

Reply to the comment in blue

The report provides a clear presentation of the Bay of Biscay Atlantis Model. There is a lot of information to include. Most of my comments and suggested edits are annotated on the pdf.

I will adjust the manuscript accordingly considering all the comments and suggested edits in the pdf.

- The model spatial dynamics seemed a bit unclear. In the methods it seemed the spatial distribution of the age-structured groups were specified for each season which means they don't change. But the spatial distributions were then presented as model outputs and compared to other data. Also, the discussion mentioned environmental, temperature and salinity effects on movement which were not mentioned in the methods, so it is confusing as to whether these were turned on in this model or not.

The spatial distribution of age-structured groups was specified for each season and with no density dependent movement ($d_{depend}=0$). How the temperature and salinity effects was used should be mentioned in the methods, this will be added in the revised version.

- Biomass pool biomass should be shown spatially to check it is sensible (i.e., we don't have all the biomass in one box, unless that's where it's meant to be).

We agree to this, and will add information (either figures or text) on spatial distributions of the biomass pools.

- Realised diets were not presented anywhere, which I feel they should be. The diet interactions are such a key part of an ecosystem model, and while the prey availability matrix is defined, the realised diets often differ considerably from these due to spatial and temporal overlap and gape sizes if these are being used. In the methods, it seemed gap sizes were not used, but in the discussion, these were mentioned, so it would be good to clarify this in the methods.

Agree. Gape size and spatial and temporal overlap should be mentioned in the methods, this will be added to the updated manuscript. The realized diets will be added to the supplementary material in the revised version.

- Bluefin tuna weights are concerning, and it looks like they could be starving. Has this been checked? Perhaps will be apparent in the realised diets if they have the correct food available to them.

The realized diet and natural mortality have been checked, but we weren't able to calibrate them due to their migratory behaviour. Although out of scope for this project, we agree that this is concerning, and more attention is needed for this group.

- Weights have been shown for each age group, but not numbers. It would be good to include these too. Comparing weights-at-age with expected growth rates from the literature can be helpful for checking the realism of growth in the model. Also checking realised natural mortality in the model to values in the literature (this can be done since fishing is not included).

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Agree. Numbers per age class can also be added to the supplementary material in the revised version. The comparison of weight-at-age and the growth as well as a mortality (natural and predation mortality) was done during the calibration, so that we could change growth rate and quadratic mortality.

In the supplementary material:

- Table S6. Fractions by depth layer are given for each depth layer, but some polygons have a subset of depth layers. Were the proportions scaled up within each polygon, so they still add to one? It would be good to include this in the caption.

The proportions were scaled up. This will be added to the updated manuscript.

- Table S7. It would be good to highlight which of these runs were from which calibration phase (NPZD or full model).

This will be added in the caption of the table in the revised version.

- Figure S3. Presenting these in alphabetical order would help. Are the figures after the burn-in period? State that in the caption. Same with other figures that have timesteps.

The order of the figures was the same in all the cases, starting with seabirds and mammals up to LTLs. If the alphabetical order would help the readability, this will be changed in all figures.

The clarification of the burn-in period will be added either in the caption or in the figure with a grey rectangle in the revised version.