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**Our revised manuscript has slightly reduced Results, but a new section in the Discussion on UK food system context, as requested by referee 1. The manuscript is now slightly over the word limit (~4,250 words).**   
  
Referee: 1  
  
• Highly relevant case study assessing whether the UK’s seafood system is fit for multiple bottom-line objectives. The novelty of this work lies in integrating the multiple dimensions (Fig. 3). The dimensions answer questions (i.e., are the product volumes available and are they affordable?) which makes demands for more sustainable and healthy blue food diets concrete for policymakers. The study will also serve as a starting point to examine sustainable and nutritious seafood systems in other countries.

**Thank you for your positive review and recognition of the manuscript’s policy relevance.**

• I suggest reorganising the paper to focus on this novel aspect with an in-depth analysis of the UK data compiled (e.g., time series and statistical analysis), expanding the section ‘Sustainability and affordability of low-emissions nutritious seafood’. The marginal analysis (comparing to non-seafood products and global assessment) is, in great parts, not novel and distracts from the main message of the paper. I suggest either removing these parts or, at least, streamlining them (i.e. using the same indicators).

**Thank you for this suggestion. We agree much of the global comparison of high/low emissions and nutrients have been covered in detail by several key papers (cited in our manuscript). We have now streamlined our focus on global seafood and context of other animal-source foods, and added a new paragraph on seafood retail prices in the UK. This gives context on long-term declines and low affordability relative to other animal-source foods:**

***“Reductions in livestock consumption, particularly beef, through demand-side policies have been proposed as a means of improving dietary health while reducing food-system carbon emissions (Bajzelj et al. 2014, Springmann et al. 2020). However, in the UK, seafood products are the most high-value protein food, above red meat and chicken (Watson 2021), while seafood retail prices increased by 31% from 2010 to 2020, exceeding general inflation (21%, Consumer Price Index) and terrestrial meat (11%) (Department for Environment, Food and Rural Affairs 2022). This likely contributes to long-term declines in seafood consumption, particularly for poorer households and younger age groups (Watson 2021, 2022). The UK’s capacity to transition towards low-carbon animal-source foods is thus limited by low affordability of desirable high-volume seafood, such as salmon (£17.01/kg) and cod (£8.61/kg), and lower appeal of more affordable products (~£5.60/kg: Atlantic herring, farmed mussels). Positioning seafood as ‘climate smart’ will depend on the availability of nutritious, low emission products that offer consumers value for money compared to other proteins. This could be incentivised directly through increased production of low cost species, but also indirectly through food labelling, education campaigns, and taxation (Springmann et al. 2021).***

**We also reduced the abstract to a one-sentence result on the global analysis and removed the second paragraph from Results & Discussion that described variation in emissions/nutrients and examples of global seafood products. As the global nutrient and CO2 databases are the foundation of our UK analysis, we feel it is necessary to present these results in full before focusing in-depth on UK seafood production. For example, we estimate the kg CO2 per nutrient target, a new metric that we developed to link greenhouse gas emissions to seafood nutrient content (Fig. 1C). We also use our global analysis to introduce key concepts that relate to seafood production, such as using variability to identify groups where production shifts could reduce emissions and increase nutrients (Fig. 1B). Throughout the manuscript, we have also ensured that our global results are placed in context of recent global seafood analyses (Bianchi et al 2022, Gephart et al. 2021, Hallström et al 2019, Koehn et al 2022, Kovacs et al. 2021) (*first results paragraph*).**

**We do not have time-series data for all UK production sectors, but we have added a concluding sentence to note: “*Information on long-term patterns in seafood supply, affordability, sustainability and consumption will develop deeper understanding of the drivers of seafood systems, and thus inform efforts to promote low-emissions seafood production*” (last main text paragraph)**

**We hope you agree this revision now touches on the global analysis to set the scene and present the foundation for the UK analysis, but elevates the focus on the UK case study, within the 4,000 word limit of the article.**

Referee: 2  
  
This is a very valuable contribution to the field. Sustainable seafood is often viewed primarily through the lens of ecological ocean health. Adding the lens, as this manuscript does, of nutrition benefits to human health of different types of seafoods, actually enriches the discourse on how to meet global food needs in the future without destroying nature (and especially the oceans). The market has a tremendous role in driving both human food security and nutrition as well as ecological health. In this context, this is an important paper. The only criticism I have is that the figures are a bit blurry. I'm not sure if that is due to rendering when the submission was turned into a PDF for review or if it is because of the resolution of the figures originally. Authors, please check the resolution of the figures. Otherwise, great paper!

**Thank you for your positive and supportive review. We confirm the original figures are PDFs, but rendered at a lower resolution in the manuscript. These have been uploaded as separate PDF files in the revised submission.**