REPLY TO BRAJE AND ERLANDSON

Michael A. Glassow

Although Braje and Erlandson express concern with my inclusion of Santa Cruz Island sites containing small quantities of red abalone shells with red abalone middens on the other Channel Islands, doing so is justified because of the discrete period of time during which they occur. They also feel that I should have expanded the scope of my paper to include consideration of relationship between sea otters and red abalone, but this was beyond the intent of my report. Nonetheless, I point out that more explication is needed of the nature of sea otter hunting if its effects on red abalone availability are to be understood.

A pesar de la preocupación que expresa Braje y Erlandson sobre mi inclusión de sitios de la Isla de Santa Cruz con pequeñas cantidades de conchas de abalón rojo en los depósitos de abalón rojo presentes en otras Islas de Canal, su inclusión se justifica por su ocurrencia en el periodo de tiempo en que ocurren. Braje y Erlandson también creen que debería haber incluido en mi artículo consideraciones sobre la relación entre la nutria marina y el abalón rojo; este tema, sin embargo, va más allá del objetivo de mi reporte. A pesar de lo anterior, señalo que para entender el efecto de la caza de nutrias marinas sobre la disponibilidad del abalón rojo es necesaria una mayor explicación sobre la naturaleza de esta caza.

Because my report concerns the chronology of red abalone middens on Santa Cruz Island and the possibility that a shift in the nature of settlement systems occurred ca. 3900 cal B.C., there was no reason to delve into the relationship between sea otters and the availability of red abalones in waters around the northern Channel Islands, a topic to which Braje and Erlandson (2016) already have given considerable attention in various publications.

In defining the occurrence of red abalone middens on Santa Cruz Island, I said that the definition of a red abalone midden depends largely on their occurrence in much higher percentages on the other islands. I extended the term to those on Santa Cruz Island because they occur during a discrete interval of time within the longer interval during which they occur on the other Channel Islands, despite the low percentages by weight of red abalone shells among shellfish remains. I do not adhere to a definition of red abalone middens based on an arbitrary percentage of their abundance among shellfish remains. As my ongoing research recently has revealed, however, some Santa Cruz Island sites, in fact, do have much higher percentages of red abalone shells. Preliminary data from CA-SCRI-758 and CA-SCRI-796 reveal percentages of 11 and 16 percent, respectively. Perhaps the low percentages I found at other sites (Glassow 2005:26) may be attributed to loss of higher-density midden deposits due to seacliff retreat and being at the eastern extreme of the occurrence of accessible red abalone.

Braje and Erlandson said that I misrepresented their argument that no clear relationship exists between sea-surface temperature variation and the occurrence of red abalone middens on the Channel Islands; they assert that they were referring "only" to middens on San Miguel Island and perhaps Santa Rosa Island. However, in positing a lack of relationship, Braje (2010:121) acknowledges a study of a Santa Cruz Island shellfish assemblage that reached a similar conclusion. In the publications by Braje and Erlandson and their colleagues that I cite, it is not entirely clear that they were specifically excluding Santa Cruz Island from

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their argument of no relationship.

Although a consideration of what caused the occurrence of red abalone middens on Santa Cruz Island between 5400 and 3300 cal B.C., particularly the role that hunting sea otters might have played, was beyond the scope of my report, it is worth pointing out that no sea otter bones occurred in collections from CA-SCRI-109, which contains deposits dating from ca. 6500 to 3300 cal B.C. My colleagues and I (Glassow et al. 2008:65–66) suspected that sea otters were absent from the waters near the site during this time interval, and we wondered whether factors other than hunting had some effect on the distribution of sea otters. In fact, the otter-hunting hypothesis proposed by Braje, Erlandson, and their colleagues would benefit from further explication. What would the predation rate have to be to keep otter populations low enough for red abalone to flourish? Do the numbers of sea otter bones in island middens accurately indicate a kill rate sufficient to keep sea otter populations in check? If not, why not? Was the number of hunters living on the islands as early as 6000 cal B.C. large enough to accomplish this while also attending to other daily obligations? What was the nature of their hunting technology? Before suggesting that I inadvertently may have undermined contemporary fisheries management issues by failing to discuss factors affecting red abalone availability to prehistoric shellfish collectors and using a criterion for defining red abalone middens different from theirs, Erlandson and Braje would be best advised to flesh out their arguments concerning otter hunting by Channel Islanders. This would be more fundamental to development of approaches for managing contemporary red abalone populations.

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