

Our Ocean Backyard — *Santa Cruz Sentinel* columns by Gary Griggs, Director, Institute of Marine Sciences, UC Santa Cruz.

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The Earliest Monterey Bay Area Residents

Have you ever wondered when the earliest humans arrived and inhabited the Monterey Bay area we call home today? Well, we don't know exactly when they first arrived, but we do have evidence for early humans that goes back about 7000 years.

To date, the earliest human remains found anywhere in California are the 13,000 year-old Arlington Springs woman, found on Santa Rosa Island off Santa Barbara. Continued exploration of the island has led to the discovery of nearly 20 additional sites that reveal evidence of human occupation, some of which date to 11,000 to 12,000 year ago. This includes large middens or prehistoric trash heaps of material left over from generations of tool making and food preparation and consumption.

We do know that the coastal regions of California, both marine and terrestrial, were productive biological environments and would have provided abundant food resources for early humans. However, the location of the shoreline has changed over the period of human occupancy.

Thirteen-thousand years ago when the Arlington Springs woman and her relatives were living on Santa Rosa Island, sea level was about 250 feet lower than today. So if early inhabitants were living along the shoreline in the Santa Cruz-Monterey Bay area at that time, their camps or villages would be beneath 200- 250 feet of ocean and 5 to 8 miles offshore today.

This makes searching for the oldest evidence of human habitation of our ocean backyard more than challenging. As the rate of ice melt from the end of the last ice age declined about 7000 years ago, however, sea-level rise slowed dramatically and the location of the shoreline began to stabilize.

It appears that the oldest human remains discovered to date around Monterey Bay are the burials from the Harkins Slough area near Watsonville that were studied by

two Earth scientists from UC Santa Cruz and their colleagues. These have been dated at about 7,000 years old, which is about the time that sea level rise came almost to a halt. As a result, evidence of early occupation wouldn't have been covered with ocean and could be preserved. There were also additional remains discovered in the same area of later occupancy of the site that were dated at about 4500 years old.

Study of the kitchen middens at this site as well as several others in the Monterey Bay area (Moss Landing and the north coast of Santa Cruz) reveals that these early inhabitants had a diverse diet consisting of terrestrial animals (deer, elk, antelope, rabbit), and plants (seeds, nuts and leafy plants), as well as marine resources. These included fish, shellfish and marine mammals (seals, sea lions and even sea otters).

Marine organisms contain slightly different concentrations of particular carbon and nitrogen isotopes than and terrestrial organisms. These chemical signatures or differences are stored in the bones of the humans who dined from surf and turf and lived along our coastline thousands of years ago, and can be analyzed to determine their paleo-diets.

The bone chemistry can be used to determine how much of the diets of these early inhabitants consisted of either terrestrial or marine food sources. What emerged from these studies was that older (~7000 years ago) human occupants of this area were dependent on the coastal ocean for 70-84% of their diet, whereas the more recent inhabitants (~4500 years ago) depended less on marine food sources (48-58%) and more on terrestrial food.

The analyses from the Harkins Slough site also suggest that pinnipeds (seals and sea lions) were an important food source for both groups of early inhabitants.

There are still ongoing debates as to whether the earliest immigrants to North America from Asia followed a coastal or kelp highway southward, perhaps in primitive boats, or if they came along an inland route and then ventured out to the coast. Because of the rise in sea level that took place between about 18,000 and 7,000 years ago, however, any evidence for their passage along our coastline during this time period is now buried beneath the ocean waves.