Reconstruction of the Prehistoric Shore Environment Through the Analysis of Shell Midden, Newport Coast, Orange County, CA.

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Abstract

Shell middens are found in nearly every coastal area of the world, and have been recognized as the remains of prehistoric peoples for over a century. Shellfish remains are an abundant and visible constituent of local sites. (Figure 1) The subsistence practices of the indigenous populations included utilizing molluscan remains as a dietary resource and as a raw material for the manufacture of tools, ornaments, and hearths. This research will include data from area ICD-13, a small Intermediate to Late Prehistoric shell midden near Pelican Hill in Newport Coast, Orange County, CA. The goals for this research will be to identify the major species of shellfish, compare the prehistoric environment to the modern environment, and analyze the nutritional role that shellfish play in the subsistence of Native Americans.

Introduction

This report will present the data recovered from the archeological site “Newport Coast Archeological Project: Area 13 CA-ORA-6622” also known as “ICD-13”, the prefix for Irvine Coast Development. ICD-13 is located at an elevation of 620 feet on a relatively level area of Pelican Hill, overlooking the canyon bottom of a tributary of Back Bully. (Figure 2-3) This site was previously unrecorded as it had been completely covered in mixed chaparral. The shellfish sample reveals a greater use of Newport Bay. According to the radiocarbon dates, ICD-13 was occupied briefly during the Intermediate period. This site will be reconstructed based on midden material to analyze Native American shellfish collecting subsistence to measure the human impacts on the prehistoric environment. Presently, the majority of this dump deposit was made up of Chione, Argopecten, Haliotis., and Ostrea Lurida. I was able to identify each species using the book “A Field Guide to Pacific Coast Shells” and “A Code Book” to determine whether they are the same species as those described in the archaeological reports. (Figure 4-5) To do a non-biased random sampling, a square grid was made consisting of 300 squares. Each grid was numbered, and a code number. The nutritional role that shellfish played in prehistoric diet.

Methodology

Samples of shell collected from this feature were selected for a random sampling. In order to prepare a random sampling I had to pull out previously excavated bags of shell midden from the Cooper Center warehouse. I decided to pull out bags of shell midden from 10-20 cm levels since features from this site contained larger quantities of shell. By looking at the protein content and other nutritional compositions (Figure 9) we can estimate the average meat yield to determine the number of California mussels required to equal the meat and protein provided by a single average male deer, which would take between 2,503 and 3,804 mussels. It would take approximately 1,000 to 1,500 mussels required to equal the amount of meat in a single California Halibut. (Figure 10) Mechan expl is that without specialized technology, mussel can be harvested and cooked in large masts, greatly reducing the labor involved in their collection and processing. Finally, the lusston of mussel beds are highly predictable and can be exploited by all group members.

Once each square was completed, a random sampling of 30 percent, 20 percent, and 10 percent of 300 was done by using a random number generator app. By doing this random sampling I was able to analyze which species of shellfish were the most abundant.

In each random sample more than fifty percent consisted of Chione, Ostrea Lurida, Crepidula, and Argopecten being the most abundant. The least abundant included Crepidula, Haliotis, Crucibulum, and Acanthina Spirata. (Figures 6-8)

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Determining the nutritional role that shellfish played in a prehistoric economy can have important implications for interpretations regarding the structure of a given settlement and subsistence system, as well as broader issues such as the evolution of coastal adaptations. As additional data become available from different regions, we will find that the dietary role of shellfish varied both spatially and temporally in response to environmental, demographic, and other variables.

Conclusion

References