

Members of the Seattle Port Authority:

For the Record I am Garth Jacobson resident of Seattle.

It is time to hit the pause button on new cruise ship terminals.

Seattle enjoys being a premier departure point for Alaska cruise ships. The approximately 1.2 million cruise people traveling through the Seattle port last year enjoyed a bucket list trip to see glaciers and maybe grizzly bears. The cruise ship passengers may enjoy once-in-a life-time natural wonders. I wouldn't want to deny future travelers that opportunity to experience the same great feeling I had climbing on glaciers with the Mountaineers. . But the challenge is balancing that enjoyment against global warming concerns.

I equate the issue to my experience of hiking and climbing in the Enchantment Wilderness. The Enchantments provide unbelievable breathtaking views. Sadly the Forest Service must place limits as to how many people can camp there. The limits prevent us from loving the place to death. So too we should explore how to deal with the impacts of the Alaska cruise industry on the great beauties of the Inland Passage and global warming.

Recent articles in the New York Times <https://www.nytimes.com/2019/06/03/travel/traveling-climate-change.html> and Seattle Times (Rick Steves Article June 7, 2019) demonstrate the need to reexamine the tourist industry in light of global warming concerns. The New York Times identified that cruise ships produce 3 to 4 times as much harmful pollution per passenger mile as jet planes. When scrubbers are used to reduce the pollution, then the harmful chemicals are dispersed into the ocean. Even worse, accidents or unreported discharges raise the question about the harm caused by cruise ships in fragile environmental waters. One cruise line faced fines for discharging gray water waste into the pristine waters of Glacier Bay in 2018. <https://www.miamiherald.com/news/business/tourism-cruises/article231038508.html>

All of this raises the question, why did the Port of Seattle Authority (2018 fall) approve raising property taxes to support, among other things, the construction of new cruise line terminals? It is tantamount to saying let's raise the King County taxes to potentially promote more greenhouse gas causing activities. Granted there is always a cost benefit analysis that considers the increase of tourist revenue for the area. But given the local green new deal (Seattle City Council) and Washington State (Governor Inslee et. al.) efforts to seek ways to reduce greenhouse gasses, it would appear the Port Authority is not seriously planning for greenhouse reductions in the future. Likewise a new cruise line terminal at pier 46 could enhance traffic congestion during athletic events, ferry traffic line-ups and increase the air traffic at SeaTac Airport. This potentially comes after the exhausting tunnel construction, viaduct destruction, Colman dock renovation and sea wall rebuild. Interestingly the Seattle Times editors raised questions about tax increases to fund new cruise terminals, see Seattle Times Nov 23, 2018.

I recommend we hit the pause button on the new cruise terminal development. Let's address the cruise ship pollution issues, traffic congestions and ask the question, does this make sense if global warming concerns change tourist travel habits. Also see New York Times 2019 story on "Rising Seas Will Erase More Cities by 2050 Research Shows." <https://www.nytimes.com/interactive/2019/10/29/climate/coastal-cities-underwater.html> Finally, another important question is, what is the practical limit that should be placed upon inland passages cruises? Those discussions should include officials from the cruise ship ports in Canada and Alaska. As I said earlier I don't want to deny people their bucket list dream but questions need to be asked about future expansion before we cause the Glacier Bay ice to melt away.

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Rising Seas Will Erase More Cities by 2050, New Research Shows

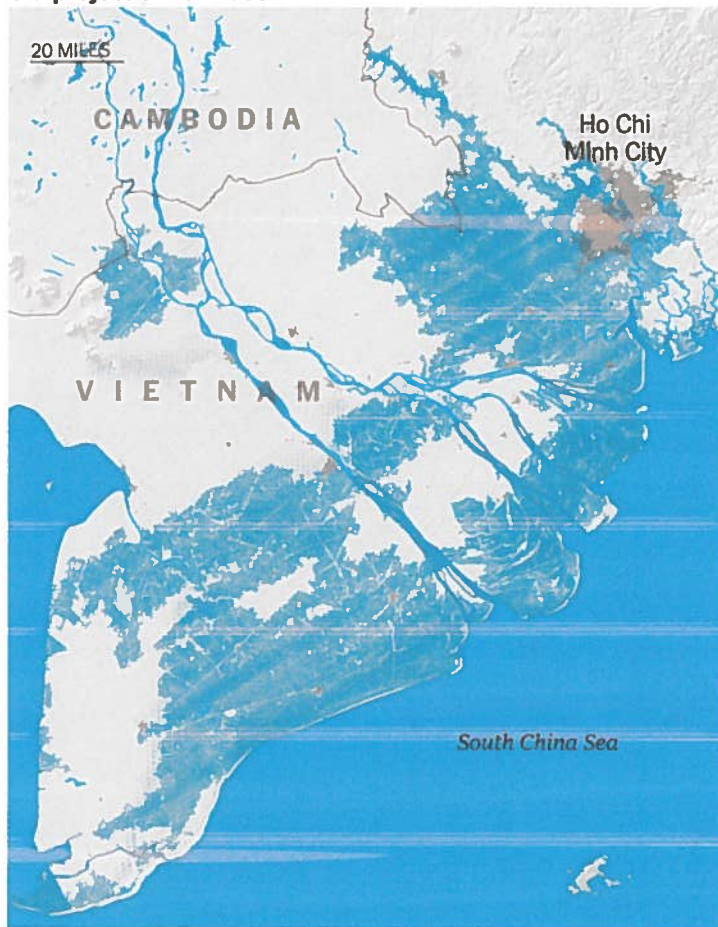
By Denise Lu and Christopher Flavelle Oct. 29, 2019

Rising seas could affect three times more people by 2050 than previously thought, according to new research, threatening to all but erase some of the world's great coastal cities.

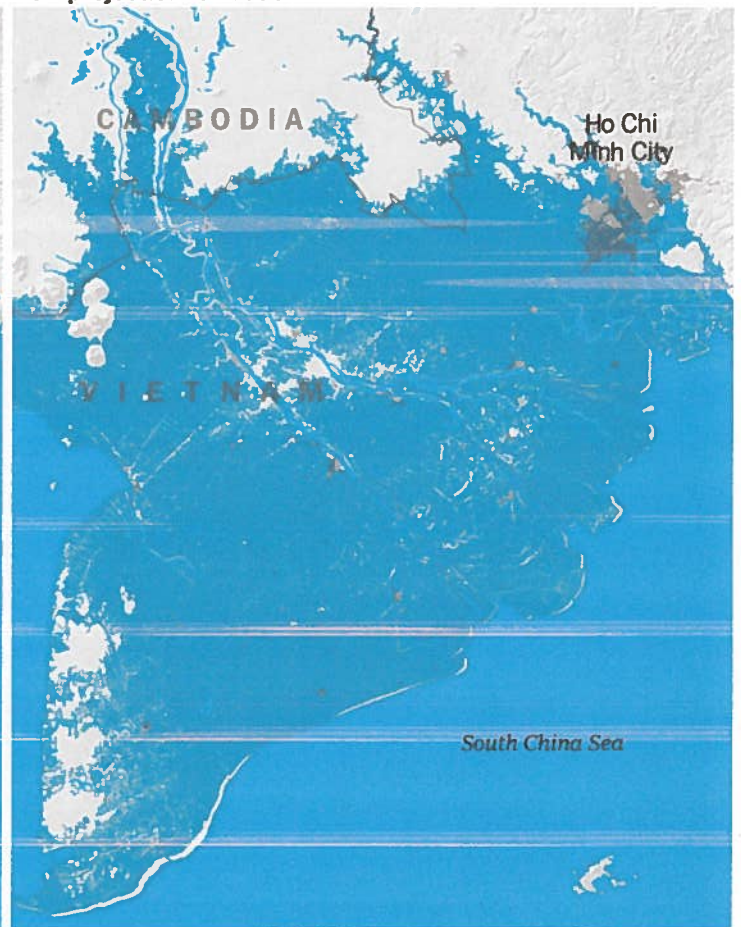
The authors of a paper published Tuesday developed a more accurate way of calculating land elevation based on satellite readings, a standard way of estimating the effects of sea level rise over large areas, and found that the previous numbers were far too optimistic. The new research shows that some 150 million people are now living on land that will be below the high-tide line by midcentury.

■ Land underwater at high tide ■ Populated area

Old projection for 2050



New projection for 2050



Southern Vietnam could all but disappear.

The first map shows earlier expectations of submerged land by 2050. But the new outlook, the second map, indicates that the bottom part of the country will be underwater at high tide.

More than 20 million people in Vietnam, almost one-quarter of the population, live on land that will be inundated.

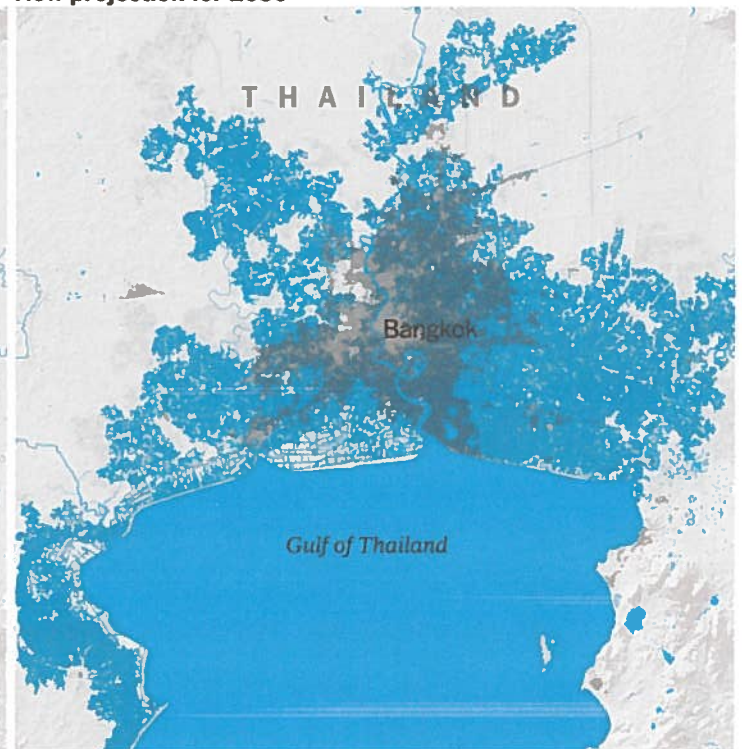
Much of Ho Chi Minh City, the nation's economic center, would disappear with it, according to the research, which was produced by Climate Central, a science organization based in New Jersey, and published in the journal *Nature Communications*. The projections don't account for future population growth or land lost to coastal erosion.

■ Land underwater at high tide ■ Populated area

Old projection for 2050



New projection for 2050



Standard elevation measurements using satellites struggle to differentiate the true ground level from the tops of trees or buildings, said Scott A. Kulp, a researcher at Climate Central and one of the paper's authors. So he and Benjamin Strauss, Climate Central's chief executive, used artificial intelligence to determine the error rate and correct for it.

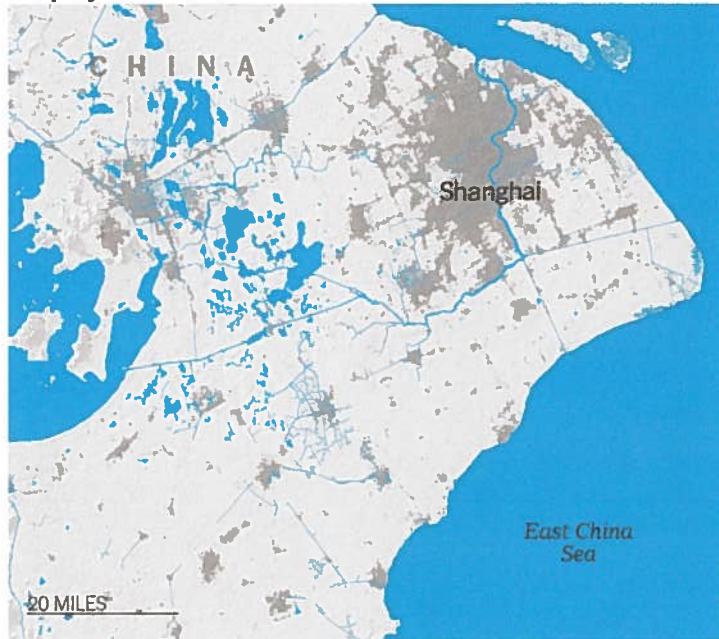
In Thailand, more than 10 percent of citizens now live on land that is likely to be inundated by 2050, compared with just 1 percent according to the earlier technique. The political and commercial capital, Bangkok, is particularly imperiled.

Climate change will put pressure on cities in multiple ways, said Loretta Hieber Girardet, a Bangkok resident and United Nations disaster risk-reduction official. Even as global warming floods more places, it will also push poor farmers off the land to seek work in cities.

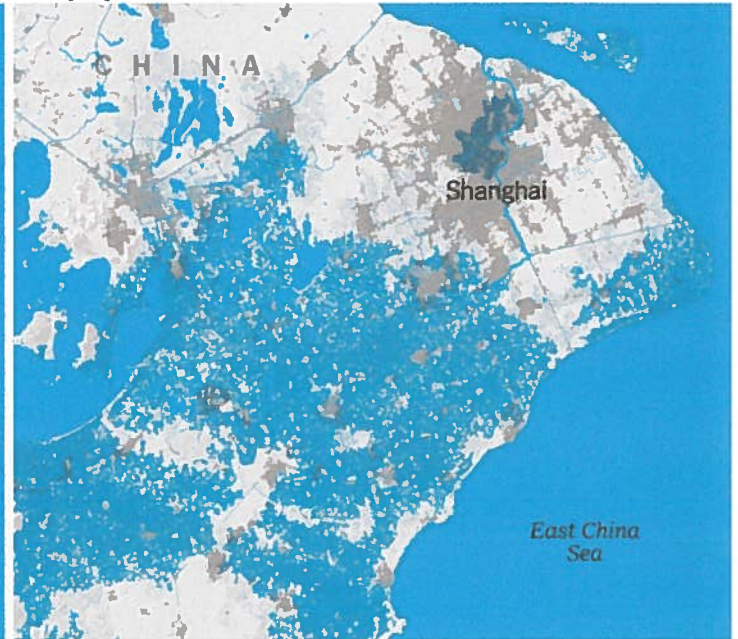
“It is a dire formula,” she said.

■ Land underwater at high tide ■ Populated area

Old projection for 2050



New projection for 2050



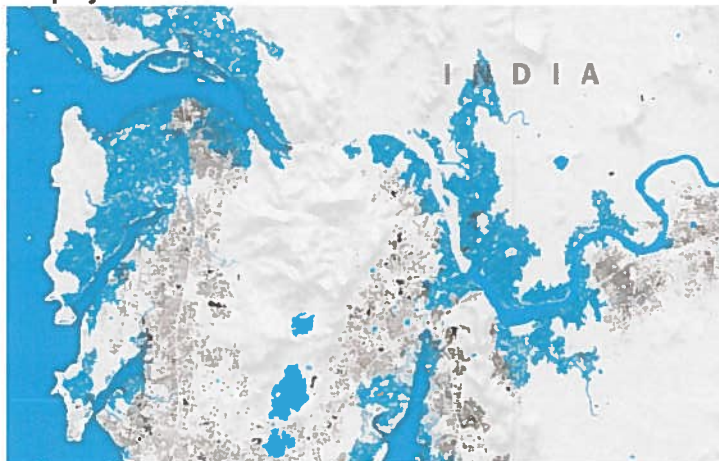
In Shanghai, one of Asia’s most important economic engines, water threatens to consume the heart of the city and many other cities around it.

The findings don’t have to spell the end of those areas. The new data shows that 110 million people already live in places that are below the high tide line, which Mr. Strauss attributes to protective measures like seawalls and other barriers. Cities must invest vastly greater sums in such defenses, Mr. Strauss said, and they must do it quickly.

But even if that investment happens, defensive measures can go only so far. Mr. Strauss offered the example of New Orleans, a city below sea level that was devastated in 2005 when its extensive levees and other protections failed during Hurricane Katrina. “How deep a bowl do we want to live in”? he asked.

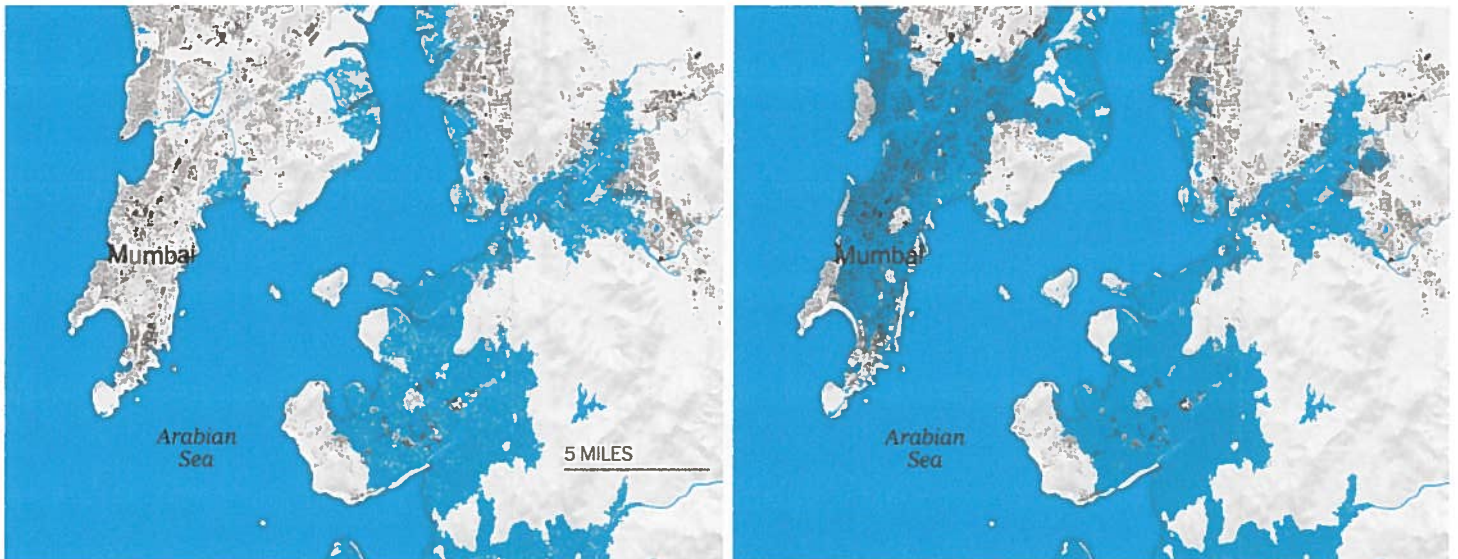
■ Land underwater at high tide ■ Buildings

Old projection for 2050



New projection for 2050





The new projections suggest that much of Mumbai, India's financial capital and one of the largest cities in the world, is at risk of being wiped out. Built on what was once a series of islands, the city's historic downtown core is particularly vulnerable.

Over all, the research shows that countries should start preparing now for more citizens to relocate internally, according to Dina Ionesco of the International Organization for Migration, an intergovernmental group that coordinates action on migrants and development.

"We've been trying to ring the alarm bells," Ms. Ionesco said. "We know that it's coming." There is little modern precedent for this scale of population movement, she added.

■ Land underwater at high tide ■ Populated area

Old projection for 2050



New projection for 2050



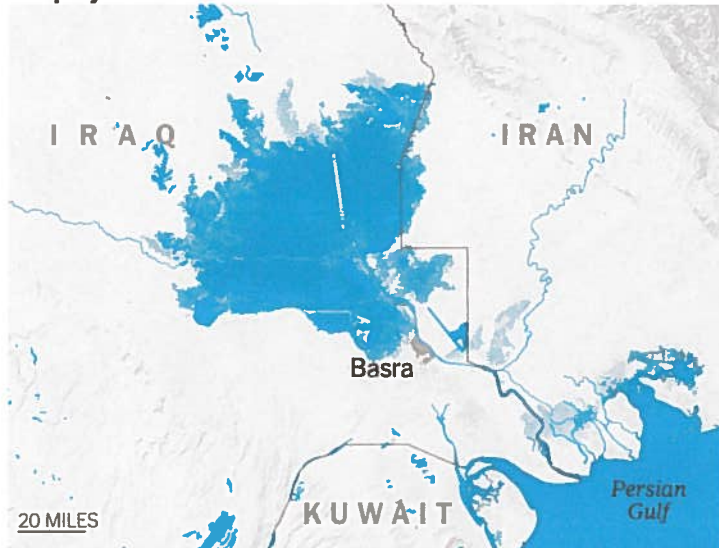
The disappearance of cultural heritage could bring its own kind of devastation. Alexandria, Egypt, founded by Alexander the Great around 330 B.C., could be lost to rising waters.

In other places, the migration caused by rising seas could trigger or exacerbate regional conflicts.

Basra, the second-largest city in Iraq, could be mostly underwater by 2050. If that happens, the effects could be felt well beyond Iraq's borders, according to John Castellaw, a retired Marine Corps lieutenant general who was chief of staff for United States Central Command during the Iraq War.

■ Land underwater at high tide ■ Populated area

Old projection for 2050



New projection for 2050



Further loss of land to rising waters there “threatens to drive further social and political instability in the region, which could reignite armed conflict and increase the likelihood of terrorism,” said General Castellaw, who is now on the advisory board of the Center for Climate and Security, a research and advocacy group in Washington.

“So this is far more than an environmental problem,” he said. “It’s a humanitarian, security and possibly military problem too.”

Population data from WorldPop and building footprints from OpenStreetMap.