

Interactive comment on “Human-induced influence on eggs and larval fish transport in a subtropical estuary” by Maria Helena P. António et al.

Anonymous Referee #1

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In this manuscript, the authors study the effects that a lengthening of jetties and a deepening of the channel leading to the jetties have on the outcome of numerical experiments. The experiments are carried out with a hydrodynamic model and a numerical scheme to track the movement of passive particles due to the circulation pattern simulated by the model. Discharges from nearby rivers and the direction of local winds are varied among the experiments in addition to configurations of the jetties and the channel, and the resulting variations in the simulated salinity and particle movements are examined.

I believe the manuscript requires some revisions before it is ready for publication. My

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comments to the authors are as follows: 1. You should clearly state what is new about your work. You cite several past studies that looked at the effect of artificial structures on the marine environment (page 15, lines 654-658); how is your study different and new? 2. There should be some connection established between the results of your numerical experiments and the real world. The output of the hydrodynamic model has been compared with simulations, but what about the output of the particle-tracking experiments? For example, have there been observations of eggs/larvae or dye experiments anywhere in the world that are consistent with the results of some of your experiments? If so, the results of your other experiments can be seen as something built upon the foundation established by that simulation-observation comparison. Otherwise, this manuscript will be not much more than a report on exercises in running a model. 3. The description of the hydrodynamic model should be expanded. I realize there is another manuscript that focuses on the hydrodynamic model, but the description here seems to be too brief. For example, which datasets from HYCOM or ECMWF are you using? What are the initial conditions, and how long is the model run to ensure that the model state is produced by the model itself and not just a remnant of the initial conditions? What are the numerical schemes used for the lateral open boundaries, surface momentum flux, advection, mixing, or freshwater flux from rivers? How are the sigma layers distributed vertically? 4. It seems that you are using the Euler scheme to calculate the movement of the particles (page 5, line 230). Is there are reason you are not using a higher-order scheme that are generally known to be more accurate? 5. The quality of the writing needs significant improvement. There are numerous problems, such as vague statements (e.g., “the most important aquatic resources in the world”, page 2, lines 47-48), grammatical errors (e.g., “the shallow estuary channel” instead of “a shallow estuary channel”, page 2, line 66), misspellings (e.g., “Kjerfev” instead of “Kjerfve”, page 4, line 145). The word “salinity” is used when you seem to mean a salinity front (e.g., page 4, line 162; page 8, line 335). The distance traveled by the particles does not seem to be defined in section 3.2 – is it the center of mass or the leading edge of the patch of particles? 6. For submitted manuscripts, the convention

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is for each figure to have its own page, so that readers do not have to flip back and forth between the page with the figure and the page with the caption. 7. The list of references has many errors, such as inconsistent formatting, misspellings, and entries out of order. The language in which a source was written should be indicated if other than English. For both the list of references and the authors' information on the first page, please check the journal's policy on whether country names should be in English or can be in the language of that country.

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