Endangered Species Act Status Review Report for the Orange Clownfish, *Amphiprion percula*

We solicited review of the Status Review Report from three potential reviewers. All three people agreed to be reviewers and provided reviews. Reviewer comments are compiled in the draft status review report.

Reviewers (listed alphabetically):

- Dr. Peter Buston, Boston University, Department of Biology and Marine Program: buston@bu.edu
- Maarten De Brauwer, Ph.D. candidate, Curtin University, Perth, Australia: maarten.debrauwer@curtin.edu.au
- Dr. Colette Wabnitz, Secretariat of the Pacific Community, Coastal Fisheries Division, Nouméa, New Caledonia: Colette.wabnitz@gmail.com

**Peer Reviewer Comments** *(not associated with order of names as they appear above)*:

**Reviewer 1**
This status review report is a comprehensive review of the current status of A. percula. Based on current available literature, this assessment of extinction risk is realistic and thorough. While I suggest some minor changes, I fully endorse the status review report.

The most important suggestions are to correct the density and associated population estimates of A. percula, and to consider calculation Generation Length as a justification of the “foreseeable future”. Furthermore, the reference list at the end of the text requires extensive re-formatting to conform to scientific writing standards.

A summary of suggestions is given below. Spelling and other, minor suggestions are added as suggestions / corrections in the Clownfish SRR-Master manuscript.

**Content**

- Based on current literature, I would argue there are only 28 recognised species of clownfish, not 30. A. leucokranos and A. thieillei are considered to be hybrids and not distinct species
- Lifespan A. percula: it is indeed shown clearly that anemonefishes have a low level of intrinsic mortality, but it has not been empirically proven (by otholit extraction) that anemonefishes can really live up to 30 years old. I suggest keeping the statements about low mortality and delayed senescence, but clarifying that this extremely long life span is yet to be proven
- Density of A. percula in De Brauwer et al. 2014 is 0.09/250m² instead of 0.125/250m², this means that population estimates should be adjusted throughout the text (approx. 13 million – 18 million)
• “Foreseeable future”: I agree this is a good timespan for A. percula, but would suggest calculating generation length (approx. 6 – 15 years) to justify 30 years. Comments in-text have more info on calculating generation length.
• Suggest emphasising importance of anemone hosts throughout the text. A. percula are obligate symbionts, if hosts disappear, so does A. percula.
• When discussing MPAs, little attention is given to the effectiveness of MPAs in developing countries (references suggested in comments in text). In developing countries, MPAs are often not as successful as they are expected/said/hoped to be. While I don’t think this will have a big effect on the assessment of extinction risk of A. percula, available information should be added for completeness.

**Formatting**

• Use of “Amphiprion percula”/ “A. percula”: in text varies, most often “A. percula”, but sometimes “Amphiprion percula”. For captions in tables / figures: should always be “Amphiprion percula” when written the first time.
• Some minor inconsistencies with in-text referencing (use of comma vs semicolon after “et al.”)
• Links to websites still show up in blue formatting in-text

**Other**

• Other relevant additional references are mentioned in comments in-text

**Reference list**

Referencing style is very inconsistent, should be thoroughly reviewed

• Sporadic use of journal abbreviations, when abbreviations are used, they are not always correct
• Differences in punctuation after journal name (periods, commas or none)
• Does not always mention journal issue number, but occasionally does
• References sometimes followed by periods, but not always
• DOI number sometimes added, but more often not added
• “doi” occasionally written in capital letters, small letters, between brackets, not between brackets
• Not all references are in correct alphabetical order

**Reviewer 2**

The status review is a comprehensive analysis of information compiled on the biology and ecology of the species (and its host anemones), demographic risks as well as current and predicted threats for the orange clownfish across its distributional range. In view of the submitted query and given the attention regularly drawn to the management of species targeted by the trade, comprehensive assessments are essential for understanding stock status and guiding sustainable management.
The document is extremely well-researched, carefully considered, and clearly written. The authors clearly lay out the rationale that guided their assessment and conclusions.

Given the wealth of information presented, it would have been useful at times to include succinct summaries in terms of conclusions to be drawn from the considered studies. While this is done in the later sections of the document, I found this particularly to be particularly lacking in the dispersal and connectivity section.

A recently developed means to assess the susceptibility and vulnerability of species to overfishing was developed by Patrick et al. (2010). While initially developed for food fisheries it was more recently adapted and applied to aquarium fisheries in the Philippines/Indonesia (Fujita et al. 2014). There are some challenges with this methodology. Nevertheless, I would recommend the authors look into this approach, potentially include it in their assessment for *A. percula* and discuss some of its merits and limitations.

I would strongly recommend the authors do not use the words “ornamental” and “for the aquarium trade” interchangeably. The former term includes organisms that are typically also sold dead (corals, shells etc...), while the latter only considers animals that are sold live. As such the ornamental trade encompasses a range of issues and challenges that do not apply to the marine aquarium trade.

For ease of perusal and editing, I have provided my comments as track-changes within the document itself. Where relevant and available I have included references in support of my assertions (and/or have appended these to my email). At times, unfortunately, actual documents are not available and comments are based on my experience working in the countries mentioned in the text, with fishermen, governments and the industry.

**References**

**Reviewer 3**
Demographic risk factor “Abundance” should be re-evaluated. There seems to be confusion regarding whether abundance estimates in the primary literature were per m^2 or per square meter (250 m^2 is not the same as 250 square meters). It’s possible that this is leading to an overestimation of global abundance by up to two orders of magnitude.

Demographic risk factor “Spatial structure and connectivity” should be re-evaluated. In particular, a distinction should be made between short-term demographic connectivity (common exchange of individuals, measured directly via parentage analysis) and long-term genetic connectivity (rare exchange of alleles, measured indirectly by spatial genetic structure). Further, It seems like it would be worth distinguishing between local (single metapopulation) and global (all metapopulation) extinction.
There a number of cases in which a risk factor is considered unknown or highly variable, but then it is concluded that the extinction threat associated with that factor is “low”. I find this logic curious. It would seem more appropriate to conclude that the extinction threat associated with such factors is also unknown or highly variable, and highlight the research that would be needed to reduce uncertainty in this area.