

PCI Ecotox Env Chem #103

“No evidence for an effect of chronic boat noise on the fitness of reared water fleas”

(Chronic boat noise does not alter the fitness of *Daphnia magna*)

(A freshwater zooplankton in the face to boat noise pollution)

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Responses to the Recommender, Claudia Cosio

- Please adress all points raised by the two reviewers

We thank you, and the reviewers, for your interest in this study and the useful comments. Following the reviewers' comments, we have clarified the spirulina feeding, improved some sentences, and we modified the title to “Effects of acoustic pollution on *Daphnia magna* fitness: the importance of noise type.”

Responses to the Reviewer 1

- For this 2nd round of review, authors have significantly taken into account the comments of the reviewers. The results description and discussion have been globally improved, and the representativity of these results have been slightly mitigated in light of the suboptimal (not to say bad) physiological condition of their daphnia used to respond to their problematic.

We thank you for your interest in this article and hope that we have taken your comments into account. We have changed the title, added references concerning the diet used and changed some sentences.

- However, I don't understand the choice to change the title of the article for this second round from “A freshwater zooplankton in the face to boat noise pollution” to “Chronic boat noise does not alter the fitness of *Daphnia magna*”

I strongly disagree with the new proposed title - I don't consider that the main conclusion of this study can be that chronic boat noise does not alter the fitness of *Daphnia magna* – and this should not be the ‘take home message’ of this article. Due to the bad physiological condition of daphnia in this study (more than 50% mortality

before maturity), I don't think that authors can generalize their observation at this point, this would be an overinterpretation. This is even more reinforced by the fact that the causes of this suboptimal physiological state are not identified and controlled by the authors. To my point of view, the message that can be derived from this study is that, at similar suboptimal physiological condition, impacts on fitness differs between two scenarios of noise exposure (from the current article and Prosnier, Rojas, et al. (2022)). But the lack of fitness impact of chronic boat noise on *D. magna* cannot be established as an absolute conclusion based on this single study.

We understand your opinion and have changed the title to: “No evidence for an effect of chronic boat noise on the fitness of reared water fleas”.

- L95: mJ is not a usual metrics to describe daphnia food intake. Could you provide some (at least one) references to estimate the adequacy of this diet/mJ amount for *D. magna*?

We did not find the energy requirement for *Daphnia magna*. However, we found and added “Note that *A. platensis* is known to have a C:N ratio between 4 and 8 (Walach et al., 1987; Griffen & Drake, 2009).” (L98) and “– note that both Griffen & Drake (2009) and Robinson et al. (2013) used a double quantity of *A. platensis*, but for populations starting with five to eighteen individuals –” (L114). We also added to the discussion “It suggests suboptimal conditions (i.e., other stressor than noise), such as a lack of food – for instance Serra et al. (2020) fed *D. magna* daily for the seven first day –, which may have affected the outcomes” (L268)

- L193: “differed from previous results obtained” – to help reader, please provide the ref of the previous results you refer to.

We modified by “differed from results obtained with exposure to another type of chronic noise (Prosnier, Rojas, et al., 2022)”

- L205: “Although noise had no statistical effect on the survival and fecundity...” – It is not clear that you refer to the current article in this beginning of sentence, as it directly follow a reference to Prosnier, Rojas, et al. (2022). Please clarify to help understanding of your argumentation.

We clarified “Here, although boat noise had no statistical effect” (L209)

- L248 (“As a perspective”): As your data do not provide direct insight toward multi-stress, I think this paragraph isn’t a perspective of your study, but an additional interesting consideration.

We modified by “An interesting question”

Responses to the Reviewer 2, Marie-Agnès Coutellec

- This revised version is fully satisfying to me. I guess that the Morse running issue can be dealt with independently, and doesn't deserve further consideration in the context of the present article.

Thank you for supporting this improved version. Note that we have added a reference (Stenton et al. 2022) to the paragraph of multi-pollution, closer to our aquatic/crustacean system (L257-260).