Our Ocean Backyard

Gary Griggs

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The Endless Winter

I wasn’t sure it was possible, but we actually did go from drought to flood in a week’s time; and the city’s only reservoir, Loch Lomond, is now 100% full and overflowing. This is a good thing looking from the glass is half-full perspective, but unfortunately, for some living in low-lying areas along any of the county’s streams, these waterways have been more than half-full, in fact overflowing in some places.

Comparisons are now being made between the storm of January 1982, now 41 years ago, and these first two weeks of January 2023. Those of you who were here in early January of 1982 will remember some of the events we experienced. A catastrophic rainstorm from January 3-5, dropped roughly a third to a half of the average annual rainfall within about 32 hours over the ten counties around San Francisco Bay, generating widespread flooding and landslides. More than 18,000 – that’s not a typo – 18,000 of the slides induced by the intense precipitation transformed into debris or mud flows that swept down drainages or steep hillsides with little warning and impacted homes, businesses and roadways.

Overall, the January 1982 storm damaged 6,300 homes, 1,500 businesses, as well as bridges, roads and communication lines. Thirty-three lives were lost across the ten bay area counties, with ten of the fatalities occurring in the Love Creek Slide above the town of Ben Lomond. Six-hundred thousand cubic yards of weathered rock, mud and debris (the equivalent of 60,000 dump truck loads) flowed rapidly down a steep slope, destroying and burying nine homes and their ten residents

Throughout the bay area, thousands of people evacuated homes in hazardous areas, entire communities were isolated as roads were blocked, public water systems were destroyed, and power and communication services were disrupted. Half of the Soquel Avenue Bridge over the San Lorenzo River in Santa Cruz collapsed, taking with it all of the phone lines connecting the city. Maybe hard to believe for younger people, but we had no cell phones forty years ago and were dependent on what we now call landlines.

Flooding occurred along the San Lorenzo River in Felton Grove near the Covered Bridge, in Gold Gulch and Paradise Park among other areas in the San Lorenzo Valley. Within the city of Santa Cruz, the river came within three feet of topping the levees, yet this was just the 33-year flood, not a hundred-year event. Downtown Soquel was completely under water as a log jam at the Soquel Drive Bridge diverted nearly the entire flow of the creek through the village. The discharge on Soquel Creek was equivalent to just a 14-year flood. Aptos Creek, after passing under Highway 1, destroyed or damaged five homes built along the creek bank on Moosehead Drive.

Looking back a little further in time, all of these same neighborhoods were under water in the Christmas floods of 1955. An important difference was that there were no levees protecting the city of Santa Cruz in 1955, so as the river topped its banks it inundated all of downtown with water flowing down Pacific Avenue. The Corps of Engineers had been planning a flood control project following downtown floods in 1940. The discharge of the San Lorenzo River in 1955, however, was larger than they had been planning for, which led them to increase the flood size or volume of water they were planning on containing with the proposed levees.

This is where things when off the rails. The city leaders got involved at this point and were keen on an “urban renewal” project and redevelopment of the downtown area. That portion of the city now occupied by Trader Joes, CVS Pharmacy, Well-Fargo Bank, and the River Front Garage, was Chinatown, a low floodplain area of wooden homes and businesses. Without going into the politics of the time, Chinatown, which was damaged by the flood was razed.

In order to plan and build a flood control channel, a design flood has to be determined -often the 100-year flood, or the largest flood statistically expected once in a hundred years. There is always some uncertainty in determining the volume of such an event, however, in large part because for most rivers we don’t have 100 years of flow records. At the time of the 1955 flood, we had just 18 years of flood discharge records for the San Lorenzo River, which made determining the 100-year flood as much an art as a science.

In order to meet the city leader’s desire for more buildable land, the Corps of Engineers did something that they had never tried before. Rather than build a wide enough channel to accommodate what the Army Corps believed to be the 100-year event, they decided to try what was termed “below-bed containment”. They were going to contain the flood waters in a deeper channel with the same area as a wider channel.

So the river bottom was dredged out from the Highway One bridge to the mouth, and levees were built to provide the flood protection deemed necessary. The Corps turned the new project over to the city with lots of ribbon cutting and an agreement that the city now had to “maintain” the channel. Not being engineers this sounded simple enough to the city electeds, and so they naively signed on the dotted line. The Corps left town, everybody was happy and Chinatown was redeveloped into what we see today.

Rivers form channels, however, with gradually sloping bottom profiles from the upper watershed to the shoreline, which ends essentially at sea level. But the new channel was eight feet below this depth at the mouth. Over the subsequent years, the flood-control project predictably filled in with sediment from the watershed, the channel got shallower, and it was discovered that the channel was no longer large enough to handle the design flood.

This began an endless struggle between the river, the city and the Corps of Engineers to maintain a channel that would hold the design flood. This involved periodically dredging out the sediment, clearing the vegetation, and raising the levees. We are still in the midst of that struggle today. There will always be risks and challenges when communities or cities are built on river flood plains, and the towns of Santa Cruz, Soquel, Capitola and Watsonville, are local examples of that dilemma; and as the climate changes, the 100-year flood will also likely be changing.