

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



Seventieth meeting of the Standing Committee
Rosa Khutor, Sochi (Russian Federation), 1-5 October 2018

Species specific matters

Maintenance of the Appendices

GUIDANCE ON THE APPLICATION OF RESOLUTION CONF. 9.24 (REV. COP17)
WHEN PREPARING TO LIST COMMERCIALY EXPLOITED
AQUATIC SPECIES IN THE APPENDICES

1. This document has been submitted by Israel (Standing Committee representative of Europe).*
2. The purpose of this document is to propose some practical guidance for the consideration of Parties intending to submit proposals to include commercially-exploited aquatic species in the CITES Appendices. The document suggests that Parties pay careful attention to FAO's recommendations for evaluating the status of commercially-exploited aquatic species in a CITES context, and to the similarities and differences between the CITES criteria, the IUCN Red List criteria, and the FAO criteria.

Background

3. Various and different criteria to characterize the state of commercially-exploited aquatic species are used by CITES, the Food and Agriculture Organization of the United Nations (FAO), and the International Union for Conservation of Nature (IUCN). The 33rd session of the FAO Committee on Fisheries (COFI), July 2018, requested that FAO continue cooperating with other international bodies to harmonize, to the extent possible, the criteria used to characterize commercially-exploited aquatic resources.
4. Ever since Resolution Conf. 9.24 was first adopted in 1994, the criteria for amendment of Appendices I and II, associated definitions, notes and guidelines, and their applicability to different groups of organisms, have been reviewed regularly by subsequent CoPs. FAO contributed significantly to this process, including through two Technical Consultations in 2000^{1,2} and 2001³ on the suitability of the CITES criteria for listing commercially-exploited aquatic species.
5. The 24th Session of COFI (2001) requested that: "the FAO Secretariat would prepare a background paper detailing as required the analysis of the CITES listing criteria, focusing on Appendix II, and proposing a scientific framework for evaluating the status of species for such listing". This FAO Secretariat document,

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

1 *FAO. 2000a. Technical Consultation on the suitability of the CITES criteria for listing commercially-exploited aquatic species. FAO Fisheries Report 629.*

2 *FAO. 2000b. An appraisal of the suitability of the CITES criteria for listing commercially-exploited aquatic species. Fisheries Circular 954.*

3 *FAO. 2001a. Report of the Second Technical Consultation on the suitability of the CITES criteria for listing commercially-exploited aquatic species. FAO Fisheries Report 667. [Also circulated as CoP12 Inf.5.]*

*Background Analysis and Framework for evaluating the status of commercially-exploited aquatic species in a CITES context,*⁴ was considered by the Second Technical Consultation and informed its conclusions.

6. CITES Parties were made aware of the recommendations of the second FAO Technical Consultation (CoP12 Inf. 5) when reviewing Resolution Conf. 9.24 in 2002. Text from FAO regarding the application of the criteria to commercially-exploited aquatic species was incorporated in Annex 5 of the Resolution (under: Definitions, explanations and guidelines).

Review of CITES criteria for listing commercially-exploited aquatic species in Appendix I with regard to FAO's criteria

7. Annex 1 of Resolution Conf. 9.24 (Rev. CoP17) sets three sub-criteria for extinction risk and hence consideration for listing in Appendix I:
 - a) small population size;
 - b) restricted area of distribution; and
 - c) a marked decline in the population size in the wild.
8. Regarding sub-criterion A: FAO concluded that, because there is no single absolute number that provides a good measure of risk of extinction for all exploited fish species, it is recommended that it is generally preferable to consider the size of a population in relation to a reference baseline; i.e. to consider the historical-extent-of-decline.
9. Regarding sub-criterion B: FAO concluded that area of distribution is unlikely to be useful to protect exploited fish species, but may be applicable for certain reef fish and other completely or largely sessile species. Historical-extent-of-decline of the area of distribution should normally be used in preference to absolute measures for this Criterion.
10. Regarding sub-criterion C: FAO recognised that this is the criterion likely to be employed most frequently for exploited fish species. Decline can be expressed in two fundamentally different ways: (i) the **overall historical-extent-of-decline** and (ii) the **recent-rate-of-decline**. FAO recommended that:
 - *The overall [historical]-extent-of-decline is the most important, but these two metrics of population decline should be considered together.*
 - *The greater the historical-extent-of-decline, the greater the concern associated with a given recent-rate-of-decline.*
 - *[Recent-] rate-of-decline could be considered as a surrogate for historical-extent-of-decline when a baseline population size cannot be estimated.*
 - *A recent-rate-of-decline is important only if it is still occurring, or may resume, and is projected to lead to the species reaching the Appendix I guidelines within approximately a 10-year period, otherwise the overall [historical]-extent-of-decline is what is important.*
11. Some of FAO's recommendations, along with those of the CITES Criteria Working Group and many subsequent CITES deliberations, were incorporated into footnote 2 to Annex 5 of Resolution Conf. 9.24 (Rev. CoP17), on "Application of decline for commercially exploited aquatic species", which states:
 - *In general, the historical extent of decline should be the primary criterion for consideration of listing in Appendix I. However, in circumstances where information to estimate the [historical] extent of decline is limited, the rate of decline over a recent period could itself still provide some information on the [historical] extent of decline.*
12. Furthermore, FAO recommended that the historical extent-of-decline applied when evaluating exploited fish species against the listing criteria should relate to the productivity of the species in question, with a decline to 5-10% of baseline relevant for considering listing high productivity species in Appendix I, 10-15% of

⁴ FAO. 2001b. *A background analysis and framework for evaluating the status of commercially-exploited aquatic species in a CITES context.* <http://www.fao.org/docrep/meeting/003/Y1455E.htm>

baseline for medium productivity species, and 15-20% of baseline for low productivity species. This range is less precautionary than the CITES guideline for a marked historical extent of decline recommended in the main text of Resolution Conf. 9.24 (Rev. CoP17), which is a percentage decline to 5%-30% of the baseline for Appendix I, depending on the biology and productivity of the species. It recognises the fact that most commercially exploited aquatic species are more productive than most exploited terrestrial species.

13. FAO and CITES recognise that the extremes of these ranges (5% & 20%, 5% & 30%, respectively) will be applicable to only a relatively small number of species, but some species may even fall outside of these extremes (in either direction).
14. The general guideline for a marked recent rate of decline suggested in Resolution Conf. 9.24 (Rev. CoP17), is a percentage decline of 50% or more in the last 10 years or three generations, whichever is the longer. This is similar to the IUCN Red List criteria for an Endangered species whose population is declining (see paragraph 18 and Table 2). In contrast, the footnote for commercially-exploited aquatic species suggests that a general guideline for a marked recent-rate-of-decline is the rate of decline that would drive a population down within approximately a 10-year period from the current population level to the historical-extent-of-decline guideline (i.e. to 5-20% of baseline for exploited fish species).
15. Table 1 is partly extracted from FAO (2001a), but extended to include columns for declines to 25% and 30% of baseline – which FAO does not consider appropriate for commercially-exploited aquatic species. It presents the cumulative 10-year rates of decline (and corresponding average annual rates of decline) that would drive a population down from the current historical extent of decline to a potential level that could trigger consideration of listing on Appendix I, depending on the productivity of the species and whether the FAO or the CITES historical-extent-of-decline guidelines are being applied.

CITES criteria for listing commercially-exploited aquatic species in Appendix-II with regard to FAO's criteria

16. Regarding the criteria for Appendix II, including regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future: FAO and other Criteria Working Group members recommended adding a “buffer” of 5-10% to the Appendix I guideline to trigger consideration for Appendix II. This recommendation is now incorporated into the footnote on "Application of decline for commercially exploited aquatic species", to Annex 5 of Resolution Conf. 9.24 (Rev. CoP17) as follows:
 - *A range of between 5 % and 10 % above the relevant extent of decline might be considered as a definition of 'near', taking due account of the productivity of the species.*
 - *For listing in Appendix II, the historical-extent-of-decline and the recent-rate-of-decline should be considered in conjunction with one another. The higher the historical-extent-of-decline, and the lower the productivity of the species, the more important a given recent-rate-of-decline is.*
17. Even if a population is not declining appreciably, FAO suggested it could be considered for listing on Appendix II if it is between 5% and 10% above the relevant extent-of-decline guidelines recommended for consideration for Appendix I. Thus, for a low productivity commercially-exploited aquatic species, a decline to 20% of baseline is a trigger for consideration of listing in Appendix I, or a decline to 30% of baseline for Appendix II.

Differences between the FAO and CITES criteria, and the IUCN Red List population-decline criterion

18. The primary difference between the FAO and CITES criteria, and the IUCN Red List population decline criterion A, is that IUCN only measures declines over a ten-year or a three-generation period (whichever is the longer) when assessing species for inclusion in the Red List of Threatened Species. The IUCN criteria are more precautionary for relatively newly-exploited species, with a population reduction (past, future or ongoing) of as little as ≥30% (i.e <70% of baseline) qualifying a species for Vulnerable, ≥50% for Endangered and ≥80% for Critically Endangered (see Table 2). The IUCN Criteria are, however, far less precautionary for populations that have been declining for long periods if the population remains stable at a lower level (or continues to slowly decline) once a three-generation period has elapsed following the original decline. This applies to, for example, many large terrestrial species that are currently only a small fraction of their historical size. It should also be noted that the footnote to Annex 5 of Resolution Conf. 9.24 (Rev. CoP17) on "Application of decline for commercially exploited aquatic species", states that “*There should rarely be a need for concern for [commercially exploited aquatic] populations that have exhibited an historical extent of decline of less than 50%, unless the recent rate of decline has been extremely high*”.

Guidance for Parties developing proposals to list commercially-exploited aquatic species in the Appendices

19. Parties intending to develop listing proposals for commercially-exploited aquatic species are urged to take careful note of FAO's recommendations on the application of the listing criteria for commercially-exploited aquatic species. These are summarised above and provided in the footnote to Annex 5 of Resolution Conf. 9.24 (Rev. CoP17). Additional detail is provided in the FAO documents cited here. FAO (2001b) provides useful case studies illustrating population trends that meet, or do not meet, the criteria for listing.
20. Parties are reminded that FAO advised that the historical-extent-of-decline is of primary importance in determining whether fish stocks and species meet the criteria for listing. Proponent Parties are urged to address the historical-extent-of-decline in section 4.4 Population Trends of their proposals, as well as providing information on the recent-rate-of-decline and other available trends.
21. The Annex to the resent document provides some brief guidance for developing estimates of historical-extent-of-decline and recent-rates-of-decline. This is presented in the hope that other Parties may find this useful when considering whether to present proposals to list commercially-exploited aquatic species, preparing any such proposals, and consulting range States and intergovernmental bodies having a function in relation to the species.

Standing Committee Actions

22. The Standing Committee is invited to note this document, and to adopt two Decisions:

Decision XX.AA directed to Parties, UN Agencies, IGO and NGO observers

The Standing Committee requests that Parties, UN Agencies, IGO and NGO observers consider assisting Parties that are preparing proposals to list commercially-exploited aquatic species in the CITES Appendices, by developing other tools and associated guidance for estimating the historical-extent-of-decline from baseline and recent-rate-of-decline for data-poor fish stocks. For example, this might be achieved by reference to fishing effort for data-rich species caught in the same fisheries, or by extrapolating population trends for similar species in other fisheries, or in other regions.

Decision XX.BB directed to the FAO Expert Panel

The FAO Expert Panel, and other intergovernmental bodies, are requested to assist CITES Parties that are preparing proposals to list commercially-exploited aquatic species in the CITES Appendices, by developing and/or clarifying estimates of historical-extent-of-decline and recent-rate-of-decline where proponent Parties have not been able to determine these in sufficient detail.

Table 1. Historical extent of decline that could trigger consideration of listing in Appendix I.

The table is based on FAO Fisheries Report No. 667 (CITES CoP12 Inf. 5). It shows the cumulative ten-year rates of decline, and the corresponding average annual rates of decline are in parentheses. The shaded left-hand columns (30% and 25%) are not recommended by FAO for application to commercially-exploited aquatic species and do not appear in FAO Fisheries Report No. 667, but were calculated by extrapolation and are added here for reference.

Current population as % of baseline	Historical extent of decline that could trigger consideration of listing on Appendix I					
	30%	25%	20%	15%	10%	5%
100%	70% (11%)	75% (13%)	80% (15%)	85% (17%)	90% (21%)	95% (26%)
90%	67% (10%)	72% (12%)	78% (14%)	83% (16%)	89% (20%)	94% (25%)
80%	63% (9%)	69% (11%)	75% (13%)	81% (15%)	88% (19%)	94% (24%)
70%	57% (8%)	64% (10%)	71% (12%)	79% (14%)	86% (18%)	93% (23%)
60%	50% (5%)	58% (9%)	67% (10%)	75% (13%)	83% (16%)	92% (22%)
50%	40% (4%)	50% (7%)	60% (9%)	70% (11%)	80% (15%)	90% (21%)
40%	25% (3%)	38% (5%)	50% (7%)	63% (9%)	75% (13%)	88% (19%)
30%	0%	17% (2%)	33% (4%)	50% (7%)	67% (10%)	83% (16%)
25%	0%	0%	18% (1%)	38% (5%)	60% (9%)	79% (15%)
20%	0%	0%	0%	25% (3%)	50% (7%)	75% (13%)
15%	0%	0%	0%	0%	33% (4%)	67% (10%)
10%	0%	0%	0%	0%	0%	50% (7%)
5%	0%	0%	0%	0%	0%	0%

Table 2. IUCN Red List Criterion A. Population Size Reduction, used to evaluate if a taxon belongs in an IUCN Red List Threatened category (from: IUCN, 2012; and IUCN Standards and Petitions Subcommittee, 2017).

Sub-criteria	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%

Explanation of sub-criteria (from: IUCN, 2012):

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of ≥ 90% over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:
 - (a) direct observation
 - (b) an index of abundance appropriate to the taxon
 - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - (d) actual or potential levels of exploitation
 - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
2. An observed, estimated, inferred or suspected population size reduction of ≥ 80% over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of the following:
 - (a) direct observation
 - (b) an index of abundance appropriate to the taxon
 - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat

- (d) actual or potential levels of exploitation
 - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
3. A population size reduction of $\geq 80\%$, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of the following:
 - (b) an index of abundance appropriate to the taxon
 - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - (d) actual or potential levels of exploitation
 - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
 4. An observed, estimated, inferred, projected or suspected population size reduction of $\geq 80\%$ over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of the following:
 - (a) direct observation
 - (b) an index of abundance appropriate to the taxon
 - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - (d) actual or potential levels of exploitation
 - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites

References

- FAO. 2000a. *Technical consultation on the suitability of the CITES criteria for listing commercially-exploited aquatic species*. FAO Fisheries Report 629. FAO, Rome, Italy.
- FAO. 2000b. *An appraisal of the suitability of the CITES criteria for listing commercially-exploited aquatic species*. FAO Fisheries Circular 954. FAO, Rome, Italy.
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- FAO. 2001b. *A background analysis and framework for evaluating the status of commercially-exploited aquatic species in a CITES context*. <http://www.fao.org/docrep/meeting/003/Y1455E.htm>
- IUCN. 2012. *IUCN Red List Categories and Criteria: Version 3.1*. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp.
- IUCN Standards and Petitions Subcommittee. 2017. *Guidelines for using the IUCN Red List Categories and Criteria: Version 13*. Downloadable from: <http://www.iucnredlist.org/documents/RedListGuidelines.pdf>.

Suggested guidance for developing estimates of historical-extent-of-decline and recent-rate-of-decline for commercially-exploited aquatic species

1) Identify the starting date for the historical-extent-of-decline

This is the year, or at least the decade, when the original, baseline population was first exposed to fisheries. Always go as far back in time as possible, at least to the point at which substantial, industrial-scale, exploitation and population depletion likely began.

If a stock assessment is available for one or more populations of the candidate species, or for another commercial species captured in the same fishery, the assessment should identify this baseline. The beginning of the historical-extent-of-decline period for a bycatch species is unlikely to be later than the start of a fishery targeting a closely associated species.

If no stock assessments are available, it should still be possible to estimate the period when significant levels of fisheries mortality began to affect the population under consideration for listing. This can be done by studying the history of fisheries in the candidate species' geographic range. For example, a population decline in a species that is vulnerable to gillnetting could date from the widespread introduction of cheap artificial fibre monofilament nets, or (for pelagic species) large-scale oceanic net fisheries.

The baseline for a benthic species that is vulnerable to trawling may be set when large motorised trawl vessels were introduced.

For oceanic pelagic species, the expansion of long-lining fleets in the world's oceans may mark the point at which these significant population declines began.

For most species taken in large-scale commercial fisheries, the baseline for the historical-extent-of-decline is likely to date from the 1950s-1960s. Exceptions may be deep-sea species; as commercial deep-water fisheries did not develop until the 1980s-1990s in most ocean regions.

2) Evaluate the overall historical-extent-of-decline

The primary criterion for listing commercially exploited aquatic species is the historical-extent-of-decline. Compare the current population size with the original unexploited population size to determine this. Stock size (S or B) may be described either as numbers of recruited, vulnerable, exploitable or mature animals, or as the biomass (weight) of the same. If a fisheries stock assessment is available, it will indicate when exploitation began, and provide estimates of the original population size before depletion commenced and also the current biomass (B_{current}). The original population size may be termed virgin biomass, B_0 (the biomass at start of exploitation), B_{inf} (the carrying capacity or unexploited biomass), or K: the carrying capacity or unexploited biomass (in a biomass dynamics model).

Thus, the overall historical extent-of-decline is calculated as the difference between the virgin or unexploited biomass (B_0 , B_{inf} or K) and the current biomass, B_{current} .

When similar patterns of fishing pressure occur in different ocean regions, a stock assessment in one region may be used to infer declines in other parts of the species' range through qualitative comparisons of the type, size and extent of these other fisheries.

If an unassessed species under consideration for listing in the CITES Appendices is taken as a bycatch in fisheries targeting a more valuable commercial species, stock assessments for the target species will indicate when the fishery began. If bycatch mortality (retained or discarded) is high, the biomass trend for a target species may provide a surrogate for the decline in the bycatch species. This may be an under-estimate of the extent of decline of a bycatch species if it is less productive than the target species, or if the target species is under quota management, which can lead to increased retention of unregulated bycatch or 'by product' species.

Where stock assessments are not available, other metrics can be considered, such as catch per unit effort (CPUE) for bycatch and/or target species, which may be a useful indicator of population trends.

IUCN Red List assessments (regional and global) may be available for candidate species. For very long-lived species, the start of the three-generation period used to measure declines for the Red List may also be the historical baseline for fisheries exploitation. If not, the three-generation decline calculated for a Red List assessment is the same as the 'recent-rate-of-decline' suggested by CITES in Resolution Conf. 9.24 (Rev. CoP17). However, account needs to be taken of the statement in the footnote for commercially exploited aquatic species that "*There should rarely be a need for concern for [commercially exploited aquatic] populations that that have exhibited an historical-extent-of-decline of less than 50%, unless the recent-rate-of-decline has been extremely high*".

3) Evaluate the recent-rate-of-decline

There is often more information available on recent-rates-of-decline (during the most recent 10-30 years) than declines from historical baselines. This can often be due to poor catch reporting, or to limited research effort in earlier years. As described above, the three-generation decline period estimated for an IUCN Red List assessment, if available, is the same as the recent-rate-of-decline suggested by CITES.

Catch per unit effort and reported landings of the species under consideration (or closely related species, or species taken in the same fisheries) may need to be used as surrogates for estimates of population declines.

Resolution Conf. 9.24 (Rev. CoP17) notes that the recent-rate-of-decline is important only if it is still occurring, or may resume, and is projected to lead to the species reaching the Appendix I guidelines within approximately a 10-year period. However, the recent-rate-of-decline can also be used in combination with information on historical fishing pressure to extrapolate back to the historical baseline, and to produce an estimate of the overall historical-extent-of-decline since large-scale fisheries began.