

Eric Edeline
Ecology and Ecosystem Health, UMR INRA/Agrocampus Ouest
65 rue de Saint-Brieuc
35042 Rennes cedex - FRANCE
Tel: +33 (0)2 23 48 55 23
https://www6.rennes.inra.fr/ese_eng/
<https://sites.google.com/site/ericedeline/home>

Rennes, March 1st 2021

PCI Ecology
Dr. Simon Blanchet

Manuscript number: MS#93

Submission of a revised version of “Size-dependent eco-evolutionary feedbacks in fisheries”,
authored by Eric Edeline and Nicolas Loeuille.

Dear Simon Blanchet,

We thank you for your insightful comments and for pointing to us further pertinent references from the literature. We have now implemented the changes you suggested in a revised version of the manuscript (enclosed and downloadable at <https://www.biorxiv.org/content/10.1101/2020.04.03.022905v3>). Note that, in addition to implementing the changes you suggested, we have further rephrased the last sentence of the abstract.

On behalf of Nicolas Loeuille,

Sincerely yours,

Eric Edeline



Point-by-point responses to your comments for manuscript MS#93, "Size-dependent eco-evolutionary feedbacks in fisheries" authored by Eric Edeline and Nicolas Loeuille.

COMMENTS FROM REVIEWERS IN PLAIN TEXT, OUR RESPONSES LISTED DIRECTLY BELOW IN BOLD TEXT:

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Round #2

Author's Reply:

by Simon Blanchet, 2021-02-05 10:34

Manuscript: <https://doi.org/10.1101/2020.04.03.022905> version

<https://www.biorxiv.org/content/10.1101/2020.04.03.022905v2>

Minor revisions before recommendation

Dear Authors

Thanks a lot for the thorough revision of you MS entitled "Size-dependent eco-evolutionary feedbacks in fisheries". I have read both the replies to referees' comments and the new version of the MS and I must say that you've done a very good job. The MS is not much more easier to read and the message is flowing very well. Before I write my recommendation, I have a few more minor comments that you may consider:

-The term "fisheries" appears in the text but there is no argument for targeting this specific type of harvest. I would add a few words by the end of the Introduction to stipulate that most (though not all) examples in the text are from the fishery literature, and why it is important to reply these specific fundamental questions in fishery science (eg because these wild populations are harvested at a worldwide scale and constitute an essential source or proteins).

Now done in lines 84-86.

-L. 79: change "assay" per "essay"

Done.

-L. 80: you briefly mention the paper by Kinnison et al. (2015) about cryptic eco-evo: I would provide a few words about this paper and explain why it is a follow-up of this paper.

Now done in lines 79-84.

-L. 96: papers by Hendry and Kinnison (1999, 2000) about fast evolution might also be cited.

Now done in line 99.

-L. 97: I would remove the end of the sentence "...but readers [...] to Section 2".

Done.

-L. 160-161: see the recent paper by Kurt Fausch (<https://besjournals.onlinelibrary.wiley.com/doi/abs/10.1111/1365-2656.13384>). Potentially useful.

Now cited in lines 163-164.

-L. 171: Change for: "This is true for both aquatic and terrestrial systems (ref)..."

Now done in line 172.

-L 177: Add the latin name for the northern pike.

Done in line 178.

-L. 197: Check Griffith et al. PNAS 2020 (<https://www.pnas.org/content/117/29/17068>). Potentially interesting too.

This paper emphasizes the importance of a large body size for competitive dominance in guppies (*Poecilia reticulata*). We have therefore added this reference in line 164.

-L. 250: Add "effective" before "population size". The correlation is generally between genetic diversity and effective population size. Papers by Robin Waples and others might be cited there as this correlation is well known.

We have now added in line 251 a reference to the review by Frankham (1996), who shows that population size is positively correlated with genetic diversity.

-L. 357: Perhaps cite Peralla and Kuparinen 2020 here (already cited after).

Now done.

-L. 379: You may look at Raffard et al 2020 (<https://www.biorxiv.org/content/10.1101/2020.06.10.144337v3>) in which we show that change in the variance in the body size of predator populations affect both the brown and green trophic chains through top-down effects. There are probably other experimental papers on the effect of body size on ecosystem functioning.

Our point here was not on ecosystem functioning, but on the strength of size-dependent trophic interactions. It seems intuitive that loss of a trophic link will propagate both bottom-up and top-down through food webs. We have rephrased our sentence to clarify this simple idea (lines 379-381).

-L. 452: the negative relationship between body size and genetic diversity is rather well documented, see for instance: De Kort et al. Nat Comm 2020 (<https://www.nature.com/articles/s41467-021-20958-2>) and Romiguier et al Nature 2014 (<https://www.nature.com/articles/nature13685>)

We have now added these two references in lines 452-453.

-L. 480: Yacine et al is lacking in the reference list.

Problem now fixed.