9.2.3.2 EU request on criteria for CITES non-detriment finding for European eel (*Anguilla anguilla*)

Advice Summary

The advice is provided in response to a request from the European Commission to provide scientific information and advice on: i) Criteria (such as stock indicators) and if possible thresholds that could be used to make a non-detriment finding; ii) An assessment of the scale that could be used to make a non-detriment finding; and iii) An assessment of possible conditions that could be used in association with a non-detriment finding.

i) Criteria (such as stock indicators) and if possible thresholds that could be used to make a Non-Detriment Finding.

ICES advises that the following criteria and thresholds could be used in the development of an assessment for a non-detriment finding (NDF) for European eel:

A. Relevant population indices should be above levels at which the species might qualify for listing in Appendix I of CITES. For European eel, ICES advises that when the guidelines provided in CITES Resolution Conf. 9.24 is applied, the glass eel recruitment indices, as the longest and most reliable time-series, constitute an index of abundance and that the threshold should be set at 15% of the baseline for the ICES stock assessment, which is the average recruitment in the period 1960–1979.

Criterion A) is the prerequisite (i.e. essential first step), but is not sufficient in itself. If A) is met, the following should be considered:

B. A precautionary framework considering both stock biomass and anthropogenic mortalities. ICES advises that if escapement of silver eel is above 40% of the pristine biomass and the total anthropogenic mortality from glass eel to silver eel escapement is at or below 0.92, this should be considered as a positive sign for an NDF assessment.

C. Stock recovery. Indications of stock recovery are considered a positive sign for an NDF assessment. ICES advises that a significant positive glass eel recruitment trend over a minimum of one eel generation is an indication of a recovering stock, and that glass eel recruitment indices fluctuating within confidence limits of the 1960–1979 reference baseline are an indicator of a recovered stock.

There is no scientific hierarchy or ranking to criteria B and C. The criteria are not independent of each other but are proposed here to provide CITES Scientific Authorities options for developing a case depending on the data available to them.

ii) Assessment of the scale that could be used to make a Non-Detriment Finding.

An NDF assessment on a finer spatial scale than the total area of distribution or only on part of the life stages from glass eel to silver eel requires that information on the contribution of the eel from the sub-area/life stage to the spawning stock is available and sufficient to assess the eel subpopulation in question applying the advised criteria. Until such information is available ICES advises that the scale to be used to make an NDF assessment should cover the entire stock of the European eel.

iii) Assessment of possible conditions that could be used in association with a Non-Detriment Finding.

ICES advises that a condition for an NDF assessment should be that the relevant geographical area or the life stages concerned are subject to management plans.

Request

The European Commission's request to ICES:

*"The European Eel (*Anguilla anguilla*) is listed in CITES Appendix II and in Annex B to Council Regulation (EC) No 338/97 since 13 March 2009. Since that date, the Scientific Review Group has been monitoring whether a "Non-Detriment Finding" could be made for the species, i.e. whether exports from and imports into the EU would have a harmful effect on the conservation status of the species. This has been done on the basis of SRG guidelines (http://ec.europa.eu/environment/cites/pdf/srg/guidelines.pdf, see Attachment A). In December 2010, the SRG came to the conclusion that the situation of the stock was too critical to perform a Non-Detriment Finding. Exports from and imports into the EU of* Anguilla anguilla *have therefore been suspended since that date.*

In that context, ICES is requested to provide scientific information and advice on the following issues:

- *criteria (such as stock indicators) and if possible thresholds that could be used to make a Non-Detriment Finding in the future. Those criteria may include recruitment levels, but also other possible factors such as mortality rates, escapement rates or abundance of successive generations. This assessment could in particular be based on examining how the regional, national and international stock indicators developed by the EIFAAC/ ICES/GFCM WGEEL could be applied to CITES Non-Detriment Findings based on SRG guidelines.*

- *an assessment of the scale that could be used to make a Non-Detriment Finding (e.g. at the level of the entire stock, or of the EU, or of regional sub-stocks, or any other level).*

- *an assessment of possible conditions that could be used in association with a Non-Detriment Finding (e.g. quota, or size of specimens, or any other condition). In particular, this assessment will look at whether it is possible to quantify eel production to determine that there is a surplus to exploit (at various management scales) and with enough certainty to apply cautious boundaries to the size of that surplus. Should the result of this assessment be positive, the assessment will focus on how the process could be managed for exploitation of different life stages and in different parts of Europe."*

Elaboration on Advice

i) Criteria (such as stock indicators) and if possible thresholds that could be used to make a Non-Detriment Finding.

CITES Resolution Conf. 16.7 (CITES, 2013a) recommended non-binding guiding principles to Parties on the making of NDF assessments. ICES reviewed the eight resource assessment methodologies of principle 'ix' in terms of their relevance as indicators for the European eel, as described below:

- "species biology and life-history characteristics". Some aspects of eel biology would make it 'vulnerable' in CITES terms, whereas others would make it 'resilient'. Nevertheless, as none of the biological factors are expected to change significantly over the few years' time interval between NDF assessments, they were not considered a useful basis for criteria.

- "species range (historical and current)". While the range has not changed recently at a species distribution scale, it should be noted that its distribution inside watersheds may have been constrained, in particular by obstacles to migration. Although the installation of eel passage solutions through EMPs will be improving this situation, this kind of change has mainly occurred over timescales of many years. As with the biological factors above, ICES considers that any significant changes in species range will take many years and therefore these were factors not considered a useful basis for criteria.

- "population structure, status and trends (in the harvested area, nationally and internationally)". These elements can change quickly and are the basis for annual stock assessments; they may therefore be suitable for criteria.

- "threats". The main threats are those that may be responsible for the decline of the species, both anthropogenic and natural in origin. The anthropogenic threats can be managed and their levels may be suitable for criteria.

- "historical and current species-specific levels and patterns of harvest and mortality (e.g. age, sex) from all sources combined". Eel fisheries exploit all life stages found in continental waters, but the fisheries are typically small-scale, spatially distributed, and diverse in gears. As a component of "threats" fisheries mortality is therefore included within relevant criteria.

- "management measures currently in place and proposed, including adaptive management strategies and consideration of levels of compliance". ICES considers that this is important to the conservation of the European eel and that management plans covering the entire stock should be in place. However, this is more practical as a condition of an NDF rather than a criterion.

- "population monitoring". This is an explicit requirement of EMPs in EU Member States producing eel, in order to provide valuable information for determining the status of the stock, as well as the impact of anthropogenic mortalities. However, as population monitoring is used to compute "population structure, status and trends" and "threats", ICES considered this was not relevant as an additional, specific criterion.

- "conservation status". Apart from its inclusion in CITES, the European eel has been classified in various lists or appendices of international conventions or nature conservation organisations, including the IUCN Red List, the OSPAR convention, Appendix II of the Barcelona convention, Appendix II of the Convention on Migratory Species, and HELCOM's list of threatened species. However, the reasons for these classifications are the status assessments derived from the other resource assessment methodologies above; ICES therefore considered that conservation status was not relevant as an additional, specific criterion.

On the basis of this consideration of the resource assessment methodologies of principle 'ix' in terms of their relevance as an indicator for the European eel, and how indicators could be applied, ICES advises that the following criteria should be considered in the development of an assessment for a non-detriment finding for European eel:

A. CITES Appendix 1 criterion. Relevant population indices should be above levels at which the species might qualify for listing in Appendix I of CITES.

Article IV.3 of CITES states: *"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."*

This means that the state of the eel relative to the level at which the species might become eligible for inclusion in Appendix I of CITES provides a criterion by which an NDF assessment for export of European eels might be made.

Guidelines on how to define the level at which the species might become eligible for inclusion in Appendix I of CITES is provided in CITES Resolution Conf. 9.24 (Rev. CoP16) on *Criteria for amendment of Appendices I and II of CITES* (CITES, 2013b). To be included in CITES Appendix I the European eel population should have shown a marked decline. The guidelines furthermore suggest that following the criteria for marked decline relative to the baseline *"in marine and large freshwater bodies, a narrower range of 5–20% is deemed to be more appropriate in most cases, with a range of 5–10% being applicable for species with high productivity, 10–15% for species with medium productivity and 15–20% for species with low productivity."*

When European eel was proposed for inclusion in the CITES Appendices I and II, an analysis by an expert panel of FAO (2007) concluded that European eel should be considered at low productivity in the northern part of its range and at medium productivity in the southern part of its range. As a decline to 15% of the baseline is the mid-point for decline between medium- and low-productivity species, ICES considers this figure to be an appropriate threshold to assess whether European eel would qualify for inclusion in CITES Appendix I or not.

The glass eel recruitment indices used by ICES in the assessment of the European eel (ICES, 2014a) form the longest and most reliable time-series that constitute an index of abundance. ICES therefore advises that the recruitment indices be used as index for the abundance of European eel and that the threshold should be set at 15% of the baseline, defined as the average glass eel recruitment of the period 1960–1979 (ICES, 2014b).

Criterion A) is the prerequisite (i.e. essential first step), but is not sufficient in itself. If A) is met, the following indicators on the State of the Stock should be considered:

B. A precautionary framework considering both stock biomass and anthropogenic mortalities. ICES advises that if escapement of silver eel is above 40% of the pristine biomass and the total anthropogenic mortality is at or below 0.92, this should be considered as a positive sign for an NDF assessment. A silver eel escapement of 40% of the pristine biomass is the target from the EU Eel Regulation, and a total anthropogenic mortality rate from glass eel to silver eel escapement of 0.92 is the estimated maximum rate that would allow the stock to reach that target.

C. Stock recovery. Indications of stock recovery are considered a positive sign for an NDF assessment. ICES advises that a significant positive glass eel recruitment trend over a minimum of one eel generation is an indication of a recovering stock, and that glass eel recruitment indices fluctuating within confidence limits of the 1960–1979 reference baseline are an indicator of a recovered stock. ICES uses the example of glass eel recruitment indices here because they form the longest and most reliable time-series available at present.

There is no scientific hierarchy or ranking to criteria B and C. The criteria are not independent of each other but are proposed here to provide CITES Scientific Authorities options for developing a case based on the data available to them.

The indicators rely on data that are of variable quality and completeness; a precautionary approach should thus be taken in cases of uncertainty or where data quality is poor.

ii) Assessment of the scale that could be used to make a Non-Detriment Finding.

The genetic structure of the European eel is panmictic in terms of genetics, all individuals belong to the same population. Whether this panmixia is achieved by random mating of adults in the Sargasso Sea or by random dispersal of the larvae on their route towards the continent, is unknown. Panmixia, however, does not necessarily imply that silver eels from all over the continental distribution area contribute to the spawning stock. The current knowledge is insufficient to conclude if all or only part of the continental stock contributes to reproduction, or if the contribution of specific regional sub-stocks is central for reproduction.

The European eel stock has a very wide distribution area, and there may be subareas where the criteria for a positive NDF could be fulfilled. However, the current knowledge on the status of regional sub-stocks and their contribution to spawning stock does not allow an assessment of the criteria advised to be used to make an NDF assessment on a finer spatial scale than the total area of distribution.

Similarly there may be water systems for which the recruitment of eels may be higher than the carrying capacity of the system, and a possible surplus of eel could thus be harvested without negative impact on the development of the eel stock. However, ICES is currently not in a position to advise on the carrying capacity of a water system and assessing a possible surplus of eel.

An NDF assessment on a finer spatial scale than the total area of distribution or only on part of the life stages from glass eel to silver eel requires that information on the contribution of the eel from the sub-area/life stage to the spawning stock is available and sufficient to assess the eel subpopulation in question, applying the advised criteria. Until such information is available ICES advises that the scale to be used to make an NDF assessment should cover the entire stock of the European eel.

iii) Assessment of possible conditions that could be used in association with a Non-Detriment Finding.

ICES advises that a condition for an NDF should be that the relevant geographical area or the life stages concerned are subject to management plans.

Basis of the advice

Background

European eel

The European eel (*Anguilla anguilla*) is distributed across the majority of coastal countries in Europe and North Africa, with its southern limit in Mauritania (30°N) and its northern limit situated in the Barents Sea (72°N), and spanning all of the Mediterranean basin. The life history of the European eel is complex and atypical among aquatic species, being facultatively catadromous and a long-lived, semelparous and widely dispersed but genetically panmictic stock.

Status of the eel stock

The most recent assessment and advice from ICES is that the status of eel remains critical and that all anthropogenic mortality (e.g. recreational and commercial fishing, hydropower, pumping stations, and pollution) affecting production and escapement of silver eels should be reduced to – or kept as close to – zero as possible (ICES, 2014a).

This advice is based on the fact that both glass eel recruitment indices used by ICES are still below the 1960–1979 levels although they have increased over the last three years, from less than 1% to 3.7% of the 1960–1979 level in the 'North Sea' series, and from 5% to 12.2% in the 'Elsewhere' series1.

The assessment is based on data from fisheries and scientific surveys. Trends in glass eel recruitment are the main tool for assessing the overall status of the eel stock in the ICES framework.

Management framework of eel

Within the European Union (EU), the stock, fisheries, and other anthropogenic impacts are managed in accordance with the European Eel Regulation (Council Regulation (EC) No. 1100/2007), "establishing measures for the recovery of the stock of European eel" (EU, 2007). The regulation sets the national management objectives for eel management plans (EMPs; Article 2.4) to "reduce anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40% of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock".

Some non-EU countries have developed eel management plans or implemented measures to protect the species.

Eel and CITES

[1] The 'North Sea' series are from Norway, Sweden, Germany, Denmark, Netherlands, and Belgium. The 'Elsewhere' series are from UK, Ireland, France, Spain, Portugal, and Italy.

European eel was CITES-listed at the 14th Conference of the Parties to CITES in June 2007, with an 18-month delay before implementation so that the listing came into effect on 13 March 2009. The listing was implemented in the EU by the inclusion of European eel in Annex B of Council Regulation (EC) No. 338/97 (EU, 1996), which is the equivalent of the CITES Appendix II.

Appendix II of CITES is for "species which although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival".

Trade is defined in CITES as "export, re-export, import and introduction from the sea". In other words, CITES only controls trade across international borders and does not have implications for trade within countries or, in this instance, the EU. CITES regulates trade through a system of permits, requiring export permits for trade in CITES Appendix II specimens.

According to the CITES procedure a positive non-detriment finding (NDF) is required before trade in specimens in CITES Appendix II can be permitted. An NDF assessment is thus the process by which the Convention seeks to ensure that international trade in CITES specimens is sustainable.

In December 2010, the EU CITES Scientific Review Group (SRG), after reviewing the status of the stock decided that it was not possible to make an NDF assessment for European eel. Since that time, trade to or from the EU of specimens of European eel has been prohibited. It should be emphasized that the decisions taken under the EU Wildlife Trade Regulations only apply to trade to and from the Community; legal harvest and trade in European eels continues in many EU Member States subject to their national legislation and the provisions of their eel management plans (EMPs).

The recent increase in ICES glass eel recruitment indices prompted the SRG to begin planning to review the decision of 2010. As there are no hard rules for the procedure of developing an NDF assessment, only guiding principles, the SRG sought advice from ICES on how those guiding principles could be interpreted for the European eel.

Approach

To address the request for advice ICES organized a Workshop on Eel and CITES. It was attended by experts in eel assessment and CITES, observers from the eel industry, and CITES Scientific Authorities. The Workshop considered information available from various CITES conferences, the European Commission's DG ENV, experiences with NDF assessments for other species, a French review of NDF requirements for eel, and reports from EIFAAC/ICES/GFCM WGEEL. The potential criteria and thresholds for an NDF assessment for European eel were evaluated, using the resource assessment methodologies suggested by the CITES Resolution Conf. 16.7 (CITES, 2013a). The ICES advice is based on the findings at the Workshop (ICES, 2015).

Sources and references

CITES. 2013a. Non-detriment findings. CITES Resolution Conf. 16.7. http://www.cites.org/eng/res/16/16-07.php.

CITES. 2013b. Criteria for amendment of Appendices I and II of CITES. CITES Resolution Conf. 9.24 (Rev. CoP16). http://www.cites.org/eng/res/09/09-24R16.php.

EU. 1996. Council Regulation (EC) No. 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein. Official Journal of the European Union L 61: 1–69.

EU. 2007. Council Regulation (EC) No. 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel. Official Journal of the European Union L 248: 17–23.

FAO. 2007. Report of the Second FAO Ad Hoc Expert Advisory Panel for the Assessment of Proposals to Amend Appendices I and II of CITES Concerning Commercially-exploited Aquatic Species. Rome, 26–30 March 2007. FAO Fisheries Report, No. 833. 133 pp. http://www.cites.org/sites/default/files/eng/cop/14/inf/E14i-38.pdf.

ICES. 2014a. European eel. *In* Report of the ICES Advisory Committee, 2014. ICES Advice 2014, Book 9, Section 9.3.7.

ICES 2014b. Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL), 3–7 November 2014, Rome, Italy. ICES CM 2014/ACOM:18. 203 pp.

ICES. 2015. Report of the Workshop on Eel and CITES (WKEELCITES), 10–12 March 2015, ICES HQ, Copenhagen, Denmark. ICES CM 2015/ACOM:44. 57 pp.