

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

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Perils in Paradise



House damaged during the 1989 Loma Prieta earthquake. Photo: Gary Griggs

Santa Cruz pretty much has it all - redwood forests, sandy beaches and world-class surfing, a great climate, art and music, environmental awareness - a pleasant and refreshing bubble in the midst of what often seems like an otherwise chaotic and unpredictable world.

But Paradise comes with a price, and its not always calm and peaceful living here on the edge. We are the smallest county in California, but we have more geologic hazards per square mile than any other county in the state.

On Thursday, January 19th at 7:00pm at the Rio Theatre, the Santa Cruz Natural History Museum is presenting a lecture, *A Brief History of the Geology and Natural Disasters in Santa Cruz County*. I will attempt to cover the past 100 million years of local geologic history and disasters in an hour or so.

Starting at the shoreline, we are periodically impacted by El Niños, extreme high tides and storm waves, which regularly take big bites out of the coastal cliffs, bluffs and dunes, and flood low-lying coastal areas. There is also the occasional tsunami, and now a rising sea as global climate is changing and glaciers and ice sheets continue to melt.

Moving inland, many of the county's towns and cities were built at least partly on the flood plains of rivers and streams. Santa Cruz, Felton, Soquel, Aptos and Watsonville are good examples. While it may be difficult to imagine a flood in the midst of an extended drought, there is a long history of flooding throughout the county. Downtown Santa Cruz went under water the last time in 1955, and narrowly escaping levee overtopping in January 1982. Soquel wasn't so fortunate.

Heading up into the Santa Cruz Mountains, where high rainfall intersects steep slopes, hillside failures, whether rock falls, landslides, slumps or debris flows are all too common. These slope failures range from the annoying mud and rocks that periodically flow onto Highway 17, to very large slides that have buried complete neighborhoods.

On January 4th 1982, the hillside above Love Creek, just outside of Ben Lomond, gave way after 30 inches of saturating rain in November and December, followed by 20 more inches in the first few days of January. In the middle of the night with the stars out after the rain had stopped, six hundred thousand cubic yards of rock and earth slid downhill, completely burying nine homes and 10 people.

Approaching the summit and the Santa Cruz-Santa Clara County line, we run smack into the mother of all geologic hazards in California, the San Andreas Fault. While no one here was alive to witness the great 1906 San Francisco earthquake, the damage was well documented from Boulder Creek to Watsonville, and from Moss Landing to the Summit.

Many readers experienced the 1989 Loma Prieta shock and then lived with the damage and reconstruction for well over a decade. There is still a big hole on Pacific Avenue where the old Bookshop Santa Cruz used to be. The San Andreas Fault forms the ragged boundary between two massive plates and it's not to be taken lightly.

Santa Cruz County's geologic history and terrain is the product of 100 million years or so of plate collision and uplift, of subduction and seduction, and folding and faulting. It's the basis for all of the geologic hazards we have to contend with, those damaging and sometimes disastrous events that periodically interrupt Paradise.

I hope *A Brief History of the Geology and Natural Disasters in Santa Cruz County* on January 19th will provide all of you who attend a clearer geologic sense of place. Tickets are available at www.santacruzmuseum.org and you are all invited.