

CITES

Proposed revision of Resolution Conf. 9.24 (CoP12 Com. I. 3)

Criteria for listing on Appendix I and Appendix II

Test of the applicability of the criteria

This document has been prepared to facilitate the assessment of the proposed revision of Resolution Conf. 9.24 (CoP12 Com. I. 3) using an individual plant or animal taxon.

Notice to reviewers: This review should focus on whether the criteria in Table 1, Table 2 and the accompanying definitions, explanations, and guidelines in Annex 5, are biologically sound and applicable for the taxon under review. The purpose of this review is not to determine whether the current listing status of the taxon under review is appropriate.

Registration Form and Contact Details

Please fill in the details below and send the completed document, as appropriate, to the Chairman of the Animals Committee or the Chairman of the Plants Committee.

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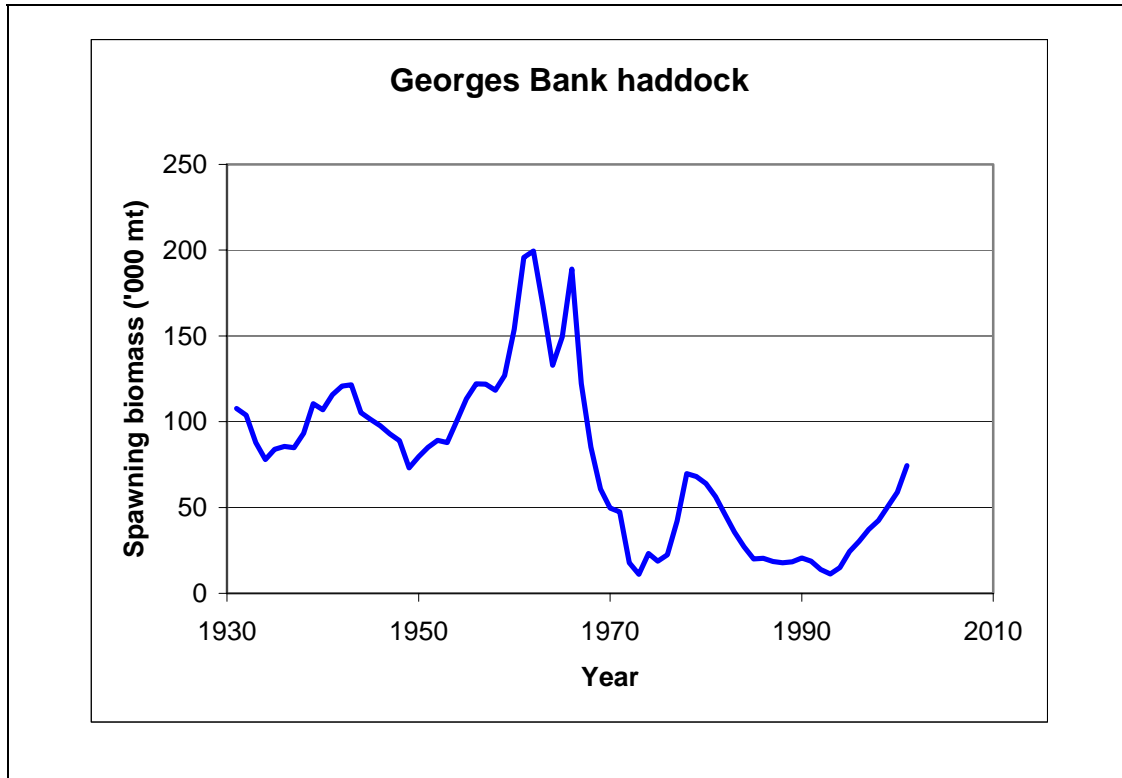
Taxon reviewed (including common and taxonomic names):

Georges Bank haddock (*Melanogrammus aeglefinus*)

General notes about this species review:

The Georges Bank haddock population experienced very high recruitment in 1963, which resulted in a large increase in the number of vessels in the fishery and subsequent overfishing of the stock. The stock reached its lowest level in 1973, and it is only recently that fishing mortality has been brought under control and the long-term outlook for the stock looks excellent. This review is intended to evaluate what would / could have happened if the current CITES criteria and guidelines had been applied to the population as it was in 1973. Similar evaluations for the most recent year (2001) are also included for comparison. In addition, two different baselines for historical population size are used: the average spawning stock biomass from 1931-60 and the maximum spawning stock biomass, which occurred in 1966 possibly in response to anomalously favorable environmental conditions, rather than average conditions. The following graphic depicts the trends in spawning biomass from 1931 to 2001.

OVERALL CONCLUSION: Georges Bank haddock would have deservedly qualified for listing on Appendix 1 based on 1973 biological and trade data, but does not qualify now.



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Instructions on conducting the criteria review

- Tables 1 and 2 outline the proposed draft criteria for listing species on Appendix I and Appendix II of CITES, respectively. These should be read in conjunction with the definitions, explanations, and guidelines included in the proposed amendment of Annex 5.
- Please test the criteria for Appendix I and II using the information you have for the taxon selected i.e. fill out Table 1 and Table 2. This allows a more complete test of the criteria in the short time allowed to us.
- If you fill in this form electronically then these definitions and explanations can be accessed by clicking on the Hyperlink within the table (or 'Ctrl' and click). To get back to the text after clicking a Hyperlink you click on the 'Back' arrow in the Web toolbar (if this is not set up in your version of Word then go to 'View' in the Word menu, then 'Toolbars' and click on 'Web').
- We have provided a copy of the definitions and explanations (Annex 5) at the end of this document for those who wish to fill in the tables as a hard copy.
- Using the data available to you for your chosen taxon please indicate the key data that you used to make your decision, and any problems you had in interpreting or applying the criteria for your chosen taxon.
- Once completed, please send electronic copies and/or hard copies of the review, as appropriate, to the Chair of the Plants Committee or Animals Committee.
- Thank you for taking part in this process.

The Completed forms must be returned by 31 October 2003

Table 1 – Comments from reviewer on applicability of criteria for listing on Appendix I

<p style="text-align: center;">CRITERON</p> <p>For your information for a species to fulfill the draft criteria for Appendix I it must meet the trade criteria and at least one of the criteria A-D.</p>	<p style="text-align: center;">NOTES</p> <p>Whenever appropriate, indicate ways in which this criterion and definitions, explanations and guidelines could be improved and/or quantified to better suit this taxon and its relatives (If you need additional space, please use a separate sheet of paper).</p> <p>For the following specific questions, if a point estimate is not available, please provide a likely range of values (e.g., “about 6,000 – 10,000 individuals”) or some kind of rough estimate or inference (e.g., “likely to be less than 500 square kilometres”). Please try to make a numerical guess or give a verbal description and only use DNW (Do Not Know) if there is truly no information available on the quantity in question.</p>
<p>Trade Criterion Is or may the <u>species</u> be <u>affected by trade</u>?</p>	<p>YES, the species was and is heavily traded internationally, mostly being exported from Canada. The adjective “international” should be added before “trade”.</p>
<p>A) The <u>wild population is small</u>, and is characterized by at least one of the following (see definitions below):</p>	<p>What was/is the estimated size of the <u>population</u>? Please include units of measurement.</p> <p>No, this criterion would never have been satisfied</p>

	<p style="text-align: center;">Spawning biomass</p> <p>Average 1931-60: 102,000 mt Maximum 1966: 189,000 mt Minimum 1973: 11,000 mt Current 2001: 74,000 mt</p> <p style="text-align: center;">Spawning numbers (approx)</p> <p>125 million 290.4 million 7.2 million 54.7 million</p> <p>Comments: The Annex 5 numeric guideline for a small wild population of 5,000 individuals is not useful for Georges Bank haddock, nor for other commercially-exploited fish stocks, nor perhaps for any taxa other than some large terrestrial vertebrates or some marine mammals. Haddock recruitment is so variable that it is highly likely that a population considerably higher than 5,000 individuals would not be viable. A much higher number of, say, 500,000 would be a better guideline. Although 500,000 may seem high to some people, these fish have strong aggregating behaviour and may be highly vulnerable to extinction at this level. Overall, a more useful Annex 5 guideline might be to set a range of about 5,000 to 500,000, depending on the productivity and variability of the population in question.</p>
A)(i) an observed, inferred or projected <u>decline</u> in the number of individuals or the area and quality of habitat; or	
A)(ii) each <u>sub-population</u> being <u>very small</u> ; or	<p>What were/are the estimated sizes of the <u>subpopulation(s)</u>? Please include units of measurement.</p> <p>This population or “stock” of fish is not split into subpopulations</p>
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one <u>sub-population</u> ; or	
A)(iv) large short-term <u>fluctuations</u> in the number of individuals appropriate to measuring population size for the species concerned;	<p>If the population was/is characterized by large short-term <u>fluctuations</u> in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years?</p>
A)(v) a high <u>vulnerability</u> due to the species' biology or behaviour (including migration).	

<p>B) The wild population has a restricted <u>area of distribution</u> and is characterized by at least one of the following (see definitions below):</p>	<p>What was/is the estimated <u>area of distribution</u>? If listing on the basis of one or more <u>sub-populations</u>, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement?</p>
	<p>No, this criterion would never have been satisfied</p> <p>Very approximate areas of distribution Average 1931-60: 60,000 km² Maximum 1966: 64,000 km² Minimum 1973: 13,000 km² Current 2001: 55,000 km²</p>
<p>B)(i) <u>fragmentation</u> or occurrence at very few locations; or</p>	
<p>B)(ii) large fluctuations in the <u>area of distribution</u> or the number of <u>sub-populations</u>; or</p>	
<p>B)(iii) a high <u>vulnerability</u> due to the species' biology or behaviour (including migration); or</p>	
<p>B)(iv) an observed, inferred or projected decrease in any one of the following:</p>	
<p>the <u>area of distribution</u>; or</p>	
<p>the area of habitat; or</p>	
<p>the number of <u>sub-populations</u>; or</p>	
<p>the number of individuals; or</p>	
<p>the quality of habitat; or</p>	
<p>the recruitment.</p>	

C) **A marked decline in population size in the wild, which has been either** (see definitions below):

Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ___% of the historical levels of ___ years ago.)

Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which).

For Historical Extent of Decline:

This criterion could have been satisfied in 1973

It would not be satisfied in 2001

For Recent Rate of Decline:

This criterion could have been satisfied in 1973

It would not be satisfied in 2001

Historical extent of decline

(A) If the baseline = Average spawning biomass over the period 1931-60 (102,000 mt), then

Minimum 1973: declined to 10.8% of baseline

Current 2001: declined to 72.5% of baseline

(B) If the baseline = Maximum spawning biomass, which occurred in 1966 (189,000 mt), then

Minimum 1973: declined to 5.8% of baseline

Current 2001: declined to 39.2% of baseline

Recent rate of decline

Spawning biomass declined by 94.2% from 1966 to 1973

Spawning biomass declined by 93.4% from 1963 to 1973

Spawning biomass declined by 89.7% from 1931 to 1973

Spawning biomass increased 3.99 times from 1991 to 2001

Spawning biomass increased 1.32 times from 1981 to 2001

	<p>Comments: Haddock are considered to have high productivity, but also high variability. They would fit into the 5-10% category for the historical extent of decline criterion (as laid out in detail in the Annex 5 footnote for commercially-exploited fish stocks), though they may be closer to the 10% end. Thus, depending on the baseline used, they could have met this decline criterion AND the current Annex 5 numeric guidelines in 1973. However, the population has recently increased considerably and would not now meet this criterion.</p> <p>It would be useful if Annex 5 gave more guidance on how to define historical baselines for assessing the historical extent of decline, how to define and measure population “productivity”, and a rationale for the choice of the 5-30% range for historical extent of decline, as well as better guidance on when to use which part of this range.</p> <p>In terms of recent rate of decline, the haddock population would easily have satisfied the decline criterion and the Annex 5 numeric guidelines (50% in 10 years or three generations, whichever is the longer; or is it 50% in 5 years or two generations, whichever is the longer? – note the transcription error in going from Resolution Conf. 9.24 to the current text, in which the time frames for average populations and small populations have been inadvertently switched) in 1973. However, a decline of 50% in a fish population is rarely considered to be problematic, unless the stock has already experienced substantial decline. Therefore, it is essential to track declines from as far back in history as possible.</p> <p>The criterion “a high <u>vulnerability</u> due to the species' biology or behaviour (including migration)” should be added to the list under C, as it is for A and B. However, it would also be useful if Annex 5 provided more guidance on how to apply the vulnerability factors.</p>
<p>C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or</p>	<p>This criterion could have been satisfied in 1973 It would not be satisfied in 2001</p>
<p>C)(ii) inferred or projected on the basis of any one of the following:</p>	
<ul style="list-style-type: none"> • a decrease in area of habitat; or 	

<ul style="list-style-type: none"> • a decrease in quality of habitat; or 	
<ul style="list-style-type: none"> • levels or pattern of exploitation; or 	<p>This criterion could have been satisfied in 1973 (exploitation rates were far too high) It would not be satisfied in 2001</p>
<ul style="list-style-type: none"> • threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or 	
<ul style="list-style-type: none"> • a decreasing recruitment 	<p>This criterion could have been satisfied in 1973 It would not be satisfied in 2001</p>
<p>D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?</p>	

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

- | | | |
|---|---|---|
| <input type="checkbox"/> low fecundity | <input type="checkbox"/> specialized niche requirements (e.g. diet and habitat) | <input type="checkbox"/> threats from disease |
| <input type="checkbox"/> slow growth rate | <input type="checkbox"/> species associations such as symbiosis and other forms of co-dependency | <input type="checkbox"/> threats from invasive species |
| <input type="checkbox"/> high age at first maturity | <input type="checkbox"/> fragmentation and habitat loss | <input type="checkbox"/> threats from rapid environmental change (e.g. climate regime shifts) |
| <input type="checkbox"/> distorted age, size or sex ratio | <input type="checkbox"/> reduced genetic diversity | <input type="checkbox"/> selectivity of removals (that may compromise recruitment) |
| <input type="checkbox"/> complex social structure | <input type="checkbox"/> depensation (prone to continuing decline, even in the absence of exploitation) | <input type="checkbox"/> Other (please specify) |
| <input type="checkbox"/> extensive migratory behaviour | <input type="checkbox"/> high degree of endemism | |
| <input checked="" type="checkbox"/> strong aggregating behaviour (e.g., schooling) | | |
| <input type="checkbox"/> low population density (for sessile or semi-sessile species) | | |

Table 2 – Comments from reviewer on applicability of criteria for listing on Appendix II

<p style="text-align: center;">Criterion</p> <p>For your information for a species to fulfill the draft criteria for Appendix II it must meet at least one of the criteria A-D.</p>	<p style="text-align: center;">NOTES</p> <p>Whenever appropriate, indicate ways in which this criterion and definitions, explanations and guidelines could be improved and/or quantified to better suit this taxon and its relatives (If you need additional space, please use a separate sheet of paper).</p>
<p>Trade Criterion Is or may the <u>species</u> be <u>affected by trade</u>?</p>	<p>YES, the species was and is heavily traded internationally, mostly being exported from Canada. The adjective “international” should be added before “trade”.</p>
<p>A) It is known, or can be inferred, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.</p>	<p>This criterion could have been satisfied in 1973 It would not be satisfied in 2001</p>
<p>B) It is known, or can be inferred or projected, that harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by either:</p>	
<p>B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.</p>	<p>This criterion could have been satisfied in 1973 It would not be satisfied in 2001</p>
<p>B)(ii) Reducing it to a population level at which its survival would be threatened by other</p>	<p>This criterion could have been satisfied in 1973 It would not be satisfied in 2001</p>

influences.	
B) The specimens of the species in the form in which they are traded resemble specimens of a species included in Appendix II under the provisions of Article II, paragraph 2(a), or in Appendix I, such that a non-expert, with reasonable effort, is unlikely to be able to distinguish between them.	N/A
C) There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.	N/A

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

- | | | |
|---|---|---|
| <input type="checkbox"/> low fecundity | <input type="checkbox"/> species associations such as symbiosis and other forms of co-dependency | <input type="checkbox"/> threats from rapid environmental change (e.g. climate regime shifts) |
| <input type="checkbox"/> slow growth rate | <input type="checkbox"/> fragmentation and habitat loss | <input type="checkbox"/> selectivity of removals (that may compromise recruitment) |
| <input type="checkbox"/> high age at first maturity | <input type="checkbox"/> reduced genetic diversity | <input type="checkbox"/> Other (please specify) |
| <input type="checkbox"/> distorted age, size or sex ratio | <input type="checkbox"/> depensation (prone to continuing decline, even in the absence of exploitation) | |
| <input type="checkbox"/> complex social structure | <input type="checkbox"/> high degree of endemism | |
| <input type="checkbox"/> extensive migratory behaviour | <input type="checkbox"/> threats from disease | |
| <input checked="" type="checkbox"/> strong aggregating behaviour (e.g., schooling) | <input type="checkbox"/> threats from invasive species | |
| <input type="checkbox"/> low population density (for sessile or semi-sessile species) | | |
| <input type="checkbox"/> specialized niche requirements (e.g. diet and habitat) | | |

General comments:

It would be useful if Annex 5 gave more guidance on how to define historical baselines for assessing the historical extent of decline.

It would be useful if Annex 5 gave more guidance on how to define and measure population “productivity”.

It would be useful if Annex 5 provided a brief rationale for the choice of the 5-30% range for historical extent of decline, as well as better guidance on when to use which part of this range.

Annex 5 guidelines for a marked recent rate of decline: The original Resolution Conf. 9.24 states, “... a decrease of 50% or more in total within 5 years or two generations, whichever is the longer, has been found to be an appropriate guideline (not a threshold) of what constitutes a decline. A guideline (not a threshold) of what constitutes a decline in a small wild population could be 20% or more in total within ten years or three generations, whichever is the longer”. However, Document CoP12 Com. I. 3 states “... a general guideline for a marked recent rate of decline is a percentage decline of 50% or more in the last 10 years or three generations, whichever is the longer. If the population is small, a percentage decline of 20% or more in the last 5 years or 2 generations (whichever is the longer) may be more appropriate”. Note how the time frames over which to consider decline have been switched around. “Marked decline” is now lower for a “normal” population, but a higher rate is required to qualify as “marked” for “small” population. This happened in an earlier revision of Res. Conf. 9.24 and since there was no justification given for the change, it was probably a mistake. In fact, it appears that the linkage of percentage declines and time frames may not be particularly useful. Perhaps it would be more meaningful and easier to interpret if a general guideline for a marked recent rate of decline was defined as “...an estimated or projected percentage decline of 20%-50% or more over a period of 10 years or two generations, whichever is longer. Here, the lower end of the range applies for populations that are small or have low productivity and the upper end of the range for populations that are relatively large or have high productivity”

It would be useful if Annex 5 provided guidance on what constitutes a “small wild population” that improved on the current single number of 5,000 individuals. For example, a range of, say 5,000 to 500,000 could be given, with the lower end of the range being applicable for species with low productivity and the upper end for species with high productivity; the rationale being that high productivity is usually associated with both high absolute numbers (for an undisturbed population) and high variability. Better guidance could also be provided for what constitutes a “very small wild sub-population”.

The Annex 5 definition of “generation length”, while technically accurate, may not be operational (i.e., able to be put into practice). The definition implies a need to determine which of the mature individuals in the population are actually the parents of the current cohort (i.e., it would exclude adult females who did not conceive or aborted during the most recent breeding season, adult males that did not successfully inseminate females, adult “helpers”, and others).

It would be useful if Annex 5 provided more guidance on how to apply the vulnerability factors.

Acknowledgements

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References

- Brown, R.W., and N.J. Munroe. 2000. Stock assessment of Georges Bank haddock, 1931-1999. Northeast Fisheries Science Center Reference Document, NEFSC, Woods Hole, MA 02543.
- NMFS 2002. Assessment of 20 Northeast Groundfish Stocks through 2001: A Report of the Groundfish Assessment Review Meeting (GARM), Northeast Fisheries Science Center, Woods Hole, Massachusetts, October 8-11, 2002.