

New study pinpoints L.A. coastal areas vulnerable to a sea level rise from climate change

*By Sandy Mazza, Daily Breeze
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San Pedro, Wilmington, Venice and other low-lying areas of Los Angeles are vulnerable to future flooding that could damage buildings, erode beaches and impair roadways in the event of a storm like Hurricane Sandy, which devastated parts of the East Coast in 2012, according to a new report by USC researchers.

The report, presented Tuesday at a Los Angeles Regional Collaborative for Climate Action and Sustainability forum in Santa Monica, examines what will happen to the Los Angeles coast if storm surges induced by climate change occur as predicted in the next several decades. The Sea Level Rise Vulnerability Study for the City of Los Angeles pinpoints communities and infrastructure most threatened and calls for further planning to prepare.

Researchers estimate that a large flood would cost Los Angeles more than \$240 million in building losses if the sea level rises 1.6 feet, and more than \$710 million if it rises by 4.6 feet.

“It is unlikely that any storm wave-driven flooding or property damage will occur in the foreseeable future,” the report states. “But if sea level rise takes one of the higher trajectories, problems would become evident around midcentury.”

The study is designed, in part, to position Los Angeles as a leading force in the nation to strategically plan for the impacts of climate change, said Phyllis Grisman, associate director of USC’s Sea Grant program, which did the study.

“We expect to see the effects of climate change sea level-rise when we have high tides and storms,” Grisman said. “It will be an exacerbation of things that we already see and not just some defined future event you’ll see in 2020.”

Climate researchers estimate that sea levels around Los Angeles will rise from 0.3 to 2 feet between 2000 and 2050. Seas could rise up to 5.6 feet by 2100, according to the report.

Higher seas combined with high tides and storm surges would overwhelm Pacific Coast Highway

from Topanga Canyon Boulevard to Santa Monica, top the Los Angeles Harbor breakwater, cause erosion along San Pedro's cliffs, and flood the Ballona Wetlands Ecological Reserve, according to the report. Other areas of concern include low-income communities around the Port of Los Angeles that have older housing stocks, high numbers of renters, low education levels and linguistic isolation.

"There are communities along the coast that average some of the lowest income levels in L.A. County," the report states. "Portions of San Pedro and Wilmington have an average income of \$13,000 per year. Seventy-six percent of the census tract population on the west side of Wilmington lives below the federal poverty level. These are the most vulnerable communities within the sea level-rise exposure zone."

The report suggests educational programs to reach out to these neighborhoods. It also calls on local coastal communities to develop storm watch and notification systems and to monitor beach widths and cliff retreats to determine how quickly erosion is taking place.

The Port of Los Angeles is well prepared for sea level rise because it has planned for future infrastructure to be built at higher levels but, the report states, roads around the port would be threatened with flooding.

Tony Gioiello, the port's chief harbor engineer, said he agrees with the report's assessment that the nation's biggest seaport complex may be vulnerable to rising sea level in the distant future, but added that there's nothing to fear now since all of the port's wharves are 15 feet above sea level.

"The bottom line is that the vulnerability we see could happen, but because it's so far in the future there's nothing short-term that we're concerned about," he said.

Gioiello said that the port will continue monitoring rising sea level and incorporate it into the design of new facilities.

The study also states that coastal potable water systems and wastewater and stormwater infrastructure could be inundated, causing overflow and groundwater inflow that would potentially contaminate and shut them down. The report stresses the importance of further engineering studies to develop plans to safeguard coastal roads, beaches and assets like museums and cultural centers such as Cabrillo Marine Aquarium in San Pedro that could face costly repairs if damaged.

The report highlights the need to protect the Ballona Wetlands Ecological Reserve, which is just east of Playa del Rey, because it is expected the existing flood control levee structures there would overflow. If the 600-acre freshwater wetland is submerged with seawater, it could harm the natural ecosystem.

"The Ballona Wetlands is the largest remaining coastal wetland within urban L.A. County and is

an ecological treasure,” the report states. “It supports a range of habitats and functions, including estuarine-dependent plants and animals and creates opportunities for aesthetic, cultural, recreational, research and educational uses by people throughout the region.”

The report stresses the importance of further collaborative research in the region to develop a formal strategy for regular updates of scientific information, additional engineering and geotechnical studies for vulnerable assets, and public engagement on the issue.

The next step for the Sea Grant program is a collaboration with the Los Angeles Regional Collaborative on Climate Action and Sustainability to thoroughly map the areas where flooding would occur.

“It will show coastal storms model 2.0,” Grisman said. “Not only where we can expect to see flooding but what’s there. It isn’t just like a bathtub filling up. What’s in the way? Where will water hit along coastlines? What are the trends in those beaches and what can we expect to see in terms of beach width and beach height.”

Staff writer Karen Robes Meeks contributed to this article.

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