

CLIMATE NEWS

From Sheldon Whitehouse, Barbara Boxer, and Jeff Merkley

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Fast-Moving Erosion Threatens Hawai'i Coastal Homes



In late December, a large swell of seawater damaged at least five oceanfront properties on Oahu's North Shore, rekindling a decades-old debate about how Hawai'i should respond to beach erosion and the rising waters of the Pacific Ocean. Some property owners want to be able to install a seawall to protect their property. Doing so, scientists say, could lead the sand on the nearby coastline—including Sunset Beach, which hosts some of the world's top surfing contests—to disappear. Chip Fletcher, a University of Hawai'i coastal geologist, said studies show seawalls built on chronically eroding shorelines lead to more erosion down the coast. He noted that other Oahu communities have already lost large chunks of beach because of seawalls. Large surf that regularly hits the North Shore each winter brought the Christmas swell, but sea levels have been rising for years, pushing the ocean farther inland. The Sunset coastline is chronically eroding, just like 70 percent of the beaches on Oahu, Maui, and Kauai islands. Erosion like this will likely recur, Fletcher said, as climate change causes sea levels to rise even faster. "The event on the North Shore is a warning for all of us in Hawai'i that these sorts of occurrences are part of our future," he said. (AP)

L.A. Storms to Grow More Destructive as Sea Level Rises

Major storms will be more destructive to coastal areas of Los Angeles as sea level rise accelerates over the century, according to a new study commissioned by the city to help it adapt to climate change. The USC Sea Grant Program study took inventory of L.A.'s coastal neighborhoods, roads, and infrastructure to estimate storm damage using sea level rise scenarios anticipated for mid-century and 2100. A moderate storm could inflict \$410 million in damages to buildings in L.A. if sea level has risen 1 ½ feet as is predicted by mid-century. Losses would nearly double if sea level-rise reaches 4 ½ feet by 2100, as predicted. Though much of L.A. sits high enough that it is out of harm's way, wastewater and potable water systems within a few feet of the high-tide line are at risk of flood damage. Critical roads, including stretches of Pacific Coast Highway, could be inundated or washed out, blocking access to emergency services. "We've crossed the line of being able to stop the march of global warming, and now the reality of needing to adapt and create a more resilient city is here," said Matt Petersen, L.A.'s chief sustainability officer. (LA Times)

Wrenching Changes Ahead for Farmers as Droughts Increase

A new study backed by the Swiss government finds that future climate change-intensified droughts will increase conflict among water users around the globe, especially in regions where water is already scarce. To avoid major environmental impacts and water shortages while also maintaining food productivity, Switzerland's heavily subsidized agriculture sector will face big trade-offs. Researchers produced three possible scenarios: one in which productivity was optimized; one in which environmental impacts were minimized; and a third, "compromise" scenario that involves major agricultural shifts. "You have to change what you are growing in the region, you have to change where you are growing it in the region and you have to change soil management," said lead author Jürg Fuhrer. The study suggests that farmers concentrate crops in flat areas where soil retains the most water, so even if more irrigation is needed in the future, little water is wasted. (ClimateWire)

Research Probes Underwater Waves that Transfer Ocean Heat

Researchers have discovered that a broad system of geological ridges is generating skyscraper-size waves below the South China Sea. Scientists were already aware that massive underwater waves exist, but a study published recently in *Geophysical Research Letters* sheds new light on the origin of these waves, and could improve future predictions of climate change and the movement of heat in the ocean. "It would seem to be the case that [underwater waves] provide the 'missing link' for explaining how heat is getting from the surface down to the deep ocean," said co-author Thomas Peacock of MIT. What is happening in the deep ocean is one of the "big unanswered questions" with climate change, said Sonya Legg, a Princeton research oceanographer who is not affiliated with the study. "The more of the heat that's going into the very deep ocean, the less of it is sticking around in the atmosphere." Underwater waves play an important role in moving water and distributing heat throughout the ocean. How the deep ocean is mixing, and how much heat is being carried, could also influence thermal expansion of water and sea-level rise, Legg added. (ClimateWire/2013GL058064)