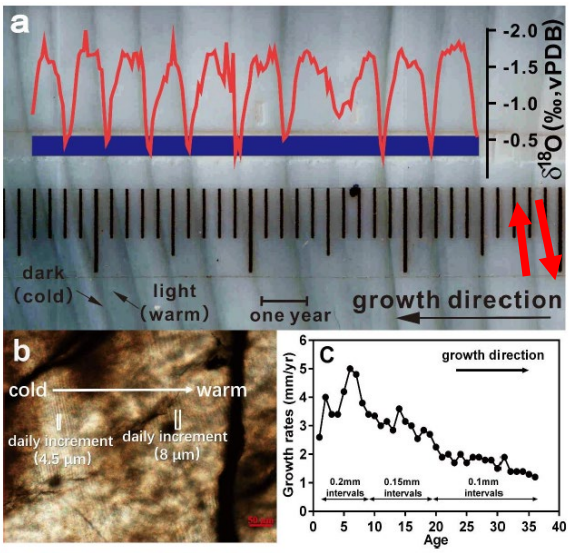
General comments:

I can see from their comments and corrections in the manuscript that Hu et al. have made great efforts to accommodate all reviewer suggestions and this has greatly improved the manuscript. However, I have three objectives that I feel need to be addressed before this manuscript can move forward:

Firstly, the writing has still many language issues (especially the new yellow text passages) and I would like to urge the authors to seek some editorial support either through the journal or within their professional network. I believe it is not the reviewer's job to correct the entire grammar of a manuscript but to evaluate and support the intellectual achievement. I will do my best to provide some additional language help but need to emphasise here that this is just scratching the surface. Also, missing line numbers in the most recent version make it very difficult to provide specific comments.

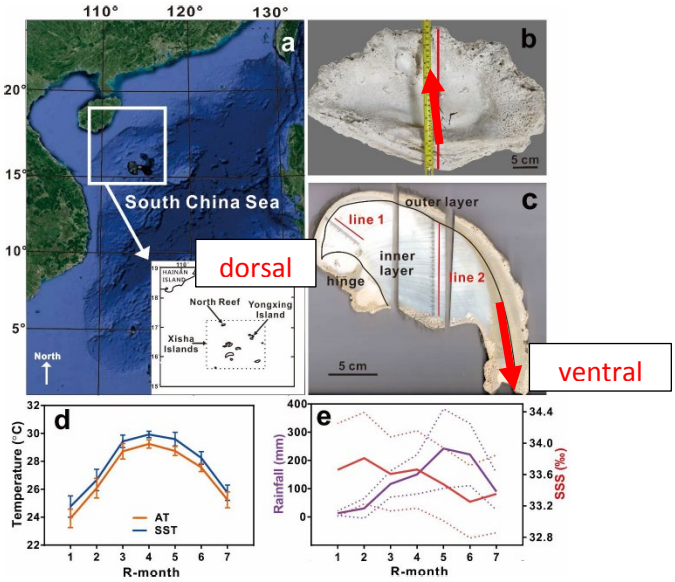
Secondly, I am still not convinced that fastest growth rates correlate with warm seasons. It could be the case but (in theory) it's a 50/50 chance so you need to demonstrate this clearly. I understand that it may be challenging to visualise them from the fossil shell but why don't you use your modern shell for this? I assume you know when the shell was collected and sacrificed (summer or winter) you could prepare a microscope image showing the inner growth front and check if a dark or bright (opaque) line was formed most recently. There shouldn't be any interfering organic matter in this sample. I believe this extra effort could go a long way and greatly support your argumentation with direct evidence.

Lastly, I believe the arrow indicating the direction of growth in Figure 3 has a wrong orientation and it is missing in Figure 1 altogether. Such shell orientation "landmarks" are important and need to be presented for the reader to understand the shell geometry. A growth direction arrow always refers to the dorso-ventral shell extension and, thus, will never be perpedicular to the growth lines of an inner shell layer (as in this case for the inner layer of *Tridacna* here). It will be roughly parallel to these growth lines – as the inner surface of the shell is not depicted in this image there are 2 options – it could be pointing up or downwards (as indicated by my red arrows). Authors need to check where on the section they took the image and re-draw the arrow accordingly. Alternativly for Figure 3 authors could consider leaving the arrow as it is but modify the text to read "local direction of growth", then this arrow would indeed indicate the orientation of the inner shell layer (instead of the dorso-ventral growth direction, see Otter et al 2019 for more explanation on shell growth directions).



Growth direction (defined as dorso-ventral shell extension)

I have also inserted direction of growth arrows in Figure 1 for the authors as they should consider adding it to their figure (smaller and black of course I exagerate here just for the purpose of clarity). For further information on the difference in general and local shell growth directions I recommend reading and citing Otter et al. "Insights into architecture, growth dynamics, and biomineralization from pulsed Sr-labelled Katelysia rhytiphora shells (Mollusca, Bivalvia)." Biogeosciences 16.17 (2019): 3439-3455, especially chapter 3.6.



I hope this second round of suggestions does not discourage the authors and hope they can view these comments as a last “fine tuning” of their manuscript and hope they will undertake this last effort. I look forwards to seeing the final published version of this study!

Specific comments:

Abstract:

omit “in the tropical ocean” as Tridacna is the largest bivalve in general.

Introduction:

delete “and ontogenetic” as this reads confusing (they do not help to understand past climate it is just an intrinsic growth pattern of the animals).

“Bivalves, which are considered to be high-resolution records, can give us more precisely environmental variation details.” Change to “Bivalve shells” as the soft tissue is not used.

“Studies in bivalve mollusk specimen (Arctica islandica) oxygen isotopes showed a different seasonal temperature change compared between the Little Ice Age and the present” it is not clear what you mean with this sentence and why you give this information. These literature examples need to be better embedded within your story. Why is this relevant?

“Previous studies indicated that Tridacna species grow their shells with the oxygen isotopic (δ18O) equilibrium with seawater” change to “Previous studies indicated that Tridacna grow their shells in oxygen isotopic (δ18O) equilibrium with the surrounding seawater” and better end the sentence after the provided references and modify beginning of next sentence.

Check for past and present tenses: “…studies on the mid to late Holocene ENSO evolution yield controversial findings” and “Coral records show” “fossil mollusk shells suggest” Ask yourself do they still show? Is it still the case? Then use present tense when speaking about earlier findings.

Materials and methods:

“Due to suggested in the method (Schöne and Fiebig, 2009) and the yearly minimum number of δ18OYX1 was seven, the time-scale of modern Tridacna YX1 is resampling into seven points/yr, which indicates a resampled month (r-month) represents 1.7 actual month. All meteorological observations and δ18Oshell are using this method to resample the time-scale” needs to be rewritten for clarity (grammar).

“Study in shell architecture showed a crossed lamellar microstructure with a strong fibre texture made the mechanical properties of those bivalve shells more optimized (Agbaje et al., 2017)” perhaps change to “A recent study investigating the architecture of Tridacna shells shows a crossed lamellar microstructure with a strong fibre texture with optimised mechanical performance (Agbaje et al., 2017).”

…performed at the Institute of Earth Environment of the Chinese…” and “the fossil Tridacna gigas age is 3437…”

“…the standards and samples had reproducibilities (1σ) of better…”

The last paragraph of the methods section needs more extensive language editing.

Results

“From the shell section” (delete slice)

“…which suggests Tridacna grew in low temperature (potentially from December to February).” And “In contrast, lower δ18OA5 values lie in the wider bright, opaque lines…” careful with the word “lighter” this refers to density and weight – what you mean is “brighter” – check and edit throughout the manuscript.

“Furthermore, daily increments visible as pairs of dark and bright increments can be seen…”

“This period fell into the cold season with daily increments of about 2.7 μm width.” You mean one dark and bright pair?

Discussion:

“R-monthly mean values are used to compare for they are minimizing the influence of extreme events.” It is not clear what you mean – what do you compare?

Perhaps better: “As ENSO is the strongest contributor to global interannual climate variations a better understanding of its fundamental properties will allow us to better unravel past climate change episodes and to make more accurate predictions for the future”