

NEW PERSPECTIVES ON THE ARCHAEOLOGY OF ANACAPA ISLAND, CALIFORNIA: PRELIMINARY RESEARCH AT ANI-2

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Anacapa Island is the second smallest of California's Channel Islands and has received limited attention from archaeologists. Previous research on the island identified sites on all three segments of Anacapa, including human occupation dated to at least the Middle Holocene. Despite a few survey and excavation projects, little effort has been made to understand how people on Anacapa fit into regional subsistence, settlement, and exchange patterns. In this paper, we outline previous archaeological research on Anacapa, discuss our recent excavations and ¹⁴C dating at ANI-2 and elsewhere on the island, and finally place these data into larger regional context.

With an archaeological record spanning the Terminal Pleistocene and Holocene, the Channel Islands have emerged as an important area for understanding the nature and diversity of Native American coastal and island adaptations (Arnold 1992; Erlandson et al. 1996; Johnson et al. 2002; Kennett 2005; Rick et al. 2005). Despite being the closest of the islands to the mainland at just 20 km offshore, Anacapa Island has received limited attention from archaeologists. A small number of survey and excavation projects on Anacapa have identified sites on all three segments of island, including human occupation dated to at least 5200 cal B.P. (Greenwood 1978; McKusick 1959; Rick 2006; Rozaire 1978), but we still know relatively little about the role of Anacapa in regional subsistence, settlement, and exchange systems. In this paper, we discuss our recent excavations at CA-ANI-2, placing these data into broader regional context (Figure 1). Although one of the larger and more dense sites known on the island, our data suggest that ANI-2 may contain a single, relatively brief occupation, or series of short occupations, dating to the early Late Holocene.

ENVIRONMENTAL AND ARCHAEOLOGICAL CONTEXT

Anacapa Island is the easternmost of the Northern Channel Islands, and is divided into three segments—East, Middle, and West—covering a total of 2.9 km². Anacapa's small size and limited water sources result in terrestrial resources that are even scarcer than on the larger islands. The only mammals known to have been on the island prehistorically are the island deer mouse and possibly the California bat. Today, there are a few oak trees on West Anacapa and fresh water springs are restricted to the sea cliffs. Marine resources (fish, shellfish, and sea birds) on the other hand are abundant, although the rugged terrain and steep cliffs make movement between the shoreline and island terraces difficult today. Both sea and land birds breed on the island and are seasonally abundant (Schoenherr et al. 1999).

Surveys carried out on Anacapa Island during the latter half of the twentieth century identified 27 sites, but excavations were limited and resulted in only a few reports (Greenwood 1978; McKusick 1959; Rozaire 1993). Aspects of these projects (arbitrary excavation levels, large mesh size [$\geq 1/4$ -in], etc.) make much of this research problematic, but a variety of artifacts and vertebrate faunal remains have been reported from ANI-6 and -8 (Rozaire 1978, 1993). Limited faunal data from these and a few other sites include pinnipeds, dolphins, rocky intertidal marine fishes, birds, and shellfish dominated by California mussels and black abalones (McKusick 1959; Rozaire 1978; Walker et al. 1978). Until 2004, the last formal prehistoric research on Anacapa was Greenwood's (1978) survey that described new and previously recorded sites and provided information on site preservation.

Rick (2006) obtained radiocarbon dates from six sites (ANI-1, -2, -4, -5, -6, and -8), all on East and West Anacapa, and reported three previously unreported dates taken by Rozaire for ANI-8. Collectively, these dates suggest that Anacapa was occupied for most of the last 5,200 calendar years. Ethnohistoric data suggest that Anacapa was not occupied by the Chumash at the time of European contact, but four needle-drilled *Olivella* wall beads found by Rick at ANI-18 on West Anacapa in 2006 confirm at least occasional use of the island during the Historic period. Given the length of occupation elsewhere on the northern islands, as well as Anacapa's proximity to the mainland, it is likely that the earliest sites on the island have yet to be identified.

Most of the shell middens on Anacapa appear relatively small and shallow, suggesting brief occupations by relatively small groups, but a few larger sites may have been used multiple times or represent more sustained occupation. The lack of resources, especially fresh water, and rugged terrain on the island probably limited occupation, and it is likely that people came to the island as part of larger settlement and logistical systems that included Santa Cruz Island and

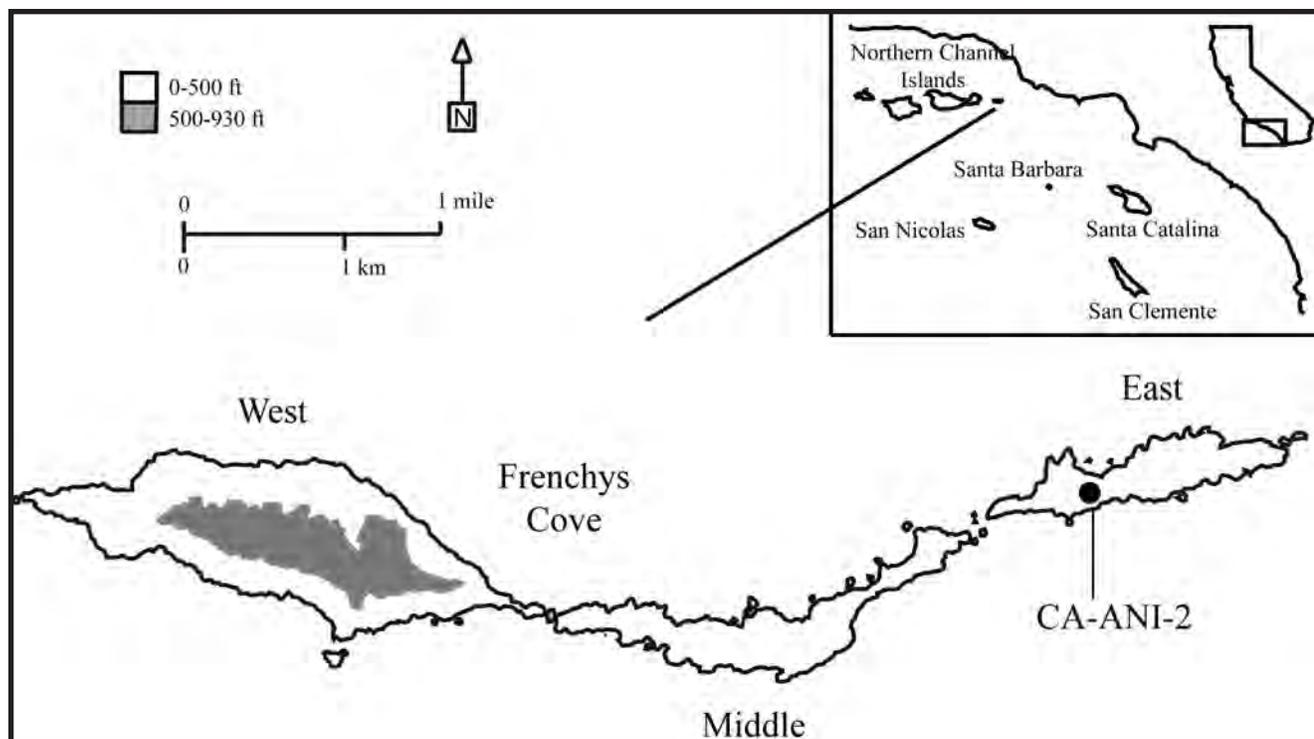


Figure 1. Map of the Channel Islands, adjacent mainland, and ANI-2.

possibly the mainland coast. More research is needed to test this hypothesis, but our recent excavations at ANI-2 are indicative of a short-term but fairly substantial visit(s) visit to Anacapa.

ANI-2: SETTING AND METHODS

ANI-2 is a relatively large shell midden on the south side of East Anacapa, a few meters from the steep southern sea cliff. It is one of only four archaeological sites recorded on East Anacapa. The site sits on a small knoll with a view of most of East Anacapa and parts of both West and Middle Anacapa. Eastern Santa Cruz Island and the mainland are also visible on clear days. A high-traffic hiking trail runs through the middle of the site, scattering fragmented midden well beyond the site boundaries, which Greenwood (1978) reported as about 24 x 30 m. Our research at ANI-2 was designed in part to assess the impact of this trail on the site deposits.

Rick (2006) obtained a ^{14}C date of 3310 ± 35 B.P. (2920-2780 cal B.P. at 1 deg. F) from a California mussel (*Mytilus californianus*) shell 38-40 cm below the surface in the central site area. A second date from near the top of Unit 1 is nearly identical to the first, at roughly 3330 ± 25 B.P. (2940-2820 cal B.P. at one sigma). A third date of 3560 ± 30 B.P. (3270-3120 cal B.P. at one sigma) from near the bottom of Unit 1 is slightly older than the other two. The absence of

artifacts indicative of later occupations (e.g., *Olivella* wall and callus beads, and arrow points) supports the radiocarbon chronology. Two other sites on East Anacapa (ANI-1 and -4) were also ^{14}C dated to the early part of the Late Holocene (Rick 2006).

In 2006, we returned to the site and excavated a single 1 x 1 m test unit in one of the densest portions of the site. We also excavated several augers to determine the depth of the deposits and site boundaries. In general, we found that the density of midden was highest in the central site area near the excavation unit, but it appears that the midden is distributed thinly and patchily below the surface several meters to the southwest. Without more extensive excavations, however, it is difficult to know whether these are intact deposits. The location of the trail and presence of aggressive nesting seagulls prevented more extensive auger testing to the east and north. No midden was evident in the sea cliff several meters south of the excavation.

Excavated sediments from the test unit were screened over $1/8$ -in mesh. All artifacts and vertebrate remains were collected for further analysis. Shellfish hinges and whole shell valves that could contribute to a Minimum Number of Individuals (MNI) estimate were counted, measured, and discarded in the field. We also excavated a column sample (25-x-25 cm) in the south wall of the unit, which was screened over $1/16$ -in mesh with all residuals retained for analysis. Analysis of the column sample and the vertebrate

remains from both the test unit and the column sample is ongoing. Here, we provide a preliminary report on the artifacts and faunal remains from the site.

RESULTS

Most of the artifacts recovered from Unit 1 were stone or bone tools. Only two shell artifacts were recovered, both of which are *Olivella* barrel beads and are the only nonutilitarian artifacts found in the deposits (Figure 2). We identified 25 bone tools from Unit 1, including bone gorges and barbs distributed more or less evenly in the deposit, with the exception of the upper 10-20 cm that contained significantly fewer artifacts. A total of 201 lithics include flakes and chunks of chert and volcanics, but only three specimens were retouched. While some of the chert pieces appear to be from sources known on Santa Cruz Island or the mainland, the majority are not recognized by the authors and may come from sources scattered in the sea cliffs on Anacapa. Most of these pieces are of mediocre to poor quality. The lithics were found throughout the unit and were generally large, averaging 2.8 cm in maximum dimension. The upper 10 cm were distinct, however, containing chipped stone that averaged only 1.3 cm and including several small flakes that were probably the result of finishing or retouching tools. Such small flakes were rare at greater depths. A tarring pebble, along with small amounts of asphaltum, was also identified in the unit. A single bullet casing was found near the surface.



Figure 2. Bone barbs and gorges (top), bird bone tools (bottom), and *Olivella* barrel beads from ANI-2.

The distribution and density of shell throughout the unit suggest a short-term occupation concentrated in a dense layer some 30-50 cm below the surface. The deposits appear to terminate at roughly 60 cm below the surface, with greater fragmentation and lower densities between 0 and 30 cm and below 50 cm (Table 1). While these changes cannot be fully quantified until the column sample is completely analyzed, they are currently supported by field observations and sidewall profiles, as well as the numbers of whole shells collected in the unit. Fragmentation was extremely high in the upper 10 cm below the surface, decreased steadily to about 30-35 cm below surface, and remained low to about 50 cm below the surface. The lowest 10 cm were moderately fragmented. Collectively, these data suggest that the deposits may have originally been a buried midden, roughly 20-30 cm thick, occurring at about 30 to 50 cm below the surface. The midden has probably been mixed by subsequent historical disturbances and other processes (e.g., European hare burrowing).

Table 1. Density of MNI and Whole California Mussel, Black Abalone, and Owl Limpet Shells from Unit 1

cm Below Surface	Sediment (l)	MNI per Liter	Whole Shells	Whole Shells per Liter
0-10 cm	41	2.15	0	0.00
10-20 cm	100	6.18	0	0.00
20-30 cm	115	15.82	17	0.15
30-40 cm	73	32.82	141	1.93
40-50 cm	94	31.52	437	4.65
50-60 cm	97	9.14	192	1.98
Total	520	16.87	787	1.51

Our preliminary shellfish data, based on analysis of non-repetitive elements from Unit 1, suggest that there is little change in the relative frequency of major shellfish taxa throughout the unit (Table 2). California mussels make up the majority of the MNI thus far, representing between 95-98 percent of the MNI of each 10 cm level, with the remainder consisting primarily of black abalone (1.14-3.38 percent of each 10 cm level) and owl limpet (up to 1.3 percent of each 10 cm level). Other taxa include red abalone, giant keyhole limpet, scallop, dog winkle, and platform mussel. We noted that sea urchins were also abundant, although they have not yet been quantified. Ongoing analysis of the column sample will provide more detailed estimates of the frequency of various taxa. Current results suggest only that the deposit is similar from top to bottom, but cannot be considered conclusive as to the relative abundance of taxa.

Table 2. Preliminary Shellfish MNI for Major Dietary Taxa per Arbitrary Level from Unit 1 ($\frac{1}{8}$ -in)

cm Below Surface	California Mussel	Black Abalone	Owl Limpet	Other	Total
0-10	86	1	0	0	87
10-20	606	9	3	0	618
20-30	1,764	28	18	0	1,810
30-40	2,272	40	14	2	2,328
40-50	2,816	67	40	2	2,925
50-60	848	30	4	0	882
Total	8,392	175	79	4	8,650

Vertebrate remains include a harbor seal mandible and long bones, as well as several bird and fish bones. Many of these appear to be from gulls (*Larus* sp.) and California sheephead (*Semicossyphus pulcher*). We have also identified a few historic terrestrial mammals, mostly in the upper 20 cm, that appear to be from hare and possibly sheep. However, we found what might be a fragmentary sheep metapodial in the bottom 10 cm, which would confirm that the deposits have been significantly mixed vertically. These results are currently anecdotal, and ongoing analysis of the vertebrates from the unit and column sample should prove important for understanding the nature of human subsistence and site disturbances.

CONCLUSIONS

Our excavations at ANI-2 represent one of the few archaeological projects on Anacapa Island in nearly 30 years. Preliminary excavation data suggest that ANI-2 represents a single occupation or series of brief occupations over a fairly short period of time around 3000 cal B.P. The similarity of the radiocarbon dates and distribution of faunal remains and artifacts support this assertion. However, historical land use, including hare burrowing, the construction and use of the pedestrian trail, coast guard activities, and probably sheep grazing have disturbed the site deposits. Despite these disturbances, our data suggest that the occupants of ANI-2 exploited a wide range of marine resources, including intertidal shellfish species, marine mammals, fish, and birds. They also made a variety of expedient stone tools and bone barbs and gorges used for fishing.

The ANI-2 research reported here is part of a larger project designed to understand the chronology and broader cultural and environmental patterns on Anacapa Island. Because the occupation of Anacapa was probably tied closely to the other islands and possibly the mainland, it is essential that we understand how these sites relate to broader cultural sequences. The small sample of radiocarbon dates currently

available from Anacapa demonstrates that occupation occurred throughout much of the Middle and Late Holocene (Rick 2006). This preliminary chronology suggests that Anacapa was an important part of larger Channel Island settlement-subsistence systems for over 5,000 years. However, many of the dated sites currently cluster during the early portions of the Late Holocene, suggesting that Anacapa may have served as a refuge for small groups of people or hunting parties, possibly during times of stress or crowding. These suggestions remain speculative, however, until further research into the nature and timing of human occupation on Anacapa is carried out. We plan to return to Anacapa during summer 2007 to continue our research at ANI-2 and other sites on East Anacapa.

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