, or if a special report is needed, and generally ensure that the reporting burden is kept to a minimum".

D. The Secretariat proposes the establishment of a working group at the present meeting to: review and edit the draft decisions; prioritize and rationalize the proposed measures; minimize overlapping instructions; look into reducing and simplifying the reporting burden; and assess the cost of implementing the draft decisions.

Conservation and management of sharks

IMPLEMENTATION OF CITES SHARK LISTINGS

1. This document has been prepared by the intersessional Shark Working Group of the Animals Committee.

Introduction

2. The following analysis is in response to Decision 13.43, which directs the Animals Committee to:

   a) review implementation issues related to sharks listed in the CITES Appendices with a view inter alia *to sharing experiences that may have arisen and solutions that may have been found;*

   b) identify specific cases where trade is having an adverse impact on sharks, in particular those key shark species threatened in this way;

   c) prepare a report on trade-related measures adopted and implemented by Parties that are aimed at improving the conservation status of sharks; and

   d) report on the above at the 14th meeting of the Conference of Parties.

3. The objective of the working group was to review implementation issues relating to the three species of sharks listed on the CITES Appendices. The primary source of data for this review was the combined responses to Notification to the Parties No. 2005/044 of 11 August 2005 (a questionnaire on the management of and trade in sharks). In addition, the working group considered other information documents (e.g. Clarke, 2004), and the verbal reports of Party representatives at the workshop.

Summary of responses to Notification to the Parties No. 2005/044

4. The Secretariat received 15 responses (including the European Union, which represents 25 States) to CITES Notification 2005/044 (Note: the response of the United States of America was received at the working group meeting on 4 April 2006). This level of response may reflect the relatively limited experience of trade in these species by most Parties from the time listing came into effect up until January 2005.

5. Overall, only 12 international trade records were documented over the period. Five Parties reported imports and four Parties reported exports of CITES-listed species. There were three reported imports and five reported exports of the basking shark *Cetorhinus maximus;* one reported import of the whale shark *Rhincodon typus*; and two reported imports and two exports of the great white shark *Carcharodon carcharias*.

6. Traded parts predominantly included the jaws and teeth of *Carcharodon carcharias*, and health products and food derived from the cartilage and fins of *Cetorhinus maximus.* There was one reported import of soup derived from *Rhincodon typus* and two imports of live specimens for the aquarium industry.

7. It should be noted that in two separate shipments, a total of 5,538 kg of *Cetorhinus maximus* fins were exported from Norway to Hong Kong S.A.R. in 2005. The period over which these fins had been taken is unknown, as was the condition of the fins (i.e. whether the reported weight represents any water content).

8. Sixty-five fins in 2003, 21 fins in 2004, and 40 fins in 2005 (all from *Cetorhinus maximus*) were exported from New Zealand, all of which were derived from bycatch fisheries. If we assume four fins were taken from each shark, this would represent up to 14, 5, and 10 fish respectively per year.

9. Based on the responses to the Notification to the Parties, few of the CITES-listed species appear to have been recorded as traded over the period, though not all major traders are represented.

Major implementation issues

10. Identification

    a) The identification of whole specimens of the species listed on the CITES Appendices should pose no problem as there are many guides available. There is, however, a relative lack of tools available to identify the products that are expected to be traded in significant quantities (including the fins and meat of whale sharks, and the fins and cartilage of the basking shark). Responses indicated that comprehensive identification techniques for these products would be desirable.

    b) The working group recognized that standardised identification (ID) guides of the most commonly traded parts are currently under development, and encouraged those Parties such as India, Madagascar, the Philippines and the United Kingdom of Great Britain and Northern Ireland already working with Australia to continue collaborating with a view to developing standardized ID guides. The Working Group invites recognized experts to assist in this process where possible.

    c) Since the dorsal, caudal and pectoral fins of CITES listed sharks may often be identifiable owing to their large size, border-inspection personnel should be made aware of this feature as a practical first step to identification of these species. It was suggested that if both the base and height of a fin are greater than 50 cm, the shipment would warrant further investigation. Where x-ray technology is used as an initial scanning step at ports, large fins amongst a shipment can trigger further direct investigation by Customs personnel.

    d) However, small fins of listed species as well as processed fins (especially if separated into fin rays), and most shark meat products are more difficult to identify, particularly if traded amongst products from other, unlisted species. Without additional measures, and if not labelled, a large percentage of such products could pass inspection undetected.

    e) The working group noted that DNA-identification tools are available but owing to cost and accessibility, DNA techniques are not practical as initial screening tools. However these could be used as second-stage techniques for determining species origin and confirming identification and are referred to in the 'Enforcement' section below.

11. Commodity codes

    a) The lack of Customs codes is a widespread obstacle to effective implementation of the shark listings.

    b) The working group proposed that the use of the revisions under document AC20 Inf. 2 on *Outline of Harmonized Codes for Shark Products* (including meat and fins in Chapters 3 and 97 of the WCO Harmonized Codes) are a suitable basis for developing codes for products in trade from listed species.

    c) There might be a need for species-specific codes and this could follow the proposal in document AC20 Inf. 3, circulated at AC20.

    d) At this time, a series of simple commodity codes is recommended, to collect trade information for CITES-listed and non-listed shark species. In May 2000, China changed its Customs coding system, resulting in frozen shark fin imports being combined with frozen shark meat. This makes the overall quantity of fins in trade impossible to monitor since the proportion of dried versus frozen fins traded is not constant. Since China represents a major world market for shark fins,

and frozen fins appear to comprise an increasing proportion of the trade, the fin trade will only be able to be fully monitored if China reverts to using distinctive codes for unprocessed fins and further distinguishes those that are frozen and dried.

12. Non-Detriment Findings

a) As the three shark species are some of the first marine fishes to be listed on CITES and may be taken in either managed or unmanaged fisheries, special considerations may apply when making Non-Detriment Findings (NDFs) for these species. Fisheries take of these species may result from unintentional catch and mortality, but these conditions in and of themselves are not necessarily relevant for a NDF. As Article III 2 (a) and Article IV 2 (a) require that the export must not be detrimental to the survival of the species, the key consideration for an NDF for listed shark species should be the total mortality (e.g. intentional, unintentional and natural) and the extent to which trade may influence that mortality. Further guidance on NDFs for these species may require additional studies, which may potentially apply over a broader range of listed species.

b) All three listed species are highly migratory; there is therefore an implicit recognition that sharks found in any Party's waters belong to widely shared stocks. This needs to be taken into account when making a non-detriment finding.

c) The process of issuing an NDF for any of these species is a challenge, given that population characteristics of none of them are well understood. Even the precautionary approach adopted by New Zealand (up to 10 basking sharks per year) does not reference any reliable population or productivity data.

d) In general, for commercially-harvested marine species, it was agreed that NDFs could be declared for species that were the subject of a management plan as long as the proposed export was consistent with the sustainable management provisions of that plan. In order to improve upon the process of assigning NDFs, the Working Group suggests that the Animals Committee collects case studies from those countries that export sharks and their products.

13. Legal and institutional matters

a) The rate of implementation has varied between Parties according to the manner in which the amendments to the CITES Appendices are enacted. These variations are also likely to have influenced the quantity and quality of data received in response to the Notification.

b) In addition, the basking shark and the whale shark were among the first marine fish to be listed by CITES in Appendix II. Up until now, some domestic administrative and legal frameworks have been predominantly orientated toward terrestrial species. In some cases, it is possible that new legal arrangements are necessary to accommodate the shark listings. In addition, fisheries agencies new to CITES are now involved in permitting and regulation. In other cases, Management Authorities with relatively limited experience of marine species are now dealing with them.

Relationships between agencies domestically

c) In some countries the CITES listings of shark species have facilitated dialogue between CITES Management Authorities and fisheries agencies. This has been seen as a positive outcome and has improved mutual understanding.

Relationships between agencies and instruments internationally

d) Management plans and agreements of other agencies such as regional fisheries management organizations also need to be taken into account during the implementation of marine species listings.

e) The great white shark and the basking shark are also listed on Appendix I of the Convention of Migratory Species (CMS), which requires legal protection of these species. The strict protection and associated obligations of Appendix I listing on CMS Parties that are range States for these

species may need to be reviewed as part of the decision regarding whether to issue an export permit, particularly in relation to legal origin.

f) The highly migratory nature of all three species listed on CITES necessitates shared responsibility for stocks by range States. Shared responsibilities imply the need for coordinated conservation and management. It is noted that these three CITES-listed species are also listed on Annex I of the United Nations Convention on the Law of the Sea (UNCLOS) and Appendix II of CMS (two also on Appendix I). In light of the situation facing migratory sharks, the Eighth Meeting of the CMS Conference of the Parties (Nairobi, November 2005) recommended that a global instrument and action plan be developed to facilitate international cooperation for migratory sharks.

Training and capacity

g) Identification of whole sharks is not a problem given that identification guides for these species are readily available. For fins and other parts and derivatives however, training in identification tools may be needed.

Enforcement

h) It may be difficult for frontline Customs officers to identify all shark products, but there should be measures in place to ensure that enforcement officers have ready access to the relevant technical expertise when required. This can be done through increased use of referral procedures (e.g. through the use of special codes by frontline inspection staff at the Hong Kong airport).

i) Other strategies are also needed to start addressing illegal trade. These include awareness raising and education on the reasons for controlling illegal trade. These strategies should consider the practicalities of implementation, with respect to resources, to avoid undermining the overall enforcement and willingness to cooperate with CITES.

j) With regards to DNA techniques, there is a species-specific polymerase chain reaction (PCR) primer available for use in identifying great white shark products. PCR primers for basking and whale sharks are under development and reportedly near completion. The likely cost of using such techniques is estimated at less than USD100 per sample.

k) As described above, DNA testing is seen as a part of enforcement procedures rather than as part of routine screening procedures.

Other issues

14. Personal effects

A significant proportion of the trade may constitute personal effects. Jaws and teeth of the great white shark are high-value items normally taken and carried in small numbers rather than as commercial shipments. Personal effects involving Appendix-II species are generally excluded from the Convention's coverage. Some Parties, however, have adopted stricter domestic measures requiring CITES documents for their trade. As the implementation of personal effects exemption varies amongst the Parties and consequently the recorded exports and imports may not give an accurate picture of the movement of these products across borders, making it difficult to assess the overall nature and extent of trade and of the impact of Appendix-II listings on these species. The personal effects exemption does not normally apply to imports from the country of origin but rather to subsequent trade, so it is not clear what level of trade in white shark curios would not be subject to permit requirements.

15. Introductions from the sea

This issue was raised when CITES shark listing proposals were considered at the relevant COPs, but does not appear in the responses as an issue of concern.

Reservations

16. The Working Group noted that some Parties engaged in international trade in products from listed shark species have entered Reservations under Article XV, paragraph 3, on these species listings. This makes it more difficult to assess the extent of trade in these species. It was, however, noted that trade data are often still available from the appropriate government departments of Parties with reservations (indeed some of these trade data are more detailed than those available from Parties without reservations).

Recommendations

17. The regional collaboration between Australia and other Parties on the production of identification tools was noted. The Working Group encourages other Parties to contribute and make use of such initiatives, including the translation and publication of identification manuals for shark parts and products into their own languages.

18. Encourage the Animals Committee, as a priority, to complete its work on the development of customs codes for sharks.

19. Encourage all major Parties to implement product-specific trade codes for shark products, as well as species-specific codes for products of listed shark species, in order to avoid under-estimation of the full scope of international trade.

20. Encourage the Animals Committee to undertake an analysis and provide guidance on Non Detriment Findings for commercially harvested marine fish.

21. Parties are encouraged to include reference to any known illegal trade in shark products as part of their general national activities concerning public awareness of the illegal trade in wildlife, and the impact of such trade.

22. Encourage bi-lateral cooperation between Parties to enhance law enforcement and fishery management implementation.

23. Encourage improved dialogue between CITES, FAO and regional fisheries bodies on shark conservation, management and international trade issues.

Conservation and management of sharks

TRADE-RELATED THREATS TO SHARKS

1. This document has been prepared by the intersessional Shark Working Group of the Animals Committee

Introduction and background

2. Sharks[2] and their relatives play an important role in the ecosystem and as a human food resource. They are a traditional and important source of food, income and employment for many communities, including coastal and rural peoples. They are also of cultural and spiritual importance in many States and communities. Recent changes in fisheries technology and economic developments have resulted in intensified fishing effort and mortality through domestic consumption, international trade and bycatch (see Box 1 for definitions of bycatch). Non-consumptive uses are also of increasing importance in some States. These developments have led to the adoption of the United Nations' Food and Agriculture Organization (UN FAO) International Plan of Action for Sharks (IPOA-Sharks) and a number of CITES Resolutions and Decisions on the conservation and management of sharks.

3. This document addresses the task set for the Animals Committee by Decision 13.43 to identify specific cases where trade is having an adverse impact on sharks.

4. The Working Group agreed that the most important challenge for managers is to ensure that the rate of removal of animals from wild populations is sustainable. Some carefully managed shark fisheries are sustainable, but many fisheries, however, are inadequately monitored and/or unmanaged, resulting in unsustainable levels of mortality for most[3] shark and ray species, although the data required to assess their status and to form the basis for management decisions are seriously lacking for many stocks. Over 25 % of all chondrichthyan species evaluated for the IUCN Red List of Threatened Species have been assessed as Threatened (Critically Endangered, Endangered or Vulnerable), 25 % as Least Concern and nearly 37 % as Data Deficient (IUCN in press 2006).

5. Removal of sharks from the ecosystem may also result in detrimental ecosystem impacts, which are also of concern to fisheries and environmental managers. Illegal, unregulated and unreported (IUU) fisheries in State waters and on the high seas contribute to these species' declines and the broader ecosystem impacts. There is also a significant (often legal) contribution by foreign fleets to unsustainable shark mortality within EEZs[4], with consequent implications for shark stocks, food security, and socio-economic stability. The overall lack of reliable data from both IUU and legal fisheries makes evaluation of impacts and introduction of management challenging.

[2] *Unless otherwise specified, 'sharks' is the term used to include all chondrichthyan fish species: the sharks, rays and chimaeras.*

[3] *One Working Group participant subsequently suggested that 'some' was more appropriate. However, all available evidence indicates that the current levels of mortality are indeed unsustainable for the majority of unmanaged stocks.*

[4] *Exclusive Economic Zones*

Box 1. Definition of bycatch

The Working Group noted the confusion that may arise from the use of the term 'bycatch', which is applied differently in many parts of the world. Part of the uncertainty arises because "yesterday's bycatch may be today's target species" and the term can be "inaccurate when used over an extended time to describe one element of a multi-species catch" (Murawski, 1992). It is also "inappropriate in terms of the reality of many multispecies fishing practices" (Alverson *et al*., 1994). This is particularly true for sharks, where the increased value of their products combined with declining stocks of traditional target species has made them an increasingly important component of the economic and food value of fisheries, thus shifting from a largely unwanted, discarded bycatch, to a by-product or joint catch. The contribution of 'bycatch' to overall shark mortality is, therefore, very important.

Alverson *et al*. (1994) list the following three definitions of bycatch:

i) species retained and sold (also termed 'by-product', or 'joint catch');

ii) species or sizes and sexes of species discarded as a result of economic, legal, or personal considerations (commonly used by scientists in fisheries of the Northeast and Western Pacific);

iii) the non-targeted species retained and sold, plus all discards.

The FAO FIGIS glossary (http://www.fao.org/fi/glossary/) provides the following definitions:

Bycatch: Part of a catch of a fishing unit taken incidentally in addition to the target species towards which fishing effort is directed. Some or all of it may be returned to the sea as discards, usually dead or dying. Discard: To release or return fish to the sea, dead or alive, whether or not such fish are brought fully on board a fishing vessel.

6. Although fisheries mortality has the single greatest effect upon world shark populations, some species can be affected by other factors, including pollution and debris, and the degradation and loss of habitats (for example, through land claim in coastal nursery grounds, dam construction on rivers, and damage by fishing gears).

7. Not all shark fishery products enter international trade. Many supply domestic markets or subsistence communities. It is difficult to determine the proportion that does enter international trade, not least because of inadequate taxon-specific monitoring of catches, discards (for definition see Box 1), landings and international trade. This leads to considerable differences between the total reported production of shark products, imports of shark products and exports of shark products. The difference between reported imports and exports is about 20,000 tonnes *per annum*, or 20 % of world trade. The discrepancy in reported trade data could, for example, be caused by the use of different commodity codes by different States. However, Customs systems often allow double counting of imports (i.e. imports and re-imports) and may reflect tendencies to under-report due to national tariffs; these factors are also likely to create discrepancies (Clarke, 2004).

8. There is, therefore, insufficient knowledge of the impact of international trade on shark populations and the contribution of international trade, rather than domestic consumption or bycatch, to overall mortality and hence to sustainability. In analysing available FAO data for sharks, it is evident that the data set is compromised by the poor quality of data provided to FAO and the lack of data provided by many shark catching and trading nations.

9. Regardless, the most recent data analysis (Lack and Sant 2006) indicated that 20 States or entities contribute 80% of reported global shark catch and that five of these States, listed in descending order of reported catch levels: Indonesia, Taiwan (Province of China), India, Spain, and the United States of America contribute 40% of the reported total catch. The other 15 (also in descending order) are Pakistan, Argentina, Mexico, Malaysia, Japan, Thailand, France, Sri Lanka, the United Kingdom of Great Britain and Northern Ireland, New Zealand, Portugal, the Islamic Republic of Iran, Nigeria, Brazil and the Republic of Korea. When reported import and export data are considered, it

appears that the most important trading States, in alphabetical order, include Brazil, Canada, Chile, China including Hong Kong SAR and Taiwan (Province of China), Costa Rica, France, Indonesia, Italy, Japan, Mexico, New Zealand, Panama, Republic of Korea, Singapore, Spain, the United Kingdom and the United States of America (Lack and Sant, 2006). States that are not recording trade using Customs codes for sharks would not be identified by this analysis. The States listed in this paragraph are critical to the recording of accurate shark data, and can also make a significant contribution towards the sustainability of international trade.

10. Those data that are available indicate that, where sharks are taken in order to supply international trade demand, the main products are (probably in order of significance and economic importance), fins and meat, because most fisheries yield these products. Fins are nearly always retained, but meat is not. Fins comprise approximately 2% of the whole weight of sharks, whereas meat comprises roughly 40%. As a result, the total volume of shark meat entering international trade is greater than the volume of fins. But, the average economic value of shark fins vastly exceeds that of shark meat, and the number of sharks entering the fin trade is likely to exceed the number whose meat is traded. The Working Group noted that this warrants further study.

11. Many coastal shark fisheries utilize the whole carcass and yield a wide range of products. Fins are a by-product of several target fisheries – those for shark meat, particularly, and those for deep sea sharks (oil and meat fisheries). On the other hand, meat is a by-product of some shark fisheries that are primarily driven by the high value of fins in international trade (see case study below from the West African coastal shark fishery). As other fishery yields decrease, the demand for shark meat will continue to rise and meat products become more important drivers for shark fisheries.

12. Other products include liver oil, skin, cartilage, live fishes for the ornamental fish trade and public aquaria, curios and trophies, and traditional medicines. Case studies below provide examples. Non-consumptive uses include shark watching and diving.

Case studies

13. Specific cases where fin trade is having an effect upon sharks

Because fins are a high value low volume product and easier to handle and store than shark meat, some fisheries, often illegal, unregulated and unreported (IUU), target sharks in order to retain the fins and discard the meat. Several Regional Fishery Bodies (RFB) have recently adopted resolutions to ban this practice. IUU fishing is often unsustainable, and has major negative impacts on shark stocks and ecosystems generally, as well as on the implementation of management efforts that rely on accurate data collection. States that have a national finning[5] ban or related controls often find enforcement difficult or ineffective. For example, although Ecuador's regulations prohibit all shark fishing within the Galapagos Marine Reserve, it has proved extremely difficult to prevent illegal fin fishing. This is likely to be a widespread problem and suggests that there is need for a broader regional or international approach to this aspect of shark fishery management. Other shark fisheries may be driven primarily by the high value of fins in international trade, although other products are also retained. The following case studies summarize the scale of this trade through one importing entity and provide examples of fisheries influenced by trade demand for fins.

a) Hong Kong (SAR) shark fin trade

Studies of the shark fin trade in Hong Kong (SAR), the world's largest trading centre for fins, provide a means of characterizing the impact of this trade on shark populations. Import quantities until 2000 suggest that the trade grew by 5% per year. Since that time China has acquired an increasingly larger proportion of the world trade but owing to changes in their commodity coding system, it is impossible to quantify trade levels accurately. The species composition of the Hong Kong SAR auction market consists of at least 17% blue shark and only 14 species made up approximately 40% of the market. Based on extrapolated auction data, the number of sharks represented in the global shark fin trade per year is estimated at approximately

[5] *'Finning' is defined in fishery management fora as the removal and retention of fins from a shark and the discard at sea of the remainder of the carcass.*

40 million. Analogous estimates in biomass indicate that shark catches are three to four times higher than figures given in the FAO FISHSTAT Capture Production database for elasmobranches with tradable fins. Species-specific figures for the trade of blue shark fins were compared to stock assessment reference points and indicated that catch levels may be within sustainable limits for this species (Clarke, 2003). However, since the blue shark is one of the most prolific and resilient of shark species, these results cannot be used to make inferences about other shark species. The value of the global trade in shark fins is estimated at USD 400-550 million. Given the apparently close correlation between the volume of the shark fin trade and economic growth in China, the market is expected to continue to grow unless constrained by limits on supply, changing consumer tastes or other factors[6] (Clarke, 2003).

b) Shark finning[5] fishery in Indo-Pacific Ocean

A paper from Japan for the 9th Session of the Indian Ocean Tuna Commission (Anonymous, 2005) reported that 150-200 fishing vessels based in Taiwan (Province of China), flagged mainly in Taiwan (Province of China) and some in Indonesia, were currently operating shark finning[5] fisheries in the Western Indian Ocean. Some finned sharks year-round, others switched to shark fishing at the end of the tuna season. These fleets had moved from offshore Central America following declines in shark resources and increased regulation of shark fin landings in Costa Rica (Anon., 2005). Activities included illegal fishing in poorly patrolled EEZs. One vessel can catch up to 60 metric tons per month from previously unfished stocks, discarding the carcasses and retaining only the fins. The fins are trans-shipped to freezer carriers and transported to China [including Taiwan (Province of China)] for processing and marketing.

c) Illegal shark fin fishing in northern Australian waters

IUU fishing in northern Australian waters by foreign fishermen supplies the international fin trade, and has negative impacts on the sustainability of northern shark stocks and the regional ecosystem, including other protected marine species such as sea turtle and dugong. The demand for fins is so high, and prices so lucrative, that foreign fishermen are willing to risk incarceration by Australian authorities to catch sharks illegally for their fins within Australian waters (Julien Colomer, pers. comm.). Reductions in shark species abundance and diversity have been observed in several locations within northern Australian waters as a result (Dr Mark Meekan, pers. comm.).

d) Shark fishery development in West Africa

Sharks have been exploited by semi-industrial fisheries since the 1950s, with some target fisheries leading to stock collapse. Shark bycatch in small-scale fisheries has been salted, dried and exchanged for cereals with inshore regions. Ghanaian fishermen who settled in the Gambia in the early 1970s initiated a target shark fishery, exporting dried, salted or smoked shark meat to Ghana. They also purchased shark bycatch from other fisheries, leading to the first cash fisheries in the region and increased levels of fishing effort. Shark products were imported from Senegal to the Gambia then the meat re-exported to Ghana. Fin buyers had arrived in the region by the 1980s, leading to increased fishing effort targeting sharks and guitarfishes. Rapidly declining shark stocks resulted in a community-led shark fishing ban in Banc d'Arguin, Mauritania, in 2003. Fisheries continue in the other States of the Commission Sous-Régionale des Pêches (Subregional Fishery Commission), despite falling catches. These fisheries are driven by international fin trade to East Asia, but meat is also traded within the region. (Mika Diop[7], pers. comm.)

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[4] 'Finning' is defined in fishery management fora as the removal and retention of fins from a shark and the discard at sea of the remainder of the carcass.

[6] It was the view of one Working Group participant that consumption and demand for shark fin products was not related to the economic climate. A new policy of the Chinese Ministry of Commerce was highlighted which has suspended the import and processing industry solely for re-export purposes, which includes shark fin processing in China, No. 55 Notification of 2004.). However, the case study provided here accurately reflects published information presented to the Working Group.

[7] Co-ordinator of the Subregional Fishery Commission of West Africa, covering Cape Verde, the Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra-Leone.

e) Costa Rican shark fin landings by foreign flagged fleets

Costa Rica initiated a programme to foster a longline fleet in 1982, to compensate for the depletion of coastal fishery resources. Currently, Costa Rica has the largest Pacific longline fleet of Latin America (550 vessels). Since 1998, foreign flagged vessels that target sharks in international waters are allowed to land products in private docks. Costa Rica passed a shark finning ban in February 2001 (AJDIP/47-2001), which mandated the landing of shark fins attached to the carcass. Throughout 2002 and 2003, violations of the regulation by foreign vessels landing solely shark fins at private docks were continuously exposed. The use of private docks by these vessels was challenged in Costa Rica's Constitutional Court in February of 2004, on the grounds that their use is contrary to local Customs regulations, which mandate the use of public docks for the importation of products by international flag vessels. The authorities replaced the aforementioned regulation with a new one in November of 2003 (AJDIP/415-2003), which allowed the landing of shark fins separated from the carcass, as long as the fin-to-carcass weight ratio did not exceed 12.7%. In March of 2005, Costa Rica's new Fishery Law was passed, Article 40 of which mandates the landing of shark fins only if "attached to their respective carcass", thus eliminating the fin to body weight ratio system. Although the local fleet agrees and complies with the measure, international flag vessels opposed it. As a result, local fishery authorities decided to interpret the law in such a way as to allow the fins to be totally separated from the carcass at sea, yet tied back on to the carcass for landing. The Costa Rican General Attorney has ruled twice (July 2005 and January 2006) that the correct interpretation of Article 40 of the Fishery Law requires the fins to be landed attached to the carcass in natural form. Even though the resolutions of the Attorney are legally binding and mandatory, local fishery authorities refuse to comply. In February of 2006, Costa Rica's Constitutional court ruled that the fisheries and Customs authorities had failed to protect the constitutional rights of the Costa Rican people, and mandated both institutions to comply with Customs regulations.

f) Illegal shark fisheries in Ecuador

The Galapagos Marine Reserve Regulations prohibit all shark fishing, whether target or bycatch, and also prohibit transporting and trading in sharks or their products within or from the Archipelago (Reglamento de Pesca Artesanal de la RMG, Art. 69). These Regulations were ineffective. Illegal fishing targeting shark fins in order to supply the high value international trade is apparently increasing within the Marine Reserve, despite efforts to control it. The practice of finning seems to be limited within Ecuadorian waters to the Galapagos Archipelago, but all shark fin exports from Ecuador were subsequently prohibited by Decreto Ejecutivo 2130, Registro Oficial 437 of 7 October 2004. Shark fins obtained illegally in the Marine Reserve and legally in other coastal waters were formerly landed on the Ecuador mainland. These fins are now exported by boat to adjacent States because of the recent prohibition of shark fin exports. This regulation was enacted mainly in an attempt to control or eliminate the finning problem in the Galapagos Marine Reserve (Fowler, 2005). There is concern that these regulations have not been effective in restricting shark finning activities in Ecuador, but has merely increased the illegal fin trade that now passes through neighbouring States instead. It has therefore prevented accurate data collection. The newly adopted Shark Plan for Ecuador aims to address this issue.

14. Specific cases where meat trade is having an effect upon sharks

Shark meat is an important food resource for many coastal and inland communities and much is utilised only through domestic markets. Many coastal shark fisheries utilise the whole carcass and yield a wide range of products, with fins being a by-product of such fisheries. As other fisheries yields decrease, the demand for shark meat will continue to rise and is likely to become a more important driver for commercial shark fisheries. For example, blue shark landings from long-line fleets in several oceans have increased in recent years as the value of the meat has risen to USD 1,000/ton, partly as a result of the pressures of the regional fishery commissions to reduce tuna fish catches (Andres Domingo, pers. comm.). Other examples are presented below.

a) Industrial South American ray fisheries

In the past year, ray landings have increased in the South-West Atlantic Ocean. These captures are mainly exported to the market of the Republic of Korea. Statistics and Customs control records from this multi-species fishery list all species under a single category, therefore landings are not effectively monitored (Massa & Hozbor, 2003; Paesch & Domingo, 2003; Villwock de Miranda & Vooren, 2003; Andres Domingo, pers. comm.). In the north of Brazil, a recently described species (*Dasyatis colarensis*, previously referred to as *D. guttata*) is increasingly captured and exported for meat to the European Union. More data on this species' biology is required and this fishery must be monitored (Patricia Charvet-Almeida, pers. comm.).

b) Canadian porbeagle fishery

Beginning in the early 1990s, porbeagle sharks *Lamna nasus* were landed by a Canadian-directed longline fishery and bycatch in several other fisheries. Canadian landings prior to this time were reported only as bycatch (DFO, 2005). The majority of porbeagle landings are exported to the European Union Member States, which in turn is reported to export porbeagle to the United States of America, where the meat is consumed in restaurants (Vannuccini, 1999). A great deal of trade is also reported between European Union Member States, with the United Kingdom and Germany exporting porbeagle to France and Spain, and Italy importing from France.

c) European spiny dogfish meat demand

Demand for the meat from spiny dogfish, *Squalus acanthias*, particularly in Europe, is driving high-volume, international trade and unsustainable fishing in many parts of the world. The species has an exceptionally limited reproductive capacity owing to slow growth, late maturity (12-35 years), lengthy gestation (nearly two years), few offspring (18-24 months) and long life (up to 100 years). Fishing operations usually target mature females due to their large size. With the exception of New Zealand, fishery management programmes for spiny dogfish have been inadequate or completely lacking, leading to serious depletion of numerous populations. Ongoing market demand for shark meat has shifted fishing activities to stocks in the southern hemisphere and territorial waters of the United States in the Pacific, where new fisheries are allowed to develop despite the absence of population assessment or science-based management (Massa *et al*., 2002; Van der Molen *et al.,* 1998). Although less valuable than the meat, fins from spiny dogfish also enter international trade.

d) Deep-water shark fisheries in the Northeast Atlantic

Depletion of traditional shelf and pelagic fish stocks in the Northeast Atlantic has resulted in redirection of effort, particularly during the past decade, towards deeper water stocks. There is now increasing fishing effort focused on shelf-edge and slope fisheries. Several species of deep-water sharks are being taken in target fisheries and as an important utilized bycatch of fisheries for other species. Deep-water sharks have valuable meat and large oil-rich livers, which are the main products driving these fisheries. The shark fins are also utilized; these and probably the other products enter international trade. Fishery surveys have identified rapid and serious depletion of deep-water sharks, with declines of over 90 % reported for some stocks during the past decade (ICES, 2005). Recent scientific papers documenting deep-water sharks exhibit high longevity and late age of maturity, thus although no demographic analysis has been completed, evidence suggests these species are some of the least productive of the elasmobranches (Irvine, 2004; Irvine *et al*., 2006; Clarke *et al,*; 2002; Kiraly *et al*., 2005).

e) Ornamental fish trade

Examples include freshwater stingrays, leopard sharks, and the small colourful carpet and epaulette sharks collected in the Indo-Pacific.

f) Leopard sharks

In California, United States, nearly all harvest of leopard sharks *Triakis semifasciata* are from recreational fishermen. Estimated recreational landings are about 138 ton per year from 1980

and 1995. Commercial landing have reached a high of 46 ton in but have been significantly curtailed owing to gill-net bans in California waters. Although current regulations and harvests do not appear to impact the California population of leopard sharks (Smith, 2005), in January 2006 six men were indicted by a federal grand jury with conspiracy to harvest thousands of undersized (under 36 inches in length) leopard sharks from the San Francisco Bay with the intent to sell them in the United States of America and to international pet trade distributors. (http://www.usdoj.gov/usao/can/press/html/2006_02_08_leopardshark.htm).

g) South American freshwater stingrays

South American freshwater stingrays (Potamotrygonidae) represent an important portion of the overall elasmobranches that are used for ornamental purposes. The most valuable freshwater stingrays in the aquarium trade are endemic species that are restricted to river basins subject to various impacts (mining, damming, deforestation, etc.; see more detailed information in document AC20 Inf. 8). Specific regulation is needed to survey and manage these stingrays adequately, but until now a species quota-based system has only been implemented in Brazil. An effective neutral international export/import control is highly recommended to guarantee that the quantities of species exported are within sustainable fishing limits. Since the aquarium trade is concentrated on neonate and juvenile specimens, it is important to avoid catches of adults for consumption in areas or from populations that are already being exploited for ornamental purposes (Patricia Charvet-Almeida, pers. comm.)

15. Curios and trophies

Teeth, jaws and spines are sometimes used as decorative objects and large jaw sets as trophies (Fowler, 2004). Very large fins (primarily basking and whale sharks) are used for commercial display (Clarke, 2003). Sawfish (*Pristis* spp.) rostra are (sometimes illegally) taken as a curio item and enter international trade for decorative purposes (Charvet-Almeida, 2002; McDavitt & Charvet-Almeida 2004). The teeth of some species such as the great white shark (*Carcharodon carcharias*) are very valuable. The curio trophy trade often involves threatened species despite legal protection in some range States. CITES provisions for personal effects may potentially be used to circumvent controls on export of trophies and curios from listed species. Where the curio trade in products from threatened species results in unsustainable mortality of sharks and rays, there is a need to regulate this activity and to raise public awareness of the impacts of these products upon threatened stocks.

16. Other products

a) Health/Medicinal

Sawfish rostra (*Pristis* spp. saws) and rostra fragments are considered to help treat asthma and other chronic respiratory diseases (Charvet-Almeida, 2002). Shark fin soup and gill rakers from manta rays (Mobulids) are considered a health tonic. Cartilage is sometimes used to treat arthritis and related diseases or as a food supplement to provide calcium. In some States (e.g. Costa Rica) demand for cartilage during the mid 1990s stimulated a relatively short-term target fishery, with the products processed on shore prior to export. Cartilage is now mainly a by-product of fisheries for meat. The effectiveness of cartilage treatment requires investigation. Public awareness could help reduce threats from medicinal use.

b) Liver oil

This has been derived in large quantities from fisheries for basking shark (*Cetorhinus maximus*), whale shark (*Rhincodon typus*), tope (*Galeorhinus galeus*), spiny dogfish (*Squalus acanthias*), and a large number of deep-sea sharks. Natural shark oil has now partly been replaced by synthetic products and market demand has increased for the meat from many of these species.

c) Skin

Shark skin is used for the manufacture of boots and belts in Mexico. There is an expanding Southeast Asian industry for the manufacture of bags, wallets, watchstraps and other products from ray skin, many of which enter international trade. The number and identity of species

involved in this industry is uncertain and some undescribed species may be utilized. In some cases, however, the skin may be a by-product of meat fisheries.

d) Miscellaneous

From the mid 1970s until today, sawfish rostral teeth have been the preferred material used to manufacture artificial 'spurs' for use as weapons in Peruvian cock fighting. The rostral teeth are mostly obtained from Brazil, Ecuador, Panama and various Caribbean countries. Depending on the species used, and assuming all rostral teeth in the saw are usable, one rostrum could now have a retail value of between USD 2,114 and USD 6,984 (Matthew T. McDavitt, pers. comm.)

Conclusions/recommendations

Relative importance of international trade as a source of shark mortality

17. The working group found it difficult to determine the relative importance of international trade as a driving force for shark population mortality and declines, compared with domestic use and discarded bycatch. Nevertheless, there was broad acknowledgement that significant quantities of shark and ray products do enter international trade. Although this is largely unmonitored internationally, Hong Kong SAR's excellent Customs data quantify the trade through this single market. There are also some fisheries that are wholly or partially driven by international trade demand (Indian Ocean Tuna Commssion example, West Africa or freshwater rays), while other fisheries only supply domestic markets or subsistence uses.

18. This question cannot be answered until greatly improved data become available on fishery mortality (catches, landings and discards), domestic market consumption and international trade data (both exports and imports). Poor fishery management, monitoring and the continuation of IUU fishing where good management occurs will have to be addressed for this to be possible.

19. The working group also noted that it would be desirable to consider and evaluate the cumulative impacts of the varied threats to shark populations, but that this is currently unlikely to be possible for the majority of stocks.

Improving data collection and analysis

20. Efforts should focus on improving data collection on the five to 20 States that contribute 40 to 80% of the total shark catch (according to FAO data presented in Lack and Sant, 2006). Improved catch, bycatch, discards market and trade data from these States would hugely increase knowledge of the contribution of their fisheries to international trade.

21. Improved data collection and analysis by Regional Fishery Bodies and their Contracting and Cooperating Parties can also contribute significantly to this end. It is recognized that there was also a recent recommendation of the expert consultation to review implementation the IPOA-Sharks in December 2005 to involve RFBs in improving international shark management (FAO, in preparation, 2006).

22. States reporting the highest proportion of international trade in shark products are China [particularly Hong Kong SAR and Taiwan (Province of China)], Spain and other European Union Member States, Mexico, the Republic of Korea, Japan, New Zealand and the United States of America. Action by these entities is critical to the recording of accurate shark data by species and by product. These countries have close relations with the World Customs Organization (WCO).

23. The Working Group made the following recommendations:

a) An assessment of the catch reporting arrangements and trade codes for shark products for the 'top 20' shark fishing and trading States and entities, and Regional Fishery Bodies (RFBs).

b) Analysis of shark catch, production and markets in key catching and trading countries.

c) Comparison and analysis of export and import data for the key trading States identified by TRAFFIC's paper to the Working Group. Cooperation, expertise and assistance from FAO and RFBs would be welcomed by developing countries.

Fishery management priorities

24. CITES should continue to monitor implementation of the IPOA-Sharks and practical improvements in shark fisheries monitoring and management to ensure that this subject remains a high priority for global fishery activity. As a matter of urgency, if progress towards sustainable fisheries and trade is to be maintained, Parties and RFB, in collaboration with FAO, should develop a five-year implementation programme with specific targets for data collection and management action by key fishing and trading States and other entities.

25. The working group considered a range of different management techniques, including finning bans, catch quotas and other traditional fishery management measures, and temporal or permanent protected areas. Fishery management can be complemented by biodiversity and trade management measures; all appropriate management tools should be applied to the sustainable management of those particularly vulnerable (for example K-strategists) shark species[8].

26. The role of National Shark Plans and the FAO IPOA–Sharks was considered. The latter had been the main subject of discussion at the FAO Expert Consultation in December 2005 (FAO, in prep., 2006). Implementation is patchy and several participants were of the view that it was 'slipping off' relevant national and international agendas, but that meeting had concluded that the IPOA–Sharks was a beneficial endeavour and that efforts to improve its effectiveness should be strengthened. Some States have Shark Plans but no management measures. A few (e.g. Canada and New Zealand) have shark fishery management in place but no Shark Plans. Some more progress has since been achieved since the review of IPOA–Sharks implementation presented in document CoP13 Doc. 35.

27. The Working Group concurred with FAO's view that monitoring and data collection initiatives will likely be the single most important measure for capacity-building in most shark fishing and trading States.

Respective roles of FAO, Regional Fishery Bodies and CITES

28. The Working Group considered how CITES might contribute to encouraging or implementing elements of the sustainable management measures for shark fisheries supplying international trade that are the responsibility of national fishery departments, FAO and RFBs. This might, for example, be achieved through non-detriment findings for listed species and CITES trade regulation remit. The Working Group reiterated the message from many CITES and FAO meetings: that it is important to improve communication between fishery departments and CITES authorities. This process may be aided at national level by the listing of the same sharks on the CITES Appendices and CMS (Convention on Migratory Species) should also help improve communication at the national level. These Conventions may also be able to liaise at the regional and international levels to promote collaboration with FAO and RFBs.

Discards

29. Discards (undesirable bycatch that is subsequently discarded into the sea) make a significant contribution to shark mortality. Levels of discard *versus* retention of bycatch, and efforts to mitigate, manage or avoid discards may depend upon operational circumstances and varying levels of demand for products (see Box 1).

30. FAO catch data do not include catches discarded at sea. There is a need to estimate the quantities or proportions of sharks that are discarded and their estimated chances of survival in major fisheries and sea areas, in order to estimate total shark mortality arising from discards. Such analyses should, where possible, be undertaken at species level as well as for different sea areas and fisheries.

[8] *One Working Group participant noted the difficulty in establishing and implementing such management measures.*

Consumer markets

31. The Working Group noted that, while the education of the public and public awareness campaigns in consumer markets could have a very important impact upon international trade demand for shark products, this was outside CITES' remit.

References

Anonymous (2005). Information on Shark Finning Fisheries. Submitted by Japan to the ninth session of the Indian Ocean Tuna Commission. Victoria, Seychelles, May 30 - June 3rd, 2005. IOTC-2005-S9-08[EN].

Alverson, D.L.; Freeberg, M.H.; Pope, J.G.; Murawski, S.A. A global assessment of fisheries bycatch and discards. *FAO Fisheries Technical Paper*. No. 339. Rome, FAO. 1994. 233p.

Araujo, M. L. *et al*. (2004). Freshwater Stingrays (Potamotrygonidae): status, conservation and management challenges. AC20 Inf. 8. 6pp. http://www.cites.org/

Clarke, M. W. Connolly, P. L. and Bracken J. J. (2002). Age estimation of the exploited deepwater shark *Centrophorus squamosus* from the continental slopes of the Rockall Trough and Porcupine Bank. *Journal of Fish Biology* 60: 501-514.

Clarke, S. (2003). Quantification of the trade in shark fins. PhD Thesis, Imperial London College.

Clarke, S. (2004). Understanding pressures on fishery resources through trade statistics: a pilot study of four products in the Chinese dried seafood market. *Fish and Fisheries* 5: 53-74.

DFO, (2005). Stock Assessment Report on NAFO Subareas 3 – 6 Porbeagle Shark. *DFO Can. Sci. Advis. Sec. Sci. Advis. Rep.* 2005/044.

Fordham, S., Fowler, S.L., Coelho, R., Goldman, K.J. & Francis, M. In press. *Squalus acanthias*. In IUCN 2006. *IUCN Red List of Threatened Species*. (www.redlist.org).

Fowler, S (2004). Shark Conservation and Management through CITES. IUCN Shark News 16: 4-5.

Fowler, S. (2005). The international and national frameworks for conservation and management of sharks: Recommendations for Ecuador. *Contribution to Ecuador's Draft National Plan of Action for the Conservation and Management of Sharks*. IUCN, Quito, Ecuador.

ICES. (2005). Report of the Working Group on Elasmobranch Fishes (WGEF), 14-21 June 2005, Lisbon, Portugal. ICES CM 2006/ACFM:03. 229pp.

Irvine, S.B. (2004). Age, growth and reproduction of deepwater dogfishes from Southeast Australia. PhD Thesis. Dakin University, Warmambool, Victoria, Australia.

Irvine, S.B., Stevens, J. D. and Laurenson, L. B. (2006). Surface bards on deepwater squalid dorsal-fin spines: an alternative method for ageing the golden dogfish *Centroselachus crepidator*. *Canadian Journal of Fisheries and Aquatic Science* 63: 617-627.

Kiraly, S. J., Moore J.A. and Jasinski O. S. (2005). Deepwater and other sharks of the U.S. Atlantic Exclusive Economic Zone. *Marine Fisheries Review* 65: 1-63.

Lack M. and Sant G. (2006). World shark catch, production and trade 1990-2003. Australian Government and TRAFFIC report 28 pp.

McDavitt M. T. & Charvet -Almeida P. (2004). Quantifying trade in sawfish rostra: two examples. IUCN Shark News16: 10-11.

Massa A. & Hozbor N. 2003. Peces cartilaginosos de la Plataforma argentina, explotación, situación y necesidades para un manejo pesquero adecuado. *Frente Marítim*o. Vol, 19, Sec. B: 199-206 (2003).

Murawski, S.A. 1992. The challenges of finding solutions in multispecies fisheries. In: Proceedings of the National Industry Bycatch Workshop, February 4–6, 1992, Newport, Oregon. Schoning, R.W., R.W. Jacobson, D.L. Alverson, T.G. Gentle, and Jan Auyong, eds. Natural Resources Consultants, Inc., Seattle, Washington. pp. 35–45.

Paesch L. & Domingo A. 2003. La pesca de condrictios en el Uruguay. 2003. *Frente Marítimo*. Vol, 19, Sec. B: 207-216.

Smith 2005. Leopard shark *Triakis semifasciata*. In Fowler et al. 2005. Status report.

Vannuccini, S. 1999. Shark utilization, marketing and trade. *FAO Fisheries Technical Paper.* No. 389. Rome, FAO. 470 pp. 1983.

Villwock de Miranda L. & Vooren C. M. 2003. Captura e esforço da pesca de elasmobranquios demersais no sul do Brasil nos anos de 1975 a 1997. *Frente Marítimo*. Vol, 19, Sec. B: 217-231 (2003).

Personal communications

Julien Colomer, Department of Environment and Heritage. Australia, April 2006.

Dr Mark Meekan, Australian Institute of Marine Science, April 2006.

Mika Diop, Subregional Fisheries Commission Senegal, April 2006.

Andres Domingo, Department of Fisheries, Uruguay, April 2006.

Patricia Charvet-Almeida, ProjetoTrygon, April 2006.

Matthew T. McDavitt University of Virginia School of Law, April 2006.

Conservation and management of sharks

SPECIES AFFECTED BY TRADE

1. This document has been prepared by the intersessional Shark Working Group of the Animals Committee.

2. The Shark Working Group discussed several species that were originally referred to at the 13th meeting of the Conference of the Parties (CoP13, Bangkok, October 2004). The Animals Committee's recommendations to CoP13 (see document CoP13 Doc. 35, Annex 2) are boxed below for ease of reference, followed by the conclusions and recommendations which the Shark Working Group formulated at its meeting in 2006. Some additional species were also considered that were not part of that original list.

Recommendation:

3. The Working Group recognized that many shark and ray species continue to be affected by fisheries despite being legally protected or managed. Parties are encouraged to take measures to ensure that fishing activities do not adversely affect these stocks, including by improving liaison between fisheries and conservation departments, thus strengthening their combined compliance and enforcement abilities.

a) Spiny dogfish shark *(Squalus acanthias)*

(See document CoP13 Doc. 35, Annex 2, paragraph 4)

The Animals Committee concluded that the conservation and management status of the species is unfavorable in most regions, with many Northern Hemisphere populations severely depleted, and recommends the following:

a) Range States and Regional Fishery Management Organizations should take steps to improve data collection and management for spiny dogfish. In particular, the United States and Canada are encouraged with urgency to work together to link existing assessment programmes and establish bilateral, science-based management measures for spiny dogfish.

b) Parties that are Member States of the European Union are encouraged with urgency to seek and implement, via national and EU level measures, scientific advice on developing a conservation plan that allows the rebuilding of the stocks of spiny dogfish occurring and harvested in EU waters.

c) In regions where information on stock status is poor, range States are encouraged to develop precautionary and adaptive management measures to ensure that spiny dogfish catches are sustainable.

d) Parties are encouraged to report dogfish catches, landings and trade data to FAO and to train customs officials in using existing spiny dogfish codes.

The Working Group endorsed these recommendations to CoP13, which have not been implemented.

Recommendation: Working Group participants are encouraged to undertake a technical analysis of the draft listing proposal circulated by Germany for consideration at the 22nd meeting of the Animals Committee. Parties are encouraged, before the end of September 2006, to present their comments on the validity and ease of implementation of this proposal for consideration by the proponent prior to the submission of the proposal to the European Union in October 2006.

Recommendation: The Working Group noted the need to understand the special needs of implementing particular Appendix-II species listings for this shark species. Hence, the Working

Group suggested that a review of the potential implementation issues surrounding an Appendix-II listing of *Squalus acanthias* or *Lamna nasus* might be useful to Parties.

b) Porbeagle shark *(Lamna nasus)*

(See document CoP13 Doc. 35, Annex 2, paragraph 6)

The Animals Committee recommended the following:

a) ICCAT members are encouraged to collect and report data on catches and discards of porbeagle sharks, as per ICCAT Resolution 95-2 which has yet to be complied with, and undertake stock assessments in order to develop management recommendations. Other relevant Regional Fishery Management Organizations are encouraged to establish and implement similar programmes.

b) Canada and the United States are encouraged to enhance existing management for their shared porbeagle stock by establishing a cooperative, bilateral research and fisheries management programme.

c) The World Customs Organization (WCO) is encouraged with urgency to establish a harmonized international code for porbeagle sharks.

The Working Group endorsed these recommendations to CoP13, which have not been implemented.

Recommendation: Working Group participants are encouraged to undertake a technical analysis of the draft listing proposal circulated by Germany for consideration at the 22nd meeting of the Animals Committee. Parties are encouraged, before the end of September 2006, to present their comments on the validity and ease of implementation of this proposal for consideration by the proponent prior to the submission of the proposal to the European Union in October 2006.

c) Freshwater stingrays (Family Potamotrygonidae)

(See document CoP13 Doc. 35, Annex 2, paragraph 10)

The Animals Committee recommended that:

a) Range States for these species (family Potamotrygonidae) jointly examine cross-border trade that may be facilitating illegal trade and consider Appendix III listings, where appropriate, to control illegal exports; and that

b) the document be revised, with the addition of more species abundance, distribution and trend data, and submitted to CoP13 or AC21.

The Working Group noted that Brazilian exports included a legal trade of 17,000 specimens per annum and illegal trade of an estimated 25,000 to 30,000, including transboundary exports (smuggling). The overall quantity of South American species sold worldwide is estimated at 50,000 to 60,000 (Charvet-Almeida, pers. comm., 2006). Additionally, four of the five species of Southeast Asian freshwater stingrays are listed as threatened on the 2006 IUCN-World Conservation Union Red List of Threatened Species while the fifth is Data Deficient. The species entering the aquarium trade: white-edge freshwater whipray, *Himantura signifer*, and possibly the longnose marbled whipray, *Himantura oxyrhyncha*, are both Endangered (IUCN Red List, 2004). Ornamental freshwater stingrays are exported to States in North America, Europe and East Asia.

Recommendations:

i) Encourage the voluntary submission of import and export data by the ornamental fish industry, possibly using a similar protocol to that used for the collection of data in the Global Marine Aquarium Database.

ii) Ensure that the ornamental fish trade industry is made aware of the annual export quota for each species from range States.

iii) Note and learn lessons from the development of the Marine Aquarium Council and, if appropriate, develop a mechanism to address the issues of freshwater ray conservation.

iv) A CITES Appendix-II listing or other effective export and import control of quotas per species is recommended for consideration by the Animals Committee and Parties within reasonable time, considering the existence of endemic and transboundary populations and that their restriction to freshwater environments makes these stingrays more vulnerable to environmental impacts than marine species.

v) The European Union might consider whether it could be beneficial to list these species on Annex D of the Council Regulation on the protection of species of wild fauna and flora by regulating trade therein (import notifications are required for Annex D-listed species).

d) Sawfishes (Family Pristidae)

(See document CoP13 Doc. 35, Annex 2, paragraph 15)

The Animals Committee recommends that Parties that are or have been range States for Pristidae undertake, as a matter of urgency, a review of the status of these species in their coastal waters, rivers and lakes, and, if necessary, introduce conservation and trade measures to reduce extinction risk.

Recommendation:

Parties should note that there is evidence of international trade in sawfish species, that such trade in these Critically Endangered species (IUCN Red List, 2006) is highly likely to be detrimental to their continued survival, and that all former and remaining range States should consider as a matter of urgency providing these species with strict legal protection, utilizing all relevant legislation to enforce this protection, and control their trade. The World Association of Zoos and Aquaria (WAZA) should be notified of the Animals Committee's/Parties' concern regarding these species.

e) Gulper sharks (genus *Centrophorus*)

(See document CoP13 Doc. 35, Annex 2, paragraph 16)

An FAO Deep Sea Workshop in December 2003 recommended that "a precautionary approach to the management of these and other deep sea species is absolutely essential", including monitoring of catches, landings and trade at species level, preparation of good identification guides, improved use of observers, and development of standard carcass forms to improve reporting, which should include both species and their products. The Animals Committee recommends that Parties support this approach.

Recommendation:

The Working Group endorsed the recommendation made at CoP13, further noting that a number of recent scientific papers document that the genus *Centrophorus* and other deep-water sharks exhibit high longevity and late maturity (examples of such references below). Although many species are still listed as data deficient under the IUCN Red List and no demographic analysis has been completed, life history data for some species suggests that these species are some of the least productive of elasmobranches.

References

Irving, S.B. 2005. Age, growth and reproduction of deepwater dogfishes from southeast Australia. PhD thesis. Deakin University, Waramaboo 1, Victoria, Australia.

Irvine, S.B., Stevens, J.D., and Laurenson, L.B. 2006. Surface bands on deepwater squalid dorsal-fin spines: an alternative method for aging the golden dogfish *Centroselachus crepidator*. *Can. J. fish. Aquat. Sci.*, **63**: 617-627.

Clarke, M.W., P.L. Connolly and J.J. Bracken. 2002. An examination of the exploited deepwater shark *Centrophorus squamosus* from the continental slopes of the Rockall Trough and Porcupine Bank. *Journal of Fish Biology*. **60**: 501-514.

Kiraly, S.J., J.A. Moore, and D.H. Jasinski. 2005. Deepwater and other sharks of the US Atlantic Exclusive Economic Zone. *Marine Fisheries Review*, **65**: 1-63.

f) School, tope, or soupfin shark *(Galeorhinus galeus)*

(See document CoP13 Doc. 35, Annex 2, paragraph 17)

These sharks, valued for their meat and fins, are (or have been) important in target and multispecies fisheries in temperate waters world-wide. Most stocks are shared between several Range States, and in most regions are seriously depleted. Only a small number of States have achieved successful management of this biologically-vulnerable species. The Animals Committee recommends that range States request FAO's assistance with developing a capacity building workshop for this species in order to train managers from developing States and other States where coastal shark fisheries are not being managed. This would also serve as a case study for the management of other coastal shark fisheries. This was drawn to the attention of the FAO observer.

Recommendation:

The Working Group recommended emphatically that the Animals Committee propose a decision reflecting its recommendations to CoP13 that a capacity-building workshop and stock assessments be held, as a matter of urgency in order to improve the management and monitoring of this species, the South American stocks of this species now being evaluated as Critically Endangered on the IUCN Red List (IUCN Red List, 2006). The Working Group also urged range States to improve their monitoring of fishing of and trade in this species.

g) Requiem sharks

(See document CoP13 Doc. 35, Annex 2, paragraph 19)

It recommends that range States pay particular attention to the management of fisheries and trade in these taxa, including undertaking reviews of their conservation and trade status. It was noted that many of the Carcharhinid sharks were high seas pelagic species that could only be managed through the joint efforts of States, Regional Fisheries Management Organizations and other international bodies.

A relatively small number of identifiable shark species comprise a fairly large proportion of the fins that can be identified to species level in fin markets. These include the hammerheads genus *Sphyrna*, shortfin mako, *Isurus oxyrinchus*, tiger shark, *Galeocerdo cuvier*, the threshers genus *Alopias*, and members of genus *Carcharhinus* such as oceanic whitetip shark, *Carcharhinus longimanus*, silky shark, *C. falciformis*, dusky shark, *C. obscurus*, sandbar shark, *C. plumbeus*, and bull shark, *C. leucas*. Some of these species are Vulnerable under the 2006 IUCN Red List assessment.

Recommendations: The Working Group recommends that the Animals Committee draw the attention of FAO, Parties and RFBs to these species so that they may be prioritized for more accurate recording in catches, landings and trade, for example by inclusion in logbooks and identification guides for whole sharks and, to the greatest extent possible, their products (e.g. fins).

h) Guitarfishes, shovelnose rays (Order Rhinobatiformes)

The Working Group recognized that the fin products from these species are of particular value in international trade; the species are also utilized for their meat. Their conservation status is of

increasing concern, with declining catches and stocks reported from several coastal areas, for example the common guitarfish, *Rhinobatos rhinobatos,* and the blackchin guitarfish in Guinea Bissau, West Africa, and the giant guitarfish, *Rhinobatos cemiculus,* in West Jawa, Indonesia. It suggested that the Animals Committee recommend that range States should, as a matter of urgency, undertake reviews of fisheries, landings, and trade in these species, where possible review the status of stocks, and ensure that steps are taken to introduce and apply any relevant legislation to enforce protected status.

i) Devil rays (Family Mobulidae)

These species are of concern because of their low reproductive capacity. Some species are migratory and move between range States' coastal waters and possibly into international waters. They are taken in artisanal and commercial fisheries almost everywhere that they occur (in the absence of protection), and are utilized for their meat and gill rakers. The latter enter international trade, e.g. the bentfin devilray, *Mobula thurstoni,* which is landed in directed targeted elasmobranch fisheries in the Gulf of California, Mexico, and Indonesia.

Recommendation:

The Working Group recommends that the Animals Committee draw these species to the attention of FAO, Parties and RFBs, so that they may be prioritized for more accurate recording in catches, landings and trade, for example by inclusion in logbooks and identification guides for whole rays and, to the greatest extent possible, their products.

j) Leopard sharks *(Triakis semifasciata)*

Recommendation:

The Working Group drew the attention of the Animals Committee and Parties to the illegal international trade in this species to the European Union that is taking place. It recommends that the European Union consider adequate measures to support the United States of America's domestic legislation for the management of this species. It requested the Ornamental Aquatic Trade Association OATA to inform its members of the legal status of the species and to report on levels of trade.