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Discussions

Interactive comment on "Rare Earth Elements in oyster shells: provenance discrimination and potential vital effects" *by* Vincent Mouchi et al.

Anonymous Referee #1

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General comments

The authors set out to test whether the REE and Y compositions of bivalve shells can be used as provenance and environmental tracers. They used Laser Ablation-ICP-MS to measure modern oysters from three coastal locations and ancient oysters from two archaeological sites. The authors conclude that the Y/Ho ratio in C. gigas specimens gives information on their provenance but that this is not the case for O. edulis.

This study presents interesting data but has several major flaws.

1) Modern O. edulis specimens were only measured from one location, therefore there is no information on any differences in REY compositions in different locations for this species.

2) Only O. edulis specimens were measured in the archeological sites and, as stated above, these could only be compared with modern O. edulis from a single location.

3) There is no information about the measured or expected REY in the seawater at the different coastal sites and therefore it is unclear if measurable differences should be expected.

4) The authors attribute the similarities in REY compositions between the ancient O. edulis specimens to vital effects. This conclusion cannot be validated without addressing points 1 and 3 above.

I do not recommend publication unless these points are adequately addressed.

I have no further comments at this time and will wait until a revised version is submitted before adding specific comments and technical corrections.

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