Response to RC1

RC1: Reviewer comment (black)
AC: Author response (gray)

AC: We thank Dr. Andrus for their time and contributions to improving the database and manuscript. We have responded to each point of the review below.

General Comments:

RC1: Overall, I think this work represents a useful contribution to archaeology and paleoclimatology. The data are from different sources yet form a coherent set. My main overarching comment is the absence of at least one common midden clam found along the coast between Oregon and Alaska; butter clam (Saxidomus gigantea). The authors may have intentionally left it out because of its more northern range, but it does overlap with the database they built. I certainly don't think this omission should prevent publication of this database, and one could argue that the only published isotope data on ancient butter clams are from sites just north of Vancouver Island, thus beyond the scope of this work, but if the authors wish to add it, I could see its relevance.

AC: We will add data from *Saxidomus gigantea* as it was recommended by both reviewers. This change will be made in the database and submitted to Pangea and the manuscript will be updated to include the additional data set.

RC1: The statistical analyses are interesting, and I am glad they are included, but interpreting their meaning will be challenging due to the impact of habitats and water isotope composition on these data. Therefore, I am especially interested in section 3.6 and found the plots illuminating. Much could likely be explained by the position of the ancient collection sites along the salinity gradient, but this is not known in most archaeological contexts (e.g see panel F in Figure 4). It might be useful to again remind the readers that without constraining past water oxygen isotope content, it is difficult to interpret these shell isotope data for paleotemperature estimates. The authors address this in section 1.2, but it might be useful to state the problem of uncontrolled water oxygen isotopes more explicitly.

AC: We will add additional statements in the results section (3) to explicitly restate the problem of unconstrained water isotope values.

RC1: I recommend this be published with the below edits. I do not know if it is possible to revisit and expand these contributions later, but I am aware of several ongoing projects that will add more data relevant to this set in coming years and I hope they can be included too when they are published.
AC: We appreciate your interest in continuing to expand the database and we welcome future additions to the database.

Specific and Technical Comments:

RC1: Line 15: The term “Northeast Coast” is used to denote the study area. I understand that the authors are referring to the northeast coast of the overall Pacific Ocean (as In lines 21 and 22), but typically coasts are defined relative to landmasses, so this might be confusing to some readers. It might be clearer to state the northwest Pacific coast of North America.
AC: The text will be updated to reflect the change.

RC1: Line 28: “Calcite” should be “calcium carbonate” because some of the taxa reported are aragonite or contain both calcite and aragonite in different shells layer.
AC: The text will be updated to reflect the change.

RC1: Line 61: Again, I would avoid the use of the term “biocalcite” and replace this with “biocarbonate” since there are two minerals present in this database.
AC: The text will be updated to reflect the change.

RC1: Line 64: I would suggest adding the word “relative” before “sea surface temperatures” since in the cited papers the season of capture is determined independent of absolute temperature calculations.
AC: The text will be updated to reflect the change.

RC1: Lines 125-126: It might not be possible, but if the original data sources provide estimates of time-averaging it might help readers to include that in this database.
AC: In order to maintain consistency across the database we were not able to include a uniform metric of time averaging. The column in the database labeled age_range does report a range of ages for a stratigraphic section if provided by the original authors. This was not previously included at line 125-126; we will add the following text: age range (if original authors reported age as a range of values for a stratigraphic section).

RC1: Table 1: Some of the taxa are listed as intertidal, but they are also found as fully subtidal (e.g. Panopea abrupta, Protothaca staminea). Each listed species should be rechecked to ensure their total depth range is recorded, although the practical depth of shell collection by ancient humans would constrain the maximum reasonable depth of collection.
AC: The text in Table 1 will be updated to reflect the change. Changes to the database reflecting this change will be submitted to Pangea. Figure 4 will be updated. Section 3.5 will be updated.

RC1: Line 149: “13” should be in superscript.
AC: The text will be updated to reflect the change.

RC1: Section 3.5: A related concern to sampling density is the growth rate of the shell. A densely sampled, slow growing, shell may still have long time averaging, whereas a low-density sampling of a fast growing shell may yield finer temporal averaging. It is beyond the scope of this paper to parse out all possible such patterns, but if the original papers include such data it might be useful to reference it, to at least remind the reader of this concern.
AC: We agree this is critical and will add two additional sentences to remind the reader of this concern.