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Seahorses (*Hippocampus spp.*) and the CITES Review of Significant Trade

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Director' Foreword

UBC's Institute for the Oceans and Fisheries is the next evolutionary stage of the Fisheries Centre. With the world's oceans in crisis, due to human activity—including climate change, overfishing, habitat loss—it became imperative that the Centre expand its focus, looking beyond fisheries to the larger issues facing vital marine ecosystems, and seeking new knowledge and new solutions to effect a transformative global shift toward sustainable coastal ecosystems, oceans and fisheries.

One of the key areas that we must focus on is an understanding of how the national and international covenants and agreements that we currently have in place can be used to drive sustainable management of resources, while still ensuring economic benefits. Seahorses are among the taxa for which trade is allowed, but must be regulated for sustainability, and this report provides an insight into the issues and concerns such regulation can entail.

This report is a detailed factual account of the process that eight seahorse species underwent as they travelled through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)'s Review of Significant Trade (RST) process - the first fully marine fishes to go through the process since the Convention came into force more than 40 years. It presents the methods and results of a detailed analysis of the RST process, and it supports a policy document that was presented to the 17th meeting of the CITES Conference of the Parties (CoP17, September 2016). That policy document is in the process of being turned into a primary manuscript, and will act as a case study to inform best practices in support of species conservation.

I congratulate the author on this important piece of work.

Evgeny Pakhomov
Director, Institute for the Oceans and Fisheries

Abstract

The international trade in wildlife is vast, and if allowed to carry on unchecked can pose a significant threat to the world's biodiversity. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a multilateral environmental agreement (MEA) that aims to regulate international trade of animals and plants, in order to ensure that trade does not threaten survival of wild populations. It is unique among MEAs, in that it has legal mechanisms in place to promote compliance with agreed restrictions on exports. One of these mechanisms is known as the Review of Significant Trade (RST, [Res. Conf.12.8 \(Rev. CoP13\)](#)). The RST identifies any challenges member States (Parties) are facing in implementing certain requirements of the Convention for species for which trade is allowed, but must be regulated, and makes recommendations to assist Parties in overcoming these challenges. As a final resort, this process can lead to trade suspensions.

This report provides a detailed factual account of the seahorse (*Hippocampus* spp.) experience through the RST process. Seahorses are among the taxa for which trade is allowed but must be regulated for sustainability. Seahorses are unique in their own right, as the first fully marine fishes to go through the RST process since the Convention came into force more than 40 years ago. This report presents the methods and results of a detailed analysis of the movement of eight seahorse species through the RST process. The report underpins a policy document presented to the 17th meeting of the CITES Conference of the Parties (CoP17, September 2016) to support decision making with respect to proposed revisions to the RST process ([CoP17 Inf. Doc. 53](#)). The policy document used seahorses as a case study to draw out observations that should inform best practices in support of species conservation, and is in the process of being turned into a primary manuscript.

Background

CITES

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, www.cites.org) is a multilateral environmental agreement that aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival in the wild. Species of concern are placed on Appendices with variable levels of protection or regulation. International trade in species in CITES Appendix I is essentially banned because it is recognized as a threat to the continued survival of the species in the wild. International trade in species listed in Appendix II is permitted but controlled as these species might become threatened with extinction if trade were allowed to continue unregulated.

The Parties (member States) to CITES are collectively referred to as the Conference of the Parties (CoP). There were 183 Parties at the time of writing (www.cites.org/eng/disc/parties/index.php). Every two to three years, the CoP meets to review the implementation of the Convention. CITES executes technical work through the CITES Animals Committee (AC) and Plants Committee (PC), each of which meets twice between CoPs. The Standing Committee (SC) provides policy guidance to the CITES Secretariat concerning the implementation of the Convention. The Standing Committee meets four times between CoPs. CoPs and AC/PC/SC meetings are attended by the CITES Secretariat, members of the Committees and Parties, but also involve non-governmental organizations (NGOs) and intergovernmental organizations (IGOs). Each Party must designate one or more Management Authorities – responsible for national implementation of CITES, and Scientific Authorities – to advise the Management Authority on the effects of trade on the status of the species.

Article IV of the Convention

Export of Appendix II species requires Parties to meet several conditions, as laid out in Article IV of the Convention. An export permit should only be granted when a set of conditions have been met: two for dead specimens, and three for live specimens, which are specified in Article IV, paragraphs 2(a), (b) and (c) of the Convention:

Article IV, paragraph 2(a) – a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species (in the wild); Informal explanation: The export must not harm wild populations of the species.

Article IV, paragraph 2(b) – a Management Authority of the State of export is satisfied that the specimen was not obtained in contravention of the laws of that State for the protection of fauna and flora; Informal explanation: Specimens obtained in a way that violated any laws must not be exported.

Article IV, paragraph 2(c) – a Management Authority of the State of export is satisfied that any living specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment. Informal explanation: Live specimens have to be treated humanely when shipped from one country to another.

Article IV also sets a condition for monitoring of export permits and actual exports:

Article IV, paragraph 3 – A Scientific Authority in each Party shall monitor both the export permits granted by that State for specimens of species included in Appendix II and the actual exports of such specimens. Whenever a Scientific Authority determines that the export of specimens of any such species should be limited in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I, the Scientific Authority shall advise the appropriate Management Authority of suitable measures to be taken to limit the grant of export permits for specimens of that species.

Finally, of relevance to this report, Article IV sets the terms for introduction from the sea (IFS), defined to mean “transportation into a State of specimens of any species which were taken in the marine environment not under the jurisdiction of any State” (Resolution Conf. 14.6 (Rev. CoP16)). IFS of any specimen of a species included in Appendix II also requires a certificate from the national Management Authority of the State of Introduction which should only be granted when two conditions have been met:

Article IV, paragraph 6(a) – a Scientific Authority of the State of introduction advises that the introduction will not be detrimental to the survival of the species involved; Informal explanation: Introduction must not harm wild populations of the species.

Article IV, paragraph 6(b) – a Management Authority of the State of introduction is satisfied that any living specimen will be so handled as to minimize the risk of injury, damage to health or cruel treatment; Informal explanation: Live specimens have to be treated humanely when being handled.

The CITES Review of Significant Trade

The CITES Review of Significant Trade (RST) procedure (defined in Resolution Conf. 12.8 (Rev. CoP13)) is CITES’ main mechanism for remedial action when there is concern that Appendix II listed species are being traded at unsustainable levels. To date, it is the only process by which trade in Appendix II listed species is regularly and consistently scrutinized, drawing attention to implementation challenges related to Article IV. Trade in Appendix II species not dealt with by RST is not automatically scrutinized in other ways. The scope of the RST is limited to Article IV, paragraphs 2(a), 3 and 6(a) of the Convention, and to trade in specimens from the wild, from ranching operations, or where the source is unknown (source codes W, R, U or blank in the CITES Trade Database, www.trade.cites.org). However, other challenges with CITES implementation are frequently identified during the course of the RST. CITES maintains a management system for tracking species/country combinations that are currently subject to, or have been eliminated from, RST (sigtrade.cites.org).

Seahorses and CITES

Seahorses, *Hippocampus* spp., are (i) among the top traded Appendix II animals by volume and (ii) the first fully marine fishes to go through RST. The entire genus *Hippocampus* was listed on CITES Appendix II at CoP12 in 2002, with implementation in May 2004. The international trade in seahorses is large and complex. It is estimated to tally more than 20 million individuals per year (only about 6 million of which are reported to CITES in a given year, Foster *et al.* 2016). It also involves more than 80 countries from six continents, and more than 30 rather similar species (Foster *et al.* 2016). Note that while the Checklist of CITES Species includes 51 seahorses at the time of writing (checklist.cites.org), a recent comprehensive revision of the genus supports the validity of only 41 seahorse species (Lourie *et al.* 2016). The vast majority of seahorses are wild caught, dried, exported from Southeast Asia or West Africa, and imported by mainland China, Hong Kong SAR and Taiwan, Province of China. Trade surveys before the CITES listing identified the main sources of dried trade as India, Mexico, the Philippines and Tanzania (in alphabetic order). In contrast, most trade in the CITES database for 2004-2011 was reportedly sourced in Thailand, Guinea, China, Senegal, Malaysia and Viet Nam (in descending order by volume). The smaller live trade was reportedly sourced wild in South-East Asia (Viet Nam, Indonesia) or Brazil, or captive bred from Sri Lanka, and sent to Europe and North America (Foster *et al.* 2016). There have been three rounds of RST for seahorses, covering eight species: *H. algiricus* (Eastern Atlantic); *H. barbouri*, *H. hystrix*, *H. kelloggi*, *H. kuda*, *H. spinosissimus*, *H. trimaculatus* (all IndoPacific), and *H. erectus* (Western Atlantic).

Purpose of report

The purpose of this report is to provide a thorough factual account of the three rounds of RST for seahorses – explaining the how and why the eight species of *Hippocampus* were brought into review, how Parties responded to/navigated the RST process for these species, and what the outcomes were. This report is a precursor to an analysis¹ of the RST experience for seahorses – which extracts key observations for each step of the RST, and suggest ways forward, with an aim of making the RST, and CITES, as effective as possible for managing trade in species on Appendix II.

Review of Significant Trade process

The RST process is laid out in Resolution Conf. 12.8 (Rev. CoP13). For my analysis I have reduced the 22 stages of the resolution (paragraphs a-v) of into six steps (Figure 1). The steps correspond to the following paragraphs of Res. Conf. 12.8 (Rev. CoP13): Step 1 – paragraph a; Step 2 – paragraphs b-c; Step 3 – paragraphs d-f; Step 4 – paragraphs g-i; Step 5 – paragraphs j-p; Step 6 – q-v. The explanation of steps may not be comprehensive – I have simplified it to make it more tractable. Parties going through the process, or individuals called on to support the process, should familiarize themselves with the original text of the Resolution (<https://www.cites.org/eng/res/12/12-08R13.php>).

¹ The analysis should be available in early 2017. Please contact Project Seahorse at info@projectseahorse.org for more information.

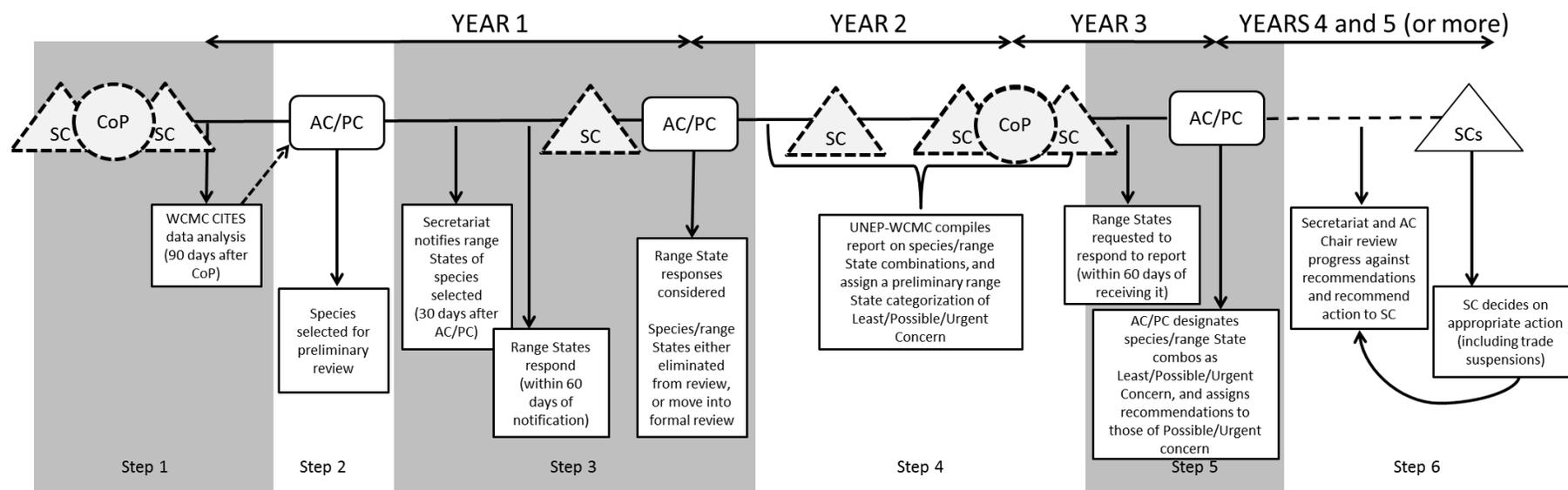


Figure 1. The CITES Review of Significant Trade (RST) process as laid out in Resolution Conf. 12.8 (Rev. CoP13), summarized in six steps. CoP = meeting of CITES Conference of the Parties, which comprises CITES member States; AC/PC = meeting of CITES Animals Committee or Plants Committee, which are CITES technical committees; SC = meeting of Standing Committee, which is the CITES implementation/ enforcement committee. Note that there is a Standing Committee meeting immediately before and after every CoP. The figure is adapted from Figure 2 of AC27/PC21 Doc. 12.1. The timeline starts with UNEP-WCMC generating a list of species to be considered for inclusion in RST, 90 days after a CoP. Steps differ in their duration.

Step 1. UNEP-WCMC brings a list of species to Animal and Plants Committee meetings for consideration under RST (Figure 1 – Step 1)

Ninety days after a Conference of the Parties (CoP), UNEP-WCMC produces a summary from the CITES trade database of annual report statistics showing the recorded net level of exports for Appendix-II species over the five most recent years. The analysis is limited to trade that is sourced from the wild (source-code² W), from ranching operations (source-code R), or where the source of the specimens is unknown (source-code U or without source reported). This summary is brought before the Animals Committee/Plant Committee at its next meeting to inform the selection of species of priority concern for RST.

At AC23 and before, the raw data were presented to the Animals Committee for consideration. Starting at AC25, the raw data have been filtered using a set of five criteria showing noteworthy patterns of trade. AC25 Doc. 9.6 and AC27 Doc. 12.5 detail the UNEP-WCMC approach to this short-listing process. The criteria have been similar, though not identical, across years. Species that met at least one of the criteria were included in a short-list for further consideration by AC/PC and member Parties, along with the details of which criterion or criteria they met. The criteria are:

- Species categorized in the IUCN Red List of Threatened Species as Critically Endangered (CR) or Endangered (EN) are automatically selected for inclusion.
- Species for which trade exceeded one or more of a set of minimum thresholds over the most recent five-year period with near-complete data. Globally threatened and near-threatened species are assessed on the basis of lower thresholds. For fish the annual average thresholds are: 50 (number/kg) for those globally threatened (NT, VU, EN, CR), and 2500 (number/kg) for all others. Trade in units other than number or kg are excluded from the high volume trade analysis, as it is difficult to combine these units meaningfully, but are included in the analyses for the remaining criteria.
- Sharp increase in trade in the most recent year considered in comparison to the average over preceding five-year period.
- General long-term increases or decreases in trade over a 10-year period.
- Long-term variability in trade over a 10-year period.

Step 2. AC/PC votes on bringing species under preliminary review (Figure 1 – Step 2)

The UNEP-WCMC “short-list” of species that meet at least one of criteria are brought before the Animals Committee or Plants Committee for consideration. The Committees are directed to select species of priority concern for review. Nominations of species to consider can come from the Secretariat, members of the Committees, Parties, or other relevant experts. The nominations are considered by a Working Group struck at the meeting, consisting of Parties and observer NGOs/IGOs. The Working Group brings its recommendations on which species to include in the RST to the Animals Committee for a vote (there is opportunity for general discussion about the Working Group recommendations on the floor, prior to the vote). (*Note: In exceptional cases where new information indicates an urgent concern, the AC/PC may add a species to the list of species of concern at another stage*). Species voted into RST by the AC/PC at this step are considered to be in *preliminary review*.

Step 3. AC/PC makes decisions about which range States to move into formal review for focal species (Figure 1 – Step 3)

The Secretariat notifies the range States of the species selected for preliminary review, providing an explanation for this selection and requesting comments regarding possible problems in implementing Article IV, paragraphs

² <https://www.cites.org/eng/res/12/12-03R16.php>

2(a), 3 and 6(a) of the Convention. These letters are sent thirty days after the AC/PC meeting at which a species is selected to enter review. Range States have 60 days to respond to the Secretariat. The UNEP-WCMC species database (Species+, www.speciesplus.net) is used to identify the range States for a species.

Range State replies (if any) are compiled and brought before the next AC/PC meeting for consideration. This is again done through a Working Group, with the Working Group bringing their recommendations before the Committee for a vote. If the AC/PC is satisfied that Article IV, paragraphs 2(a), 3 and/or 6(a) are correctly implemented, the range State is eliminated from the review with respect to the species being considered. If the AC/PC is not satisfied that the range State is correctly implementing Article IV, paragraphs 2 (a), 3 and/or 6 (a), it moves the range State into *formal review* for the species.

Step 4. Secretariat works with a consultant to compile information for all species-range State combinations in formal review (Figure 1 – Step 4)

At this point the Secretariat engages a consultant to compile information for all species-range State combinations retained in formal review. Although not named in the Resolution, the consultant has usually been UNEP-WCMC. UNEP-WCMC in turn reaches out to range States and species experts to collate information on the taxonomy (particularly issues with), biology, ecology, distribution, population status and trends, threats, trade and management of the species, *inter alia*. UNEP-WCMC then summarizes this information in a document for consideration at the next AC/PC meeting, along with their conclusions about the effects of international trade on the selected species by the range State and problems concerning the implementation of Article IV. They also provisionally assign the range State to one of three categories with respect to the species:

- Least Concern – the available information appears to indicate that that the provisions of Article IV, paragraphs 2 (a), 3 or 6 (a) are being implemented.
- Possible Concern – it is not clear whether or not one or more of these provisions are being implemented.
- Urgent Concern – available information indicates that one or more of these provisions are not being implemented.

Step 5. AC/PC designates range States as Least, Possible or Urgent Concern for each species, and issues recommendations for the latter two categories (Figure 1 – Step 5)

The Secretariat sends the UNEP-WCMC report to the relevant range States seeking comment and additional information. Then the UNEP-WCMC report and additional range state information are brought before the AC/PC at the next meeting for consideration. There is another chance for range States to provide information or comment on the floor of the meeting. The AC/PC then votes whether to accept UNEP-WCMC's preliminary categories (of Least, Possible or Urgent Concern), or amend them. At this point species-range State combinations of Least Concern are eliminated from review. Range States retained as Possible or Urgent Concern are issued recommendations and dates by which they have to meet them. Problems identified that are outside the scope of Article IV, paragraphs 2(a), 3 and 6(a) (e.g. record keeping, illegal trade) are supposed to be referred to the Secretariat.

Recommendations for range States considered of Possible or Urgent Concern for a species are formulated by a Working Group at the AC/PC meeting, in consultation with the Secretariat. Recommendations can be about administration, research and/or management action, and can have deadlines between 90 days and two years. Recommendations for States of Urgent Concern propose specific actions to address problems related to implementation of Article IV 2(a), 3 or 6(a). Recommendations for States of Possible Concern should specify the information required to enable the AC/PC to address the ambiguity, and allow them to be categorized as Least or Urgent Concern, and can specify interim measures for the regulation of trade.

Step 6 - Secretariat and AC/PC Chairs review range State progress against recommendations (Figure 1 – Step 6)

Range States are required to report to the Secretariat on their progress against recommendations once the recommendation deadlines have passed. The Secretariat reviews the State's progress against the recommendations, in consultation with the Chair of the AC/PC, and reports their evaluation to the Standing Committee for consideration at the SC meeting that immediately follows the recommendation deadline.

If the Secretariat and Chair of the AC/PC consider the recommendations to have been met, they propose the range State be eliminated from further review. If they are not satisfied, they suggest appropriate action to the Standing Committee, which may include a trade suspension for the species-range State combination. The Standing Committee votes on the appropriate action and makes recommendations to the State concerned.

In the case of agreed trade suspensions, a recommendation to withdraw the trade suspension should only be made after the range State demonstrates to the satisfaction of the Standing Committee, through the Secretariat, that it has complied with Article IV, paragraphs 2(a), 3 or 6(a). The Standing Committee, in consultation with the Secretariat and the Chair of the AC/PC, reviews trade suspensions in place longer than two years and, if appropriate, takes measures to address the situation.

Information sources

The main sources of information used for this report are the documents of the Animals Committee and the Standing Committee meetings which are available on the CITES website: Animals Committee at cites.org/eng/com/ac/index.php; Standing Committee at cites.org/eng/com/sc/index.php. I have summarised the documents in Table 1.

Additional information came from the author's close involvement with all rounds of seahorse RST, usually as IUCN representatives. SF is a member of the IUCN Species Survival Commission's (IUCN SSC) Seahorse, Pipefish and Stickleback Specialist Group (SPS SG, iucn-seahorse.org). All mentions of IUCN in this paper refer to the IUCN SSC SPS SG. SF's engagement with CITES has taken place in collaboration with Dr. Amanda Vincent, Chair of the IUCN SSC SPS SG. As members of the IUCN, we nominated species for RST at AC25 and AC27, provided key support to UNEP-WCMC for species-range State evaluations, participated in the RST Working Groups at AC25 and AC27, helped draft recommendations for Parties of Urgent and Possible Concern at those meetings, provided bilateral support to Parties – technical and financial – as they worked to meet the recommendations, and attended SC66 where Party progress against recommendations was evaluated. Meetings at which AV and/or SF were present, and so have firsthand knowledge of the events that took place, are indicated in Table 1.

Analyses of the CITES trade database were done as per Foster *et al.* (2016). The data were downloaded on 5 June 2013, corrected for double-counting, and volumes recorded by weight were converted into number of individuals. The assumptions that were made in the analysis of the CITES database, which can contain errors and omissions, are detailed in Foster *et al.* (2016). Analyses included only records with source code W (specimens taken from the wild), R (ranchered specimens) and U (source unknown) – as these are the same sources used in consideration of RST.

I drew information on potential challenges for conservation of the species under review, and on the existence of potential management solutions from (i) Parties' replies to the Secretariat's first request for information (from Step 3), and (ii) UNEP-WCMC reviews (from Step 4). I summarized these into seven categories each (Table 2), and then tallied the number of times each category was reported. Where reported information was generalized as *Hippocampus* spp., I applied it to each species under review.

Mainland China, Hong Kong SAR and Taiwan, Province of China (hereafter referred to as Taiwan) are reported separately in the CITES data, and are sometimes referred to as separate range States for a species, and so may be presented as three separate 'Parties' or 'States' in the analyses. The geographical designations employed in this document, however, do not imply the expression of any opinion whatsoever concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries.

Table 1. CITES documents used for this report. All documents are available on the CITES website unless otherwise indicated: Animals Committee at cites.org/eng/com/ac/index.php; Standing Committee at cites.org/eng/com/sc/index.php. Meetings at which members of the IUCN SSC SPS SG were present and so have firsthand knowledge of the events that took place are indicated with an asterisk *.

Step in process	What	When	Where/ Who	Documents
Round 1 – <i>H. kuda</i>, <i>H. kelloggi</i>, <i>H. spinosissimus</i>				
1	UNEP-WCMC brings a list of species to Animal and Plants Committee meetings for consideration under RST	April 2008	AC23 (Geneva Switzerland)	AC23 Doc. 8.5 – Review of Significant Trade in specimens of Appendix-II species, Selection of Species for Trade Reviews following CoP14 Ornamental Fish International (OFI) report from CITES – 23rd meeting of the Animals Committee (available from authors on request)
2	AC/PC votes on bringing species under preliminary review (vote deferred to AC24)	April 2008	AC23 (Geneva Switzerland)	AC23 WG1 Doc. 1 – Review of Significant Trade in Specimens of Appendix-II Species (Agenda Items 8.4 and 8.5) OFI report from CITES – 23rd meeting of the Animals Committee
2	AC/PC votes on bringing species under preliminary review	April 2009	AC24 (Geneva Switzerland)	AC24 Doc 7.4 (Rev. 1) – Review of Significant Trade in specimens of Appendix-II species, Selection of Species following CoP14 AC24 WG1 Doc. 1 – Review of Significant Trade in Specimens of Appendix-II Species (Agenda Item 7) AC24 Sum 4 (24/4/2009) – Executive Summary
3	AC/PC makes decisions about which range States to move into formal review for focal species	July 2011	AC25* (Geneva, Switzerland)	AC25 Doc. 9.5 – Review of Significant Trade in specimens of Appendix-II species, Species selected At AC24 (summarises which range States asked and which replied) AC25 Doc. 9.5 Addendum – contains range State replies AC25 WG1 Doc. 1 – Review of Significant Trade in Specimens of Appendix-II Species (Agenda Items 9.2, 9.3, 9.4, 9.5, 9.6 and 9.7) (which retained/eliminated) AC25 Summary Record
4	Secretariat works with a consultant to compile information for all species-range State combinations in formal review	March 2012	AC26* (Geneva, Switzerland)	AC26 Doc. 12.2 – Review of Significant Trade in specimens of Appendix-II species, Overview of the Species-Based Review of Significant Trade AC26 Doc. 12.2 Annex – Review of Significant Trade: Species selected by the CITES Animals Committee following CoP14 and retained in the review following AC25

Table 1. Continued...

Step in process	What	When	Where/ Who	Documents
Round 1 – <i>H. kuda</i>, <i>H. kelloggi</i>, <i>H. spinosissimus</i>				
5	AC/PC designates range States as Least, Possible or Urgent Concern for each species, and issues recommendations for the latter two categories	March 2012	AC26* (Geneva, Switzerland)	AC26 WG7 Doc. 1 (Rev. 1) – Review of Significant Trade in specimens of Appendix-II species (Agenda item 12) (Party designations and recommendations) AC26 Summary Record
6	Secretariat and AC/PC Chairs review range State progress against recommendations	March 2013	SC63 (Bangkok, Thailand)	SC63 Doc. 14 – Review of Significant Trade (Secretariat and Chair of AC determination) SC63 summary record (Records SC decisions)
6	Secretariat and AC/PC Chairs review range State progress against recommendations	July 2014	SC65 (Geneva, Switzerland)	SC65 Doc. 26.1 - Review of Significant Trade in specimens of Appendix-II species SC65 Summary Record (Records SC decisions)
6	Secretariat and AC/PC Chairs review range State progress against recommendations	January 2016	SC66* (Geneva, Switzerland)	SC66 Doc. 31.1 – Implementation of recommendations of the Animals and Plants Committees SC66 Doc. 31.1 Annex 3 Report on Thailand's actions addressing problems of <i>Hippocampus</i> spp. SC66 Summary Record (Records SC decisions)
6	Secretariat and AC/PC Chairs review range State progress against recommendations (Evaluation of trade suspensions more than two years old)	January 2016	SC66* (Geneva, Switzerland)	SC66 Doc. 31.2 - Review of Standing Committee recommendations to suspend trade made more than two years ago SC66 Doc. 31.2 – Annex 2 Report on Standing Committee recommendations to suspend trade that were made more than two years ago through the Review of Significant Trade SC66 Summary record (Records SC decisions)

Table 1. Continued...

Step in process	What	When	Where/ Who	Documents
Round 2 – <i>H. algiricus</i>, <i>H. barbouri</i>, <i>H. histrix</i>, <i>H. trimaculatus</i>				
1	UNEP-WCMC brings a list of species to Animal and Plants Committee meetings for consideration under RST	July 2011	AC25* (Geneva, Switzerland)	AC25 Doc. 9.6 - Review of Significant Trade in specimens of Appendix-II species, Selection of species for trade reviews following CoP15
2	AC/PC votes on bringing species under preliminary review	July 2011	AC25* (Geneva, Switzerland)	AC25 WG1 Doc. 1 – Review of Significant Trade in specimens of Appendix-II species (agenda items 9.2, 9.3, 9.4, 9.5, 9.6 and 9.7) AC25 Doc. 9.6 - Selection of species for trade reviews following CoP15
3	AC/PC makes decisions about which range States to move into formal review for focal species	March 2012	AC26* (Geneva, Switzerland)	AC26 Doc. 12.3 – Review of Significant Trade in specimens of Appendix-II species, Species selected following CoP15 (summarises which range States asked and which replied) AC26 Doc. 12.3 - Replies-from-range-states.pdf (not available on-line) AC26 WG7 Doc. 1 (Rev. 1) – Review of Significant Trade in specimens of Appendix-II species (Agenda item 12) (which retained/eliminated)
4	Secretariat works with a consultant to compile information for all species-range State combinations in formal review	April-May 2014	UNEP-WCMC (report to AC27)	AC27 Doc. 12.4 (Rev.1) – Review of Significant Trade in specimens of Appendix-II species [Resolution Conf. 12.8 (Rev. CoP13)], Species selected following CoP15 AC27 Doc. 12.4 (Rev.1) Annex 1- Review of Significant Trade: Species selected by the CITES Animals Committee following CoP15 and retained in the review following AC26 AC27 Doc. 12.4 (Rev.1) Annexes 2-10 (comments from range States that had been received by the Secretariat at the time of writing AC27 Doc. 12.4 (Rev. 1), February 2014).
5	AC/PC designates range States as Least, Possible or Urgent Concern for each species, and issues recommendations for the latter two categories	April-May 2014	AC27* (Veracruz, Mexico)	AC27 WG1 Doc. 1 – Review of Significant Trade in specimens of Appendix-II species [Resolution Conf.12.8 (Rev. CoP13)] (Agenda items 12.3, 12.4 and 12.5)

Table 1. Continued...

Step in process	What	When	Where/ Who	Documents
Round 2 – <i>H. algiricus</i>, <i>H. barbouri</i>, <i>H. histrix</i>, <i>H. trimaculatus</i>				
6	Secretariat and AC/PC Chairs review range State progress against recommendations	January 2016	SC66* (Geneva, Switzerland)	SC66 Doc. 31.1 – Implementation of recommendations of the Animals and Plants Committees SC66 Doc. 31.1 Annex 3 - Report on Thailand's actions addressing problems of <i>Hippocampus</i> spp. SC66 Summary Record (Records SC decisions)
Round 3 – <i>H. erectus</i>				
1	UNEP-WCMC brings a list of species to Animal and Plants Committee meetings for consideration under RST	April-May 2014	AC27* (Veracruz, Mexico)	AC27 Doc. 12.5 - Selection of species for trade reviews following CoP16
2	AC/PC votes on bringing species under preliminary review	April-May 2014	AC27* (Veracruz, Mexico)	AC27 WG1 Doc. 1 - Interpretation and implementation of the Convention, Compliance and enforcement, Review of reporting requirements (decision 16.45) (Agenda item 11)
3	AC/PC makes decisions about which range States to move into formal review for focal species	August-Sept 2015	AC28 (Tel Aviv, Israel)	AC28 Doc. 9.4 (Rev.2) – Review of Significant Trade in specimens of Appendix-II species, Species selected following CoP16 (which range States replied, which did not) AC28 Review of Significant Trade in specimens of Appendix-II species, Taxa included in the Review of Significant Trade following CoP16 – Replies received (range State replies – not available online) AC28 Com. 8 (Rev. by Sec.) Annex A – Review of Significant Trade in specimens of Appendix-II species [Resolution Conf.12.8 (Rev. CoP13)] (Agenda items 9.3 and 9.4)

Table 2. Conservation challenges (C) and possible management solutions (S) mentioned in i) Parties' replies to the Secretariat's first request for information (from Step 3), and/or (ii) UNEP-WCMC reviews (from Step 4).

Challenges			Solutions		
C1	National status threatened	The national status of the species reported as threatened	S1	No exports	Official trade data (usually CITES data) do not report wild (W, R, U) exports of the species
C2	Past exports	Official trade data (usually CITES data) report wild (W, R, U) exports of the species between 2004 and the year before the RST was launched for the species	S2	Wild exports ended historically	Export of wild specimens of species in question (or <i>Hippocampus</i> in general) ended sometime in past – either by national law or through declared zero quota
C3	Recent exports	Official trade data (usually CITES data) report wild (W, R, U) exports in the species the year the RST was launched for species	S3	Wild exports ended as an RST response	Export of wild specimens of species in question (or <i>Hippocampus</i> in general) ended in direct response to RST – through declared zero quota or trade suspension
C4	Illegal exploitation or exports	Reports of illegal fishing or trade activities	S4	Quotas	Export being managed with quota
C5	Overfished	Species reported to be overfished	S5	Spatial/temporal fishing restrictions	Existing spatial or temporal fishing restrictions that may benefit seahorses and/or seahorse habitats (although benefits not demonstrated)
C6	Population declines	Species reported to be experiencing, or to have experienced, population declines	S6	Protected species	Species reported as protected by national law and therefore subject to certain protections
Unknown		Species status reported as unknown	S7	Minimal exports with permits	Species reportedly exported at low levels and only with associated CITES export permit

Results of the Review of Significant Trade for seahorses – by round and against steps

There have been three rounds of RST for seahorses since the Appendix II listing came into effect in May 2004, involving a total of eight species (summarised in Table 3). I now detail the progress of seahorses through the six steps of the RST process.

Round one: *Hippocampus kuda*, *H. kelloggi* and *H. spinosissimus*

Step 1. UNEP-WCMC brings a list of species to AC/PC meetings for consideration under RST (Figure 1 – Step 1)

The first round of RST for seahorses started at AC23, in April 2008. The Appendix II listing for this genus had been in force for nearly four years.

At AC23, the UK raised concerns over large trade volumes of *H. kuda*, *H. kelloggi* and *H. spinosissimus*. Ornamental Fish International (OFI) stated in a report on the meeting (see Table 1) that “particular concern was pointed out for the trade in bodies and derivatives (dead specimens for the medicinal trade) of *H. kelloggi* and *H. spinosissimus*, and the live ornamental trade in *H. kuda*”. The CITES trade data UNEP-WCMC presented in AC23 Doc. 8.5 indicated that *H. kelloggi* and *H. spinosissimus* were among the top three seahorse species traded dried and by kg in the CITES data, and *H. kuda* had the highest reported live export in number of individuals (unit = “blank”) (Table 4). Although *H. trimaculatus* had higher reported trade volumes by weight, the UK presumably raised concerns for *H. kelloggi*, *H. kuda* and *H. spinosissimus* because they are three of six species for which the EU implemented import restrictions in 2007 (under Article 4(6) of Council Regulation (EC) No. 338/97³). The other three species for which the EU has restrictions (*H. barbouri*, *H. comes* and *H. hirtix*) were also among the top ten most traded seahorses by weight or individuals in AC23 Doc. 8.5 (Table 4).

³ see http://ec.europa.eu/environment/cites/legislation_en.htm.

Table 3. Summary of the three rounds of CITES Review of Significant Trade for seahorses (*Hippocampus* spp.).

	Round 1	Round 2	Round 3
Hippocampus spp. involved	<i>H. kelloggi</i> , <i>H. kuda</i> , <i>H. spinosissimus</i> (IndoPacific)	<i>H. barbouri</i> , <i>H. histrix</i> , <i>H. trimaculatus</i> (IndoPacific, <i>H. algiricus</i> (Eastern Atlantic)	<i>H. erectus</i> (Western Atlantic)
Launched	AC23 (April 2008)	AC25 (July 2011)	AC27 (April 2014)
Completed	ongoing as of August 2016	ongoing as of August 2016	AC28 (September 2015)
# Range States consulted in preliminary review (Figure 1, Step 3)	33	36	35
# Range States that replied to Secretariat request for information (Figure 1, Step 3)	9	11	12
# Range States moved into formal review (Figure 1, Step 3)	28	7	0
Range States of Least Concern (Figure 1, Step 5)	26	4	n/a
Range States of Possible Concern, with # recommendations issued (Figure 1, Step 5)	Viet Nam for <i>H. kuda</i> , with 7 recommendations	0	n/a
Range States of Urgent Concern, with # recommendations issued (Step 5)	Thailand for <i>H. kelloggi</i> , <i>H. kuda</i> , and <i>H. spinosissimus</i> , with 11 recommendations	Thailand for <i>H. trimaculatus</i> , with 7 recommendations; Guinea and Senegal for <i>H. algiricus</i> , with 8 & 7 recommendations respectively	n/a
Notes	In the CITES Trade Database for 2004-2011: Thailand was reported as source of 99, 66, >99% of wild (W, R or U) exports of <i>H. kelloggi</i> , <i>H. kuda</i> and <i>H. spinosissimus</i> globally. Viet Nam was reported as source of 4% wild exports of <i>H. kuda</i>	In the CITES Trade Database for 2004-2011: Thailand was reported as source of >99% of wild (W, R or U) exports of <i>H. trimaculatus</i> globally. Guinea and Senegal were reported as sources of 57% & 37% of wild exports of <i>H. algiricus</i> .	
Status as of August 2016	Thailand considered to have met or partially met 7 of 11 recommendations. Next review at SC67 (September 2016). Parties recommended to suspend trade in <i>H. kuda</i> from Viet Nam at SC63 (March 2013) for failure to meet the recommendations by deadlines.	Thailand considered to have met or partially met 3 of 7 recommendations. Next review at SC67 (September 2016). Parties recommended to suspend trade in <i>H. algiricus</i> from Guinea and Senegal at SC66 (January 2016) for failure to meet the recommendations by deadlines.	Review complete

Table 4. Summary of seahorse entries in AC23 Doc. 8.5 – UNEP-WCMC trade analysis to short-list potential species for RST following CoP14. Entries on left are those designated as dried, and sorted in descending order by “kg”; entries on the right are those designated as live and sorted in descending order by “(blank)” which are presumed individuals according to UNEP-WCMC (2010). Species for which the EU had restrictions starting in 2007 are indicated with an asterisk (*). Species that the UK raised concerns about at AC23 (*H. kuda*, *H. kelloggi*, *H. spinosissimus*) are in bold.

<i>Hippocampus sp.</i>	Dried		<i>Hippocampus sp.</i>	Live	
	kg	(blank)		kg	(blank)
<i>H. spinosissimus</i>*	5674.51	352.67	<i>H. kuda</i>*	16	21240.67
<i>H. trimaculatus</i> *	5635.84	4321.24	<i>H. kelloggi</i>*		5884.67
<i>H. kelloggi</i>*	3070.582	826.7	<i>H. histrix</i> *		3618.67
<i>H. algericus</i>	1306.2		<i>H. comes</i> *		3169.33
<i>H. histrix</i> *	687.48	24.22	<i>H. spinosissimus</i>*		2525.67
<i>H. kuda</i>*	555.16	4	<i>H. barbouri</i> *	21.67	2343
<i>H. spp.</i>	420.39	890.34	<i>H. erectus</i>		1553.67
<i>H. ingens</i>	254.5	99792.33	<i>H. reidi</i>		1342.67
<i>H. barbouri</i> *	209	61.33	<i>H. spp.</i>	121	738.33
<i>H. hippocampus</i>	56		<i>H. denise</i>		700
<i>H. zosteræ</i>			<i>H. guttulatus</i>		566.67
<i>H. whitei</i>			<i>H. ingens</i>		110
<i>H. subelongatus</i>			<i>H. trimaculatus</i>		100
<i>H. reidi</i>			<i>H. breviceps</i>		40
<i>H. guttulatus</i>		566.67	<i>H. coronatus</i>		33.33
<i>H. erectus</i>			<i>H. subelongatus</i>		25.33
<i>H. denise</i>			<i>H. hippocampus</i>		13.33
<i>H. coronatus</i>			<i>H. abdominalis</i>		2
<i>H. comes</i> *			<i>H. zosteræ</i>		1.67
<i>H. breviceps</i>			<i>H. whitei</i>		1.33
<i>H. abdominalis</i>			<i>H. algericus</i>		

Step 2. AC/PC votes on bringing species under preliminary review (Figure 1 – Step 2)

A decision on whether to start the three seahorses in the RST process was deferred from AC23 to AC24, as seahorses were to be included in the upcoming International CITES Expert Workshop on Non-Detriment Findings to be held in Mexico later that year (CITES 2009). The RST Working Group noted, however, that based on the findings of the workshop, the species may be included in the RST at AC24 (AC23 WG1 Doc. 1). Further discussions of these species were postponed until that time. The only documented objection to their inclusion in RST at AC23 was in the OFI report, which documented China objecting on the basis that “most of the trade is in bycatch, for which no non-detriment findings can be made” (OFI report, see Table 1).

The three species were revisited at AC24 in light of the non-detriment findings (NDF) workshop. The RST Working Group concluded they were unable to determine whether the species should be entered into RST based on workshop findings, as the workshop did not consider these species in the context of the RST (AC24 WG1 Doc. 1). The Working Group referred the matter back to plenary for decision. Some more recent trade data were

provided during plenary, “showing that the trade in all three amounted to many thousands in 2006 and 2007”, which led to general support for including them in the review (AC24 Summary Record – note that I could not find further information on the more recent trade data referred to in the documents). At this point the Animals Committee voted to include the three species in RST.

Step 3. AC/PC makes decisions about which range States to move into formal review for focal species (Figure 1 – Step 3)

Range States

The CITES Secretariat sent letters to range States on 23 July 2009. The list of range States consulted and those that replied can be found in AC25 Doc. 9.5. Comparing the States consulted to the range States listed in Lourie *et al.* (2004) – the seahorse identification guide developed to assist CITES implementation – revealed that all confirmed range States in Lourie *et al.* (2004) were consulted by the Secretariat (Table 5). On the other hand, most of the suspected range States in Lourie *et al.* (2004) for *H. kelloggi* and *H. kuda*, and all for *H. spinosissimus*, were not consulted by CITES (Table 5). The CITES trade database, however, reported trade from just two of the suspected range States that CITES did not consult; 13 individual wild *H. kuda* were reportedly exported from Sri Lanka (in 2004) and seven from Vanuatu (in 2006). A further nine range States were consulted by the Secretariat with respect to *H. kuda* that were not listed as neither confirmed nor suspected range States in Lourie *et al.* (2004) (Table 5). Finally, CITES trade data reported exports of wild *H. kuda* from Mauritania, which is listed by neither CITES nor Lourie *et al.* (2004) – but this amounted to just 87 wild individuals in 2004.

Table 5. Tally of range States consulted by CITES Secretariat for species under RST against their status in Lourie *et al.* 2004 - the seahorse identification guide developed to assist CITES implementation.

Round	<i>Hippocampus</i> sp.	Range States consulted by the CITES Secretariat and whose status as a range State in Lourie <i>et al.</i> (2004) was:			Total range States consulted by CITES	Range States not consulted by the CITES Secretariat whose status is suspected in Lourie <i>et al.</i> (2004)
		Confirmed	Suspected	Not included		
1	<i>H. kelloggi</i>	10	2	-	12	24
	<i>H. kuda</i>	21	3	9	33	9
	<i>H. spinosissimus</i>	11	-	-	11	6
2	<i>H. algiricus</i>	11	1	-	12	7
	<i>H. barbouri</i>	3	-	-	3	-
	<i>H. histrix</i>	16	2	1	19	19
	<i>H. trimaculatus</i>	14	-	-	14	4
3	<i>H. erectus</i>	14	18*	0	32**	0

* three range States indicated as suspected in Lourie *et al.* 2004 are not marked as uncertain in AC28 Doc. 9.4

**tally does not include four Parties that were in listed in Species+ in June 2004 but had been removed by June 2005 – these four Parties are well outside known geographic range for *H. erectus*.

Who replied

Nine range States replied to the CITES request for information with respect to *H. kelloggi*, *H. kuda* and *H. spinosissimus* (the species they addressed are in brackets): Australia (*H. kelloggi*, *H. spinosissimus*), Indonesia (*H. kelloggi*, *H. kuda*, *H. spinosissimus*), Japan (*H. kuda*), Madagascar (*Hippocampus* spp.), Malaysia (*H. kelloggi*, *H. kuda*, *H. spinosissimus*), New Caledonia (France) (*H. kuda*), Thailand (*H. kelloggi*, *H. kuda*, *H.*

spinosissimus), Viet Nam (*H. kuda*, *H. kelloggi*), and the United States of America (*H. kuda*). Less than half of the consulted range States replied for *H. kelloggi* and *H. spinosissimus*, and less than one quarter replied for *H. kuda* (Table 6), but those that replied accounted for +99, 59 and 100% of reported exports of *H. kelloggi*, *H. kuda* and *H. spinosissimus*, respectively in the CITES database from 2004-2008. Thailand alone accounted for 98, 41 and +99% of reported exports of *H. kelloggi*, *H. kuda* and *H. spinosissimus*, respectively. Many Parties that did not reply also had no reported trade in that species from 2004-2008 (six of seven range States for *H. kelloggi*, 20 of 24 for *H. kuda*, and all six for *H. spinosissimus*) – and most others had very little, accounting for <1% of reported exports for any given State/species combination. The major exception was China, which was reported as exporting 46% of W, R and U *H. kuda* from 2004-2008.

Table 6. Range State replies after the first request for information from the CITES Secretariat (Step 3).

Round	<i>Hippocampus</i> sp.	Range States asked	Range States replied	% range States replied	No reply but trade reported in the CITES trade database
1	<i>H. kelloggi</i>	12	5	42	1
	<i>H. kuda</i>	33	9	27	4
	<i>H. spinosissimus</i>	11	5	45	0
2	<i>H. algiricus</i>	12	0	0	3
	<i>H. barbouri</i>	3	2	67	1
	<i>H. histrix</i>	19	9	47	1
	<i>H. trimaculatus</i>	14	7	50	3
3	<i>H. erectus</i>	32	12	38	4

What they said

I categorized the range State replies as per Table 2, and full results of this analysis for the three species can be found in Annex I, Table a.

Initial range State replies came primarily from CITES Management Authorities, which were represented by forestry or environment agencies in five cases, and fisheries or oceans agencies in four cases (replies in AC25 Doc. 9.5 Addendum). In all cases, replies were short – no more than a page or two (if that), and limited in their content.

Information on challenges facing the species in national waters was mostly limited to evidence of past or recent exports in the CITES trade database (six and four Parties, respectively; Table 7a). Other reported problems included overfishing (Malaysia for seahorses in general), and Viet Nam reporting *H. kuda*'s national status as threatened (Table 7a). Viet Nam also reported it was not a range State for *H. kelloggi*, although the species is among those covered by a peer-reviewed paper entitled "The taxonomy of Viet Nam's exploited seahorses" (Lourie *et al.* 1999), and is listed as a country of confirmed distribution in Lourie *et al.* (2004). Three Party responses for *H. kuda* (Japan, Madagascar, United States of America), and one for *H. spinosissimus* (Viet Nam), provided no information on challenges of any kind (Table 7a).

Most range States gave one of two reasons for why they did not need to make NDFs for wild exports of *H. kelloggi*, *H. kuda* and/or *H. spinosissimus* (Table 7a). Parties either reported no trade in wild specimens (five Parties), or in cases of reported recent trade activity, indicated they would no longer allow exports of wild specimens (three Parties: Indonesia = "ban on all harvest/export quota of all *Hippocampus* spp. since the

beginning of 2009”; Malaysia = “an administrative suspension of all seahorse exports”; Viet Nam – “the wild capture of seahorses is not allow to export”, AC25 Doc. 9.5 Addendum). Malaysia and Thailand also reported on spatial/temporal fishing restrictions, inferring that these may offer protection for seahorses; Thailand reported a ban of live seahorses exports; and Australia reported that *H. kelloggi* and *H. spinosissimus* were protected nationally. New Caledonia-France reported that minimal exports of seahorses were occurring with permits issued by their Scientific Authority, and only for code C (captive-bred). No Party reported managing their wild seahorse exports with a quota. In Step 3, Thailand used the process outlined in Rosser and Haywood (2002), completing the suggested tables. However, it provided no supporting details for any of its entries, and the basis for the entries is difficult to discern. This would include Thailand’s reference in this table to using a quota, which was not explained and has never been published on the CITES website (www.cites.org/eng/resources/quotas/index.php).

Who was retained, who was eliminated, from review

Some range States adequately explained their means of making NDFs at AC25 in July 2011, but others did not, either because they did not reply at all or because their replies lacked sufficient detail, were contradictory or were not compelling. Those that did not adequately explain were moved into formal review. Specifically, eight States were retained for *H. kelloggi* (with AC25 WG1 Doc. 1 noting in particular a high proportion of trade from Thailand and China, and data discrepancies regarding Viet Nam); 25 States retained for *H. kuda*; and eight States for *H. spinosissimus* (AC25 WG1 Doc. 1, see also Table 8).

Table 7a. RST replies summary – Round 1. Number of times individual challenges or solutions (see Table 2 for detailed explanation) were mentioned in Parties' replies to the Secretariat's request for information at Step 3 (first reply), and in UNEP-WCMC reviews produced at Step 4 (WCMC), and the Parties by, or for, which they were mentioned. Parties that replied at Step 3 and were also reviewed by UNEP-WCMC are indicated with an asterisk (*).

Challenge (see Table 2 for detailed explanation)	<i>H. kelloggi</i>				<i>H. kuda</i>				<i>H. spinosissimus</i>				Totals			
	1st reply	Parties	WCMC	Parties	1st reply	Parties	WCMC	Parties	1st reply	Parties	WCMC	Parties	1st reply	# Parties	WCMC	# Parties
C1 National status threatened	-	-	3	China, Thailand*, Viet Nam*	1	Viet Nam	5	China, Cambodia, Singapore, Thailand, Viet Nam	-	-	3	Cambodia, Sri Lanka, Thailand*	1	1	11	6
C2 CITES trade data report exports in the past (min = very small volumes)	4	Australia (min) Indonesia Malaysia Thailand	5	China, India, Philippines, Thailand, Viet Nam*	5	Indonesia, Malaysia, New Caledonia (min), Thailand, Viet Nam	4	China, Singapore, Thailand, Viet Nam,	4	Australia (min), Indonesia, Malaysia, Thailand	2	Thailand, Viet Nam*	1 3	6	11	6
C3 CITES trade data report recent exports	2	Malaysia Thailand	1	Thailand	4	Malaysia, Thailand, Viet Nam, Indonesia	3	China, Thailand, Viet Nam	2	Malaysia, Thailand	1	Thailand	8	4	5	3
C4 IUU fishing or trade	-	-	3	India, Philippines, Viet Nam*	-	-	5	India, Cambodia, Philippines, Thailand*, Viet Nam*	-	-	3	Philippines, Thailand*, Viet Nam*	0	0	11	5
C5 Overfishing	1	Malaysia	4	India, Philippines, Thailand*, Viet Nam*,	1	Malaysia	5	China, India, Cambodia, Thailand*, Viet Nam*	1	Malaysia	5	China, Cambodia, Sri Lanka, Thailand*, Viet Nam*	3	1	14	7
C6 Population declines	-	-	6	China, India, Philippines, Pakistan, Thailand*, Viet Nam*	-	-	7	China, India, Cambodia, Philippines, Pakistan, Thailand*, Viet Nam*	-	-	4	Cambodia, Philippines, Thailand*, Viet Nam*	0	0	17	7
unknown Population status declared unknown	-	-	2	Japan, Tanzania	-	-	11	Australia, Fiji, Micronesia, Japan*, North Korea, Maldives, Papua New Guinea, Palau, Solomon Islands, Tanzania, Samoa	-	-	2	Myanmar, Singapore	0	0	15	13

Table 7a. Continued...

Solution (see Table 2 for detailed explanation)	<i>H. kelloggi</i>		<i>H. kuda</i>		<i>H. spinosissimus</i>		Totals			
	1st reply Parties	WCMC Parties	1st reply Parties	WCMC Parties	1st reply Parties	WCMC Parties	1st reply # Parties	WCMC # Parties	WCMC # Parties	# Parties
S1 CITES trade data do not report exports	2 Australia, Viet Nam	3 Japan*, Tanzania, Viet Nam	3 Japan, Madagascar, United States of America	1 Australia, Fiji, France*, Japan* 3 Cambodia, North Korea, Maldives, Papua New Guinea, Palau, Solomon Islands Singapore, Tonga, Samoa	2 Australia, Viet Nam	5 China, Cambodia, Sri Lanka, Myanmar, Singapore,	7	5	21	18
S2 Wild exports ended historically	1 Thailand (live)	4 India, Philippines, Pakistan, Thailand (live)	1 Thailand (live)	4 India, Philippines, Pakistan, Thailand (live)	1 Thailand (live)	2 Philippines, Thailand, (live)	3	1	10	4
S3 Wild exports ended as a response to RST	3 Indonesia, Malaysia, Viet Nam	2 China, Viet Nam	3 Indonesia, Malaysia, Viet Nam	2 China, Viet Nam	3 Indonesia, Malaysia, Viet Nam	3 China, Sri Lanka, Viet Nam	9	3	7	3
S4 Exports being managed with quota	-	-	-	1 Viet Nam*	-	-	0	0	1	1
S5 Spatial or temporal restrictions on fishing effort that may benefit seahorses	2 Malaysia, Thailand	5 China, Pakistan, Thailand, Tanzania, Viet Nam*	2 Malaysia, Thailand	4 China, Cambodia, Thailand, Viet Nam*	2 Malaysia, Thailand	4 China, Cambodia, Thailand, Viet Nam*	6	2	13	6
S6 Species reported as protected by national laws	1 Australia	2 China India	-	7 Australia, China, Fiji, India, Cambodia, Viet Nam*, Singapore	1 Australia	2 Cambodia, Singapore	2	1	11	7
S7 Minimal exports with permits	-	-	1 NC (code C)	-	-	-	1	1	0	0

Table 7b. RST replies summary – Round 2. Number of times individual challenges or solutions (see Table 2 for detailed explanation) were mentioned in Parties' replies to the Secretariat's request for information at Step 3 (first reply), and in UNEP-WCMC reviews produced at Step 4 (WCMC), and the Parties by, or for, which they were mentioned. Parties that replied at Step 3 and were also reviewed by UNEP-WCMC are indicated with an asterisk (*).

Challenge (see Table 2 for detailed explanation)	<i>H. algiricus</i>				<i>H. barbouri</i>				<i>H. histrix</i>				<i>H. trimaculatus</i>				Totals				
	1st reply	Parties	WCMC	Parties	1st reply	Parties	WCMC	Parties	1st reply	Parties	WCMC	Parties	1st reply	Parties	WCMC	Parties	1st reply	# Parties	WCMC	# Parties	
C1	National status threatened	-	-	-	-	-	-	-	-	-	1	Viet Nam	-	-	2	Thailand, Viet Nam	0	0	3	2	
C2	CITES trade data report exports in the past (min = very small volumes)	-	-	2	Guinea, Senegal	2	Indonesia, Malaysia	-	-	3	China, Indonesia, Malaysia	-	-	3	China, Indonesia, Malaysia	2	Thailand, Viet Nam	8	3	4	4
C3	CITES trade data report recent exports	-	-	2	Guinea, Senegal	-	-	-	-	-	-	-	-	-	1	Thailand	0	0	3	3	
C4	IUU fishing or trade	-	-	-	-	-	-	1	Philippines	-	-	3	Egypt, Philippines, Viet Nam	-	-	1	Viet Nam	0	0	5	3
C5	Overfishing	-	-	1	Senegal	-	-	1	Philippines	-	-	2	Philippines, Viet Nam	-	-	2	Thailand, Viet Nam	0	0	6	4
C6	Population declines	-	-	1	Senegal	-	-	1	Philippines	-	-	2	Philippines, Viet Nam	-	-	2	Thailand, Viet Nam	0	0	6	4
Un-known	Population status declared unknown	-	-	1	Guinea	-	-	-	-	-	-	-	-	-	1	Singapore	0	0	2	2	

Table 7b. Continued ...

Solution (see Table 2 for detailed explanation)	<i>H. algiricus</i>		<i>H. barbouri</i>		<i>H. histrix</i>		<i>H. trimaculatus</i>		Totals											
	1st reply Parties	WCMC Parties	1st reply Parties	WCMC Parties	1st reply Parties	WCMC Parties	1st reply Parties	WCMC Parties	1st reply # Parties	WCMC # Parties	1st reply # Parties	WCMC # Parties								
S1 CITES trade data do not report exports	-	-	-	-	1	Philippines	6	France, Japan, Seychelles, Tanzania, Tonga, United States of America	3	Egypt, Philippines, Viet Nam	4	Australia, France, Japan, Myanmar	1	Singapore	10	8	5	4		
S2 Wild exports ended historically	-	-	-	-	2	Indonesia, Malaysia	1	Philippines	2	Indonesia, Malaysia	2	Philippines, Viet Nam	2	Indonesia, Malaysia	2	Thailand (live only), Viet Nam	6	2	5	3
S3 Wild exports ended as a response to RST	-	-	-	-	-	-	-	-	1	China,	-	-	1	China	-	-	2	1	0	0
S4 Exports being managed with quota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0
S5 Spatial or temporal restrictions on fishing effort that may benefit seahorses	-	-	-	-	-	-	1	Philippines	1	China,	3	Egypt, Philippines, Viet Nam	1	China	2	Thailand, Viet Nam	2	1	6	4
S6 Species reported as protected by national laws	-	-	-	-	1	Malaysia	-	-	3	China, Malaysia, Tonga	-	-	2	China Malaysia	-	-	6	3	0	0
S7 Minimal exports with permits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0

Table 7c. RST replies summary – Round 3. Number of times individual challenges or solutions (see Table 2 for detailed explanation) were mentioned in Parties' replies to the Secretariat's request for information at Step 3 (first reply), and in UNEP-WCMC reviews produced at Step 4 (WCMC), and the Parties by, or for, which they were mentioned. Parties that replied at Step 3 and were also reviewed by UNEP-WCMC are indicated with an asterisk (*).

Challenge/Solution (see Table 2 for detailed explanation)	<i>H. erectus</i>				Totals			
	1st reply	Parties	WCMC	Parties	1st reply	# Parties	WCMC	# Parties
C1	National status threatened							
C2	CITES trade data report exports in the past (min = very small volumes)	1	Brazil		1	1		
C3	CITES trade data report recent exports							
C4	IUU fishing or trade							
C5	Overfishing							
C6	Population declines							
unknown	Population status declared unknown							
S1	CITES trade data do not report exports	10	Argentina, Brazil, Canada, Colombia, Costa Rica, France, Jamaica, Mexico, Nicaragua		10	9		
S2	Wild exports ended historically							
S3	Wild exports ended as a response to RST							
S4	Exports being managed with quota							
S5	Spatial or temporal restrictions on fishing effort that may benefit seahorses							
S6	Species reported as protected by national laws	1	Mexico		1	1		
S7	Minimal exports with permits	1	United States of America		1	1		

Table 8. Breakdown of the number of CITES Parties that were eliminated from the CITES Review of Significant Trade (RST) for focal seahorse species (*Hippocampus* sp.), or moved into formal review for those species, after the first inquiry from the CITES Secretariat (Step 3).

Round	<i>Hippocampus</i> sp.	Replied –retained	Replied – not retained	No reply –retained	No reply – not retained	Total Parties retained in RST	Retained and sent to UNEP-WCMC for review (Step 4)	UNEP-WCMC suggested category (Possible or Urgent Concern)	CITES AC final category (Possible or Urgent Concern; Step 5)
1	<i>H. kelloggi</i>	2	3	6	0	8	8	Thailand - Urgent	Thailand - Urgent
	<i>H. kuda</i>	4	4	21	1	25	25	Thailand – Urgent Viet Nam -Possible	Thailand – Urgent Viet Nam - Possible
	<i>H. spinosissimus</i>	2	3	6	0	8	8	Thailand – Urgent	Thailand – Urgent
2	<i>H. algiricus</i>	-	-	12	0	12	2	Guinea – Urgent Senegal – Urgent	Guinea – Urgent Senegal – Urgent
	<i>H. barbouri</i>	0	2	1	0	1	1	None	None
	<i>H. histrix</i>	0	9	10	0	10	3	None	None
	<i>H. trimaculatus</i>	0	7	7	0	7	3	Thailand – Urgent	Thailand – Urgent
3	<i>H. erectus</i>	0	9	0	23	0	--	--	--

At this point the documentation of the RST moved from discussing range States to Parties (AC25 WG 1 Doc. 1). This caused some confusion, for example:

- Hong Kong, Taiwan and China were all listed as consulted range States for *H. kuda* – none replied – but only China was indicated as retained in RST (with no mention of eliminating Hong Kong, Taiwan).
- China and Taiwan were listed as consulted range States for *H. kelloggi* – but China was retained in review with no mention of Taiwan.
- Taiwan was consulted as a range State for *H. spinosissimus*, and not China – but China was retained in review with no mention of Taiwan.
- American Samoa and the United States of America were both consulted as range States for *H. kuda*, neither replied – only American Samoa was explicitly eliminated with no separate mention of the United States of America.
- Note that the Working Group document does explicitly eliminate New Caledonia (France) and retains French Polynesia (France).

All but one of the Parties that did not reply to the CITES Secretariat were retained in review (Table 7a). South Africa – a range State for *H. kuda* – did not reply but was not retained; the reasoning behind this was not documented. The CITES trade database reported no trade in *H. kuda* from South Africa, and South Africa might have made this point on the floor as it had a presence at AC25. However, a further five Parties that did not reply and had no reported trade in the CITES database also had observers at the meeting (French Polynesia (France), India, Kenya, Republic of Korea, Singapore). All but one (China) of the remaining Parties that did not reply and

were retained did not have a presence at AC25. Note that two of the range States retained in the RST for *H. kuda* were not Parties to CITES at the time of AC25 (Maldives – joined in 2012, Tonga – joined in 2016).

About half of the Parties that replied for each species were retained, and about half were not (Table 8). Three Parties that reported no recent exports were eliminated from review (Australia – *H. kelloggi*; New Caledonia-France, United States of America – *H. kuda*); but Viet Nam reported no recent exports of *H. kelloggi* (indeed it reported it was not a range State for this species), and Japan reported no exports in *H. kuda* (indeed it has a reservation on all seahorse listings⁴) – and yet both were retained in review for these species. Two Parties were eliminated that reported suspensions of wild exports in response to the RST (Malaysia, Indonesia) – but Viet Nam was retained in spite of making the same declaration. Both Malaysia and Indonesia had observers at the meeting, but Viet Nam did not. Madagascar replied that its trade in seahorses was minimal, but offered no NDFs for that trade, and was retained (the CITES trade database does not report exports of wild seahorses from Madagascar from 2004-2008). Thailand – which reportedly exported high volumes of seahorses without adequate NDFs – was retained in review for all three species. Six of the nine Parties that replied to the Secretariat had observers at the meeting – two of which were retained (Japan, Thailand); the three Parties not present at AC25 were also retained (Australia, Madagascar, Viet Nam).

Step 4. Secretariat works with a consultant to compile information for all species-range State combinations in formal review (Figure 1 – Step 4)

The Secretariat sent all species-range State combinations retained in the RST to UNEP-WCMC for review (Table 8).

Review results and UNEP-WCMC suggested category

There were clear conservation concerns for these seahorse species in most Parties waters. Information on the potential problems (or threats) facing the species in their national waters contained in the reviews was much more comprehensive than the initial Party replies (Table 7a). Potential threats identified across the reviews (in descending frequency of occurrence by mention) included: population declines, overfishing, national status as threatened, illegal fishing or trade, reported past exports, and reported recent exports (Table 7a). Five Parties were not considered to be range States for *H. kuda* (Egypt, Kenya, Madagascar, Mauritius, Mozambique – none of which were considered as range States in Lourie *et al.* 2004), and reviews for 13 Parties declared the status of *H. kuda* as unknown (Table 7a).

The UNEP-WCMC reviews uncovered more information on challenges facing the species in national waters than were reported by Parties in their replies to the Secretariat under Step 3. For example, the UNEP-WCMC review reported three challenges facing *H. kelloggi* in Thailand that were not reported in Thailand's initial response – including the occurrence of illegal fishing/trade, overfishing and documented population declines for this species. Five challenges were reported for this species in Viet Nam that Viet Nam did not include in their initial reply – including a threatened national status, past reported exports, illegal fishing or trade, overfishing, and populations declines (indeed Viet Nam had reported it was not a range State for this species). Other examples to illustrate this point can be found in Table 7a. Fewer new mitigation measures were uncovered in the UNEP-WCMC reviews compared to Party's initial replies under Step 3 (Table 7a).

The most commonly reported mitigation measure in the UNEP-WCMC reviews was the existence of spatial and/or temporal restrictions on fishing effort (Table 7a), although none were directed at seahorses, and no information was made available on whether the restrictions conferred any protection for the species under review. Several reviews also reported the species as being protected in national waters – particularly reviews for *H. kuda*, or reported a historic or recent end to wild seahorse exports. The use of quotas was mentioned just once: Viet Nam reported publishing a 2011 export quota for *H. kuda* of 77,000 captive-bred specimens.

⁴ Any Party (member State) of CITES may make a unilateral statement that it will not be bound by the provisions of the Convention relating to trade in a particular species listed in the Appendices (or in a part or derivative listed in Appendix III). These statements are called reservations and may be made in accordance with Articles XV, XVI and XXIII of the Convention.; https://cites.org/eng/app/reserve_intro.php.

In spite of documented conservation concerns, the UNEP-WCMC suggested category was Least Concern for seven Parties for *H. kelloggi*, 22 Parties for *H. kuda* and seven Parties, for *H. spinosissimus* – all based on “no anticipated trade” (AC26 Doc. 12.2 Annex). These Parties either had no reported trade in these species in the CITES database (three, 13 and five Parties for *H. kelloggi*, *H. kuda* and *H. spinosissimus*, respectively), had reported trade but declared an end to wild exports going forward (one Party each for *H. kelloggi*, *H. kuda* and two for *H. spinosissimus*), or had historic bans on exports of wild seahorses (three, three and one Parties for *H. kelloggi*, *H. kuda* and *H. spinosissimus*, respectively). The remaining five Parties deemed of Least Concern for *H. kuda* were not considered range States.

UNEP-WCMC raised concerns for just two Parties (Table 8). Thailand was considered of Urgent Concern for all three species due to large/moderate (depending on species) trade volumes in dried specimens occurring without defensible NDFs: “The impact of trade is unknown, and available information indicates that the exports are occurring without a scientifically based non-detriment findings, therefore categorized as Urgent Concern” (AC26 Doc. 12.2 Annex). Viet Nam was considered of Possible Concern for *H. kuda* only: “High levels of international trade 2004-2010...While Viet Nam confirmed that trade in wild specimens would not be permitted until a non-detriment finding had been made, low level trade in wild specimens was reported in 2009 and 2010, therefore categorised as Possible Concern” (AC26 Doc. 12.2 Annex).

The UNEP-WCMC reviews for all species had notes under a section “Problems identified that are not related to the implementation of Article IV, paragraphs 2(a), 3 or 6(a)” (AC26 Doc. 12.2 Annex). Notes under all three species included that bycatch was reported as a main threat; that challenges in identifying species were a problem for monitoring trade; and that trade reported at genus level and mixed reporting of units made it difficult to estimate the total number of specimens in trade. Furthermore, illegal fisheries or trade was reported for some Parties under each species: *H. kelloggi* – China, India, Philippines, Thailand and Viet Nam; *H. kuda* – India, Sri Lanka, Singapore, Thailand and Viet Nam; *H. spinosissimus* – China, Sri Lanka, Singapore, Thailand and Viet Nam.

Step 5. AC/PC designates range States as Least, Possible or Urgent Concern for each species, and issues recommendations for the latter two categories (Figure 1 – Step 5)

The UNEP-WCMC report was delivered at AC26, four years after concern for these species was first raised by the UK at AC23 (April 2008 – March 2012). The meeting provided an opportunity for Parties to present additional information for consideration by the Animals Committee, before the Committee determined whether to accept the UNEP-WCMC recommendations or adjust them. Both Thailand and Viet Nam were present at AC26. Thailand presented considerable new technical documentation on the floor. The documentation included the results of fisheries independent surveys carried out in the Gulf of Thailand and Andaman Coast using research trawls and catch landings surveys at three landings sites along the Gulf of Thailand and two along the Andaman coast (both carried out in 2010), and a summary of current management policies that may serve seahorses.

In spite of Thailand’s new information, the Animals Committee voted to support all of the UNEP-WCMC recommended categories – including Thailand as Urgent Concern for all three species, and Viet Nam as Possible Concern for *H. kuda* (AC26 Summary Record). In addition, some, but not all, of the problems identified in the UNEP-WCMC reviews that were not related to the implementation of Article IV, paragraphs 2(a), 3 or 6(a) were referred through to the Secretariat; the RST Working Group noted concerns regarding records of imports of seized *Hippocampus* spp. from China, and that import and export records of trade from Viet Nam in *Hippocampus* spp. did not match, and referred these matters to the Secretariat (AC26 WG7 Doc. 1).

Thailand and Viet Nam were issued a set of research and action recommendations, which were drafted by the IUCN, and subsequently approved by the RST Working Group and then by the Animals Committee. They drew heavily on the standard set of recommendations used in the past for other species – although were necessarily modified as they were the first recommendations ever issued for a fully-marine species under RST. The recommendations are in Annex II of this report.

Thailand was issued four recommendations to complete in 150 days, three within a year, and four more within two years (Annex II). Thailand's recommendations were essentially: enforcing existing fishing laws that ban trawling in Thai coastal waters, doing research to map the distribution and density of seahorses and their habitats so these can be incorporated into Thailand's ongoing spatial planning/marine protected area process, and determining what bycatch in pots and nets might indeed be returned selectively to the ocean. There is also mandated research such as developing a monitoring programme for fisheries and life history parameters, from which population responses to fishing might be modelled.

Viet Nam was issued four recommendations to complete in 90 days, and three more within two years (Annex II). The recommendations for Viet Nam from AC26 were essentially to carry out research on *H. kuda*'s biology, and establish fisheries monitoring at seahorse landing sites.

Step 6 - Secretariat and AC/PC Chairs review range State progress against recommendations (Figure 1 – Step 6)

Thailand

Thailand's progress against the 150-day recommendations was first reviewed at SC63 (March 2013). The Thailand CITES Authorities submitted two sets of documentation to the Secretariat in July 2012 for consideration in its review of Thailand's progress (as indicated in SC63 Doc. 14; Project Seahorse was given copies of this documentation).

The first set of documentation was a letter addressed to the Secretariat which addressed recommendations a) through d), and included supporting information for a). The second set of documentation Thailand provided for consideration at SC63 was a re-submission of the fisheries independent and dependent survey results presented at AC26 (carried out in 2010), prefaced by information on seahorse life history and fisheries. Based on the information submitted by Thailand, the Secretariat and the Chair of the Animals Committee determined that recommendations a) to d) had been complied with and requested that the Standing Committee take note of the progress that Thailand had made in implementing the recommendations concerning *H. kelloggi*, *H. kuda* and *H. spinosissimus* (SC63 Doc. 14). The Standing Committee noted the progress made by Thailand for the three species (SC63 Summary record).

Thailand's progress against the one and two year recommendations was assessed at SC65 (July 2014). The Thailand's CITES Management Authority provided the Secretariat with information regarding the species in review in April (indicated in SC65 Doc. 26.1; Project Seahorses did not receive copies of the information). This included a progress report on a collaborative project with Project Seahorse, and a set of draft distribution maps for the species resulting from the collaboration. They did not provide a report against recommendations e) to k).

Based on the information submitted by Thailand, the Secretariat and Chair of the Animals Committee considered that recommendations e), g), h), i), j) and k) had been partially complied with, and recommendation f) had not been complied with (SC65 Doc. 26.1). The Secretariat noted progress had been achieved in implementing most of the "very comprehensive" recommendations of the Animals Committee, but that not all were completed within the two-year period, with a number of activities still underway. "Given the complexity of regulating the trade in *H. kelloggi*, *H. kuda* and *H. spinosissimus* in compliance with CITES provisions and in recognition of Thailand's accomplishments to date, the Secretariat proposes to extend the timeframe for implementing key recommendations". Thailand was requested to finalize the implementation of recommendations h), i), j) and k) by 31 May 2015. Note the exclusion of e) which had only been partially complied with, and g) which had not been complied with.

Thailand's progress against recommendations h) through k) was re-assessed at SC66 (January 2016, SC66 Doc. 31.1). Thailand provided a set of documentation to the Secretariat in support of the review (SC66 Doc. 31.1 Annex 3). As noted by the Secretariat in its report, Thailand's submission mostly consisted of the same materials sent to

the Secretariat in 2014, as well as to the Animals Committee in the context of its review of *Hippocampus trimaculatus* (see document AC27 Doc. 12.4 (Rev. 1), Annex 8 – and Round 2 of the seahorse, below).

The Secretariat, in consultation with the Chair of the Animals Committee, determined that the implementation of recommendation j) by Thailand remained unclear, and that recommendations h), i) and k) had not been implemented. As a result the Secretariat initially noted that the Standing Committee should recommend a trade suspension in specimens of *H. kelloggi*, *H. kuda* and *H. spinosissimus* from Thailand until it demonstrated compliance with Article IV, paragraphs 2(a) and 3 for these species (paragraph 6(a) not relevant in this case), and provides full information to the Secretariat regarding compliance with the recommendations of the Animals Committee. However the SC66 Summary Record noted that Thailand had submitted additional information late, just before the start of SC66. As a result, the Standing Committee agreed to give the Secretariat time to review the additional information, and reconsider the matter at SC67 (which will take place in September 2016).

Viet Nam

Viet Nam's progress against the 90-day recommendations issued at AC26 was reviewed at SC63 (March 2013). Viet Nam reportedly missed the deadline to reply to the Secretariat, and thus the Standing Committee agreed to recommend that all Parties suspend trade covered by Article IV of the Convention for *H. kuda* from Viet Nam (SC63 Summary record). This suspension would remain in effect until Viet Nam demonstrated compliance with Article IV, paragraphs 2 (a) and 3 for the species concerned (paragraph 6(a) not relevant in this case), and provided full information to the Secretariat regarding compliance with the recommendations of the Animals Committee.

The recommended trade suspension of *H. kuda* was revisited at SC66 as it had been in place more than two years. The Secretariat contracted UNEP-WCMC to prepare a report for their consideration. UNEP-WCMC sought information for the review from both the Viet Nam Authorities and the IUCN, which was summarized in their "review of Standing Committee recommendations to suspend trade more than two years ago" stated the following (SC66 Doc. 31.2) – it noted in particular that progress in addressing a number of the Animals Committee recommendations has been achieved, but that until further information is provided to demonstrate intended exports would not be detrimental to the survival of the species in compliance with Article IV, the suspension may still be appropriate. The Standing Committee noted the information contained in UNEP-WCMC's report, and agreed to retain the trade suspension for this species from Viet Nam (SC66 summary review).

Round 2: *Hippocampus algiricus*, *H. barbouri*, *H. histrix* and *H. trimaculatus*

Step 1. UNEP-WCMC brings a list of species to AC/PC meetings for consideration under RST (Figure 1 – Step 1)

The second round of RST for seahorses started at AC25, in July 2011 – following CoP15. This was the first Animals Committee at which UNEP-WCMC applied a set of criteria by which to filter the CITES trade data to identify candidate species for review (AC25 Doc. 9.6). The filter criteria are explained in the section describing the RST process, above in this report. UNEP-WCMC only used data from 2004-2008 in their main analysis, as just 58% of annual reports had been submitted for 2009; they analysed the 2009 data separately.

UNEP-WCMC considered that ten seahorse species met at least one of their criteria, excluding the three already in review (AC25 Doc. 9.6, Table 9). The most commonly met criterion was "high volume (globally threatened)". Their analysis for *H. algiricus* raised some questions – this species apparently met the "sharp increase, 2009" criteria, but the mean export from 2004-2008 was reportedly 1,532 kg dried, and 2009 exports were reportedly 864 kg dried.

Table 9. Summary of seahorse entries in AC25 Doc. 9.6 – UNEP-WCMC trade analysis to short-list potential species for RST following CoP15. Species included in Round 1 of RST for seahorses have been excluded from the table.

<i>Hippocampus</i> sp.	Criteria met	Notes	Nominated for, and voted into, RST
<i>H. abdominalis</i>	sharp increase (2008)	mean exports 2004-2008: 182 live, but 838 live in 2008	NO
<i>H. algiricus</i>	sharp increase (2009)	mean exports 2004-2008*: 1532 kg dried, 2009 exports: 864 kg dried	YES
<i>H. barbouri</i>	high volume (globally threatened)	mean exports 2004-2008: 440 kg dried, 3138 individuals live (+)	YES
<i>H. comes</i>	high volume (globally threatened)	mean exports 2004-2008: 2980 individuals live (+)	NO
<i>H. erectus</i>	high volume (globally threatened)	mean exports 2004-2008: 1664 individuals live (+)	NO
<i>H. histrix</i>	high volume (globally threatened)	mean exports 2004-2008: 606 kg dried, 3265 individuals live	YES
<i>H. ingens</i>	high volume (globally threatened)	mean exports 2004-2008: 59941 individuals dried, 153 kg dried; 107 individuals live	NO
<i>H. reidi</i>	overall increase in trade	mean exports 2004-2008: 1627 individuals live	NO
<i>H. trimaculatus</i>	high volume (globally threatened)	mean exports 2004-2008: 5668 kg dried (+)	YES
<i>H. zosterae</i>	sharp increase (2008)	mean exports 2004-2008: 96 live, but 475 live in 2008	NO

(+) other trade included in UNEP-WCMC report, but volumes negligible compared to those reported here

*authors own calculation based on UNEP-WCMC data

Step 2. AC/PC votes on bringing species under preliminary review (Figure 1 – Step 2)

At AC25, the IUCN (Project Seahorse acting as the IUCN Species Survival Commission Seahorse, Pipefish and Stickleback Specialist Group, IUCN SSC SPS SG) helped convince the RST Working Group to recommend *H. algiricus*, *H. barbouri*, *H. histrix* and *H. trimaculatus* for preliminary review. After excluding the three species already in RST, these four species had the highest reported export volumes of dried trade, and of live trade for some (AC25 Doc. 9.6, Table 9). These species accounted for 42% of total reported wild export volumes in the CITES database from 2004-2011, and together with the three species already in RST accounted for 96% of reported wild exports during that time period. The Animals Committee accepted the Working Group recommendation, and voted to include *H. algiricus*, *H. barbouri*, *H. histrix* and *H. trimaculatus* among the taxa as of priority concern for RST – for all range States.

Step 3. AC/PC makes decisions about which range States to move into formal review for focal species (Figure 1 – Step 3)

Range States

Letters were sent to Parties on 30 August 2011; the list of Parties consulted, as well as the list of those that replied, can be found in AC26 Doc. 12.3. Unlike the first round of the seahorse RST, reporting was by Party and not by range State (even though the table heading is “Range States that responded within 60 days”). This may

cause some confusion – for example, China’s reply was limited to information related to mainland China, and did not include information for Hong Kong or Taiwan – even though both are range States for, and report exports in, certain species under review.

Comparing the Parties the Secretariat consulted (from the CITES species database, Species+) to those listed in Lourie *et al.* (2004) revealed that all confirmed range States in Lourie *et al.* (2004) were consulted by the Secretariat (Table 5). One Party (Egypt) was consulted by the Secretariat with respect to *H. histrix* that is listed as neither confirmed nor suspected in Lourie *et al.* (2004) (Table 5). Many suspected range States in Lourie *et al.* (2004) for *H. algiricus*, *H. barbouri* and *H. trimaculatus* were not consulted by CITES (Table 5). The CITES trade database, however, reported little to no trade from these Parties in the species concerned – with *two important exceptions* detailed in the next paragraph.

First, Lourie *et al.* (2004) considered Togo a suspected range State for *H. algiricus*, and indeed the CITES trade database reported combined exports from this country of 77,452 individual seahorses in 2004 and 2005 – although this amounted to just 5% of total reported wild exports of this species from 2004-2010. The second case was more problematic. Lourie *et al.* (2004) listed Thailand as a suspected range State for *H. histrix*, and indeed the CITES database reported total exports of ~1,100,000 individual *H. histrix* from Thailand across 2004-2010, accounting for 94% of reported wild exports of this species during that time. Because these Parties were not identified as range States in the Checklist of CITES Species (which was housed at <http://unep-wcmc.org/citestrade> before 2013) at the time of letter writing, neither Togo nor Thailand were sent letters by the Secretariat asking them to provide justification for their exports of *H. algiricus* or *H. trimaculatus*, respectively. These omissions were raised by IUCN on the floor at AC26, but the Working Group did not feel it appropriate to deviate from standard practice of using Species+ to identify species range States (AC26 WG7 Doc.1). The Working Group recommended that the issue of reported exports of *H. histrix* from Thailand be referred to Secretariat for “clarification in compliance with paragraph i) of the Resolution”⁵ (AC26 WG7 Doc.1).

Who replied

Eleven range States replied to the CITES request for information with respect to the four seahorse species (species they addressed in their replies in brackets): Australia (*H. trimaculatus*), China (*H. trimaculatus*, *H. histrix*), France (*H. histrix*), Indonesia (*H. barbouri*, *H. trimaculatus*, *H. histrix*), Japan (*H. trimaculatus*, *H. histrix*), Malaysia (*H. barbouri*, *H. trimaculatus*, *H. histrix*), Myanmar (*H. trimaculatus*), Seychelles (*H. histrix*), Tanzania (*H. histrix*), Tonga (*H. histrix*), United States of America (*H. histrix*). Note that AC26 Doc. 12.3 lists France as “no reply” for *H. histrix* – but they did reply, and Egypt as having responded for *H. histrix*, but their submitted letter simply refers the matter to another agency – so I do not consider them to have replied for this species in my analysis.

Just about half or more of Parties, consulted for *H. barbouri*, *H. histrix* and *H. trimaculatus*, responded (Table 6). The Parties that did reply with respect to these three species accounted for 99, six and <0.01% of reported exports in the CITES database from 2004-2010, respectively. Malaysia alone accounted for 97% of reported exports of *H. barbouri* – and did reply. However, Thailand – which did not reply – accounted for 93 and +99% of reported exports in *H. histrix* and *H. trimaculatus*. Thailand was not asked to reply for *H. histrix*, due to the range State confusions described above – but was asked to reply for *H. trimaculatus*.

None of the twelve Parties consulted with respect to *H. algiricus* responded to the Secretariat's request for information (Table 6). Most had no reported trade in this species (Table 6), but two of the Parties (Guinea and Senegal) accounted for 58 and 37% of total reported wild exports for this species, respectively, from 2004-2010. The remaining reported wild exports were from Togo, which was not asked to reply for *H. algiricus* due to the range State confusions described above.

⁵ Conf. 12.8 (Rev. CoP13) paragraph i): Problems identified in the course of the review that are not related to the implementation of Article IV, paragraph 2 (a), 3 or 6 (a), shall be addressed by the Secretariat in accordance with other provisions of the Convention and relevant resolutions.

What they said

I categorized replies for *H. barbouri*, *H. histrix* and *H. trimaculatus* as per Table 2, and the full results of this analysis for all species can be found in Annex II, Table b. There were no replies for *H. algiricus* at this stage of the review.

As with Round 1 of the seahorse RST, replies the Secretariat received at Step 3 for Round 2 were short and limited in their content. Information on challenges facing the species in their national waters was entirely limited to evidence of past or recent exports in the CITES trade database (Table 7b). Six Party responses for *H. histrix* (France, Japan, Seychelles, Tanzania, Tonga and the United States of America), and three for *H. trimaculatus* (France, Japan, Myanmar) provided no information on challenges of any kind.

Most Party replies gave one of two reasons for why they did not need to make NDFs for wild exports of *H. barbouri*, *H. histrix* and/or *H. trimaculatus* (Table 7b). Eight Parties reported no trade in wild specimens (see Table 7b). In cases where there was past reported trade activity, China said it would no longer allow export of wild specimens, and Indonesia and Malaysia reported that they had implemented zero quotas for wild specimens (both Parties ended wild trade in direct response to Round 1 of RST for seahorses). China also reported the existence of spatial/temporal fishing restrictions, but without evidence that they confer any protection for seahorses; and three Parties reported certain species to be nationally protected (China – *H. histrix* and *H. trimaculatus*, Malaysia – *H. barbouri*, *H. histrix* and *H. trimaculatus*, Tonga – *H. histrix*).

Who was retained, who was eliminated, from review

All Parties that replied to the first request of information from the Secretariat were eliminated from further review (Table 8). All Parties that did not reply in Step 3 were noted as retained in the review (Table 8, AC26 WG7 Doc. 1).

Step 4. Secretariat works with a consultant to compile information for all species-range State combinations in formal review (Figure 1 – Step 4)

Only nine of the 30 species-range State combinations retained in the RST by AC26 (as listed in AC26 WG7 Doc. 1) were subsequently sent by the Secretariat to UNEP-WCMC for review (Table 8, Table 10). The explanation for this can be found in paragraph 4 of AC26 WG7 Doc. 1: “Prior to the compilation of the information called for in paragraph g) (the UNEP-WCMC review), range States that were recommended to be maintained in the process due to a lack of response but where no commercial trade was recorded in the UNEP-WCMC (trade) database for the most recent 10 years will be removed from the RST with the agreement of, and in consultation with, the Animals Committee”. Indeed those eliminated from review at this point had no reported trade in the species in question, and in many cases no reported trade in any seahorses at all; where trade was reported in the CITES trade database it was in very small amounts (Annex II, Table b).

Table 10. Comparison of Parties retained in the second round of the seahorse RST by the RST Working Group at AC26 (as per AC26 WG7 Doc. 1 (Rev.1)) and those subsequently sent by the Secretariat to UNEP-WCMC for review (AC27 Doc. 12.4 (Rev.1)).

Party	<i>H. algericus</i>		<i>H. barbouri</i>		<i>H. histrix</i>		<i>H. trimaculatus</i>	
	Retained by WG	Sent to UNEP-WCMC	Retained by WG	Sent to UNEP-WCMC	Retained by WG	Sent to UNEP-WCMC	Retained by WG	Sent to UNEP-WCMC
Algeria	Yes							
Angola	Yes							
Benin	Yes							
Cambodia							Yes	
Cote D'Ivoire	Yes							
Egypt					Yes	Yes		
Gambia	Yes							
Ghana	Yes							
Guinea	Yes	Yes						
India					Yes		Yes	
Liberia	Yes							
Mauritius					Yes			
Micronesia					Yes			
Mozambique					Yes			
Nigeria	Yes							
Papua New Guinea					Yes			
Philippines			Yes	Yes	Yes	Yes	Yes	
Samoa					Yes			
Sao Tome and Principe	Yes							
Senegal	Yes	Yes						
Sierra Leone	Yes							
Singapore							Yes	Yes
South Africa					Yes		Yes	
Thailand							Yes	Yes
Viet Nam					Yes	Yes	Yes	Yes
Totals	12	2	1	1	10	3	7	3

Review results and UNEP-WCMC suggested category

There were clear conservation concerns for the four species in most Parties waters; information on potential conservation challenges facing the species in national waters summarized in the UNEP-WCMC reviews was much more comprehensive than the initial Party replies under Step 3 (AC27 Doc. 12.4 Annex 1; Table 7b). Potential challenges identified across the reviews (in descending frequency of occurrence by mention) included: overfishing, population declines, illegal fishing or trade, past reported exports, recent reported exports, national status considered threatened (Table 7b). Egypt was not considered to be a range State for *H. histrix* (and was not

considered a range State in Lourie *et al.* 2004), and reviews for Guinea/*H. algiricus* and Singapore/*H. trimaculatus* declared the status of the species as unknown (Table 7b).

The most commonly reported mitigation measure in the UNEP-WCMC reviews was the existence of spatial and/or temporal restrictions on fishing effort (AC27 Doc. 12.4 Annex 1; Table 7b), although none were directed at seahorses, and no information was made available on whether the restrictions conferred any protection for seahorses. Three reviews reported ending wild seahorse exports (Philippines for *H. barbouri*, *H. histrix*; Viet Nam for *H. histrix* and *H. trimaculatus*; Thailand for *H. trimaculatus* – live exports only; Table 7b).

In spite of documented conservation concerns, the UNEP-WCMC suggested category was Least Concern for the only Party in review for *H. barbouri*, all three Parties in review for *H. histrix*, and two of the three Parties in review for *H. trimaculatus* – all based on “no anticipated trade” (AC27 Doc. 12.4 Annex 1). Egypt and Viet Nam had no reported trade in these species, Philippines and Senegal had very low levels of reported trade in these species, and Philippines and Viet Nam had reportedly ended wild seahorses (but see notes about problems not related to the implementation of Article IV, paragraphs 2(a), 3 or 6(a), below).

UNEP-WCMC raised concerns for both Parties retained in review for *H. algiricus* (Guinea and Senegal) and one Party for *H. trimaculatus* (Thailand) (AC27 Doc. 12.4 Annex 1; Table 8). Guinea and Senegal were considered of Urgent Concern for *H. algiricus* due to high and relatively high levels of trade in wild bodies, respectively – and in both cases the scientific basis for making an NDF was unclear. The species status was unknown in both countries, although population declines and reduction in size of specimens caught had been observed in Senegal. Thailand was considered of Urgent Concern for *H. trimaculatus* due to high levels of trade in wild-sourced individuals occurring while the scientific basis for making an NDF was unclear. Furthermore this species is classified as Vulnerable nationally, and wild populations were thought to be declining.

The UNEP-WCMC reviews for all species had notes under a section “Problems identified that are not related to the implementation of Article IV, paragraphs 2(a), 3 or 6(a)” (AC27 Doc. 12.4 Annex 1). Notes under all three species included that bycatch was reported as a main threat; that challenges in identifying species were a problem for monitoring trade; and that trade reported at genus level and mixed reporting of units made it difficult to estimate the total number of specimens in trade. The reviews also noted missing annual reports from some Parties in certain years. Furthermore, illegal, unreported and unregulated (IUU) fishing and/or illegal trade were reported for some Parties under each species: *H. algiricus* – IUU fishing reported in Senegal; *H. barbouri* – IUU fishing reported in the Philippines; *H. histrix* – IUU fishing reported in Viet Nam, illegal trade for Egypt, the Philippines and Viet Nam; *H. trimaculatus* – IUU fishing in Viet Nam, illegal trade for Singapore, Thailand and Viet Nam.

Step 5. AC/PC designates range States as Least, Possible or Urgent Concern for each species, and issues recommendations for the latter two categories (Figure 1 – Step 5)

The UNEP-WCMC report was delivered at AC27, three years after concern for these species was first raised by the IUCN at AC25 (July 2011 – April-May 2014). The Animals Committee voted to support the UNEP-WCMC recommended categories of Least Concern for all Parties with respect to *H. barbouri* and *H. histrix* (AC27 WG1 Doc. 1) – at this point these species dropped out of the review.

The Animals Committee also voted to support the WCMC recommended categories of Urgent Concern for Guinea/Senegal and *H. algiricus*, and for Thailand and *H. trimaculatus* (AC27 WG1 Doc. 1). Neither Guinea nor Senegal were present at AC27, but Thailand was. Thailand intervened on the floor, asking for *H. trimaculatus* to be included in the review already underway for *H. kelloggi*, *H. kuda* and *H. spinosissimus*, instead of there being a whole new round initiated for *H. trimaculatus*. While noted by the Animals Committee, this information did not result in a modification of the proposed UNEP-WCMC category. Furthermore, although the UNEP-WCMC reviews noted issues not related to the implementation of Article IV, paragraph 2 (a), 3 or 6 (a) for all Parties, none were referred to the Secretariat by the Working Group (AC27 WG1 Doc. 1).

The three Parties were issued a set of research and action recommendations, which were drafted by the IUCN, RST Working Group and Thailand, and approved by the Animals Committee (AC27 WG1 Doc.1). The approved recommendations drew heavily on the standard set of recommendations used for the first round of seahorse RST. The recommendations are available in Annex II of this report.

Guinea was issued five, and Senegal four, recommendations to complete within six months, they were both issued one to completed within a year, and two more within two years. The six month recommendations for these Parties came down to providing the Secretariat existing information on the species, relevant legal protection and/or management measures, any NDFs for exports, and to ensure permits were properly standardized. Guinea was issued an additional recommendation to provide the Secretariat with missing annual reports. The one and two year recommendations came down to doing research to map the distribution and density of seahorses and their habitats so these can be incorporated into spatial planning/marine protected area process, developing a monitoring programme for fisheries and identifying additional management measures to support NDFs for the species.

Thailand was issued three recommendations to complete in six months, two more within a year, and two more within two years. These were issued keeping in mind the action items already issued for three other seahorse species (in Round 1 of seahorse RST), as well as respecting work that had already been completed for seahorses in Thailand. The six month recommendations for these Parties came down to providing the Secretariat existing information on the species, legal protection and/or management measures and NDFs for exports. The one and two year recommendations came down to reporting on research to map the distribution and density of seahorses and their habitats so these can be incorporated into spatial planning/marine protected area process, enforcing existing fishing laws that ban trawling in Thai coastal waters, developing a monitoring programme for fisheries and identifying additional management measures to support NDFs for the species.

Step 6 - Secretariat and AC/PC Chairs review range State progress against recommendations (Figure 1 – Step 6)

Guinea and Senegal

Guinea and Senegal's progress against the six month and one year recommendations issued at AC27 was reviewed at SC66 (January 2016). Neither Guinea nor Senegal reported any progress against the recommendations by the deadline, and thus the Standing Committee agreed to recommend that all Parties suspend trade covered by Article IV of the Convention for *H. algericus* from both Guinea and Senegal (SC66 Summary record). This suspension would remain in effect until these countries demonstrated compliance with Article IV, paragraphs 2 (a) and 3 for the species concerned (paragraph 6(a) not relevant in this case), and provided full information to the Secretariat regarding compliance with the recommendations of the Animals Committee.

Thailand

Thailand's progress against the six month and one year recommendations issued at AC27 was first reviewed at SC66 (January 2016). Thailand submitted a set of documentation to the Secretariat in August 2015 for consideration in its review of progress against the six month recommendations, a) through c) (SC66 Doc. 31. Annex 3). Their cover letter referred to several annexes, but these were not attached. The Secretariat alerted Thailand about the omission, but at the time of writing SC66 Doc. 31.1, the materials had not been received. Thailand did not provide information on the recommendations to be implemented within one year – d) and e).

The Secretariat provided their analysis of progress against recommendations in SC66 Doc. 31.1 The Secretariat, in consultation with the Chair of the Animals Committee, determined that the implementation of recommendations a), b) and c) had been complied with; recommendations d) and e) had not been complied with (SC66 Doc. 31.1). The Standing Committee was invited to congratulate Thailand for the progress achieved in implementing the recommendations a), b) and c), noting however that recommendations d) and e) have not been

implemented within the agreed timeframe. Thailand was requested to finalize the implementation of recommendations d), e), f) and g) by 2 June 2016. Progress should be reviewed at SC67 in September 2016 (SC66 Summary Record).

Round 3: *Hippocampus erectus*

Step 1. UNEP-WCMC brings a list of species to AC/PC meetings for consideration under RST (Figure 1 – Step 1)

The third round of RST for seahorses started at AC27, in April-May 2014 – following CoP16. UNEP-WCMC used CITES trade data from 2004-2011 in their analysis of species that met one of their filtering criteria for RST. UNEP-WCMC considered that five seahorse species met at least one of their criteria, if I exclude the five already in review through Rounds 1 and 2 (AC27 Doc. 12.5, Table 11). Three criteria were met among the five species – two met “high volume (globally threatened)”, two others met criteria “sharp increase”, and one met “high variability” (Table 11).

Table 11. Summary of seahorse entries in AC27 Doc. 12.5 – UNEP-WCMC trade analysis to short-list potential species for RST following CoP16. Species already in review, included in Rounds 1 and 2 of the seahorse RST, have been excluded.

<i>Hippocampus</i> sp.	Criteria met	Notes	Nominated for, and voted into, RST
<i>H. abdominalis</i>	high variability	mean exports 2004-2011: 130 individuals live, but range 0-838 individuals	NO
<i>H. angustus</i>	sharp increase	mean exports 2004-2011: 54 kg dried (+), but 201 kg in 2008	
<i>H. comes</i>	high volume (globally threatened)	mean exports 2004-2011: 2007 individuals live	NO
<i>H. erectus</i>	sharp increase	0 kg dried reported from 2004-2009, but then 200 and 900 kg dried in 2010 and 2011 respectively	YES
<i>H. ingens</i>	high volume (globally threatened)	mean exports 2004-2011: 37,547 individuals dried, 373 individuals live	NO

(+) other trade included in UNEP-WCMC report, but volumes negligible compared to those reported here

Step 2. AC/PC votes on bringing species under preliminary review (Figure 1 – Step 2)

At AC27, the IUCN (through the SSC SPS SG) helped convince the RST Working Group to recommend *H. erectus* for preliminary review due to a sudden, recent and notable increase in the trade of this Vulnerable species (Project Seahorse 2003). The increase was due to Hong Kong reporting very large imports from Mexico in the CITES trade database; no trade recorded from 2004 jumped to 200 kg in 2010 and 900 kg in 2011. The latter figure of 900 kg amounts to an export of more than 250,000 individual seahorses in one year. Two lines of evidence suggested that this number, while very large, might have been plausible. First, Project Seahorse conducted trade surveys in 18 sites in Mexico in 2000 and these data revealed seahorse landings of 56,000-60,000 seahorses (amounting to hundreds of kg per annum) on the Atlantic Coast alone. Second, Hong Kong has recorded its seahorse imports in a Census and Statistics Department database since 1998 (Hong Kong Department of Census and Statistics 2015), which is elicited and maintained independent of the CITES trade database. This second set of data confirmed Hong Kong’s CITES records with respect to Mexico.

Step 3. AC/PC makes decisions about which range States to move into formal review for focal species (Figure 1 – Step 3)

Range States

Letters were sent to all range States for this species as indicated in Species+ on 12 June 2014, when the letters were sent. The list of Parties consulted, as well as list of those that replied within the 60-day deadline, can be found in AC28 Doc. 9.4 (Rev. 2). Thirty-six States were consulted, but errors in Species+ in June 2014 meant that four Parties were sent letters that are well outside the known geographic range for *H. erectus*: Cabo Verde, China (Hong Kong, Taiwan), Portugal, and Sao Tome and Principe. A specimen of *H. erectus* was found in the Azores Islands, Portugal – but it was likely to be a vagrant or of anthropogenic origin (see Woodall *et al.* 2009). I have excluded these Parties from the rest of my analyses. The Species+ database had been updated as of June 2015 (AC28 Doc. 9.4 (Rev. 2) – however Cabo Verde remains listed as a range State for *H. erectus*. The Secretariat consulted all confirmed and suspected range States listed in Lourie *et al.* 2004 (Table 5).

Who replied

Just over a third of consulted range States replied to the CITES request for information with respect to *H. erectus* (Table 6): Argentina, Belize, Brazil, Canada, Colombia, Costa Rica, France, Jamaica, Mexico, Nicaragua, United Kingdom, and the United States of America (Annex I Table c).

The Parties that did reply with respect to this species accounted for 98% of reported exports in the CITES trade database from 2004-2011, respectively. Mexico alone accounted for 96% of reported exports. The Parties that did not reply were not notable exporters of this species, accounting for just <0.06% of total reported exports from 2004-2011.

What they said

I categorized replies for *H. erectus* as per Table 2, and full results of this analysis for all species can be found in Annex I, Table c.

As with the previous rounds of RST – replies were short and limited in their content. All Parties but Brazil and the United States of America reported no trade in this species (Table 7c). Brazil reported past exports of wild individuals. The United States of America reported minimal exports with permits, and included NDF documentation. Mexico reported the existence of spatial/temporal fishing restrictions, though it was not indicated if these were known to confer any protection for seahorses. Finally, Argentina reported it was not in fact a range State for *H. erectus*, citing Piacentino and Luzzato (2004), which provides evidence against *H. erectus* being found that far south.

Mexico responded that they had no export records for this species for the past ten years – and indeed Mexico itself reported no trade in this species in the CITES trade database. However, as mentioned above, Hong Kong reported importing very large quantities of *H. erectus* from Mexico in 2010 and 2011 in the CITES trade data – these two records are the reason *H. erectus* was flagged for review at AC27. Mexico did not address these importer reported records in its reply to the Secretariat at this Step of the review. Although Mexico did not address the large reported exports to Hong Kong in 2010 and 2011, there have been no further records of this magnitude reported from Mexico at the time of writing.

Who was retained, who was eliminated, from review

The RST Working Group at AC28, after its review of range State responses for *H. erectus*, recommended that all range States be eliminated from the review for this species (AC28 Com. 8 Annex A).

The RST for *H. erectus* ended at this stage in the process.

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Refer to table 1 for all CITES references.

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ANNEX I – Range State replies

Table a. Range State replies for Round 1 (*H. kelloggi*, *H. kuda*, *H. spinosissimus*): Conservation challenges (C) and possible management solutions (S) (see Table 2 for details) mentioned in i) Parties' replies to the Secretariat's first request for information (from Step 3), and/or (ii) UNEP-WCMC reviews (from Step 4).
Link to pdf: www.projectseahorse.org/s/RST_FCRR_24_3_ANNEX_I_Table_a.pdf

Table b. Range State replies for Round 2 (*H. algiricus*, *H. barbouri*, *H. histrix*, *H. trimaculatus*): Conservation challenges (C) and possible management solutions (S) (see Table 2 for details) mentioned in i) Parties' replies to the Secretariat's first request for information (from Step 3), and/or (ii) UNEP-WCMC reviews (from Step 4).
Link to pdf: www.projectseahorse.org/s/RST_FCRR_24_3_ANNEX_I_Table_b.pdf

Table c. Range State replies for Round 3 (*H. erectus*): Conservation challenges (C) and possible management solutions (S) (see Table 2 for details) mentioned in i) Parties' replies to the Secretariat's first request for information (from Step 3), and/or (ii) UNEP-WCMC reviews (from Step 4).
Link to pdf: www.projectseahorse.org/s/RST_FCRR_24_3_ANNEX_I_Table_c.pdf

ANNEX II - CITES recommendations to Parties under RST

The following are the research and management recommendations made by the CITES Animal's Committee to Thailand, Viet Nam, Guinea and Senegal during the CITES Review of Significant Trade process.

THAILAND: Recommendations for *H. kelloggi*, *H. kuda* and *H. spinosissimus*.

Extracted from <https://cites.org/sites/default/files/eng/com/ac/26/wg/E26-WG07-R1.pdf>.

Within 150 days the Management Authority should:

- a) Clarify what legal protection is afforded to these species in Thailand and provide information to the Secretariat on controls or regulation of fishing activity that might otherwise detrimentally impact on seahorse populations;
- b) Provide available information to the Secretariat on the distribution, abundance, threats and conservation status of, and any current management measures in place for, the three *Hippocampus* species in Thailand; and
- c) Provide justification for, and details of, the scientific basis by which, it has been established that the quantities of the three *Hippocampus* species exported will not be detrimental to the survival of the species and in compliance with Article IV, paragraphs 2 (a) and 3 taking into account any potential unregulated and/or illegal off-take and trade.
- d) Initiate measures to ensure that descriptions on all CITES permits are standardized such that trade is only permitted at species level and that, in compliance with Resolution Conf. 12.3, XIV e), trade ceases to be reported or permitted at higher taxon levels (genus or family).

Within one year the Management Authority should:

- e) Undertake studies to provide evidence on variation in the spatial and temporal abundance of the three species of *Hippocampus* to enable areas of high seahorse density to be identified and provide the results of the analysis to the Secretariat, as the basis for considering area restrictions on nonselective fishing gear that obtains *Hippocampus* species as bycatch;
- f) Examine the technical and logistical feasibility of returning to the sea live seahorses taken as bycatch in various types of fishing gear, particularly by inshore gear such as crab gill nets and other traps, as the basis for considering the feasibility of minimum size limits and/or other output controls.
- g) Develop and implement adequate control measures and inspection to enhance the enforcement of the reported ban on trawling within 3-5 km of the coast, as the main means of reducing incidental capture of these *Hippocampus* species;

Within 2 years the Management Authority should:

- h) Establish a detailed monitoring program of landings of the three *Hippocampus* species at representative sites, taking into account different gear types and means of extraction and recording catch and effort metrics and provide a report to the Secretariat;
- i) Conduct a detailed study of the life history parameters of the three *Hippocampus* species, including growth rate, size and age at maturity, average annual reproductive output, and annual survivorship of different age classes and provide a report to the Secretariat. Based on the outcome of this study, model population responses to exploitation pressures in order to review and revise management measures;
- j) Implement additional measures, including spatial and/or temporal restrictions on fishing activities, to support non-detriment findings;
- k) Based on the studies and measures in h), i) and j) above, establish an adaptive management programme for extraction of, and trade in, the three *Hippocampus* species, enabling management measures to be reviewed and, if necessary, revised to ensure that trade is not detrimental to the survival of the species in the wild and complies with Article IV.2.a and IV.3;

THAILAND: Recommendations for *H. trimaculatus*.

Extracted from <https://cites.org/sites/default/files/eng/com/ac/27/wg/E-AC27-WG-01.pdf>.

Keeping in mind the action items contained in AC27 Inf Doc. 9 and respecting work that has already been completed for *Hippocampus* species in Thailand:

Within six months the Management Authority should:

- a) Clarify what legal protection is afforded to *Hippocampus trimaculatus* in Thailand and provide information to the Secretariat on controls or regulation of fishing activity that might otherwise detrimentally impact on seahorse populations;
- b) Provide available information to the Secretariat on the distribution, abundance, threats and conservation status of, and any current management measures in place for *Hippocampus trimaculatus* in Thailand; and
- c) Provide justification for, and details of, the scientific basis by which, it has been established that the quantities of *Hippocampus trimaculatus* exported will not be detrimental to the survival of the species and in compliance with Article IV, paragraphs 2 (a) and 3 taking into account any potential unregulated and/or illegal off-take and trade.

Within one year the Management Authority should:

- d) Provide information from studies (existing or new) that assess variation in the spatial and temporal abundance of *Hippocampus trimaculatus* to enable areas of high seahorse density to be identified, as the basis for considering area restrictions on nonselective fishing gear that obtains *Hippocampus* species as bycatch, and provide a report to the Secretariat;
- e) Develop and implement adequate control measures and inspection to enhance the enforcement of the reported ban on trawling within 3-5 km of the coast, as the main means of reducing incidental capture of *Hippocampus trimaculatus*;

Within 2 years the Management Authority should:

- f) Establish a detailed monitoring program of landings of *Hippocampus trimaculatus* at representative sites, taking into account different gear types and means of extraction and recording catch and effort metrics and provide a report to the Secretariat;
- g) Implement additional measures, including spatial and/or temporal restrictions on fishing activities, to support non-detriment findings, in compliance with Article IV.2.a and IV.3.

VIET NAM: Recommendations for *H. kuda*.

Extracted from: <https://cites.org/sites/default/files/eng/com/ac/26/wg/E26-WG07-R1.pdf>.

Within 90 days the Management Authority should:

- a) Clarify what legal protection is afforded to the species and inform the Secretariat whether the present policy allows for export of wild-taken specimens;
- b) If there is no intent to allow export of wild specimens of this species for the foreseeable future establish a zero export quota which should be communicated to the Parties by the Secretariat; or
- c) If trade is to be allowed, provide a justification for, and details of, the scientific basis by which it has been established that export is not detrimental to the survival of the species and is in compliance with Article IV, paragraphs 2 (a) and 3, taking into account any potential unregulated and/or illegal off-take and trade;

- d) Initiate measures to ensure that descriptions on all CITES permits are standardized such that trade is only permitted at species level and that, in compliance with Resolution Conf. 12.3 , XIV e), trade ceases to be reported or permitted at higher taxon levels (genus or family).

Within 2 years the Management Authority should:

- e) If trade in wild specimens is anticipated in the future conduct a study of the life history parameters of *H. kuda*, including growth rate, size and age at maturity, average annual reproductive output and annual survivorship of different age classes and make the results available to the Secretariat. Based on the outcome of this study, model population responses to exploitation pressures in order to review and revise export quotas; and if they intend to trade the species in the future,
- f) Provide to the Secretariat a justification for, and details of, the scientific basis by which it has been established that any proposed export quota for wild specimens of *H. kuda* will not be detrimental to the survival of the species and is in compliance with Article IV, paragraphs 2 (a) and 3
- g) If trade in wild specimens is anticipated in the future, establish a detailed monitoring program of landings of *Hippocampus kuda* at representative sites, taking into account different gear types and means of extraction and recording catch and effort metrics and provide a report to the Secretariat;

GUINEA: Recommendations for *H. algiricus*.

Extracted from <https://cites.org/sites/default/files/eng/com/ac/27/wg/E-AC27-WG-01.pdf>.

Within six months the Management Authority should:

- a) Provide the Secretariat with annual reports for all exports of *Hippocampus* from Guinea for 2007 onwards.
- b) Clarify what legal protection is afforded to *Hippocampus algiricus* in Guinea and provide information to the Secretariat on controls or regulation of fishing activity that might otherwise detrimentally impact on seahorse populations;
- c) Provide available information to the Secretariat on the distribution, abundance, threats and conservation status of, and any current management measures in place for *Hippocampus algiricus* in Guinea;
- d) Provide justification for, and details of, the scientific basis by which, it has been established that the quantities of *Hippocampus algiricus* exported from Guinea will not be detrimental to the survival of the species and in compliance with Article IV, paragraphs 2 (a) and 3 taking into account any potential unregulated and/or illegal off-take and trade;
- e) Initiate measures to ensure that descriptions on all CITES permits are standardized such that trade is only permitted at species level and that, in compliance with Resolution Conf. 12.3, XIV, trade ceases to be reported or permitted at higher taxon levels (genus or family) and is recorded with accurate units (kg or individuals).

Within one year the Management Authority should:

- f) Provide information from studies (existing or new) that assess variation in the spatial and temporal abundance of *Hippocampus algiricus* to enable areas of high seahorse density to be identified, as the basis for considering area restrictions on nonselective fishing gear that obtains *Hippocampus algiricus* as bycatch and provide a report to the Secretariat;

Within 2 years the Management Authority should:

- g) Establish a detailed monitoring program of landings of *Hippocampus algiricus* at representative sites, taking into account different gear types and means of extraction and recording catch and effort metrics and provide a report to the Secretariat;
- h) Implement additional measures, including spatial and/or temporal restrictions on fishing activities, to support non-detriment findings for *Hippocampus algiricus*, in compliance with Article IV.2.a and IV.3.

SENEGAL: Recommendations for *H. algiricus*.

Extracted from <https://cites.org/sites/default/files/eng/com/ac/27/wg/E-AC27-WG-01.pdf>.

Within six months the Management Authority should:

- a) Clarify what legal protection is afforded to *Hippocampus algiricus* in Senegal and provide information to the Secretariat on controls or regulation of fishing activity that might otherwise detrimentally impact on seahorse populations;
- b) Provide available information to the Secretariat on the distribution, abundance, threats and conservation status of, and any current management measures in place for *Hippocampus algiricus* in Senegal; and
- c) Provide justification for, and details of, the scientific basis by which, it has been established that the quantities of *Hippocampus algiricus* exported from Senegal will not be detrimental to the survival of the species and in compliance with Article IV, paragraphs 2 (a) and 3 taking into account any potential unregulated and/or illegal off-take and trade.
- d) Initiate measures to ensure that descriptions on all CITES permits are standardized such that trade is only permitted at species level and that, in compliance with Resolution Conf. 12.3 , XIV, trade ceases to be reported or permitted at higher taxon levels (genus or family) and is recorded with accurate units (kg or individuals).

Within one year the Management Authority should:

- e) Provide information from studies (existing or new) that assess variation in the spatial and temporal abundance of *Hippocampus algiricus* to enable areas of high seahorse density to be identified, as the basis for considering area restrictions on nonselective fishing gear that obtains *Hippocampus algiricus* as bycatch, and provide a report to the Secretariat;

Within 2 years the Management Authority should:

- f) Establish a detailed monitoring program of landings of *Hippocampus algiricus* at representative sites, taking into account different gear types and means of extraction and recording catch and effort metrics and provide a report to the Secretariat;
- g) Implement additional measures, including spatial and/or temporal restrictions on fishing activities, to support non-detriment findings for *Hippocampus algiricus*, in compliance with Article 3IV.2.a and IV.3.