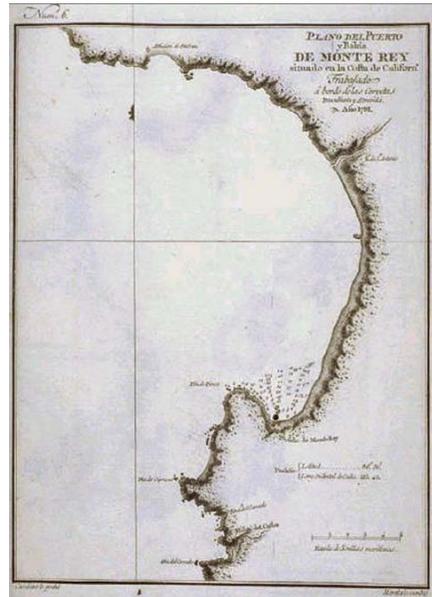


Our Ocean Backyard — *Santa Cruz Sentinel* columns by Gary Griggs, Director, Institute of Marine Sciences, UC Santa Cruz.

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Finding Monterey Bay



Map made by Sebastian Vizcaino in 1602 of Monterey Bay.

In four weeks, Sandy Lydon and I will be leading another group of 40 dedicated and intrepid hikers on our 4th annual Monterey Bay walk from New Brighton beach to the breakwater in Monterey. The bay is a big curious bite out of California's coast, but one that wasn't so obvious to early explorers.

While there are a number of perfectly curved bays along the state's Pacific edge, uncoiling from north to south - Half Moon Bay, Bodega Bay, Drakes Bay, and Stinson Beach, to name a few - Monterey Bay is unique in having smoothly curved beaches at both ends.

The bay appears to have been first carefully explored and mapped by Sebastián Vizcaíno in 1602, over 400 years ago. The Spanish Viceroy in Mexico City, the Count of Monte Rey, appointed Vizcaíno the general-in-charge of an expedition to locate safe harbors in Alta California for Spanish galleons to use on their return voyage from the Philippines to Acapulco. He was given the authority to map in detail the California coastline that Juan Rodriguez Cabrillo had first explored 60 years earlier.

As he progressed up the coast he named and also renamed many of the prominent features, San Diego, Santa Catalina Island, Santa Barbara, Point Conception, Carmel Valley and Monterey Bay that had been earlier named by Cabrillo. Vizcaíno sailed as far north as Cape Mendocino, making detailed charts of the coastline.

It was a difficult voyage with most of Vizcaíno's crew suffering from scurvy because of lack of vitamin C. Sixteen sailors had died by the time he reached Monterey Bay. While he gave new names to many places, the only place he apparently actually explored in detail was Monterey Bay. In fact, he mapped the bay's coastline so carefully that his maps were used for the next 200 years.

Vizcaíno reported in his logs that Monterey Bay was a safe harbor, "sheltered from all winds". As was discovered in subsequent years, however, Monterey Bay really has no natural harbors and considerable effort was expended in the last century to build harbors sheltered from the wind and waves at Santa Cruz, Moss Landing, and Monterey.

Although Vizcaíno spoke highly of the California coast and Monterey Bay as a good port for Manila galleons, he was not allowed a return visit and Alta California was ignored for over a century and a half. European issues as well as a perceived threat to the occupation of the California coast from England and Russia also diverted Spain's attention at the time.

In the spring of 1769, two expeditions, one commanded by Captain Gaspar de Portolá and a second by Captain Fernando Rivera, set out from Baja California to prepare for the military occupancy of Alta California, with an important objective to reach Vizcaíno's famous Monterey Bay harbor. The threat of Russia and England along the coast was much stronger at this time, which provide an additional catalyst for the expedition.

The Portolá expedition left San Diego on July 14, 1769, and headed north along the coast. After passing Santa Barbara on August 19, they reached the southern end of the rugged Big Sur coast on September 13, and were forced to make a difficult detour inland through the Santa Lucia Range to the Salinas Valley. Following the river downstream towards Monterey Bay they reached an area between Marina and Salinas on October 1 where they camped.

Portolá and a small group of soldiers headed towards the river mouth. They climbed a low sand hill, known today as Mulligan Hill, near the mouth of the present day Salinas River, but failed to see or recognize Vizcaíno's harbor "sheltered from all winds". Mulligan Hill is actually a large old sand dune, and like much of the rest of the central and southern Monterey Bay shoreline, the extensive dune fields bear evidence to a long history of strong winds.

A scouting party explored the Monterey Peninsula, but didn't find the protected harbor there either. They were also eagerly anticipating meeting a ship, the San José, which was carrying supplies, but which never arrived. A number of men were incapacitated from scurvy and were being carried on litters, which didn't help matters or morale.

They headed north, reaching the Pajaro River, which they named after a large straw-stuffed bird that was left behind in a deserted Indian settlement. After stopping at Pinto Lake, the expedition reached the area of present day Santa Cruz on October 18, 1769. Finally, after a rugged and very difficult journey up the North Coast, they sighted San Francisco Bay from San Bruno Mountain on October 31.

While San Francisco Bay was soon recognized as one of the greatest natural harbors on the planet, Portolá apparently thought little of San Francisco Bay and was disappointed in not being able to find the Monterey Bay's harbor.

The expedition turned around, and headed back towards the Monterey Peninsula. Reaching the Carmel Bay area, the expedition's animals found lots to forage on but the explorers themselves were reduced to eating seagulls and pelicans. Local Indians may have saved them by bringing them ground corn and seeds

They continued to believe that the San José, the resupply ship they were expecting, would find them. In one last attempt to communicate, they erected two wooden crosses on low hills above the beach, with notes buried at their bases, hoping that the crew would see them and come ashore.

It was now December, however, and the weather was deteriorating so they made the decision to head south. The remaining party, minus several deserters, reached San Diego on January 24, 1770, six months after their departure. The ship that the expedition had been looking for had been forced to return to port in Mexico for repairs shortly after departing. It never reached Monterey Bay, and in fact, was never heard from again.

Portolá was a very determined soldier, however, and he returned that spring and this time he recognized Vizcaíno's Monterey Bay, although it was never really "sheltered from all winds".

, however, and also broken some heat records. We don't usually get 80 degree days in March, but last Sunday the temperature in Santa Cruz peaked at 83 degrees, shattering the previous March 4 record of 79 degrees set 75 years ago in 1937.

The balmy weather extended north and south along the coast. In Southern California, the National Weather Service reported a record high of 95 degrees in Fullerton, 91 degrees in Long Beach and 87 degrees at the Los Angeles International Airport. Beaches from Santa Cruz to San Diego were crowded with people looking for a winter tan.

While it was hot last weekend, other winter days in the past have been even hotter. On February 23, 1896, it was 89 degrees in Santa Cruz. March has also experienced some very warm days. On March 17, 1914 it was 89 degrees and a day later the temperature reached 90 degrees- in March!

The hottest day in Santa Cruz took place on August 1, 1900 when the thermometer hit 108 degrees. But the warmest continuous weather occurred in late-June 1976, in the middle of a two-year drought. On June 23 the temperature hit 100 degrees, and for the next 5 days, maximums were 106, 105, 103, 105, and then it cooled to 103 on June 28. This is not typical or normal but it may become more so in the future.

How about the other extreme? How cold has Santa Cruz ever gotten? Only twice since record keeping began in 1893 has the thermometer dropped below 20 degrees. On January 3, 1907, a low of 15 degrees was reached, and on December 23, 1990, the temperature dropped to 19.

Warmer climates are usually associated with lower rainfall, and California is no exception. While access to a reliable source of water was a critical factor historically in the development of civilizations and growths of cities, this has not been the case in recent time. Much of the west was replumbed by the Bureau of Reclamation and the Army Corps of Engineers to open up arid land for agriculture and to allow cities to expand where local water supplies were inadequate. Through a huge system of dams, pipes and canals, we moved water hundreds of miles to where politicians and engineers at the time decided that it was needed.

Los Angeles ran out of local water in the 1880s and its subsequent search for water, the wars over the ownership of that water, and the construction of a delivery system to transport water to Los Angeles has been well chronicled in books and movies. 2.4 million residents of San Francisco, San Mateo and Alameda counties obtain their water from the Hetch Hetchy reservoir in the Sierra Nevada, which was created by damming the Toulumne River in the 1920s amidst a large environmental outcry led by John Muir.

While large regions of California are completely dependent on imported water, Santa Cruz is somewhat unique in relying completely on our own water supply. We are hydrologically self-sufficient, with the only exception to this being the water we import in those cute little bottles at exorbitant cost and energy from Fiji and France.

Our local water availability, as a result, is dependent upon an adequate amount of rainfall over the watersheds of the county. The city of Santa Cruz averages 29 inches annually, although over the past 120 years this has varied from a low of just over 10 inches in 1898, to a high of 61.6 inches in 1941. While low rainfall years weren't a particular problem in 1898 when Santa Cruz had a population of about 5600 people, it's a different issue today with a population ten times larger.

California as well as Santa Cruz has experienced droughts in the past, and so far this year is shaping up to be one of the drier ones on record. The worst two year dry spell over the period of historic record is probably still clear in the minds of many longer-term residents. During the 1976-77 drought, a total of 29.1 inches of rain fell in two years, just half of the average annual rainfall for two years in a row. Other two-year droughts took place in 1912-13 (34.25 inches total) and 1917-18 (31.2 inches). The longest sustained dry period occurred fairly recently, between 1987 and 1991; rainfall was well below average for 5 years in a row, averaging just 19.5 inches annually.

Rainfall is often calculated beginning July 1 in one year, and extending through June 30 in the next year, so an entire winter of precipitation is counted within a single year. Between July 1, 2011 and February 29, 2012, Santa Cruz received just 10.6 inches of rainfall. And if you left town for a few days, you might have missed that. Historically, this represents the 8th driest 8-month period in 119 years. In the driest year, 1898, just 7 inches of rain fell during this 8-month period, but there were only 5600 people in the city at the time. More to come on Santa Cruz weather and climate.