Responses to comments on: "Temporally resolved coastal hypoxia forecasting and uncertainty assessment via Bayesian mechanistic modelling" (Referee #1)

Our responses are in blue. Line numbering in responses refer to the revised manuscript with changes incorporated.

General comments

The authors addressed all of my comments and even included a leave-one out cross validation in the revised manuscript, with some interesting, and in my view, valuable results. I think these results should be given a bit more room in the manuscript, beyond the current 2 sentences, which just mention that the LOOCV was performed, and that one of its results confirmed those of the calibration. I would suggest including a bit of motivation and at least the information included in the response to the comment in my previous review.

Thank you for your feedback. We added a sentence motivating the LOOCV and a relevant reference to the Methods (Lines 155-156). We also enhanced the description in the Results (Lines 192-194).

Specific comments

l 94: "Predictions of BWDO and HA [...] are hereinafter referred to as "hindcasts"": The term "predictions" makes it sound more like a forecast, I would recommend to use "estimates" instead. Similarly, in the next sentence, "estimated" could be used instead of "predicted".

We appreciate the comment and modified the text as suggested (Lines 89, 93).

l 151: "river (Atchafalaya and Mississippi) discharge (Q_A and Q_M, [...])": I would suggest merging the terms in parentheses: "river discharge (Q_A for the Atchafalaya and Q_M for the Mississippi, [...])"

We agree with the comment and changed the text as suggested (Line 143).

l 154: I think this should now be a reference to Fig 2.

Thank you for the comment. This is a reference to the map of the river basin (Fig 1). However, since we have moved this map to the main manuscript, the reference is less critical, and we remove it to avoid confusion (Line 146).

l 170: "parameter, model residual, transformation, and bias adjustment uncertainties": I think, it would be clearer to write "uncertainties in parameters, model residuals, transformation, and bias adjustment", but I would also recommend adding which transformation is meant here.

We agree with the comment and we clarified the text (Line 163)

Table 1: Reference LOOCV R^2 in the caption.

We appreciate the comment and expanded the table caption, providing explanation for LOOCV (Lines 200-202).

l 234: "R^2 increases by 2.8%": It would be useful here to specify if this refers to percentage points or percent change relative to the base value; or maybe use "R^2 increases to x%". Previously, two R^2 were mentioned (west and east), does the 2.8% apply to both?

We appreciate the comment and clarified the text (Line 226). These values are based on the prediction of total shelfwide HA (also clarified at Line 211).

l 277: "Note that the relative magnitudes of the variance components are somewhat different..." This statement is referring to a figure reference that is in the supplemental material, and the reader will only understand or need it when seeing the figure. I would suggest moving the figure into the main manuscript, or add the note to the figure caption.

We agree with the comment and moved the sentence to supplemental material, and more specifically to the caption of Figure S4.2.

Fig. 4: I can more clearly see the darkest shade of gray in this plot, this is great. It would be nice to include a legend so that readers can reference the colors more easily.

Thank you for the comment. We added the legend to Figure 4.

Fig. 5: It would be useful to widen the figure, so that the individual boxes can be seen.

We appreciate the comment and increased the width of Figure 5.

Responses to comments on: "Temporally resolved coastal hypoxia forecasting and uncertainty assessment via Bayesian mechanistic modelling" (Referee #2)

Our responses are in blue. Line numbering in responses refer to the revised manuscript with changes incorporated.

Comments

The authors addressed all of the points that I raised in the first round of review. Figure 1 is helpful and I suggest adding units to the bathymetric lines or explaining those in the figure legend.

We appreciate the positive feedback. We clarified the isobath representation in the caption of Figure 1 (Lines 102-103).

Responses to comments on: "Daily hypoxia forecasting and uncertainty assessment via Bayesian mechanistic model for the Northern Gulf of Mexico" (Referee #3)

Our responses are in blue. Line numbering in responses refer to the revised manuscript with changes incorporated.

General comments

This is a valuable contribution in the field of predicting hypoxia.

We appreciate for the positive feedback on this study's contribution.