

We want to thank this reviewer who has provided a detailed review of our manuscript and provided valuable feedback and suggestions, which have significantly helped improve our manuscript.

We have done our best to account for these comments and have responded individually (red text) to each of them below.

We hope that our response and modification to the manuscript will improve the manuscripts final publication.

Kind Regards

Jessica Kolbusz and co authors

GENERAL COMMENTS

Overall, I think the authors have done a good job responding to the previous comments with regards to improving overall clarity, particularly with regard to the introduction and clarifying the project goals. Additionally, the authors have done a good job streamlining and improving the writing, and aligning the intro, methods, and R/D for added clarity, making the paper much easier to read and understand.

Thank you for the supportive comment!

TECHNICAL COMMENTS

Section 3.5, first sentence. This is an odd sentence structure. I actually think you can just delete this sentence. However, you say that seasonal and inter-annual variability were explored—how were they explored? Just graphically? This is not clear in the methods.

We have deleted the first sentence. The first sentence of section 3.5 now reads: “Seasonal and inter-annual variability, not captured within the GAM, were explored graphically with the inclusion of moving means.”

Additionally, to make it congruent with the results, I would title this section “Exploration of variation in oceanographic conditions”

Great suggestion. We have renamed this.

Section 4. Instead of saying the results and discussion are laid out in 1, 2, 3, I would rather see a very brief summary of the general findings to start out the results/discussion section and then follow with the details in those three sections.

Thank you for this comment. The start of Section 4 now reads:

“Our findings demonstrate that similar oceanographic conditions influence adjacent puerulus monitoring sites. The Leeuwin Current strength over the summer months has increased since the low puerulus settlement season, alongside a decrease in the Capes Current, suggesting a mismatch in the puerulus transport processes. In addition, this period occurred alongside neutral ENSO conditions and cooler water over the likely *P. cygnus* pelagic distribution. These results and their discussion are in the following three sections: (1) time-series exploration of *P. cygnus* settlement between 2001 and 2017 and associated oceanographic conditions experienced by the larvae to represent each puerulus settlement season (May to April); (2) exploring the correlation of oceanographic conditions with settlement data through a general additive model analysis, and (3) inter-annual and seasonal oceanographic variability.”

There is an incomplete sentence in the figure legend for Figure 2 (“In particular for kinetic and eddy kinetic energy calculation.”). I am not sure what this is supposed to say.

This sentence has been removed.

There should also be a period after (b).

A period has been added.

The sentence in Len 233-234 is odd (“considering the large number of predictors...”). I would move this sentence to the start of the paragraph and rephrase it as something like “Table 1 shows each predictor variable the associated hypotheses tested.” Then go to explain them.

Detail and rephrasing has been added here.

The paragraph now reads:

“Table 1 shows each predictor variable and the associated hypotheses for each annual value. The LC consistently flows southwards and is strongest over the winter months, possibly flooding the shelf. Therefore, over the winter months, this would likely positively affect late-stage phyllosoma successfully reaching the nearshore. Over the summer months, the LC strength, if stronger, would likely impede the survival of early-stage phyllosoma (Feng et al., 2011). Given the stronger opposing LC, the northward-flowing CC on the shelf would likely positively impact puerulus settlement (Muhling et al., 2008). Kinetic energy will likely positively impact the transportation of phyllosoma throughout their early pelagic life-cycle (Cetina-Heredia et al., 2019a; Hood et al., 2017). Similarly, cross-shelf transport offshore would likely increase the survival of phyllosoma and cross-shelf transport onshore after the pelagic phase would assist puerulus transportation onshore. *P. cygnus* spawning likely occurs sooner with an increased bottom water temperature, causing possible timing mismatches over the next 9 to 11 months (de Lestang et al., 2015). Conversely, warmer water temperatures increase the rate of phyllosoma development, therefore likely increasing their survival (Phillips et al., 1978; de Lestang et al., 2015). If the IBSS were higher, there would be more spawning stock, therefore likely an increase in phyllosoma and eventual puerulus (de Lestang et al. 2012). These variables resulted in a total of 39 possible predictors of the late puerulus settlement (8 sites) and 33 possible predictors of the early puerulus settlement at sites (8) (Appendix A, Table A1). LC strength in summer and the late CC strength predictors for early settlement were omitted since they occur after early settlement each season. Given the predicted data availability and the spawning season is in the calendar year prior, the relationship between all predictors and puerulus settlement was limited to the 2001 to 2017 seasons.”

Additionally, the table 1 headings still says multiple regression analysis, but you changed it everywhere else to GAMs. Also, regarding the heading—I don’t think the hypotheses are subsequent, but rather associated?

The Table 1 heading has been changed to “Predictor variables and metrics used in the GAM analysis to investigate variability in puerulus settlement and associated hypothesis. The subscript *s* identifies the relativity of a month to the puerulus settlement season (May - Apr) in question. *s - 1* is within the season prior and *s + 1* is after. -ve denotes negative relationship and +ve denotes and positive relationship.”

Line 311: Water circulation “was” not “were”

This has been changed

Line 542: delete “despite its exploratory nature”

We thank you for this comment. This has been deleted.