

Editor comment (previous round). [Conclusions] I feel that you can say that the available data and graphs are less conventional but not necessarily that they are not expected from direct analytical outputs (see comment by Reviewer 2). I suggest you rephrase this part to avoid misunderstanding. Line 249 (“Furthermore, indications of image manipulation are apparent in the supplementary material”) of the conclusion could be misunderstood as defamatory and difficult to demonstrate. The authors should note (line 206) that it may also have been an unintentional error – you do not present evidence to demonstrate that these sections have been flipped. Furthermore, it could have been mislabelled, miscopied into the Supplementary File, etc. Line 254 of the conclusion “We raised additional concerns regarding the authors’ failure to adequately discuss how their osteohistological slides, fish body size graphs, or stable isotope graphs support the conclusions of a spring death” needs to be reworded. Even if you consider the discussion inadequate, the most important point is whether the results support the conclusions, not whether the discussion supports the conclusions. I feel the absence of public raw isotopic data in the paper and supplementary materials can be highlighted (compare Reviewer 1) and can be discussed as a potential issue with reproducibility. It would be customary to mention that you obtained access to that data and its context if this is the case on demand. I suggest that the reply should focus on the isotopic data issues and embrace that other observations may give a range (spring-summer) but not necessarily a single season unless you can substantiate these points further with additional references and observations.

Author reply. We appreciate the editor's feedback and have carefully considered the suggestions for clarifying our statements. Regarding the dataset, we maintain that the results presented by DePalma et al. are unexpected from standard analytical outputs. We have refrained from speculating on the nature of the anomalies but agree with Reviewer 1's assessment: "Basically, I agree with the authors here that the DePalma et al. results are sufficiently unusual/implausible that they cannot reasonably be taken at face value until primary data are presented to actually corroborate them (and ideally more details of exactly what methods were used and how the data were collected)."

In reference to the statement on image manipulation, we acknowledge the need for precise language. We do not intend to imply misconduct but rather highlight discrepancies apparent in the supplementary materials, which may be due to unintentional errors such as accidental flipping or submitting the wrong file or another type of miscommunication. As declared earlier, we have now replaced the word “manipulated” with “flipped” to present the observation rather than suggest “manipulation”.

However, we are concerned that an explanation addressing these discrepancies was not provided by reviewer 2, and the focus has shifted towards potential defamation. The requirement for publishing sufficiently high-resolution, non-manipulated images aligns with the editorial policies of Scientific Reports, which emphasize transparency and reproducibility in scientific data presentation. It is under these principles that we feel compelled to point out the image manipulation observed in the Supplementary Information. We also believe that journals have a responsibility to address such issues before publication to uphold scientific integrity.

We have taken the editor's suggestion regarding the discussion on osteohistological slides, fish body sizes, and stable isotope graphs. We have adjusted our language to emphasize that while these elements may suggest a range of spring-summer conditions, the lack of publicly accessible primary data limits a robust validation of their conclusions.

Furthermore, we maintain our concerns regarding the absence of public raw data, which is crucial for reproducibility as underscored by Reviewer 1. Transparency in scientific inquiry is fundamental to maintaining integrity and trust in the research community.

Editor comment (current round). The authors have not removed the word, ‘manipulated’ from the text, where this appears on line 284. The authors state that they have removed the word ‘manipulated’ and replaced with ‘flipped’, however the text on line 229 reads, ‘being digitally manipulated (flipped)’. The authors have partially addressed the above request by the Editor, however the use of manipulation has not been further substantiated as far as I can read in the authors’ response. The following, earlier comment by the Editor, therefore, please requires attention via in-text rephrasing:

I suggest you rephrase this part to avoid misunderstanding. Line 249 (“Furthermore, indications of image manipulation are apparent in the supplementary material”) of the conclusion could be misunderstood as defamatory and difficult to demonstrate. The authors should note (line 206) that it may also have been an unintentional error – you do not present evidence to demonstrate that these sections have been flipped. Furthermore, it could have been mislabelled, miscopied into the Supplementary File, etc

Editor comment (previous round). [Thin sections in the Supplementary Materials] As manipulation seems hard to substantiate and alternative explanations exist, I recommend acknowledging this in the manuscript or remove this claim entirely. Something like – At first glance, image manipulation seems a possible explanation but alternative explanations such as ...could explain this pattern (or cannot be ruled out entirely).

Author response. We respectfully disagree that it is hard to substantiate the observation of image manipulation in the case of the identical microscopic slides presented under different specimen numbers. Even superficial examination reveals that these images depict the same section, with one being horizontally flipped 180 degrees. We perceive this as blatantly obvious and feel this is problematic specifically because multiple images of the same section (i.e. sample) were assigned different sample numbers. Without speculating on how this came to be, this section is now presented as multiple specimens that –logically– present the same signal. While alternative explanations such as unintended variations in photographic settings might account for some differences, the deliberate flipping of an image raises questions about the presentation of data integrity. The decision to assign separate specimen numbers to these images further complicates the situation, as it suggests a departure from standard scientific practices. It is important to approach this observation with the utmost objectivity and to acknowledge the potential implications without making accusatory statements. Transparency and accuracy in scientific reporting are critical to maintaining the trust and credibility of research findings. Nevertheless, in line with your previous suggestion, we have replaced the word “manipulated” with the word “flipped” in line 220 to present the observation rather than suggest “manipulation”.

Editor comment (current round). The authors are requested to acknowledge and reply to reviewer 2’s comment concerning this matter. Specifically,
In this section, During, Voeten, & Ahlberg claim that DePalma et al. manipulated an image in the supplementary section, flipping an image that had been photographed twice from the same side. Not only is this statement false and insufficiently supported, but the UoM investigation thoroughly looked into it with multiple experts, concluding that manipulation had not taken place, that the images were

not both of the same face of the slide, and that the claim was unfounded. Furthermore, During was cautioned by the UoM Chair of Ethics, that, in light of During, Voeten, & Ahlberg being aware that their claim was false, if they were to perpetuate that claim they would be knowingly and intentionally circulating false and misrepresented facts in a malicious way

As the Editor raised previously, the authors should please remove the word manipulated, as this remains in the manuscript. The authors should acknowledge other explanations exist.

Additional Editor comments by line:

Ln 73, remove the word 'strict'

Ln116, replace 'indicate' with 'suggest'

Ln117: remove, 'such as Adobe Photoshop'

Ln172, Replace this sentence with, 'We interpret these characteristics to be inconsistent with direct outputs of analytical graphing software.'

Ln208, 'exactly the same position' – how so determined?