Rain and Floods

We seem to regularly bounce back and forth between drought and flood on the central coast, and this is the way it always seems to have been. As long as people have lived in the Monterey Bay area, they have experienced both dry and wet years, and sometimes back-to-back.

As I am writing this on Thursday for submission tonight, we are in the midst of one of our driest winters in years. As of Tuesday at 2:00 pm, Santa Cruz had received just 3.7 inches of rain for the season (which began October 1, 2020), whereas on average we would have been soaked with 16.1 inches. We were at just 23% of normal. By Wednesday afternoon at 2:00, the first of several major storms had landed on us and raised our yearly total to 4.77 inches, raising us to 29% of normal. And then the next storm hit but no data in yet, but debris flow and flood warnings were still on.

1955 was the biggest flood in recent memory, and it washed right through downtown Santa Cruz. Pacific Avenue became a tributary three feet deep. But this was just one of dozens of local floods. In researching the flood history of the region for a recent book (Between Paradise and Peril – The Natural Disaster History of the Monterey Bay Region), I was fascinating to read how many times the downtown area has been flooded, followed by clearing out mud and starting again.

The earliest settlers displayed some level of environmental awareness and avoided the flood plain, which extends from the base of Mission Hill by the Town Clock, across Pacific Avenue, Front Street, over the flood control project, past the courthouse and Ocean Street, across Branciforte Creek and then to the base of the bluff that you climb to reach Branciforte Drive.

The avoidance of the San Lorenzo River flood plain ended at about the time of the California Gold Rush when the first building encroached down onto the flood plain, which was Elihu Anthony’s general store. The flood plain soil was good for gardens, the river was nearby and the city gradually moved down onto the flats. And the floods followed. While reporting was limited in the early 1800s, records show that water “covered all of the lowlands” in 1822, 1832, 1842, and again in 1852; interesting that these floods occurred every 10 years.

The winter of 1862 brought record floods not only to the Monterey Bay region, but also to the entire west from what was to become the state of Washington to northern Mexico, and from the coast inland to Idaho, Nevada, Utah, Arizona and New Mexico. California’s vast Central Valley became a huge lake described as being 300 miles long and averaging 20 miles in width and up to 30 feet deep, covering 5,000 to 6,000 square miles of the
valley. This was without doubt an atmospheric river, but this concept hadn’t yet been developed, as we had no satellites, or airplanes for that matter, back in 1862.

Locally, floods in early January 1862 swept away all dams on the San Lorenzo River as well as numerous barns and large trees. The downtown residents were surprised to see debris and buildings from upstream floating down the river during the 1862 floods, including a large barn reportedly drifting towards the ocean completely upright.

All of the dams on Soquel Creek were destroyed and water flowed four feet deep through Soquel Village, virtually identical to the water levels reached 120 years later in 1982. Mills, flumes, houses, barns, a school and the town hall were all destroyed. The entire lower section of the Pajaro Valley was underwater and orchards, buildings, dams and mills were destroyed along Corralitos Creek.

The course of the San Lorenzo River was altered by bank erosion during the 1862 flooding such that it ran several hundred feet closer to town that it did during the previous flood. While a little difficult to envision now with the river’s course more-or-less controlled by rock levees and directed straight through the city, historically the river meandered back and forth across its flood plain, as all rivers do. If you are driving on Laurel Street, the flat area extending from the high school soccer/football field on the west to where Broadway slopes uphill after crossing Ocean Street, is all part of the river’s historic domain.

And every few years, until the late 1950s when the levees were built, the San Lorenzo would remind the downstream residents who was in charge. Following the 1862 flooding of downtown and concerns with future flooding of the new “lower plaza”, as well as land loss from bank erosion, the bold new city on the lowlands took the first major step in an attempt to control the river. A bulkhead or training wall was built to divert the flow away from its path encroaching on Mission Hill. The remnants of this effort, now nearly 160 years ago, still exist in name as Bulkhead Street, a short stretch of diagonal asphalt one block north of the town clock, connecting North Pacific Avenue with Water Street.

It wasn’t until the early 1990s when two researchers at MIT first coined the words, atmospheric rivers, for the narrow bands (well narrow as in maybe a few hundred miles wide) of moisture that are now recognized as carrying more water than the world’s largest river, the Amazon, and supplying perhaps 30-50% of the precipitation that falls over the western U.S. every year. The 1862 floods and the rain of this past week we can blame on an atmospheric river, formerly known as a pineapple express from origins near the Hawaiian Islands. More to come on atmospheric rivers.
1940 flood on the San Lorenzo River looking towards Beach Hill from Ocean View Avenue. Courtesy UCSC Library historical photo collection.