

RECENT ARCHAEOLOGICAL INVESTIGATION AT BORDER FIELD STATE PARK: A BRIEF REPORT ON 5,000 YEARS OF UNCHANGED HISTORY

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In 2005 ASM tested two coastal shell midden sites at Border Field State Park, CA-SDI-222 and SDI-4281. These sites demonstrated a continuing capability to yield valuable research data, despite various historic disturbances as well as extensive previous systematic archaeological testing. Three of the combined units from SDI-222 actually produced an unbroken sequence of ¹⁴C dates from 7000 to 2000 B.P. Most significantly, despite having a 5,000-year in situ data set sequence to work with, there were no notable or obvious cultural changes reflected in the material record.

INTRODUCTION

The results of archaeological testing and evaluation at two sites in Border Field State Park, San Diego County, California are presented in this paper (Figures 1 and 2). Malcolm Rogers originally identified these sites in the 1920s (see history below). CA-SDI-222 (Monument Mesa Site) and SDI-4281 (Lichty Mesa Site) are both large coastal shell midden sites that sit on a bluff that overlooks the Pacific Ocean and the Tijuana Estuary. The project described in this paper builds on earlier work and evaluates the sites in an updated context that considers important research issues in relationship to heavy coastal development in the last 50 years.

Planned construction activities, involving a new border fence, will ultimately affect these cultural resources, and this testing and evaluation was done in the context of the California Environmental Quality Act (CEQA) of 1970, as amended, and Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The primary objectives of the testing program were to examine site integrity, assess the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility of the sites, and determine if any items or features with special heritage value existed at the sites.

THE PHYSICAL ENVIRONMENT

The majority of the information in this section, on the geology, climate, vegetation, and fauna, is a summary based on Pryde (1984) and is intended as a general overview of the salient natural characteristics of the project area, and applies only to the current landscape.

Geological Context

The project area is located in western San Diego County, in the Coastal geomorphic province. The project sites are

located at the western end of a series of mesas known as the Border Highlands. These mesas are located on the southern side of the Tijuana River Valley, and extend eastward for 3.5 miles, reaching a maximum elevation of approximately 400 ft. (U.S. Department of Commerce 1981). The mesas are uplifted Pleistocene marine deposits.

Climate

Seasonal precipitation varies throughout the county in accordance with the major landform and elevational differences. The coastal areas receive on the average between 10 and 12 in. of rainfall annually. The coastal mesas receive 2 to 4 in. more rainfall than coastal valleys and up to twice as much as the beaches. Temperatures also vary with elevation. Coastal areas are generally mild with occasional winter frost. A few days reach 100°F in summer and fall. Yearly temperature variation increases inland. Coastal valleys have frequent winter frost, and some weeks each summer have temperatures over 100°F.

Vegetation

The area's vegetation communities are closely related to its natural climatic and soil conditions. Coastal sage scrub vegetation was originally the dominant vegetation along the seashore, the southern coastal mesas, and the coastal valleys. Major areas of chaparral are found on the northern coastal mesas. The drier adapted chamise chaparral grows on the more exposed sites, while mixed chaparral grows on the moister sites. Oak woodlands generally exist in two forms: a coastal canyon form that extends into the mountains, and the more open form of foothill mesas. Riparian woodlands are located in nearly all of the major geographic formations in San Diego County, growing in streambeds and riverbeds where soil moisture is close to the surface. In many areas, however, vegetation communities are not distinct, but blend in broad bands or ecotones at their borders.

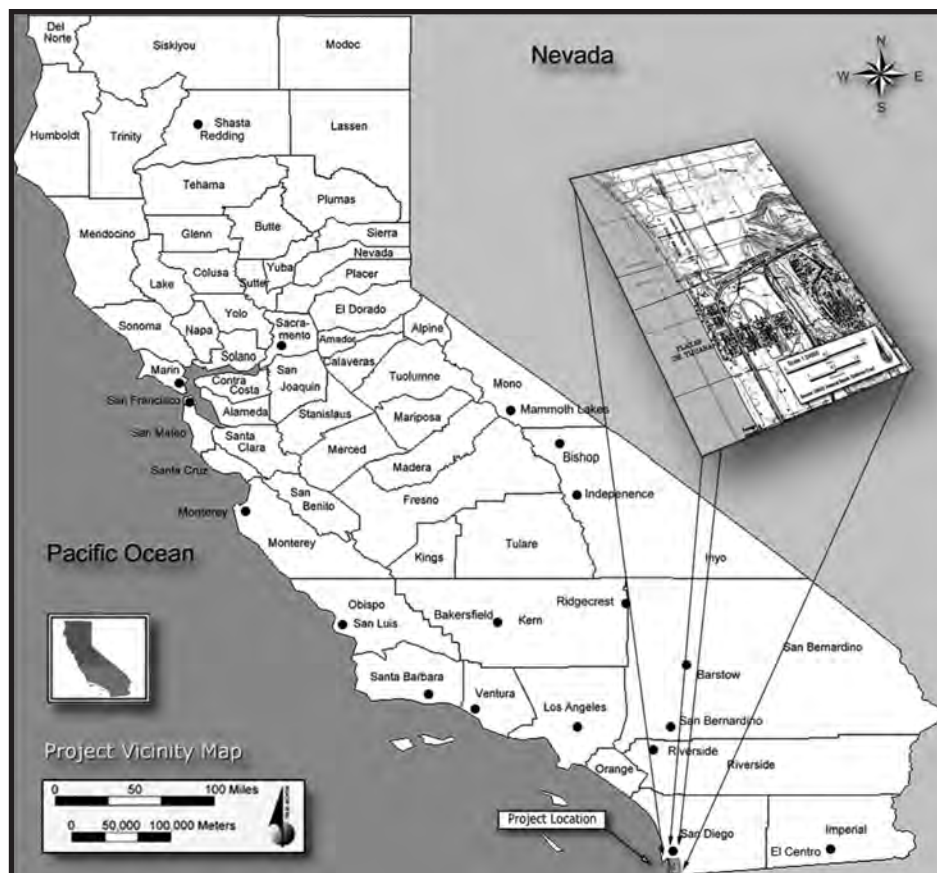


Figure 1. Project vicinity map.

Fauna

A range of small mammals, birds, reptiles, and insects were indigenous terrestrial faunal resources exploited by prehistoric hunters and gatherers of the region. Among the mammals that occur in the area are several species of mice and bats, desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), desert wood rat (*Neotoma lepida*), bobcat (*Felis rufus*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*). Waterfowl, such as grebes, gulls, and ducks, also occur in the region. Herds of now-extinct pronghorn (*Antilocapra americana*) occupied the coastal grassland until historic times. Even black bear (*Ursus americanus*) and mountain lion (*Felis concolor*) occurred at the higher elevations and occasionally visited the coastal zone. Marine mammals include harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus*), southern fur seal (*Collorhinus ursinus*), and sea otter (*Enhydra leutris*).

Four major marine littoral habitats each supported different invertebrate communities. Three of these habitats supply the most common species occurring in archaeological sites: exposed sandy beaches, with California bean clam (*Donax gouldii*) and Pismo clam (*Tivela stultorum*); exposed rocky shoreline with abalone (*Haliotis* spp.) and wavy turban

(*Astraea undosa*); and muddy- or sandy-bottomed enclosed bays and estuaries with scallop (*Argopecten* spp.), venus clam (*Chione* spp.), giant egg cockle (*Laevicardium elatum*), and native oyster (*Ostrea lurida*). Numerous species of fish, sharks, and rays were available from several marine habitats that include rocky intertidal zones, kelp beds, offshore muddy shallows, soft sandy bottoms and inshore areas, shallow surf zones, and pelagic or open water environments (Gallegos and Kyle 1988).

CULTURE HISTORY

Prehistoric Period

Archaeological fieldwork along the southern California coast has yielded a diverse range of human occupation extending from the early Holocene into the ethnohistoric period (Erlandson and Colten 1991; Jones 1992; Moratto 1984). Several different regional chronologies, often with overlapping terminology, have been used in coastal southern California, and they vary from region to region (Moratto 1984:Figures 4.5 and 4.17). Today, the prehistory of San Diego County is generally divided into three major temporal periods: Paleo-Indian, Archaic, and Late Prehistoric. These time periods are characterized by patterns in material culture

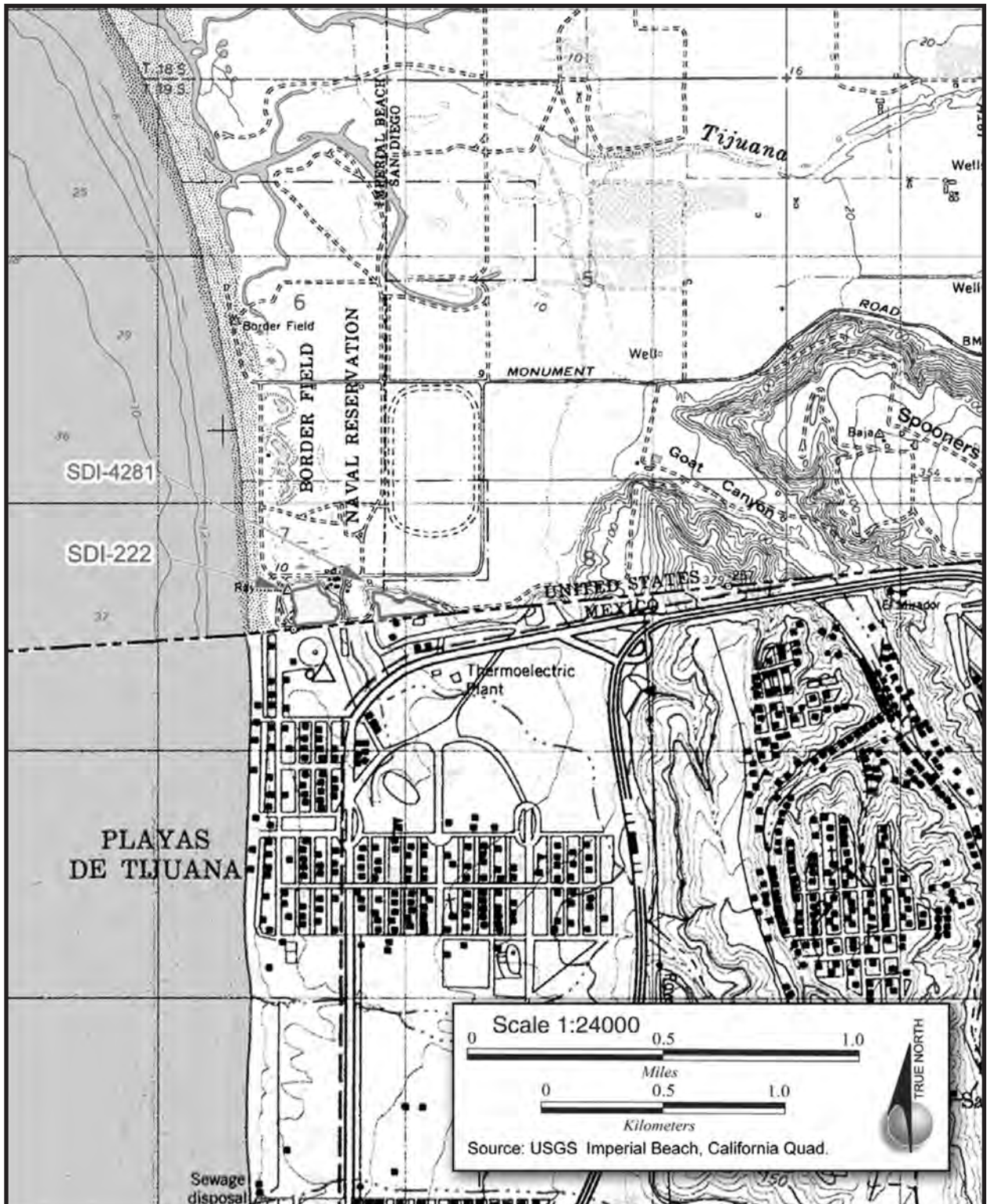


Figure 2. Project location map.

that are thought to represent distinct regional trends in the economic and social organization of prehistoric groups. In addition, some scholars, referring to specific areas, utilize a number of cultural terms synonymously with these temporal labels: San Dieguito for Paleoindian, La Jolla for Archaic, and San Luis Rey for Late Prehistoric (Meighan 1959; Moriarty 1966; Rogers 1939, 1945; True 1966, 1970; Wallace 1978; Warren 1964). As the project sites both date to the Archaic Period, we will limit our discussion to the Archaic.

Archaic Period

The Archaic (also referred to as the Early Milling period) extends back at least 7,200 years, possibly as early as 9,000 B.P. (Moratto 1984; Rogers 1966; Warren et al. 1993). Archaic subsistence emphasized gathering activities, with shellfish and seed collecting of particular importance. Additionally, milling technology, frequently employing portable ground stone slabs, was developed. A focus on mostly terrestrial resources is traditionally seen as characteristic of the Archaic period.

Early Archaic occupations in San Diego County are most apparent along the coast and the major drainage systems that extend inland from the coastal plains (Moratto 1984). Coastal Archaic sites are characterized by cobble tools, basin metates, manos, discoidals (disk-shaped grinding stones), a small number of Pinto- and Elko-series dart points, and flexed burials. Together these elements typify what is termed the La Jolla complex in San Diego County, which appears as the early coastal manifestation of a more diversified way of life.

PREVIOUS ARCHAEOLOGICAL RESEARCH

The project sites have been subjected to extensive archaeological research, beginning with Malcolm Rogers in the 1920s (Akin 2005; Bingham 1978; Buysse and Pemberton 1999; Coleman 1992; Collett and Wade 1990; Foster et al. 1983; Schwaderer 1986). Rogers originally recorded the sites in 1929 under San Diego Museum of Man nomenclature as W-157 (SDI-222) and W-158 (SDI-4281). He described the sites as shell middens containing extensive ground stone, bifaces, cores, and percussion tools, and noted hearth features at SDI-4281. Rogers posited that the sites represented both Paleo-Indian (San Dieguito) and Archaic (La Jolla) occupations based on the artifact assemblage. Subsequent studies better refined the chronology of the sites based on artifact typology (Foster and Riddell 1975; May et al. 1973) and later radiocarbon dates all falling within the Archaic Period (Bingham 1978). Both sites were recommended as eligible for listing in the NRHP based on their chronology, condition, potential to address research questions, and "unique relationship to the Tijuana River and estuary system" (Bingham 1978:29). Over time, both

sites have suffered extensive disturbances through land development, vehicle activity, and bioturbation (Akin 2005).

RESEARCH ORIENTATION

The significance, or scientific importance, of these archaeological sites was assessed with respect to their potential contribution to regional issues pertaining to southwestern California. General issues pertinent to these assessments include determination of the extent and integrity of prehistoric cultural deposits, age and probable cultural affiliation, site function and subsistence strategies, overall insight into settlement organization, and the presence of any artifacts or remains having special California Indian heritage value.

TESTING PROGRAM

Site Mapping

Site maps include the site boundary and the location of the eight test units for this project. A Trimble Pro XH GPS system was used to plot the units and site boundaries to produce GIS maps. Digital photographs were taken to record the general character of each site.

Test Units

Four test units were excavated at each site. Most test unit dimensions were 1 x 1 m, and excavated in 10-cm increments from an established unit datum either to two sterile levels or to sterile substrate beneath the archaeological deposit. At SDI-222, Unit 1 was .5 x 2 m. All excavated soils from each unit were screened through 1/8-in. hardware mesh to collect artifacts and ecofacts. A notebook was compiled for all unit excavations, recording for each unit sidewall profiles (a minimum of one per unit), soil types encountered, and artifacts recovered. One 40-x-40 cm column sample was taken from each site. All test units were backfilled upon completing work at a site.

LABORATORY ANALYSIS METHODS

The procedures used in the initial processing of recovered material include the cleaning (as appropriate), sorting, and cataloging of all items. All items were individually examined and cataloged according to class, type, and material; counted (except for bulk invertebrate and vertebrate remains); and weighed on a digital scale. The major goals were to examine lithic artifact typology, technology, and function in order to gain insights into issues such as prehistoric adaptive strategies, site activities, chronology, and subsistence-

settlement patterning. All flaked stone was separated by material types. Cores were separated by platform variability into multidirectional, unidirectional, bipolar, and bifacial types. Debitage, including both flakes and angular debris, was sorted by subclass and cortical variation (primary, secondary, and interior) for flakes during cataloging. The classification of flaked stone tools was determined by the type and technology of modification. Utilized flakes were identified based on the presence of macro- and/or microscopic use-wear. Length, width, and thickness measurements were taken on all modified stone, including cores, using a digital caliper. After preliminary cataloging of the material was completed, more detailed attribute analysis was performed on the major artifact classes, particularly stone tools, cores, and debitage. Additionally, the “High Magnification” use-wear approach as described by Keeley (1980) and Vaughan (1985), and performed with a Nikon Optiphot incident light microscope with magnifications of 50x to 400x, was used for this study.

Each shell specimen (except minute pieces) was examined and identified to the most discrete taxonomic level possible (genus and/or species), and then weighed by taxon for each unit level. Complete hinges were separated from fragments and counted, therefore the exact number of identifiable specimens (NISP) was not obtained, and total weight data have been used instead. The minimum number of individuals (MNI) was calculated by counting bivalve hinges and then dividing by two, while complete apexes were counted for gastropods. Faunal specimens were identified to the most discrete taxonomic level possible based on diagnostic features.

RESULTS

SDI-222 (Monument Mesa Site)

Cultural materials recovered from unit excavations and column samples at SDI-222 include a total of 1,378 lithic artifacts and 901.9 grams of shell and bone. Testing was restricted to two areas on the northwest and southwest periphery of the site, outside of the parking lot wall along the bluff remnant (Figure 3). In the southwestern portion, cultural material was observed eroding out of a buried deposit onto a deflated surface. In the northwest corner of the site, a bluff face exposed a buried shell and artifact midden. Excavations at SDI-222 revealed two interesting patterns. The first, characterized in Units 1, 2, and 3, is a buried intact deposit that contains a small but interesting set of lithics and invertebrate remains that may represent an Archaic occupation as identified in previous evaluations. The second feature of the site is documented in Unit 4 that contained a robust amount of lithic debitage and artifacts that was not paralleled elsewhere on the site during the current excavation program.

SDI-4281 (Lichty Mesa Site)

Test excavations at SDI-4281 produced a total of 149 lithic artifacts and 21.3 g of marine invertebrate and vertebrate faunal remains. Investigations were confined to a 120-140 m wide area in the western portion of the site bordered on the east by a dirt road that marked the boundary between private property to the east and public property to the west. Four 1-x-1 m test units were excavated in the western portion of the site (Figure 3). Units 1 and 2 were excavated south of a dirt road that roughly paralleled the northern site boundary and Units 3 and 4 were situated north of the dirt road. Sediment profiles did not reveal strong evidence for in situ stratified deposits. All unit profiles were generally homogenous and offered little interpretive potential concerning depositional integrity. No midden deposits were identified.

Discussion of Results

The different types of artifacts and ecofacts recovered during this project point towards a broad exploitation strategy that integrates mobility, artifact production, artifact use, and faunal exploitation into a single system that changed very little during the last 8,000 years. An artifact comparison between the two project sites and surrounding areas demonstrates many important similarities. First, in addition to cores at SDI-222, a variety of tools were recovered, such as a wedge, denticulates, a perforator, scrapers, a biface, and a utilized flake. This variation is typical at coastal sites (Becker and Iversen 2006), and except for the lack of projectile points, a virtually complete tool kit is present. While no flaked tools were recovered from the excavations at SDI-4281, a biface fragment and a graver/perforator were observed on the

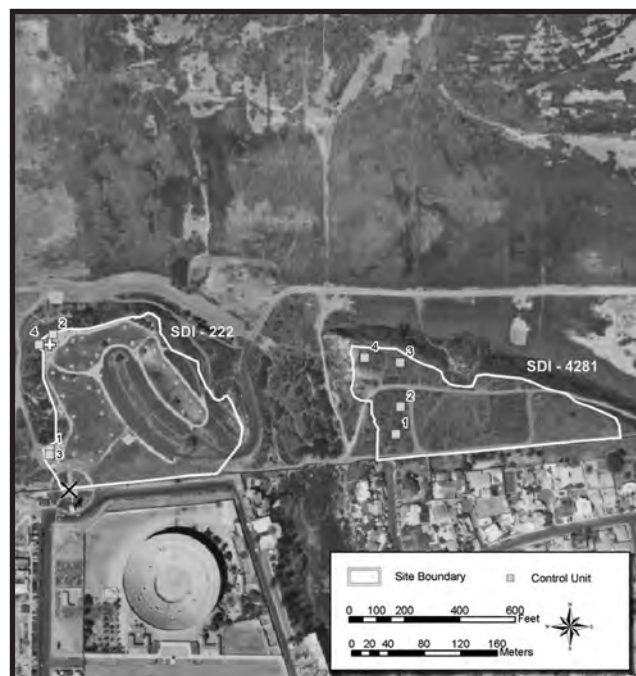


Figure 3. Testing unit locations.

surface. This basic tool kit seems to be present from the Early Archaic to the Late Prehistoric (Becker and Iversen 2006). Lithic production at each site is also nearly identical. At both sites, metavolcanics dominate the material, with some quartz and quartzite. Bifaces and evidence of production are relatively rare at coastal sites in this region, while core tools are relatively more common (see Becker and Iversen 2006). This is probably related to prehistoric mobility practices, and functional differences between coastal and inland sites within this system. Furthermore, previous research showing similar patterning (e.g., the tool kit variation, few bifaces, cores common) indicates such sites functioned as longer-term residential bases (see Becker and Iversen 2006).

Comparing the faunal assemblages, marine invertebrates from both sites indicate exploitation of species from non-rocky tide flats as well as rocky shores, particularly *Chione* sp. and *Mytilus* sp. *Chione* sp. dominates the assemblage of both sites, and probably represents the primary shellfish targeted at the site. However, MNI from both sites suggests that *Mytilus* sp. played an important, if secondary, role at the sites. When corresponding shell species from both sites are compared, a relative equality of shell types is observed. However, *Chione* sp. represents a higher percentage of corresponding shells from SDI-222, while *Mytilus* sp. plays a larger role at SDI-4281. This could again be due at least in part to the relatively small sample of shell collected from SDI-4281. Regardless, the invertebrates do not show a focus on any particular species, and probably represent an exploitation of the most commonly available resources within the local environment at that time. Similarly, the vertebrates do not show a focus on any particular species, but instead, a broad-based exploitation strategy that includes small to large mammals, both terrestrial and marine, fish, and birds, a strategy also observed at other coastal sites (see Becker et al. 2006).

CONCLUSIONS AND EVALUATION UNDER NATIONAL REGISTER CRITERIA

SDI-222 is a large shell midden that still retains intact deposits on the western edge of the site. Radiocarbon dating indicates an occupation between 7680 to 2100 B.P. (Early, Middle, and Late Archaic periods). The variety of faunal and flaked stone remains from this small testing project indicates the site still has much potential to yield information that can help address important regional problems and contribute to more significant issues. The artifact variety encountered also suggests this site was used as a seasonal or possibly multiseasonal residential camp. This is based on regional data that shows that sites with similar variability were used in that way. In most cases, such sites have higher potential to yield significant data than more specialized sites. This site also represents some of the earliest evidence for occupation in this part of southern California. The means and timing of

this occupation are still not well understood, and every piece of evidence helps to reconstruct this process.

SDI-4281 is also a large shell midden that retains intact deposits. Radiocarbon dates for this site show an occupation during the Middle Archaic (ca. 5020 to 4810 B.P.). While the site appears to represent a more narrow occupation span than SDI-222, much more of it appears to be intact. The richness of materials on the surface and limited subsurface investigation from the 1970s to 2005 suggest this site may also represent a seasonal or multiseasonal residential camp. Therefore, it also has the potential to yield significant research data.

SDI-222 and SDI-4281 are both recommended as eligible for the National Register of Historic Places. Because these sites meet the criteria for National Register eligibility, they are also eligible for inclusion in the California Register, and are significant resources under CEQA. Both of these sites offer an important glimpse into Archaic-period lifeways along the coast of southern California. Urban development has destroyed much of the coast, and analyses of the few remaining sites using current methods and theories is necessary to gain a fuller understanding of prehistoric hunter-gatherers in this area, and hunter-gatherer variation in similar environments.

FINAL THOUGHTS

The Border Patrol is currently allowed to impact up to 60 ft north of the fence during their maneuvers in this zone. SDI-4281, in particular, is being decimated by "wheelies," or sharp turns in the soil during day and night border pursuits. Artifacts lie broken in the trails and exposed to the elements as the vegetation is denuded and the ocean wind blows the soil cover away.

New border fence construction for Homeland Security, planned for 250 ft. further north of the current, or primary, fence has the potential to result in the loss of these sites to the scientific community, as well as impacts to endangered animals and plants. In addition, changes to upstream meanders from landfills to support the new fence would threaten the fragile mesas on which these last sites in the river valley are located, their counterparts on the Tijuana side being long-ago destroyed. Both sites have been impacted by this fence construction, and the fence's effects are currently being studied as part of the management and protection of important sites along our southern international border.

ACKNOWLEDGEMENTS

We would like to acknowledge the ASM personnel involved in this project, which include: Susan M. Hector, Project Manager; Mark S. Becker, Principal Investigator; Micah J. Hale, Field Director;

David R. Iversen, Lab Director; Michelle Dalope, Steve Diaz, John Elford, Ken Moslak, Shelly Courtney, and Scott Wolf, field technicians; Zee Malas, graphics; and Marcia Sandusky, report production. Ken Moslak, along with Sherri Andrews, performed the vertebrate faunal analysis. David Iversen also performed the shell analysis. Carmen Lucas monitored archaeological excavations, addressing California Indian concerns. The report was edited by Phillip Hinshaw from A. D. Hinshaw Associates. We would also like to thank Greg Abbott and Therese Muranaka, California State Parks for assistance on multiple aspects of this project.

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