

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

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**Sea-Level Rise- Searching for the Answers**

In one of his last formal acts as Governor of California, Arnold Schwarzenegger signed Executive Order S-13-08, which directed state agencies to plan for sea-level rise and its coastal impacts. The Order also requested the National Research Council (NRC) to establish a committee to assess future sea-level rise to inform these state efforts. The governors of Oregon and Washington, as well as 10 state and federal agencies, subsequently joined Governor Schwarzenegger in this request.

Why should the governors of California, Oregon and Washington care about a few inches of sea level rise? Don't they have more important things to worry about?

Well, the governors do have some other obvious problems, but California also has a lot of investment - billions of dollars worth, in fact - within a few feet of sea level: San Francisco and Oakland airports for starters. The runways start to go underwater with about 16 inches of sea level rise at high tide. The next time you take off from SFO, take a look out the window and see how close the surface of the bay is to the level of the runway. It's pretty darn close.

Californians and those who move here from elsewhere tend to prefer coastal counties. They historically grow the fastest, are the most densely populated, attract the most visitors, and contribute the greatest dollar value to our state's economy.

There a number of state agencies that have investment and infrastructure that we all depend upon within a few feet of sea level. CalTrans, State Parks, the California Energy Commission, State Water Resources Control Board and the Ocean Protection Council, all need estimates and projections of sea-level rise to assess future coastal hazards and risks. Not only do they need to worry about risks to existing infrastructure but they also need to make decisions on new agency investments in transportation, energy, water, and sewage treatment infrastructure so that it won't be flooded, inundated or eroded any time soon.

State agencies as well as local government departments also have to figure out how to modify design and construction standards, and develop strategies for how they can either protect, relocate or adapt parks and parking lots, highways and bridges, railroads, power plants, sewage treatment plants, sewer lines and pump stations against coastal erosion and inundation.

The difference between whether sea level rises 6 inches by 2050 or 18 inches isn't anything to lose sleep over if you are living comfortably in the Santa Cruz Mountains 500 feet above sea level. There might be some other things to worry about in the mountains, however, like winter landslides and mudflows, or Highway 9 being closed by falling trees. But, if you happen to live in the Venetian Courts on the beach in Capitola, or along Beach Drive in Rio Del Mar, you probably think a bit more about the possibility of high tides, large waves and El Niño events knocking loudly on your ocean view windows and sliding glass doors.

In contrast to the recent law passed by the North Carolina legislature to limit sea level rise (not sure how one does that), California took a different approach nearly two years ago by asking for a blue ribbon national committee to look at what might lie ahead. As I mentioned in a column from July of 2011, after requesting nominations from a wide variety of scientists, public officials, agency staff and others, a long list of nominees was reviewed and vetted by the National Academy of Sciences, and a committee of 13 individuals was selected. The list included scientists and engineers from universities and federal agencies across the country.

The committee met over a period of 18 months, reviewing all of the most recent data, reports and findings of researchers around the world. They invited other scientists to attend meetings and present their work and data, and then spent months digesting, discussing, debating before finally summarizing their evaluation in a report that was released in June of this year along with a short summary video: [http://www.nap.edu/catalog.php?record\\_id=13389](http://www.nap.edu/catalog.php?record_id=13389).

While the overall report is quite long at 274 pages, the Summary is only 8 pages long and pretty straightforward and understandable. The video is only five minutes long, features a local media rock star (I do work with rocks, you know) who uses simple words and short sentences. I know you are dying to read more about this riveting topic, but you are going to have to wait until the next column - or watch the video - to get the whole picture.