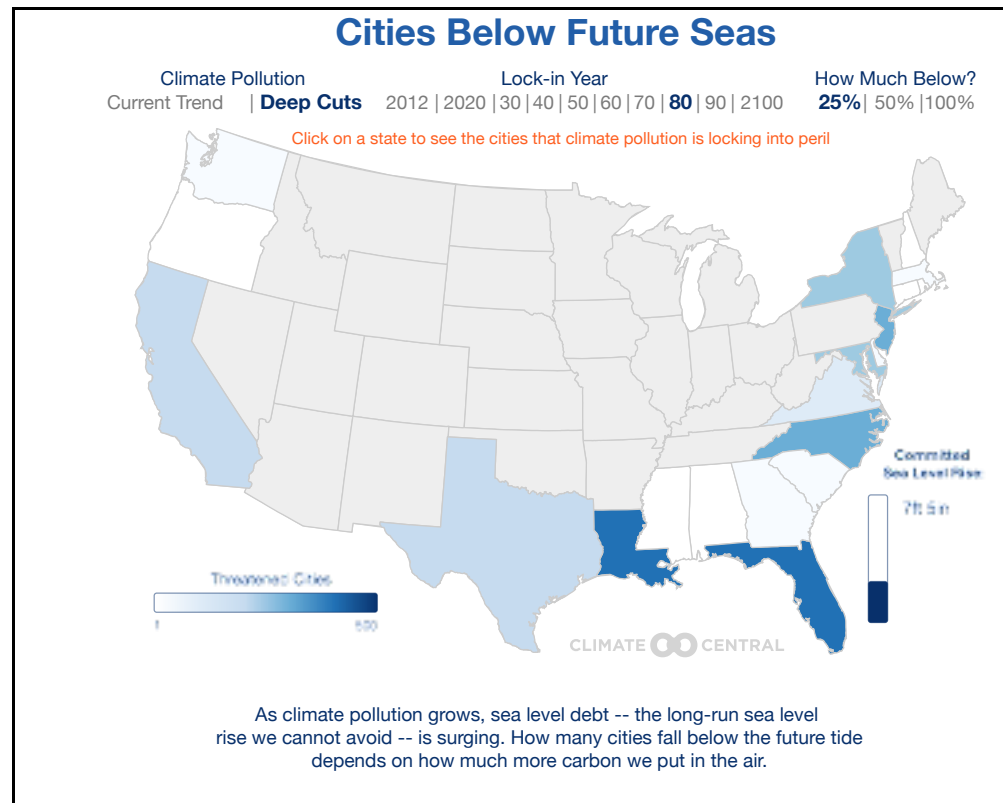


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Sea level rise 'locking in' quickly, cities threatened

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Measurements tell us that global average sea level is currently rising by about 1 inch per decade. But in an invisible shadow process, our long-term sea level rise commitment or “lock-in” — the sea level rise we don’t see now, but which carbon emissions and warming have locked in for later years — is growing 10 times faster, and this growth rate is accelerating, writes Ben Strauss, vice president of Climate Central.

An international team of scientists led by Anders Levermann recently published a study that found for every degree Fahrenheit of global warming due to carbon pollution, global average sea level will rise by about 4.2 feet in the long run.

When multiplied by the current rate of carbon emissions, and the best estimate of global temperature sensitivity to pollution, this translates to a long-term sea level rise commitment that is now growing at about 1 foot per decade.

We have two sea levels: the sea level of today, and the far higher sea level that is already being locked in for some distant tomorrow.

In a new paper published Monday in the *Proceedings of the National Academy of Sciences* (PNAS), I analyze the growth of the locked-in amount of sea level rise and other implications of Levermann and colleagues' work. ...

To begin with, it appears that the amount of carbon pollution to date has already locked in more than 4 feet of sea level rise past today's levels. That is enough, at high tide, to submerge more than half of today's population in 316 coastal cities and towns (home to 3.6 million) in the lower 48 states.

By the end of this century, if global climate emissions continue to increase, that may lock in 23 feet of sea level rise, and threaten 1,429 municipalities that would be mostly submerged at high tide. Those cities have a total population of 18 million. [...]

[more]

References:

- Benjamin H. Strauss, Rapid accumulation of committed sea-level rise from global warming, *Proceedings of the National Academy of Sciences*, 2013, DOI: 10.1073/pnas.1312464110