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

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Twenty-eighth meeting of the Animals Committee
Tel Aviv (Israel), 30 August-3 September 2015

Interpretation and implementation of the Convention

Species trade and conservation

# FRESHWATER STINGRAYS (FAMILY POTAMOTRYGONIDAE) (DECISIONS 16.131 AND 16.132)

1. This document has been submitted by the Scientific Authority of Colombia and Mr. Marcel Calvar as the Chair of the Animals Committee's working group on freshwater stingrays (*Potamotrygonidae* spp.).*

2. The 16th Conference of the Parties (CoP16, Bangkok, 2013) adopted the following interrelated decisions on freshwater stingrays:

***Directed to the Secretariat***

*16.130 The Secretariat shall issue a Notification requesting the range States of freshwater stingrays (Family Potamotrygonidae) to report on the conservation status and management of, and domestic and international trade in the species.*

***Directed to the Animals Committee***

*16.131 The Animals Committee shall establish a working group comprising the range States of freshwater stingrays in order to evaluate and duly prioritize the species for inclusion in CITES Appendix II.*

*16.132 The Animals Committee shall consider all information submitted on freshwater stingrays in response to the request made under Decision 16.131 above, and shall:*

*a) identify species of priority concern, including those species that meet the criteria for inclusion in Appendix II of the Convention;*

*b) provide specific recommendations to the range States of freshwater stingrays; and*

*c) submit a report at the 17th meeting of the Conference of the Parties on the progress made by the working group, and its recommendations and conclusions.*

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* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

***Directed to the Parties***

*16.133 Range States of freshwater stingrays are encouraged to provide information to the Working Group, the Animals Committee, and the Secretariat, as requested under Decision 16.131.*

*16.134 Range States are encouraged to cooperate in the development and implementation of research and monitoring programmes for the purpose of supporting evaluations of the conservation status and threats affecting populations of freshwater stingrays in their natural range.*

***Directed to the Parties, the Secretariat and interested organizations***

*16.135 Subject to external funding, the Parties, the CITES Secretariat and other interested organizations shall organize activities, including regional workshops, in order to facilitate the exchange of trade, conservation and management data on freshwater stingray species.*

3. Further to Decisions 16.131 and 16.132, at its 27th meeting the Animals Committee established an intersessional working group with the following mandate (AC27 Consolidated executive summary):

   *Consider all information submitted on freshwater stingrays in response to the request made under Decision 16.130;*

   *identify species of priority concern, including those species that meet the criteria for inclusion in Appendix II of the Convention; and*

   *draft specific recommendations to the range States of freshwater stingrays.*

4. Also at AC27 the Committee invited the members of the working group who were in attendance to meet informally. The following Parties participated: Brazil, Colombia, Suriname and United States; as well as the IGOs and NGOs FAO, IUCN, Defenders of Wildlife, *Fundación Cethus*, Humane Society International, Ornamental Fish International and Wildlife Conservation Society.

5. In accordance with Decision 16.132 the areas to be considered within the work of the working group were identified.

6. One essential task was to identify species of priority concern, including those species that meet the criteria for inclusion in Appendix II of the Convention.

7. Up until the meeting, only information contributed by Brazil and Colombia was available on the management and conservation of and trade in species of *Potamotrygonidae* sp.

8. The importance was stressed of having greater knowledge of the ecology, biology and taxonomy of some species offering more serious problems in identification. It was also considered vital to have more accurate international trade figures. Another of the problems reported was cross-border smuggling in order to reach the locations where the demand and the price are highest. Asia is one of the largest importers of these species, and there are even the beginnings of attempts at reproduction in captivity. Brazil and Colombia reported on that practice also; however, it was discovered that it is more expensive than capture from their natural habitat.

9. Some NGOs offered to provide financial assistance for the holding of an expert workshop. It was considered necessary to have at least one expert, or technical specialist from the Scientific Authority, on freshwater stingrays for each range State. Colombia was pleased to report that it would be hosting a regional expert workshop in October 2014, with the aim of improving knowledge about ecology, biology and trade data, and that it would share that information subsequently.

10. The Freshwater Stingray (Family *Potamotrygonidae*) Expert Workshop took place in Bogotá, Colombia, on 28 and 29 October 2014. Below, Annex I contains the report of the workshop, including background, specific objectives, methodology and outcomes; as well as the table of the results of the various groups concentrating on the different hydrographic basins in South America.

Recommendations

11. The Animals Committee is invited to examine the information in the present document and to consider how it intends to complete the tasks entrusted to it by Decisions 16.131 and 16.132, and in particular the form in which it will submit a report at the 17th Conference of the Parties on the progress made by the working group, and its recommendations and conclusions, in accordance with Decision 16.132 c).

12. Additionally the Animals Committee is invited to consider the options in Annex I relating to possible proposals to list freshwater stingrays in the CITES Appendices.

**FRESHWATER STINGRAY (FAMILY POTAMOTRYGONIDAE) EXPERT WORKSHOP – CITES WORKING GROUP**

**Amazonia Regional Programme (BMZ/DGIS/GIZ) – PRA**

**28 and 29 October 2014, Bogotá, Colombia**

**Report prepared by the Scientific Authority of Colombia**

**(Instituto de Investigación de Recursos Biológicos Alexander von Humboldt)**

**Based on the report written by the consultant, Prof. Antonio Machado Allison**

1. This document has been drawn up by the Scientific Authority of Colombia[1] and Marcel Calvar as the Chair of the Animals Committee's working group on freshwater stingrays (*Potamotrygonidae*).

2. The document includes a summary report and has been prepared for the purpose of informing the Animals Committee on the results of the expert workshop held in Bogotá, Colombia, on 28 and 29 October 2014.

[1] *Sánchez-Duarte P., Parra S., Baptiste M.P. and Lasso C.– Researchers at the Instituto de Investigación de Recursos Biológicos Alexander von Humboldt.*

**ABBREVIATIONS**

| | |
|---|---|
| AC | Animals Committee |
| ACOLPECES | *Asociación Colombiana de Exportadores de Peces Tropicales* (Colombian Association of Exporters of Tropical Fish) |
| AUNAP | *Autoridad Nacional de Acuicultura y Pesca* (National Aquiculture and Fisheries Authority, Colombia) |
| BMZ | *Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung* (German Federal Ministry for Economic Cooperation and Development) |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| CR | Critically Endangered, IUCN threat category |
| NT | Near Threatened, IUCN threat category |
| DGIS | *Directoraat-generaal Internationale Samenwerking* (Netherlands Directorate-General for International Cooperation) |
| DIREPRO | *Dirección Regional de la Producción del Gobierno Regional de Loreto, Perú* (Regional Directorate for Production of the Regional Government of Loreto, Peru) |
| FAO | Food and Agriculture Organization of the United Nations |
| GIZ | *Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH*, (German Corporation for International Cooperation) |
| IBAMA | *Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis* (Brazilian Institute of Environment and Renewable Natural Resources) |
| INAPESCA | *Instituto Nacional de la Pesca y Acuicultura* (National Fisheries and Aquiculture Institute, Venezuela) |
| ICMBio | *Instituto Chico Mendes de Conservação da Biodiversidade* (Chico Mendes Institute for Conservation of Biodiversity) |
| INCODER | *Instituto Colombiano de Desarrollo Rural* (Colombian Institute for Rural Development) |
| INSOPESCA | *Instituto Socialista de la Pesca y Acuicultura* (Socialist Institute of Fisheries and Aquiculture), Venezuela |
| MAGAP | *Ministerio de Agricultura, Ganadería, Acuacultura y Pesca* (Ministry of Agriculture, Stockbreeding, Aquiculture and Fisheries), Ecuador |
| NOAA | National Oceanic and Atmospheric Administration, United States of America |
| OFI | Ornamental Fish International |
| NGO | Nongovernmental organization |
| ACTO | Amazon Cooperation Treaty Organization |
| PAN Tiburones Colombia | *Plan de Acción Nacional para la Conservación y Manejo de Tiburones, Rayas y Quimeras de Colombia* (Colombian National Action Plan for the Conservation and Management of Sharks, Rays and Chimaeras) |
| PAN Tiburones Perú | *Plan de Acción Nacional para la Conservación de Tiburones, Rayas y Especies afines* (Peruvian National Action Plan for the Conservation and Management of Sharks, Rays and Related Species, and Ordinances on Fisheries |
| PRA | *Programa Regional Amazonia* (Amazonia Regional Programme) (BMZ/DGIS/GIZ); Germany and Netherlands |
| POPC | *Programa de Observadores Pesqueros Colombia* (Fishery Observers Programme, Colombia) |
| IUCN | International Union for Conservation of Nature |
| IUCN-ISSG | IUCN Invasive Species Specialist Group |
| WCS | Wildlife Conservation Society |

**SUMMARY**

The freshwater stingray expert workshop organized by the CITES working group provides an updated picture of the situation of the species of the family *Potamotrygonidae*, given by regional experts, who agree, in the light of the provisions of the Convention, that the following species should be prioritized, classified by the different catchment basins: Amazon (*Paratrygon aiereba*, *Potamotrygon leopoldi*, *P. motoro* and *P. schroederi*), Orinoco (*Paratrygon aiereba*, *Potamotrygon motoro* and *P. schroederi*) and other catchment basins (*Potamotrygon brachyura* and *P. motoro*). With regard to the issues of species prioritization the experts also confirmed the need to strengthen the information on population trends, exploring alternatives in the analyses such as a mathematical model based on exercises carried out on marine species.

As an input to the Animals Committee and given the scale of the trade in the species at the international level, analysis of the following options was suggested: (1) retaining the original proposal, incorporating further information, now supported by the countries participating in the workshop; (2) making a new proposal of including all of the genus *Potamotrygon*; or (3) making a new proposal of including all of the family *Potamotrygonidae*. (The latter two proposals were made to take into account the taxonomic problems and the similarity of the species, making it difficult to monitor trade). Finally, as an additional proposal: (4) as an addition to whichever option is selected for presentation and in alignment with what is recommended in Res. Conf. 12.6 (Rev. CoP16), consideration should also be given to listing endemic species in restricted areas in CITES Appendix III.

BACKGROUND

The conservation and management of and trade in freshwater stingrays (*Potamotrygonidae*), are factors that largely concern the subregion of South America (excluding Chile), given the restricted geographical distribution of this family over the continent. At the 20th meeting of the Animals Committee (AC20, Johannesburg, 2004) and based on the problems of cross-border trade, Brazil submitted a proposal for possible listing of this group of species in CITES Appendix III. The issue was subsequently taken up again at CoP13 (Bangkok, 2004), as referred to in CoP13 Doc. 35, Annex 2, paragraph 10.

Subsequently, at CoP14 (The Hague, 2007) the Animals Committee submitted a report which included recommendations on freshwater stingrays, including: “(1) ensure that trade in ornamental fish is in conformity with annual quotas established by species; (2) develop appropriate mechanisms to address the issues of freshwater ray conservation and (3) the Animals Committee (AC) should consider the possibility of listing of species in Appendix II, or effective mechanisms to ensure respect for the quotas”.

The decisions in effect after the 14th Conference of the Parties to CITES include Decision 14.110 Directed to the Animals Committee (AC), which instructed it to consider the outputs of the South American freshwater stingray workshop and to make specific recommendations to the range States by CoP15 (2010), with the aim of improving the conservation status and regulation of international trade. The Regional Workshop on South American Freshwater Stingrays took place in Geneva in April 2009. Subsequently, at CoP15 (Doha, 2010), the decisions directed to the range States included Decision 15.85 which called on them to consider the listing of endemic and threatened species of freshwater stingrays (*Potamotrygonidae*) in CITES Appendix III, as needing the cooperation of other Parties in the control of trade.

As the outcome of a process led by Colombia and enjoying support from some countries of the region (Argentina, Brazil, Suriname, Uruguay and Venezuela), it was proposed at CoP16 (Bangkok, 2013) that three species of freshwater stingrays (*Paratrygon aiereba*, in addition to *Potamotrygon motoro* and *P. schroederi*), should be listed in CITES Appendix II (Proposals 47 and 48, respectively). Although the proposals were not approved at that CoP, the negotiations did result in the adoption of Decisions 16.130 to 16.135 which deal with issues of conservation and management of and national and international trade in freshwater stingrays:

***Directed to the Secretariat***

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The 27th meeting of the Animals Committee (Veracruz, 2014) dealt with the topic of trade in and conservation of freshwater stingray species, with a proposal to form a working group in fulfilment of Decision 16.131 and to start applying Decision 16.132. The resultant working group comprised range States (Brazil, Colombia, Suriname) and other interested parties: United States NOAA - Fisheries, FAO, IUCN Invasive Species Specialist Group - ISSG and the NGOs Humane Society International, Defenders of Wildlife, Ornamental Fish International (OFI), *Fundación Cethus* and Wildlife Conservation Society (WCS).

Colombia, as a range State of freshwater stingrays species, through its Scientific Authority (*Instituto de Investigación de Recursos Biológicos Alexander von Humboldt*), in coordination with the Ministry for the Environment and Sustainable Development, as the Management Authority, requested support from the Amazonia Regional Programme (BMZ/DGIS/GIZ) – PRA of the Amazon Cooperation Treaty Organization, ACTO, and its Permanent Secretariat, in promoting a dialogue of regional specialists on freshwater stingrays, in order to compile and analyze the information relating to trade in them and their conservation status, with a view to identifying which are the species of the greatest concern in the sphere of international trade.

Thus, with the objective of facilitating the exchange of information, among experts and CITES Authorities, as a part of the freshwater stingrays working group, in order to evaluate and prioritize the appropriateness of listing freshwater stingray species in CITES Appendix II, the Regional Freshwater Stingray (Family *Potamotrygonidae*) Expert Workshop, Cites Working Group, was held in Bogotá, Colombia, on 28 and 29 October 2014. The event was supported by the Amazonia Regional Programme (BMZ/DGIS/GIZ) – PRA, as well as by the NGOs Humane Society International and Defenders of Wildlife.

Below, the results of the Workshop:

SPECIFIC OBJECTIVES

1. To learn of the progress in scientific knowledge on the biology, ecology, conservation status, use of and trade in freshwater stingray species in the various range States.

2. To promote exchange and discussion on new information contributed by the group of experts on freshwater stingrays, taking into account the needs and priorities for the conservation of species of the family *Potamotrygonidae* in the context of international trade.

METHODOLOGY

The objectives were presented, as was the methodology, consisting of: (i) presentation of the preliminary results of the consultancy undertaken by Mr. Antonio Machado-Allison, (ii) presentation of the participants with the country reports and (iii) work of the subgroups classified by hydrographic basins, based on the working matrix drawn up on the basis of the criteria in Resolution Conf. 9.24 (Rev. CoP16) and national reports. The workshop ended with exchanges of views and discussion in plenary to agree on the priorities relating to freshwater stingrays (family *Potamotrygonidae*) and other recommendations relating to CITES. Finally, the principal conclusions were drawn and the workshop was concluded.

RESULTS

The results of the workshop obtained from the inputs contributed by the participating countries and taking into consideration the discussions of the subgroups, were set down in a matrix, in line with the criteria set forth in Resolution Conf. 9.24 (Rev. CoP16) (Table 1).

Table. 1. Matrix summarizing the results obtained from the three subgroups, classified by catchment basin.

- Subgroup 1: Orinoco basin, Magdalena-Cauca, Maracaibo and parts of the Caribe. Countries: Colombia and Venezuela.
- Subgroup 2: Amazon basin. Countries: Bolivia, Brazil, Colombia, Ecuador, Peru.
- Subgroup 3: Paraná-Paraguay basin. Countries: Argentina, Bolivia, Brazil, Paraguay and Uruguay.

| **Criteria** | **Amazon basin** |
|---|---|
| **Species** | 1) *Heliotrygon gomesi,* 2) *Heliotrygon rosai,* 3) *Paratrygon aiereba,* 4) *Plesiotrygon iwamae,* 5) *Plesiotrygon nana,* 6) *Potamotrygon brachyura,* 7) *Potamotrygon constellata,* 8) *Potamotrygon dumerilii,* 9) *Potamotrygon falkneri,* 10) *Potamotrygon henlei,* 11) *Potamotrygon humerosa,* 12) *Potamotrygon leopoldi,* 13) *Potamotrygon limai,* 14) *Potamotrygon motoro,* 15) *Potamotrygon orbignyi,* 16) *Potamotrygon schroederi,* 17) *Potamotrygon scobina,* 18) *Potamotrygon tatianae,* 19) *Potamotrygon tigrina* |
| **Taxonomy** | Of the 19 species distributed in this basin, 14 have a well-defined taxonomy.<br>*Potamotrygon motoro* could be a cluster of species.<br>Lasso and Rosa (pers. comm.) consider that *Paratrygon aiereba* and *Potamotrygon orbignyi* are a cluster including species not yet described.<br>*Potamotrygon dumerilii* and *Potamotrygon humerosa* are considered problematical with regard to their taxonomy. |
| **Biological characteristics (Concerning section 3.3 of Resolution Conf. 9.24)** | All of the species have a single functional ovary, low fertility, lengthy gestation period (9 or more months), late maturity and long life.<br>*Potamotrygon orbignyi* is the species with the highest fertility (29 ovules). |
| **Habitat conservation status (Concerning section 4 of Resolution Conf. 9.24 on status and trends)** | The ray species distributed throughout this basin live in different types of habitat: black, clear and white water, as well as lentic and lotic environments.<br>Species that live in acid or black water habitats, or in clear water, are more fragile and susceptible to deterioration than those that live in white water.<br>The tributaries of the Amazon in Ecuador and Peru are subject to effects from mining activities, with high amounts of sediment and contamination. For the lower-lying areas the level of conservation is acceptable.<br>There are areas in which agricultural, industrial or urban activities are affecting the habitat of the freshwater stingrays (foothills of the Andes and the lower Amazon). |
| **Species conservation status (Concerning section 4.4 of Resolution Conf. 9.24 on geographic trends)** | Brazil:<br>There are population trend studies being undertaken for the species *Potamotrygon orbignyi* and *Potamotrygon leopoldi* in the Xingú river and *Paratrygon aiereba* and *Potamotrygon motoro* in the Río Negro.<br>In accordance with the methodology of the IUCN, *Paratrygon aiereba* is categorized as at Critical Risk (CR) and *Plesiotrygon iwamae and Potamotrygon leopoldi* as Near Threatened (NT). |

| Criteria | Amazon basin |
|---|---|
| | Colombia<br>In accordance with the methodology of the IUCN, *Paratrygon aiereba*, *Potamotrygon motoro* and *P. schroederi* are categorized as Vulnerable (VU) and *Potamotrygon orbignyi* as Near Threatened (NT). |
| **Threats** | All of the species are under threat of by-catch.<br>*Plesiotrygon iwamae* is threated by catch levels for the ornamental fish trade (trade in juveniles), which however is illegal in Brazil. Habitat loss (oil spills, domestic black waters, deforestation, contamination from mining or agriculture).<br>*Plesiotrygon nana*, catch levels for the ornamental fish trade (trade in juveniles).<br>*Potamotrygon constellata*, urban development, agriculture and dams in their area of distribution.<br>*Potamotrygon falkneri*, habitat degradation through the damming of the Paraná river, construction of hydroelectric plants and harbours.<br>*Potamotrygon henlei*, illegal ornamental fish trade and habitat degradation due to gold mining<br>*Potamotrygon leopoldi*, construction of dams on the Xingú river. |
| **Utilization and trade** | Of the 19 species analyzed, 12 are important for the ornamental fish trade (Or), for consumption (Co) and for medicinal purposes (Me):<br>*Heliotrygon gomesi* (Or), *H. rosai* (Or), *Paratrygon aiereba* (Or, Co, Me), *Plesiotrygon iwamae* (Or, Co), *P. nana* (Or), *Potamotrygon henlei* (Or), *P. leopoldi* (Or), *P. motoro* (Or), *P. orbygni* (Or, Co), *P. schroederi* (Or), *P. scobina* (Or) and *P. tigrina* (Or). |
| **Fisheries ordinances and regulations** | Brazil:<br>IBAMA. Regulation 203 of 2008. Norms, standards and a system of quotas based on the known distribution and the population dynamics of the species, on the exploitation of native or foreign fish from inland waters, for ornamental and aquarium purposes.<br>IBAMA. Regulation 204. 2008. Applicable specifically to rays. Chapter I (Preliminary provisions), Chapter II (Catch and exploitation), Chapter III (Distribution of sales quotas), Chapter IV (Resale), Chapter V (Transport). This regulation also includes listings of permitted species and specific quotas by species and by region.<br>IBAMA Regulation No. 035. Authorizes the export of ray species.<br><br>Colombia:<br>Law 2811 of 1974. Defines ornamental fish species, including freshwater stingrays.<br>INCODER Resolution 3532 of 2007. Standards for the exercise, administration and control of commercial fishing of ornamental species, stipulating the ornamental fish species that may be commercially utilized.<br>Agreement No. 000023 of 1996. Prohibits the storage, sale or transportation of any class of ornamental fish during their reproductive period, 15 May to 30 June every year.<br>INCODER Resolution No. 266 of 2009. Establishes overall quotas for species in the ornamental fish trade. The resolution allows a maximum catch of 29,000 specimens of ray species (*Potamotrygonidae*) for the whole of Colombia. In 2011 the quota was reduced to 23,200, the level at which it remains to date.<br>PAN Tiburones Colombia (2013) (National Shark Action Plan), which assigns a Very High priority level to the species *Potamotrygon motoro, P. orbignyi* and *P. schroederi* and High priority to *Paratrygon aiereba* and *Potamotrygon constellata*. |

| Criteria | Amazon basin |
|---|---|
| | Ecuador:<br>Ministry of the Environment. 2012. Records have not been kept of export of or trade in rays. Nor are there any Customs statistics which could form the basis for legislation directed towards illicit trade in ray species. |
| **Fisheries ordinances and regulations** | Peru:<br>Regulations under the General Law on Fisheries (Amended) 2001. Section IV refers specifically to hydrobiological resources intended for ornamental purposes. (Art. 56). 56.1. The taking of hydrobiological resources requires a fishing permit issued by the Ministry of Fisheries.<br>Ministerial Resolution No. 295 de 2013. PAN Tiburones (National Shark Action Plan), which covers eight species of rays (*Potamotrygonidae*) of the Peruvian Amazon region, which are recognized as an ornamental fish resource of commercial importance.<br><br>Venezuela:<br>Official Gazette Nº 34.921 of 1992. Resolution 52 of the Directorate-General for Fisheries and Aquiculture. Standards regulating activities involving live fish specimens of ornamental value. Catch methods are regulated, and stipulations laid down on species, areas, and closed seasons (2 months a year between May and July).<br>Law on Fisheries and Aquiculture 2008. Decree Nº 5.930. The Socialist Institute of Fisheries and Aquiculture has been created, regulating fishing in inland waters. INAPESCA and subsequently INSOPESCA have accepted the measures adopted by CITES (CoP16). Any natural or legal person engaged in the activities of production and trade in ornamental fish must be registered with the Institute. Persons engaged in the export of ornamental fish will be required to obtain a permit issued by the Institute and must present a quarterly report indicating the common and the scientific name of the species, quantities, areas where caught and the destination of the specimens. |
| **Priority species identified under the criteria above** | *Paratrygon aiereba, Potamotrygon leopoldi, Potamotrygon motoro* and *Potamotrygon schroederi* |

| Criteria | Orinoco basin |
|---|---|
| **Species** | 1) *Paratrygon aiereba,*<br>2) *Potamotrygon motoro,*<br>3) *Potamotrygon orbignyi,*<br>4) *Potamotrygon schroederi,*<br>5) *Potamotrygon scobina* |
| **Taxonomy** | Of the five species distributed in this basin, two, *Potamotrygon schroederi* and *Potamotrygon scobina*, have a well-defined taxonomy.<br>*Potamotrygon motoro* may be a cluster of species.<br>Various writers indicate that *Paratrygon* may include two species not yet described (Lasso and Rosa pers. comm.) and *Potamotrygon orbignyi* may be a cluster that includes undescribed species. |

| Criteria | Orinoco basin |
|---|---|
| **Biological characteristics (Concerning section 3.3 of Resolution Conf. 9.24)** | All of the species have a single functional ovary, low fertility, lengthy gestation period, late maturity and long life.<br>*Potamotrygon orbignyi* is the species with the highest fertility (17 ovules). |
| **Habitat conservation status (Concerning section 4 of Resolution Conf. 9.24 on status and trends)** | Species that live in acid or black water habitats, or in clear water, are more fragile and susceptible to deterioration than those that live in white water.<br>In general, the Orinoquia region in Colombia and Venezuela is well preserved, except for particular bodies of water affected by mining and agrochemicals associated with massive agroindustrial and fisheries developments.<br>There are no dams in Colombia but in Venezuela there are about 32 reservoirs affecting numerous rivers in the foothills of the Andes. |
| **Species conservation status (Concerning section 4.4 of Resolution Conf. 9.24 on geographic trends)** | Colombia:<br>A start has been made on developing a standardized methodology in clear and black water, with the objective of performing censuses so as to be able to have population data on the species living in that type of habitat. Study carried out in February 2014, in the río Tomo, in the Orinoco basin (Morales-Betancourt and Lasso).<br>In accordance with the methodology of the IUCN, *Paratrygon aiereba, Potamotrygon motoro and P. schroederi* are categorized as Vulnerable (VU) and *Potamotrygon orbignyi* as Near Threatened (NT). |
| **Threats** | For the species that live in the main flow of the river the threats are: contamination by runoff, mining, deforestation, waste water, dam building (in the Venezuelan part of the Orinoquia), oil spills and degradation of the river beds through mining and dredging.<br>Overfishing or fishing aimed at juveniles, for the ornamental trade, affects the species *Paratrygon aiereba, Potamotrygon motoro, P. orbignyi* and *Heliotrygon* (similar to and confused with *P. aiereba*) and *P. schroederi*.<br>There is a specific case of pressure from consumption of *P. aiereba* as food, in the Venezuelan part of the Orinoco basin, Apure, Arauca and Orinoco rivers, with a danger that this may extend to Colombian territory. |
| **Utilization and trade** | Colombia:<br>*Potamotrygon motoro* is the second freshwater ray species by level of catch and export, and for which relatively reliable historical records are available. The trend of exports from 1999 to the present has been increasing, with more than 12,000 specimens exported in 2009.<br>*Potamotrygon schroederi* is the third freshwater ray species by level of catch and export, tending to increase. In 2009, 6349 specimens were exported. Of those, 1886 came from the Colombian part of the Orinoquia: 1825 from Inírida and 61 from Puerto Carreño, an enormous figure for the region of the Estrella Fluvial de Inírida. Other catch data for the Colombian part of the Orinoquia are: 2007 (3113 specimens), 2008 (488 specimens) and 2010 (940 specimens). A large portion of the records for the Inírida region relate to specimens from Venezuela, entering Colombia illegally.<br>*Paratrygon aiereba* is used for ornamental purposes, for food and for medicine in both the Colombian and the Venezuelan parts of the Orinoquia.<br>*Potamotrygon orbygni* is used for ornamental purposes and for subsistence food. |

| Criteria | Orinoco basin |
|---|---|
| **Fisheries ordinances and regulations** | Colombia:<br>Law 2811 of 1974. Defines ornamental fish species, including freshwater stingrays.<br>INCODER Resolution 3532 of 2007. Standards for the exercise, administration and control of commercial fishing of ornamental species, stipulating the ornamental fish species that may be commercially utilized.<br>Agreement No. 000023 of 1996. Prohibits the storage, sale or transportation of any class of ornamental fish during their reproductive period, 15 May to 30 June every year.<br>INCODER Resolution No. 266 of 2009. Establishes overall quotas for species in the ornamental fish trade. The resolution allows a maximum catch of 29,000 specimens of ray species (*Potamotrygonidae*) for the whole of Colombia. In 2011 the quota was reduced to 23,200, the level at which it remains to date.<br>PAN Tiburones Colombia (2013) (National Shark Action Plan), which assigns a Very High priority level to the species *Potamotrygon motoro, P. orbignyi* and *P. schroederi* and High priority to *Paratrygon aiereba* and *Potamotrygon constellata*.<br><br>Venezuela:<br>Official Gazette Nº 34.921 of 1992. Resolution 52 of the Directorate-General for Fisheries and Aquiculture. Standards regulating activities involving live fish specimens of ornamental value. Catch methods are regulated, and stipulations laid down on species, areas, and closed seasons (2 months a year between May and July).<br>Law on Fisheries and Aquiculture 2008. Decree Nº 5.930. The Socialist Institute of Fisheries and Aquiculture has been created, regulating fishing in inland waters. INAPESCA and subsequently INSOPESCA have accepted the recommendations adopted by CITES (CoP16). Any natural or legal person engaged in the activities of production and trade in ornamental fish must be registered with the Institute. Persons engaged in the export of ornamental fish will be required to obtain a permit issued by the Institute and must present a quarterly report indicating the common and the scientific name of the species, quantities, areas where caught and the destination of the specimens. |
| **Priority species identified under the criteria above** | *Paratrygon aiereba, Potamotrygon motoro, Potamotrygon schroederi* |

| Criteria | Magdalena and Caribe basin |
|---|---|
| **Species** | *Potamotrygon magdalenae* |
| **Taxonomy** | Defined taxonomy<br>Only a single species is recognized, but there are biological differences between the specimens in the Lower and Middle basin which need to be evaluated (for example: cryptic species, sub-populations) (Mejía-Falla and López-García, pers. comm.) |
| **Biological characteristics (Concerning section 3.3 of Resolution Conf. 9.24)** | The species has a single functional ovary, low fertility (2 embryos), lengthy gestation period, late maturity and long life.<br>The fertility reported for *P. magdalenae* is between 1 and 10 embryos. |

| Criteria | Magdalena and Caribe basin |
|---|---|
| **Habitat conservation status (Concerning section 4 of Resolution Conf. 9.24 on status and trends)** | *Potamotrygon magdalenae* is common both in the main stream of the rivers and in the swamps and streams. All the impacts on the Magdalena basin affect this species, such as: agrochemical runoff, heavy metals, drainage of wetlands, black water, deforestation and building of dams which break up the populations and interrupt the genetic flow among them. |
| **Species conservation status (Concerning section 4.4 of Resolution Conf. 9.24 on geographic trends)** | There are no detailed population studies for the species *Potamotrygon magdalenae*, but there are some data demonstrating that it is a species that is very abundant in the basin.<br>In accordance with the methodology of the IUCN, in Colombia the species is categorized as Near Threatened. |
| **Threats** | 1) Twin-purpose resource, for ornamental purposes and as food (subsistence);<br>2) Catch levels for ornamental purposes very high;<br>3) Impacts on the Magdalena river basin (agrochemicals, heavy metals, drainage of wetlands, black water, deforestation);<br>4) Reservoirs in the basin which break up the populations and interrupt the genetic flow among them.<br>5) By-catch. |
| **Threats** | Used in the ornamental fish trade, for subsistence food and for medicinal purposes<br>In all of the basin, is in trade as an ornamental species in only two locations of the Lower basin (Mejía-Falla et al. 2014, Lasso et al 2013)<br>It is considered to be the most exported species at national level, accounting for 60-70% of the rays exported (Perdomo-Nuñez 2005). A total of 14,621 specimens of this species were exported in 2009 (INCODER data). (This part was in the matrix submitted by Paola Mejía, under the heading “Fisheries ordinances”.) |
| **Utilization and trade** | Colombia:<br>Law 2811 of 1974. Defines ornamental fish species, including freshwater stingrays.<br>INCODER Resolution 3532 of 2007. Standards for the exercise, administration and control of commercial fishing of ornamental species, stipulating the ornamental fish species that may be commercially utilized.<br>Agreement No. 000023 of 1996. Prohibits the storage, sale or transportation of any class of ornamental fish during their reproductive period, 15 May to 30 June every year.<br>INCODER Resolution No. 266 of 2009. Establishes overall quotas for species in the ornamental fish trade. The resolution allows a maximum catch of 29,000 specimens of ray species (*Potamotrygonidae*) for the whole of Colombia. In 2011 the quota was reduced to 23,200, the level at which it remains to date.<br>Species with Very High priority (*Potamotrygon magdalenae*) in the National Sharks Action Plan (2013). |
| **Priority species identified under the criteria above** | No species has been prioritized. |

| Criteria | Maracaibo basin |
|---|---|
| **Species** | *Potamotrygon yepezi* |
| **Taxonomy** | Defined taxonomy |
| **Biological characteristics (Concerning section 3.3 of Resolution Conf. 9.24)** | The species has a single functional ovary, low fertility (2 embryos), lengthy gestation period, late maturity and long life. |
| **Habitat conservation status (Concerning section 4 of Resolution Conf. 9.24 on status and trends)** | *Potamotrygon yepezi* uses different types of habitat, as well as lentic and lotic environments. The Lake Maracaibo basin is very affected by oil spills and leaks and contamination by agrochemicals in the lower parts of the major tributaries (Lasso pers. comm.). |
| **Species conservation status (Concerning section 4.4 of Resolution Conf. 9.24 on geographic trends)** | There are no population studies for the species *Potamotrygon yepezi,* although it does seem to be very abundant in some areas. In accordance with the methodology of the IUCN, in Colombia the species is categorized as Vulnerable. |
| **Threats** | 1) In Colombia the threat is the impact on the habitat from discharges of hydrocarbons and spills; as a potential threat attention may be drawn to contamination by agrochemicals in the District of Riego del Zulia and discharge of black water at Cúcuta.<br>3) In Venezuela the threats have to do with the intense oil industry activities (spills) in the area of distribution within the Lake.<br>4) By-catch. |
| **Utilization and trade** | Used in Venezuela's ornamental fish trade, as subsistence food and for medicinal purposes (Colombia and Venezuela) |
| **Fisheries ordinances and regulations** | Colombia:<br>Law 2811 de 1974. Defines ornamental fish species, including freshwater stingrays.<br>INCODER Resolution 3532 of 2007. Standards for the exercise, administration and control of commercial fishing of ornamental species, stipulating the ornamental fish species that may be commercially utilized.<br>Agreement No. 000023 of 1996. Prohibits the storage, sale or transportation of any class of ornamental fish during their reproductive period, 15 May to 30 June every year.<br>INCODER Resolution No. 266 of 2009. Establishes overall quotas for species in the ornamental fish trade. The resolution allows a maximum catch of 29,000 specimens of ray species (*Potamotrygonidae*) for the whole of Colombia. In 2011 the quota was reduced to 23,200, the level at which it remains to date.<br>Colombia's National Shark Action Plan (2013) assigns medium priority to *Potamotrygon yepezi*.<br><br>Venezuela:<br>Official Gazette Nº 34.921 of 1992. Resolution 52 of the Directorate-General for Fisheries and Aquiculture. Standards regulating activities involving live fish specimens of ornamental value. Catch methods are regulated, and stipulations laid down on species, areas, and closed seasons (2 months a year between May and July).<br>Law on Fisheries and Aquiculture 2008. Decree Nº 5.930. The Socialist Institute of Fisheries and Aquiculture has been created, regulating fishing in inland waters. INAPESCA and subsequently INSOPESCA have accepted the recommendations adopted by CITES (CoP16). Any natural or legal person engaged in the activities of production and trade in ornamental fish must be registered with the Institute. Persons engaged in the export of ornamental fish will be required to obtain a permit issued by the |

| Criteria | Maracaibo basin |
|---|---|
| | Institute and must present a quarterly report indicating the common and the scientific name of the species, quantities, areas where caught and the destination of the specimens |
| **Priority species identified under the criteria above** | No species has been prioritized |

| Criteria | Other basins (Unini, Esequibo, Corantijn, Maroní, Oyapoque, Tampoc, Suriname, Lawa, Parnaiba, Paraguay, Paraná, Uruguay rivers, River Plate) |
|---|---|
| **Species** | 1) *Potamotrygon amandae,* 2) *Potamotrygon boesemani,* 3) *Potamotrygon brachyura,* 4) *Potamotrygon falkneri,* 5) *Potamotrygon hystrix*, 6) *Potamotrygon marinae,* 7) *Potamotrygon motoro*, 8) *Potamotrygon orbignyi,* 9) *Potamotrygon pantanensis,* 10) *Potamotrygon schuhmacheri,* 11) *Potamotrygon signata* |
| **Taxonomy** | Of the 11 species distributed in these rivers, eight have a well-defined taxonomy.<br>*Potamotrygon hystrix* and *Potamotrygon motoro* are considered clusters of species.<br>Various writers indicate the possibility that *Potamotrygon orbignyi* may be more than one species. |
| **Biological characteristics (Concerning section 3.3 of Resolution Conf. 9.24)** | All the species have a single functional ovary, low fertility, lengthy gestation period, late maturity and long life. |
| **Habitat conservation status (Concerning section 4 of Resolution Conf. 9.24 on status and trends)** | Species that live in acid or black water habitats, or in clear water, are more fragile and susceptible to deterioration than those that live in white water.<br>In general the ray species distributed in the Paraná-Paraguay basin use different types of habitat, black water in Bolivia, clear and white water as well as lentic and lotic environments. In the case of the tributaries (Pantanal) and the rivers in Bolivia, they are subject to effects of hydroelectric activity, deforestation and mining, with abundant sediments, contamination and changes in water flow. In the case of the lower regions the state of conservation is of concern, owing to the deterioration caused by building of harbours and discharges of water contaminated by agricultural, industrial or urban activities.<br>In the Paraná river basin the greatest threat may possibly be the habitat degradation caused by the damming of the navigation system, electric plants and the building of harbours. |
| **Species conservation status (Concerning section 4.4 of Resolution Conf. 9.24 on geographic trends)** | There are no population studies for the species distributed in these basins. |
| **Threats** | *Potamotrygon amandae*, habitat degradation through contamination and dam-building.<br>*Potamotrygon brachyura*, fragmentation of habitat and ornamental fisheries.<br>*Potamotrygon motoro,* damming of the Paraná river's navigation system, electric plants and building of harbours.<br>*Potamotrygon signata*, Parnaiba river basin with intensive agricultural developments. |

| Criteria | Other basins (Unini, Esequibo, Corantijn, Maroní, Oyapoque, Tampoc, Suriname, Lawa, Parnaiba, Paraguay, Paraná, Uruguay rivers, River Plate) |
|---|---|
| **Utilization and trade** | Brazil:<br>Exports of *Potamotrygon* cf. *hystrix* from the State of Amazonas, with approximately 10,000 specimens (50% of all the rays that are exported from Brazil). This species is one of the smallest in size (50 cm diameter) and possibly endemic to the Río Negro. |
| **Fisheries ordinances and regulations** | Brazil:<br>IBAMA. Regulation 203 of 2008. Norms, standards and a system of quotas based on the known distribution and the population dynamics of the species, on the exploitation of native or foreign fish from inland waters, for ornamental and aquarium purposes.<br>IBAMA. Regulation 204. 2008. Applicable specifically to rays. Chapter I (Preliminary provisions), Chapter II (Catch and exploitation), Chapter III (Distribution of sales quotas), Chapter IV (Resale), Chapter V (Transport). This regulation also includes listings of permitted species and specific quotas by species and by region.<br>IBAMA Regulation No. 035. Authorizes the export of ray species<br><br>Paraguay:<br>Law 3556 on Fisheries. Prohibits trade through exporting of any product of fish fauna. |
| **Priority species identified under the criteria above** | *Potamotrygon brachyura* and *Potamotrygon motoro* |

DISCUSSIONS AND CONCLUSIONS

Among the fundamental objectives of the workshop, a major one was the need to create a space for dialogue concerning the conservation status of freshwater stingrays, in order to be able to evaluate and prioritize the species of greatest concern. The following pages contain the discussion and conclusions reached on each topic covered by country or basin within the rays' range.

1. Species analyzed

   In all, 29 ray species were analyzed and evaluated. With some overlap between locations, 19 of them are found in the Amazon basin, 5 in the Orinoco basin, 1 in each of the basins of the Magdalena and Maracaibo rivers and 11 in other catchment basins (Table 1). The greatest variety of species is found in the Amazon. According to information gathered, *Paratrygon aiereba, Potamotrygon motoro* and *Potamotrygon schroederi* are the species about which most biological information is available and undergo the greatest level of commercial exploitation (as ornamental fish and for food) in several range Stares.

2. Species prioritization

   It can be clearly seen that the problems relating to freshwater stingrays are different in the northern region of the continent — Bolivia, Brazil (Amazon basin), Colombia, Ecuador, Peru and Venezuela — from those in the southern region: Argentina, Brazil (Paraná–Paraguay basin), Paraguay and Uruguay.

   In order to respond to the decisions reached at CoP16, priority was assigned to species relating to the Amazon basin (*Paratrygon aiereba*, *Potamotrygon leopoldi*, *P. motoro* and *P. schroederi*), the Orinoco basin (*Paratrygon aiereba*, *Potamotrygon motoro* and *P. schroederi*) and other catchment basins (*Potamotrygon brachyura* and *P. motoro*) (Table 1).

   Consequently, three options are proposed as input to the Animals Committee and for subsequent reporting to CoP17: (1) retaining the original proposal, incorporating further information, now supported by the countries participating in the workshop; (2) making a new proposal of including all of the genus *Potamotrygon*; or (3) making a new proposal of including all of the family *Potamotrygonidae*. (The latter two proposals were made to take into account the taxonomic problems and the similarity of the species, making it difficult to monitor trade). Finally, as an additional proposal: (4) as an addition to whichever option is selected for presentation and in alignment with what is recommended in Res. Conf. 12.6 (Rev. CoP16), consideration should also be given to listing endemic species in restricted areas in CITES Appendix III.

3. Use of and trade (national and international) in the species

The uses made of ray species differ from country to country. The following is a summary of the information available on this aspect.

**Argentina:** The National Action Plan for the Conservation and Management of Chondrichthyes (PAN-Tiburones, 2009) in Argentina does not at present cover freshwater stingray species. Exports for aquarium use have been recorded since 2004, reaching a figure of 751 specimens (Division for National Fisheries and Aquiculture). However, the international trade in this species has contracted sharply, descending in 2013 to the export of only two captive-bred specimens.

Since 2013, the Institute for Subtropical Biology (CONICET and the Universidad Nacional de Misiones), has pursued research into: 1) Reviewing the categorization of the freshwater stingrays in the River Plate basin; 2) Determining the geographical distribution of each species of *Potamotrygon* in that basin; 3) Determining the geographical distribution of the species variety and the endemicity level of the chondrichthyes in the Plate basin; 4) Estimating the degree of exposure to factors of anthropogenic impact for each species; 5) Determining the priority aspects of conservation of Argentina's freshwater chondrichthyes.

**Brazil:** There are specific data from export records for the ornamental fish trade and records of unloadings for food purposes, for the period 2003 - 2010. Starting in 2004 a quota system was established for exports of six species of the genus *Potamotrygon*. Monitoring illegal international trade in the range States of the species is one of the hardest steps in a programme for conservation of freshwater stingrays, since some species are taken illegally across the borders between Brazil and Colombia and Brazil and Peru.

**Bolivia:** There is not an established legal trade in ornamental fish, not are there any export data reported at the airports.

**Colombia:** Data on exports of freshwater stingrays are available for the period 1994–2013; however, the majority of the species are traded under their common names rather than the scientific ones. Consequently, it is very difficult to know with certainty the species to which the figures relate, such as the number of specimens per species. Work has begun on confirming the common name against the scientific one, in order to be able to determine the species on the basis of the basin in which it originates. In addition, while there is monitoring by the Environmental Police of the domestic trade from the regions or basins (Orinoco, Amazon, Magdalena) to Bogotá, great difficulty is encountered in making a correct taxonomic identification, and it is difficult to provide training for that sort of body, owing to the high level of personnel rotation. Nevertheless, there is now a photographic guide which should allow the species to be identified, even considering the different coloration schemes. Furthermore, discussions are under way between the national regulatory association (ACOLPECES) and the competent official authority (AUNAP) on the issue of possible "double counting," since the Association presents some catch and trade figures which are lower than and different from those which the Authority collects.

**Ecuador:** There are no statistics on fisheries nor on exports.

**Paraguay:** Use for aquarium purposes is very rare. By law, fish fauna may not be exported.

**Peru:** The list of ray species in the ornamental trade counts about 100 common names. There are catch and trade figures for the period 2000–2012. However, ichthyology experts consider that the figures given are excessive in certain years (2006–2009), with the majority (88%) being allocated to a single species (*Potamotrygon motoro*), and that the export data are dubious (between 12,000 and 50,000 specimens per year). There is thus a need to verify that all of the specimens are caught in the country and that the figures do not relate to specimens smuggled from Brazil or Colombia.

**Uruguay:** Of the twenty-five species of freshwater stingrays known to science, to date only *Potamotrygonbrachyura*, *P. hystrix* and *P. motoro* have been referenced. The records on these species are sketchy and almost anecdotal, coming primarily from artisanal and sport fishing. The greater part of these references relate to *P. brachyura*.

There is no commercial utilization of freshwater stingrays at national or international level. However, Uruguay's National Action Plan for Chondrichthyes (2008), including in its revised version (2013), does make mention of the three ray species already referred to.

**Venezuela:** There is only information on exploitation of *Paratrygonaiereba* as food, in the basin of the Apure river, published in scientific articles. The fisheries authority has no record, in its statistics on the ornamental fish trade, of any cases of freshwater stingrays.

4. Information relating to population trends

As a part of the analysis and discussion, the need was confirmed to enhance the sparse population information currently in existence, in order to be able to document more thoroughly the issue of population status or shrinkage, resulting from catch levels and trade. There is discussion of the advisability of moving towards a standardized methodology at least in the rivers of clear and black water, in which visibility is sufficient to carry out night-time censuses. It would be possible to follow the methodology proposed by Morales-Betancourt and Lasso (in press).

It is necessary to emphasize and to keep in mind that fishing for rays for ornamental purposes is different from that practiced with other fish species (whether also ornamental or for consumption), since it is targeted selectively on juveniles. The adults remain alive in the environment, and can go on reproducing; however, a time will come when there is no recruitment of reproductive fish, altering the structure of the population and endangering its capacity for renewal.

Similarly, taking into account that there is a need to consider other approaches to evaluate population trends, the group of experts will request the support of the CITES Secretariat and of NGOs, to contact an expert in theoretical biological modelling to develop a model on population trends. This will be created on the basis of the existing information (number of ray specimens taken) and other variables to be identified by the group of experts, on the basis of experience in marine environments (sharks and saltwater rays), in order to be able to evaluate the applicability to inland environments.

**NATIONAL REPORTS**

**Argentina**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| Although there are no specific regulations to regulate fishing of and trade in freshwater stingrays, the Directorate for Aquiculture under the Division for National Fisheries, taking into account the outcomes of CoP16, has discouraged, on a precautionary basis, trade in live specimens of freshwater stingrays. | While the literature recognizes the presence of 6 species of *Potamotrygon* in Argentina, research undertaken in recent years by the Institute for Subtropical Biology (CONICET and the Universidad Nacional de Misiones) (taxonomic review, geographical distribution of species variety, endemicity level of the freshwater stingrays, estimate of the degree of exposure to factors of anthropogenic impact and determination of priority conservation areas) confirms the presence of no more than five.<br>There are records of consolidation centres for exports of freshwater stingrays, as well as of fish not intended to be consumed as food. | Freshwater stingrays have not been categorized in line with IUCN usage owing to a lack of information at the local level. However, an evaluation of conservation status has been done for *P. brachyura* on the basis of the methodology developed from conservation biogeography (Lucífora, 2014 – document presented at the meeting). | Official information was presented (Directorate for Aquiculture under the Division for National Fisheries) on the record of international trade in rays for use in aquaria, between 2004 and 2013, resulting in a total of 751 specimens in that period. |

**Bolivia**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| The country has the Law on the Environment, the Mother Earth Act, and more specifically, the Law on Fisheries and Aquiculture (currently being revised), the Decree on closed periods for wildlife and the Regulation on the utilization and conservation of and sustainable trade in ornamental fish. | Although there are records of ray species in some collections, the keepers do not have the specific training that would make it possible to confirm their taxonomic identification.<br>Similarly, the data on freshwater stingrays are scattered, and there is not a specialist group to study them. | Freshwater stingrays have not been categorized in line with IUCN usage owing to a lack of information at the local level.<br>Threats: habitat change, water contamination, overfishing, retaliatory fishing. | There are no data, reported from checks at ports or airports, indicating a significant trade in these species. However, there are suspicions that there is an illegal market, directed towards Brazil. In addition, use of the species is reported in rituals, craft work and medicine. |

**Brazil**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| Regulation IBAMA 203 of 2008 established standards and a system of quotas based on the known distribution and the population dynamics of the species, on the exploitation of native or foreign fish from inland waters, for ornamental and aquarium purposes; this includes six species of the genus *Potamotrygon* (Lasso *et al.* 2013).<br>IBAMA. Regulation 204 of 2008 regulates issues to do with catch and exploitation, distribution of sales quotas, resale, listings of permitted species and quotas by species and by region. (Country Report, 2014; Lasso *et al.* 2013)<br>IBAMA Regulation No. 035. Authorizes the export of ray species. | The country has biological, reproductive and population information in the basins of the Negro, Tapajós, Tocantins /Araguaia and Xingu rivers, covering the species:<br>P. sp. "cururu"; *P. motoro; Paratrygon aireba;*<br>*P. schroederi; P. orbignyi;*<br>P sp. "jabuti";<br>P sp. "pretinha";<br>*Potamotrygon henlei;*<br>*Potamotrygon* cf. *henlei;*<br>*Potamotrygon leopoldi* | Following the analysis of the risk of extinction of 17 freshwater stingray species, carried out following the methodology of the IUCN, the categorizations were:<br>*Paratrygon aiereba:*<br>Critical Risk (CR):<br>*Plesiotrygon iwamae*, *Potamotrygon leopoldi, Potamotrygon signata:*<br>Near Threatened (NT)<br>Threats:<br>Habitat loss, guided retaliatory fishing (eco-tourism) which impacts populations of *P. orbignyi* and *P. aiereba*, fisheries, and in the State of Amazonas, there is prevalence of by-catch (with 80% of the specimens caught dying before being returned to their environment). | There are exports of specimens of freshwater ray species, for ornamental use, to Japan, South Korea , Germany and the United States.<br>Comparison of the volume exported between the years 2003 and 2014 demonstrates a drastic drop in exports of *P. motoro, P. schroederi, P. orbignyi, P.* cf.*henlei*; and an increase in exports of *P. leopoldi* (Anatole and Raseira, 2014)<br>The principal catch sites are reported to be in the Tapajós, Purus, Negro, Xingú, and Tocantins rivers. Commercial fishing is carried out with trawl nets. The existence of illegal trade in ornamental species is known. |

**Colombia**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| By means of Law 13 of 1990 and its implementing decree, No. 2256 of 1991, the management and administration of hydrobiological resources was split up; with the fisheries authority, currently the AUNAP, being designated as exercising control over all the hydrobiological species which are fishing targets; delegating to the environmental authorities control over the other hydrobiological resources.<br>The Decree also established permits for fishing, trade, cultivation, and measures for management and conservation of ornamental fish resources.<br>More recently, by means of Decree 1124 of 2013, the Colombian National Action Plan for the Conservation and Management of Sharks, Rays and Chimaeras (PAN – Tiburones Colombia) was officially adopted; and by way of Resolution 192 of 2014, the threatened species on national territory were identified. | In relation to freshwater stingrays, Colombia has encouraged a series of research projects with other countries in the Region, with natural distribution of species of the family *Potamotrygonidae*,<br>The topics of such research include: revision of the regulatory and sales-related framework; poisoning; biogeography; the status of knowledge and conservation; catch methodologies; censuses and analyses of bioecological data; taxonomic identification; preparation of species reference sheets and the publication of: "IX. Freshwater stingrays (*Potamotrygonidae*) of South America. Part I. Colombia, Venezuela, Ecuador, Peru, Brazil, Guyana, Suriname and French Guiana: diversity, bioecology, use and conservation" (Lasso *et al.* 2013). There were also plans for the book "Freshwater stingrays (*Potamotrygonidae*) of South America, Part II."<br>However, there is still a need to strengthen population information. | 2012 saw the publication of the "Red Book of Freshwater Fish of Colombia" (Mojica *et al.*, 2012), in which some ray species were categorized:<br>Vulnerable species (VU):<br>*Paratrygon aiereba Potamotrygon schroederi*<br>*P. motoro*<br>*P. yepezi*<br>Near Threatened species (NT):<br>*P. magdalenae*<br>*P. orbignyi*.<br>Threats:<br>Catch of juvenile specimens for ornamental use; assignment of global annual quotas without technical justification. | The study of the ornamental fish trade in the country, carried out in 2012, showed that from 1994 to 2012, between 2,000 and 3,000 specimens on average were exported, with a peak of between 4,000 and 6,000, between 2007 and 2009. From 2009 a quota was established for ornamental species in trade: 29,000 ray specimens, which in 2011 was reduced to 23,200 specimens (Ajiaco-Martínez*et al.* 2012). |

**Ecuador**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| As a general framework, the country has the Law on conservation and sustainable use of biodiversity.<br>Additionally, although current legislation only makes reference to the breeding of fish species for human consumption, it does provide penalties for catching fish without a permit. | As an outcome of research undertaken, the months of August to October have been identified as the best collection times, with specimens of *Potamotrygon motoro* and *Plesiotrygon iwamae* being caught most often.<br>Nevertheless, further research is needed to act as a scientific backup to determine catch frequencies and catch effort. | The threat status and life cycle of many species are unknown.<br>Threats:<br>Modification of lotic environments to become waterways for travel; oil exploitation in protected areas; mining activities; overfishing for the aquarium trade; use of verbascum and dynamite as fishing methods; clearance of vegetation, chemical contamination and retaliatory fishing. | The volume caught depends on the demand on the international market for ornamental species, with no consideration being given to biological or ecological aspects of the family; but there are no statistical records of such exports.<br>Nor is there any information on illegal trade in freshwater stingray species, but it is known that the traffickers pay very low prices for specimens.<br>As for the uses, it is common to find the indigenous communities using the spines on the end of hunting spears and arrows, as well as their use as decorative adornments. Freshwater stingrays are also a target in sport fishing. The indigenous communities do not usually eat them; at most, they may eat the fins. |

**Paraguay**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| Under Law 3556 on fisheries, the export of any fish fauna product for commercial purposes is prohibited. | No progress in research has been reported. | No related information has been reported. | By-catch does occur in the country, given that rays are not utilized in commercial fisheries, nor included in the listings of items in trade. The only use of the species is for aquarium purposes. Otherwise, use is restricted basically to artisanal fishing for subsistence food and to sport fishing. |

**Peru**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| The General Law on Fisheries of 1994, and specifically Section IV of the regulation, governs aspects of hydrobiological resources used for ornamental purposes.<br>The law lays down a requirement to obtain a fishing permit, if the fishing is for ornamental species; and regulates the operation of commercial aquaria. | Freshwater stingrays are a group of fish that has not been much studied in Peru and the catch data are recorded under the common or commercial names, making adequate monitoring difficult. They live in the waters of the Amazon and other catchment basins, although there are still gaps in the information about their geographical distribution. For that reason research was carried out during 2013 in the Loreto region, covering diversity, distribution, ecology, fishing and conservation status. Collections were made and the presence of seven species in three genera was confirmed: *Potamotrygon, Plesiotrygon* and *Paratrygon;* in the bibliographical review there were also reports for the Peruvian Amazonia region, of two species of the genus *Heliotrygon*, and one of *Potamotrygon* (*P. tatianae*). | Although no categorization has been done of freshwater stingray species, the need has been identified of developing a regulation which will make it possible to improve the conservation status of this group. | In Peru, in accordance with DIREPRO data, there has been a considerable catch and trade between the years 2000 and 2013 in freshwater stingrays for ornamental purposes (between 10,000 and 50,000 specimens, the highest figures being from 2006 to 2009, fluctuating between 40,000 and 50,000 specimens).<br>Of the total number of rays traded, *Potamotrygon motoro* shows the highest catch level (87.65%) and accounts, together with the tiger ray, for 84% of the income from trade in Amazon rays. |

**Uruguay**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| There has been a National Action Plan for Conservation of Chondrichthyes in Uruguayan Fisheries (PAN Condrictios) since 2008, revised in 2013, covering the three species of freshwater stingrays referenced to date: (*Potamotrygon brachyura, P. hystrix and P. motoro*) | Owing to the low level of records on freshwater stingrays, not many studies have been done. The literature is sparse and the scientific articles deal only with observations about catch and catch areas. There is a photographic record of the few reference species. In addition, the Administrating Commission of the Uruguay River (CARU) is developing genetic studies to improve species identification. | There is no categorization of the threat level in accordance with IUCN criteria, owing to a shortage of data at local level.<br>Threats: habitat change and retaliatory fishing. | Consumption of ray meat at national level is rare, and there are no reports of international commercial transactions. |

**Venezuela**

| Regulation | Information | Conservation status | Use and trade |
|---|---|---|---|
| Decree Nº 5.930 of 2008, which has the force of a Law on Fisheries, and Resolution Nº 52 of 1992, which regulates activities relating to live specimens of fish fauna of commercial value (Sánchez-Duarte *et al*, 2013).<br>Additionally, a closed period is in force at national level, prohibiting the catch of inland ornamental fish in the period between 15 May and 15 July (Sánchez-Duarte *et al.* 2013). | Some biological aspects have been determined, such as: reproductive size, reproductive period and diet. | Threats:<br>Contamination from runoff, mining, deforestation, waste water, dam building, oil spills and dredging.<br>There is overfishing or fishing aimed at juveniles for the ornamental fish trade in the species *Paratrygon aiereba, Potamotrygon motoro, Potamotrygon orbignyi, Heliotrygon* sp. and *Potamotrygon schroederi*; there are also reports of a reduction in catch size.<br>There is a report of pressure from consumption of *P. aiereba*, in the Apure and Orinoco river basins.<br>There is also overfishing of *P. aiereba*, which from 2008 onwards has been fished for throughout the year, with almost all the specimens caught being above reproductive size, leading to severe pressure on the pattern of reproduction and the time for recreating new cohorts. | The information which is known about fishing for freshwater stingrays is very sparse, and generally makes no discrimination by species.<br>From 2008, use began to be made of the "*espinel*" (fish trolling device) as a fishing tool for catching *P. aiereba* and since 2014, it has become the only tool used.<br>There is significant movement of species (*P. aiereba, P. schroederi* and *P. motoro*) from Venezuela to Colombia via Puerto Carreño and Puerto Inírida. |

**ANNEXES**

**Annex 1.** List of the participants in the "Regional Freshwater Stingray (Family *Potamotrygonidae*) Expert Workshop".

| Country | Name | Function | |
|---|---|---|---|
| Argentina | Gustavo E. Chiaramonte | Head of the Ichthyology Division. Director of the Hydrobiological Station, Puerto Quequén. Expert. | gchiaram@retina.ar |
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| Colombia | Paola A. Mejía | Squalus. Colombian NGO | pmejia@squalus.org |
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| Colombia | Ana María Hernández | Instituto Alexander von Humboldt. International Relations | ahernandez@humboldt.org.co |
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| Colombia | Antonio Gómez | Ministry for the Environment and Sustainable Development. CITES Management Authority | ajgomez@minambiente.gov.co |
| Colombia | Melissa Laverde | Ministry for Foreign Affairs | melissa.laverde@cancilleria.gov.co |
| Colombia | Tatiana Meneses | AUNAP | tatiana.meneses@aunap.gov.co |
| Colombia | Claudia L. Sánchez | Ministry for Agriculture/DCPPA | claudia.sanchez@minagricultura.gov.co |
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| Paraguay | Dario Mandelburger | Director of the Dirección de Pesca y Acuicultura. CITES Scientific Authority | dariomandel@gmail.com |
| Peru | Hernan Ortega | Universidad Mayor de San Marcos. Expert | hortega.musm@gmail.com |
| Uruguay | Marcel Calvar | Ministry of Agriculture, Stockbreeding, Aquiculture and Fisheries, Directorate-General for Renewable Natural Resources. CITES Scientific Authority. Regional Representative for Central and South American and the Caribbean, Animals Committee. Secretary, Animals Committee. | mcalvar@mgap.gub.uy |
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| | Rebecca Regnery | Humane Society International. | rregnery@hsi.org |
| | Alejandra Goyenechea | Defenders of Wildlife. | agoyenechea@defenders.org |
| | Adriana Rivera B. | GIZ- Amazonia Regional Programme -OTCA. | adriana.rivera-brusatin@giz.de |

AGENDA

The workshop was opened, and the participants welcomed, by the representative of the Management Authority of Colombia and the Director of the Instituto Humboldt, the CITES Scientific Authority. The initial presentation was delivered by Mr. David Morgan, Chief of the Scientific Services unit in the CITES Secretariat (at that date). This was followed by presentations by the representatives of the countries in the working group and discussion then continued in working subgroups, covering biological and ecological information, conservation status, use of and trade in the species, contributed by each of them. On the second day work continued in groups, and concluded with agreement on regional priorities for freshwater stingrays and recommendations in the CITES context.