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## REVIEWS

### *The Archaeology and Historical Ecology of Late Holocene San Miguel Island*

Torben C. Rick

Los Angeles: Cotsen Institute of Archaeology, University of California, Los Angeles, 2007.

[*Perspectives in California Archaeology* 8.]

Xii + 180 pp., 55 figs., 53 tables, references, index, \$70 (hard cover), \$40 (paper).

#### **Reviewed by Michael A. Glassow**

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San Miguel Island, the westernmost of the northern Channel Islands, has been the subject of an active research program since the early 1990s, led by Jon Erlandson of the University of Oregon. The archaeology of the island has gained widespread visibility as a result of Erlandson's radiocarbon dates from Daisy Cave, which was occupied as early as 11,000 years ago (Erlandson et al. 1996a, Erlandson et al. 1996b). However, Erlandson and his students have reported on a number of other early and middle Holocene sites on the island (e.g., Erlandson et al. 2005a; Erlandson et al. 2005b; Vellanoweth et al. 2006). Torben Rick's monograph, the subject of this review, reveals that the late Holocene record, from 3,000 years ago into historic times, also is rich, and is capable of yielding insights into the nature of Island Chumash maritime adaptations. The monograph is adapted from a major segment of his doctoral dissertation (Rick 2004). Another, much smaller segment, concerning his investigation of a Chumash village site on Santa Rosa Island, has been published elsewhere (Rick 2007).

As the title of the monograph implies, Rick's study is couched within the program of historical ecology; i.e., it addresses the changing relationship between human activity and the environment, and how these changes are manifest on the landscape. Although archaeologists working on the Channel Islands over the last several decades have been concerned with the ways in which the adaptation of human populations was affected by the distribution and abundance of resources and changes

in these factors over time, Rick attempts to take this type of study a step further by considering how humans changed the environment in which they lived through their acquisition of resources, specifically marine foods. Rick also focuses on what he calls daily activities—that is, the various subsistence, manufacturing, and economic exchange activities that may be inferred from remains preserved in the sites he has studied. He does not address stated hypotheses, nor does he explicitly employ strictly theoretical approaches, although it is apparent that aspects of his interpretations are informed by the theoretical principles of evolutionary ecology.

Rick reports on his excavation at five sites, which date to different intervals within a period between about 3,000 years ago and a time at or near the end of Island Chumash occupation in the early 1800s. This period of time encompasses important changes in technology, including the introduction of the shell fishhook near the beginning of this period, the origin and development of the plank canoe or *tomol*, and the introduction of the bow and arrow. Also encompassed is the Middle-Late Period Transition, a time of significant social, political, and economic change as well as shifts in subsistence foci (Arnold 1992, 2001).

At each site, Rick excavated two or three small units, the largest being 0.5 x 1.0 m. in area. The units were supplemented by surface collection, bucket auger tests, and what he calls "surface units," which entails the excavation of small patches of disturbed deposits on the ground surface. He sifted all of the excavated deposits through either 1/16" or 1/8" mesh screens, and—as has become typical of such small-scale test excavation on the northern Channel Islands—everything caught by the sifting screens was retained and ultimately sorted in a laboratory. As a result, he obtained systematic samples of such small artifacts as shell beads, bead-making detritus, and fragments of microblade drills, as well as such small faunal remains as the vertebrae of small fish. For each site he investigated, he obtained a suite of radiocarbon dates that established the time interval or intervals of occupation with reasonable certainty.

Much of the analysis focuses on faunal remains, including shells and the bones of fish, mammals, and birds,

and as a photograph of exposed deposits (Figure 5.2) demonstrates, they are very dense at some of the sites. As is typical of sites on the northern Channel Islands, marine shells comprise the bulk of the faunal remains, but the bones of fish and marine mammals also may be very abundant. Rick identified all faunal remains to the most specific taxon possible. Data pertaining to shell taxa are reported as MNI and weight, whereas vertebrate taxa are reported as NISP, MNI, and weight. Rick's dietary reconstruction is based on weights of the major categories of faunal remains; he considers the dietary contributions of shellfish, fish, marine mammals, and birds. As might be expected in light of the small volumes excavated, manufactured artifacts are in relatively low numbers, with shell beads being the most abundant category.

Three of the sites investigated have visible house remains in the form of either arc-shaped midden berms or depressions. All date after about 1,300 years ago. Most of Rick's excavation at these sites took place within or adjacent to these house remains, although his test units were too small to reveal details of architecture. The two historic-period sites appear to be associated with documented Chumash villages on the island, *Tuqan* and *Niwoyomi*, although another site appears to be an equal contender for the location of the latter.

In the final chapter, Rick presents a comparative analysis of the data from the five sites, and includes data from other San Miguel Island sites as appropriate. (Two of the sites each have two distinct temporal components, so his analysis considers seven distinct intervals of time.) He is able to identify several distinct patterns. He shows that the density of manufactured artifacts generally increased through the late Holocene. They became much denser beginning about A.D. 1100, largely as a result of the increasing importance of shell beads. A similar pattern is seen in the density of bead-making detritus. Rick also considers trends in the density of two major categories of *Olivella*-shell beads: wall beads and callus beads. Callus beads dominate in the assemblages from the two historic-period sites, which is a consistent pattern throughout the Santa Barbara Channel.

Rick devotes a great deal of attention to trends in the acquisition of different faunal taxa. A particularly interesting aspect of his analysis concerns trends in the size (as measured by the length of their shells) of three different species of shellfish, trends that span practically

the whole prehistory of the island, and not just the late Holocene. Mussel shows a decline in size, although with a great deal of variation per interval of time, especially prior to 6,000 years ago. The other two species considered, red abalone and black abalone, exhibit more complicated patterns. Rick's data show that fish became especially important to the diet by A.D. 800; however, there are no obvious shifts over time in the taxa caught. The relatively low quantities of marine mammal bone in the site deposits, despite the considerable abundance of several species of pinnipeds that inhabit San Miguel's beaches and offshore rocks today, are of particular interest. Rick proposes that beginning around 1,500 years ago, hunting pressure was significant enough to reduce marine mammal populations, although not so significant that they no longer were available.

Although Rick demonstrates the potential of comparative analyses of data from multiple sites generated from fine-mesh screening and the laboratory sorting of all material caught by screens, his results are constrained by small sample sizes (with regard to artifacts) and too few temporal components, given the nearly 3,000-year span of time he considers. Another constraint on generalizing from his results is the influence of environmental differences from one site location to another. As he acknowledges, these differences undoubtedly contributed significantly to faunal assemblage variation. The position of a site within a settlement system also probably played a role in intersite variation, although the three sites with house remains appear comparable in that they undoubtedly were principal residential bases.

In his synthesis of his findings, Rick argues that the Chumash people living on San Miguel Island should not be thought of as being marginal in comparison to those living elsewhere in the Santa Barbara Channel region. His analysis in fact demonstrates that San Miguel Islanders participated in the same subsistence and economic activities seen elsewhere in the region. Nonetheless, the two historic village sites he investigated certainly are much smaller than many of the villages on Santa Cruz and Santa Rosa islands, and none of the five San Miguel Island sites contains the huge volumes of deposits found at late Holocene sites on the larger islands. Why is this? Certainly San Miguel Island offered its inhabitants diverse and abundant marine resources; in fact, they were generally more diverse and productive than on the larger

islands. It would seem that the small size of the island, with its few terrestrial resources and limited freshwater sources, may have played a significant role.

A major interest among archaeologists advocating a historical ecological perspective is the impact of human populations on their environment. As mentioned above, Rick proposes that San Miguel Islanders did have an impact on the resources they exploited for food, specifically on some species of shellfish and on all marine mammals. With regard to shellfish, however, declining population size due to human predation is apparent only if observed over a period of 5,000 years or more. If just the 3,000 years of Rick's study are considered, the patterns are not evident, even though the rate of human population growth accelerated during this period. An increasing impact on pinniped populations seems more obvious, although the relationship between human predation and pinniped populations is a complicated one. Rick notes that humans and pinnipeds coexisted on San Miguel Island for many thousands of years, and this implies that predation pressure on pinnipeds probably fluctuated for a variety of reasons. In the end, a good deal more comparative data will be needed in order to identify island-wide impacts on resources as a result of human predation. As well, the effects of environmental changes unrelated to the presence of humans will have to be controlled.

In summary, Rick's study of the late Holocene prehistory of San Miguel Island stands as a solid contribution to our growing understanding of cultural dynamics on the Channel Islands, specifically during a time when profound cultural changes occurred in the Santa Barbara Channel region. He successfully portrays the challenges facing the Island Chumash through this period of time and the ways in which they met these challenges. His comparative analysis, although constrained by the nature of his samples and other factors, serves as a model for future archaeologists as increasingly more robust datasets become available. Finally, Rick's clear and direct narrative style makes for easy, even enjoyable, reading.

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