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The Status of Atlantic Bluefin Tuna

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The concerns expressed by Losada et al. rest on three points: (1) the level of scientific evidence for BFT listing; (2) the fact that listing BFT would have set a precedent and (3) the potential role of CITES in fisheries management.

Regarding the scientific evidence, it is a fact that there are great uncertainties in determining whether the current stock status of bluefin tuna (BFT) really meets the CITES biological listing criteria. The scientific committee of ICCAT, the group of international experts that is responsible for assessing BFT stock status and had made the original diagnosis of severe overexploitation, was solicited to perform this analysis (1). While two CITES criteria were not relevant for BFT, a third one ("a marked decline") could be. However, its evaluation necessitated the estimation of key parameters that are currently highly uncertain, particularly the reference biomass level. Therefore, two historical baselines were considered: (i) the highest observed historical level and (ii) the virgin biomass. With regards to the first one, there is only 21% to 30% probability that CITES criterion is met while there is more than 92% probability with the second (1). However, there was no scientific consensus as which of the two options to choose as the reference level. This critical scientific uncertainty which was also reported by the FAO panel totally disappeared from the public debate, as in Losada et al's response.

Regarding the possible precedent, it is correct that BFT would have not been the first commercially exploited marine species to be listed on Appendix I, but the first commercially exploited marine bony fish species. I should have been more specific.

Regarding the role of CITES, I agree that fisheries organisations and CITES could work together (as CITES and FAO do), but this is a challenging task, see (2). I am not a legal expert and my reasoning is rather simple. The poor performance of the fisheries organisations that has been thoroughly analysed and transparently reported (e.g. 3) led to 100 fish species (or more) that are as or even more overfished than BFT (4-5). I, therefore, reckon that the same process could logically lead to the listing of these 100 species. This rationally raises the question as to whether CITES would do better than fisheries organisations. In the specific case of BFT, Appendix 1 would ban most of the legal fishing, but could have little impact on illegal fishing from pirate vessels or vessels flying flags of convenience. As with many CITES species of high value, a lucrative black market is likely to develop. Therefore, the fishing pressure could remain at significant, but unknown, level. Meanwhile, the Appendix 1 listing will also impair future scientific advice because it will curtail the flow of adequate fisheries information - the key source of information for the stock assessment of large pelagic fish. I have not the answer to these questions, but I think, as many of my colleagues, that these concerns are legitimate and have to be raised.

Unfortunately, the debate around BFT has become too political and, thus, too black and white. In such an arena, the scientific advice is truncated, sometimes distorted, while the inherent complexity and uncertainties are simply ignored. Stakeholders and fisheries lobbies have played this game for decades leading to the severe overfishing of BFT. It is more than timely to have an open-minded and dispassionate debate and crucial to separate science and political issues.

1. ICCAT, "Extension of the 2009 SCRS Meeting to Consider the Status of Atlantic Bluefin Tuna Populations with Respect to CITES Biological Listing Criteria" (ICCAT, Madrid, 2010).
2. P. Doukakis *et al.*, *Conservation Biology* **23**, 841 (2008).
3. S. Garcia, J. R. Grainger, *Phil. Trans. R. Soc. B* **360**, 21 (2005).
4. FAO, "The state of the world fisheries and aquaculture 2008" (FAO Fisheries and Aquaculture Department, Rome, 2009).
5. B. Worm *et al.*, *Science* **325**, 578 (2009).