

Author's reply:

Eu, March 19th 2024

To: PCI Ecology Recommender: Aleksandra Walczyńska

Dear Recommender and Reviewers,

We thank you again for this round of comments. You will find hereafter the changes that were made accordingly.

With kind regards,

Quentin Josset, on behalf of the authors.

Decision for round #1 : Minor revision required

Dear Authors,

The reviewers are satisfied with how their concerns have been addressed, and so am I. As the reviewers suggest some minor changes, please address their comments and revise the manuscript accordingly.

With kind regards,

Aleksandra Walczyńska

by Aleksandra Walczyńska, 29 Feb 2024 08:36

Manuscript: <https://www.biorxiv.org/content/10.1101/2023.11.21.568009v3>

version: 3

Review by Jan Kozłowski, 28 Feb 2024 15:23

The paper is much improved. I recommend it after the minor corrections listed below.

Lines 281-287

“At the same time, the percentage of OSW individuals increased in recent years to up to 60% (in 2018) of all first returning sea trout. The percentage of 1SW individuals in the population remained predominant and stable over time (mean = 82.3%; SD = 11.5%). This pattern indicates a decrease in the mean sea age at first return of the Bresle sea trout population: 1.06 years (SD = 0.4) from 1984-1988, but 0.80 years (SD = 0.4) from 2018-2022. The age structure differed greatly in 2001, when only 1SW individual was captured due to extreme flooding that disrupted trapping and thus decreased its efficiency greatly.

The year 2001 should be removed from Figure 4, or at least the message about the flooding should be added to the caption. Certainly this year should not be included in the calculation of averages.

Answer: Year 2001 was removed from figure 2 and figure 4. Where it was necessary, averages were recomputed. A line about the disrupted trapping was added in the 'Data selection' paragraph, as well as in figure 2 and 4 captions.

Caption to Figure 3.

"Top panel: qualitative predictors, as well as qualitative by qualitative interactions"

Qualitative by qualitative interactions is not a proper wording. It couldn't be better: Top panel "the effects of qualitative predictors and their interactions"; middle panel "the effects of quantitative predictors and interactions between quantitative and qualitative predictors"; bottom panel:". I don't understand the bottom panel: is this the effect of, say, ctrAvgDOY in 1984, 2000, etc.?

Answer: Thank you for these rewording suggestions, they are now included.

The bottom panel does show indeed the effect of interactions between quantitative predictors, but the year is presented in a discretized way, with the first, central and last year of the dataset. This is required, for ease of reading, for the presentation of the interaction of two continuous variables. The alternative would have been a 3D graph displaying the percentage of change in length for ctrAvgDOY for all values of year, which can be hard to grasp.

The text starting on line 317 should continue on line 312. Figure 4 is now in between. Please read the text between lines 317 and 321 carefully. Is everything correct?

Answer: There was indeed a mistake in this part, thank you for your careful reading. Figure 4 was repositioned and this part was rewritten with more emphasis on the comparison with the reference individual.

Line 354. "relatively stable for 1FW, but slightly increased over time for 2FW and 3FW" Should read: relatively stable for FW1, but slightly increased over time for FW2 and FW3. Also correct the symbols in the rest of this paragraph. Same in lines 467-475 and other places. Check this automatically, as the symbols should be consistent.

Answer: Corrected and checked in the document and figures

In Figure 5, I see the pattern described in lines 356-360, but I don't see the pattern described in lines 353-355.

Answer: As indicated by the confidence intervals, the effect of time on river age are small and thus difficult to visualize. When looking across river ages for a given sea age, one can however see a small increase in slope, especially for SW1 and a slightly less inclined slope for SW2.

Line 485: Kozlowski, not Koslowski.

Answer: Sorry for that. Corrected

Lines 495-499. When discussing seal predation, it is important to note that salmonids have not been found in their diet. If they were found, the increased seal population would be sufficient to reduce the optimal age for first reproduction. Selectivity is not required, as you quoted above. There are many more papers showing that non-selective predation (or fishing) is not necessary for such a decline, but that increased pressure is sufficient. You have cited two papers and that seems sufficient in this context. However, I recommend removing "Furthermore, most seal predation on salmonids appears to be opportunistic, with no evidence of length-dependent selection for larger fish (Suuronen and Lehtonen, 2012; Thomas et al., 2017)" unless you have information that the seal population has not increased (under stable predation pressure, selectivity may have the same effect).

Answer: We would refrain to remove this latter point, because this paragraph starts on the idea that a change in the age-structure could result from a selective mortality targeted on larger individuals. It then rebounds on the idea that selectivity is actually not required to observe such changes and that increased pressure alone could also produce this.

These two processes are then successively discussed: first the colony is important (and regularly increasing), but no traces of salmonids have been found in their diet, second, when seals do predate salmonids, they do so in an opportunistic manner that does not seem to be dependent on size. Therefore, we conclude from these two points that this seal colony is unlikely to be a strong driver in the changes in the age-structure.

I'm glad you changed the shape of figure 5. It is much clearer now.

Jan Kozłowski

Review by anonymous reviewer 1, 27 Feb 2024 09:54

The authors have done a large amount of work to address the reviewer and editor comments; I have no further comments to add. Just one observation for Figure 3 - Should the middle axis label read 0% rather than 100% change?

Answer: Absolutely, thank you for your vigilance, the axis title was also detailed a little more.