**COMMENTS FOR THE AUTHOR:**  
Dear Dr Woods  
  
I have now received two reviews of your revised ms on environmental factors limiting fertilisation and larval success in corals. Both reviewers agree that your work is interesting and almost suitable for publication. You will see that reviewer 1 still raises a few concerns regarding the ms in its current form.  
  
After reading your ms myself, I agree with nearly all these (minor) concerns raised and thus require (minor) edits and clarifications. These should be relatively easy to make.  
  
I therefore recommend a revision of your ms once more to ensure that all concerns are adequately addressed. I therefore suggest you take all concerns extremely seriously and write a detailed response letter explaining the changes you have made or reasons why they are not included.  
  
I look forward to receiving a revised version of this ms.  
  
Sincerely  
Mark Vermeij  
  
  
**Reviewer #1:**

The authors have substantially revised their manuscript and it is much improved as a result. I particularly appreciate that the authors experimentally tested the outputs of their model, as this helps to confirm their model's accuracy and usefulness. Despite the improvements, I have some concerns listed below related to the writing and statistics. Most broadly, I feel the manuscript could be further improved by: (1) providing more details of the results of their experiment, particularly in terms of how their measured water quality parameters and larval responses compared to the model outputs (i.e., strength of fit to model predictions); (2) coming up with a more user-friendly way for their model to be used by readers. The applicability of their model in real-world settings was a major selling point the authors used for this study, but they fall short of providing a substantive way for readers to apply their model. I would be happy to review a revision of this  
manuscript.

**Second review of Woods et al. CORE-D-15-00336-R1**

**Major comments:**

- Page 8 line 47: There are a couple of potential issues here. First, the authors state that they calculated the standard error then state that they calculated the 95% CI for (what reads to me as) the same data. Which estimation of variance was estimated and reported? Secondly, when propagating the error across two metrics confidence bounds of the resulting estimates should not be generated from bootstrapped data. When this is done, as the authors seem to have done here, the number of iterations largely determines the size of the bounds (i.e., if you iterate enough times the bounds of noisy data will become quite small). For a broader description of this issue see Wilson White et al. (Oikos 123: 385-388, 2014). Alternatively, to compare between sites or model estimates the authors could generate bootstrapped values for the difference between A and B, then see whether the distribution of differences in bootstrapped values overlaps zero (i.e., are different).

- Throughout the Results section the authors need to report values/percentages for how much variance in the model was described by the factors they mention. Using terms such as “most,” “the highest,” and “minimal” with respect to amounts of variance is much too vague for the Results section.

- I very much appreciate that the authors tested their model in a real-world setting. This is an extremely useful and rigorous approach. With that, I feel the authors need to more explicitly describe these experiments in the Results and Discussion. Specifically, please state the *a prior* expectations, the actual values measured for the water quality parameters (mentioned in the Methods), and describe how these values compare to the modeled values (both in terms of water quality and larval metrics). Perhaps the authors could even place their measured values on the model outputs (Figs 1 and 2) using a different shape and color so that the reader can see where the water quality, fertilization success, and larval survival fall out relative to all the data that went into the models.

- I feel that the authors have not gone far enough to make their results useful to readers and in particular reef managers who are trying to apply the model. I would not usually belabor this point, but the authors suggest that much of the value of their study/model comes from the fact that it will be useful for setting pollution limits. I would like to see a more useful/user-friendly/accessible way that readers can apply the model. Perhaps this could be as simple as a series of equations in the supplemental in which users could input their own environmental parameters to generate an estimation of how much fertilization or larval survivorship decreases relative to when those pollutants are absent. Furthermore, I don’t see (but perhaps missed) any references to the Github repository of data that the authors reference in their response to my previous review.

**Minor comments**

- Page 3 lines 11-25: These sentences are awkwardly phrased and unnecessarily vague. Please be more direct about cause and effect and clearer about the topic (remind the reader what species you’re talking about).

- Page 4 first sentence: The reference to environmental cues is much too vague to be informative to the reader. What are these cues? What do the cues initiate during the pre-settlement stages? Either elaborate or remove this sentence.

- Page 4 line 33: Again, describing the cause and effect between climate change and runoff would be useful, rather than vagaries such as “linked to.”

- Page 4 line 52: If you use phrases such as “specifically shown to negatively affect…” you need some references, even though you go into more detail (with refs) in the following sentences.

- Page 9 line 12: Copper is incorrectly capitalized.

- Page 9 line 12: Please report how much of the variance in the fertilization model (as a %) was explained by salinity and copper. The lack of concrete values is a recurring issue throughout the Results.

- Page 9 line 22: The sentence starting with “Whereas…” is not a complete sentence.

- Page 9: State for the reader why success was expected to be worse in water from these two locations relative to the third.

- Page 10 line 56: The sentence starting with “Anthropogenic impacts..” is awkward and vague, please be more explicit.

- Page 12 line 6: The use of “significant” here is inappropriate.

- Page 13 first sentence: This sentence is very hard to follow. Please re-phrase.