

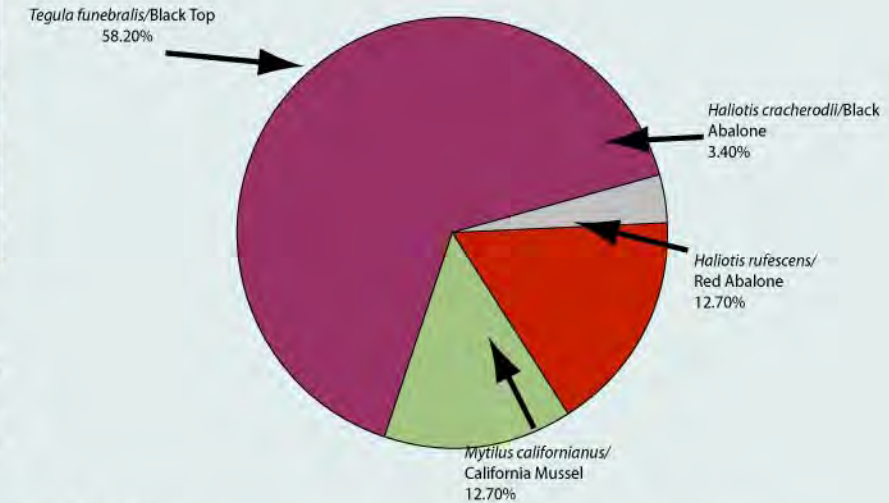
The Archaeology of Small Things: Mass Harvesting on San Miguel Island, California

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Results. In the excavations of Bulk Sample 1 at CA-SMI-575, nearly 5.5 kg of marine shell and small amount of unidentified fish bone (0.3 g), including 17 different shellfish taxa, were collected. Consistent with field observations, black turban snail dominates the assemblage comprising 68% of the dry shell weight and 56% of the MNI. California mussel is the next most abundant shellfish species by weight (18.3%) and the third most abundant by MNI (11.5%). After meat weight conversions, black turban snails remain the single most important resource, although their estimated contribution declines to 58.2% of the meat yield. California mussels also decline in importance to 12.7% of the estimated edible meat yield. The apparent dietary significance of red abalone, black abalone, and owl limpets increases from 4.7, 1.5, and 2.3% of the total weight to 14.9, 3.4, and 7.4% of the edible meat yield, respectively.

CA-SMI-575 Mt. Wt. %



Conclusions

- The limited nature of the faunal and artifactual assemblage from CA-SMI-575 and -527 suggests that they were campsites occupied around 6100 and 5100 cal BP, respectively.
- Detailed zooarchaeological analysis suggests an economy based on the mass harvesting of black turban snails, a small bodied, low-ranked, intertidal shellfish species.
- While *Tegula* middens such as these have been identified on San Clemente Island (Raab 1992) and on the mainland (Perry 2004), these sites date to the Late Holocene when increased population densities and resource stress may have driven coastal foragers to expand their subsistence economies.
- Along with Otter Cave on the northwest coast (Erlanson et al. 2005), San Miguel Islanders may have focused their resource economies on black turban snails during certain intervals beginning in the Middle Holocene. This may have been the result of strong winter storms and heavy wave action that regularly pound the west and northwestern coasts of San Miguel, natural climate change, and/or human overharvesting. Due to the island's small size, limited terrestrial resources, and remote location, coastal foragers may have been forced to focus on black turban snails earlier than at other locations along the Santa Barbara Channel.
- While this scenario is consistent with the tenets of optimal foraging theory which suggests that small bodied resources may be optimal when they are abundant and easily gathered (Raab 1992:77), it does suggest that prey body size is often an inaccurate measure when developing a prey ranking system in coastal environments.

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Site Descriptions. CA-SMI-575 is a large archaeological site situated on the bluffs overlooking Point Bennett. The site caps a Pleistocene dune ridge extending from approximately the NW coast to the cliffs overlooking the SW coast. Several distinct loci have been recorded within this roughly one kilometer-long site. The east-central portion of the site contains four loci of high-density *Tegula* middens aligned along an old dune ridge. These loci have been radiocarbon dated between 6210-5840 cal BP (1 sigma). CA-SMI-527 is a large archaeological site measuring approximately 250 meters long by 70 meters wide. The site is exposed atop and within a large sand dune oriented northwest to southeast along the north-central part of Pt. Bennett. Dense midden with abundant bone and lithic material is cascading down the eastern and northern exposures of the dune and exposed in blown-out dune pockets along the southern exposure. We recorded several distinct loci of shell middens eroding from dark, anthropogenic soils within the sand dune, but concentrated our radiocarbon sampling on the more exposed loci along the northern dune face. One approximately 40 cm thick locus at SMI-527 is visually dominated by black turban snail shells with lesser amounts of large red abalone, black abalone, owl limpet, and California mussel shell and dates between 5250 and 4870 cal BP (1 sigma).



Tegula funebris

Black turban snails are found along the Pacific Coast of North America from Vancouver Island to the central part of Baja. Adults grow to a maximum length of about 30 mm in diameter, and can occur in large aggregations in the crevices or on the sides of small rocks in the mid-to-upper intertidal zone. The primary predators of black turban snails include sea otters (*Enhydra lutris*), red rock crab (*Cancer antennarius*), sea stars, and some predaceous snails.



Methodology. Fieldwork was conducted at CA-SMI-575 and SMI-527 during 2007 as part of a larger historical ecology research project of the Pt. Bennett area. To obtain information on the subsistence systems at this site, two 20 liter bulk samples were excavated from the dense black turban snail deposits. All sediments were screened over 1/16-inch mesh with all residuals retained for analysis. At the Humboldt State University archaeology laboratory, these materials were washed and poured over nested sieves (1/4, 1/8, and 1/16-inch). Faunal remains from the 1/8-inch and larger residuals were sorted and identified to the most specific taxon possible. These were weighed and minimum number of individuals (MNI) were also calculated, providing relative estimates of the importance of each taxon. To provide comparative data on the importance of various faunal classes to the diet of the site occupants, dry shell and bone weights were multiplied by meat conversions to estimate the edible meat represented by the recovered faunal remains (see Braje 2009; Rick 2007).

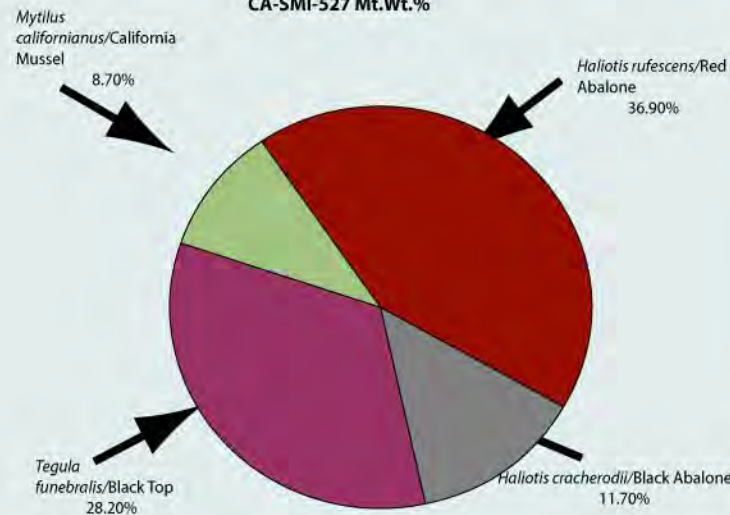


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Introduction. Archeological excavations at California Channel Island sites have produced a history of over 11,500 years of maritime subsistence, technological change, human-environmental interactions, and cultural evolution. These excavations provide valuable data on the dynamics of San Miguel Island nearshore marine ecosystems and the adaptive strategies of maritime hunter-gatherers who exploited them for millennia. In this poster, we summarize the context, chronology, and implications of some unusual San Miguel Island sites, where black turban snails (*Tegula funebris*) dominate the faunal assemblages and the estimated meat diet. We discuss the dominance of small shellfish in relation to optimal foraging theory and the belief that larger-bodied animals were more attractive to ancient coastal foragers.

CA-SMI-527 Mt. Wt. %



Results. Bulk Sample 1 produced over 3.5 kg of marine shellfish and small amounts of fish bone (6.3 g) and undifferentiated mammal bone (0.3 g). Fifteen different shell taxa were identified. The assemblage is dominated by rocky intertidal shellfish species with black turban snail shells comprising 48.5% of the dry shell weight and 60.7% of the MNI. California mussel (18.3%), red abalone (17.0%), and black abalone (7.8%) shell are the next most abundant species by weight. After dietary meat conversions, shellfish continue to contribute the most meat; however, fish contributed just 0.2% of the total faunal weight but 7.8% of the reconstructed meat yield. Black turban snails shift to the second most abundant meat contributor (28.2%), declining by over 20%. Red abalone provides the largest percentage of meat (36.9%), a nearly 20% increase. California mussel and sea urchin decline in importance from 18.3 to 8.7% and 4.2 to 3.9%, respectively. Black abalone increases to the third highest contributor of dietary meat (11.7%).