



TUWaterWays

Water News and More from the Tulane Institute on Water Resources Law & Policy

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Start looking for them apple bottom jeans and the boots with the fur

‘Cause cities are getting [low, low, low, low, low](#). A [new study](#) was published this month in *Science*, and it found that 40% of the land in 82 Chinese cities is subsiding at a noteworthy rate. The study uses “a spaceborne synthetic aperture radar interferometry technique.” (That old thing.) It places the blame for the subsidence on a combination of the weight of buildings and groundwater withdrawal. If we think about it, it shouldn’t come as a great surprise that the earth’s crust isn’t nearly as solid as it might seem at first blush. How else would we get mountains, valleys, and, uh, mesas? It’s just that these things naturally happen at a geologic pace well beyond a perception within a human’s lifetime. But people, the overachievers that we are, have figured out how to speed up mother nature’s lackadaisical approach. So, when you pile stuff on top of the earth’s surface and pull stuff out from underneath the earth’s surface, it collapses. [Like a flan in a cupboard](#). The study goes on to project that within 100 years a quarter of China’s coastal lands stretching from the Liaodong Peninsula to the island of Hainan will be below sea level.

Of course, [this isn’t only a China problem](#). People are really good at doing this in all sorts of settings under all sorts of decisionmaking regimes. For instance, last month [another study](#) was published in *Nature*, and it found that subsidence below sea level is a danger in 32 coastal cities in the US just within the next generation. Last year, [yet another study](#) found coastal cities in Greece face subsidence after being built on wetland stream deposits. And it’s not just cities, either. Agricultural lands in [California](#) are widely known to have subsided dozens of feet over the past century. It’s such a problem and so widespread that California is known for having some of the most stringent groundwater management laws in the world. Oh, wait, no. That’s wrong. California famously didn’t regulate groundwater at all until passing its Sustainable Groundwater Management Act in 2014. And now, a decade after that law was passed, it’s finally starting to show some teeth. The state’s water management agency has announced that it will take over [groundwater management in the Tulare Lake basin](#) after local authorities showed little interest in getting in line with the law and efforts at halting subsidence. And [the state is instituting groundwater withdrawal limitations, installing meters, and charging fees](#). Better late than never!

There are few methods known to counteract subsidence, one of them being aquifer recharge. An interest in aquifer recharge, or at least aquifer preservation, led Arizona to restrict building new subdivisions in certain overdrawn areas. Now, bills are in the state legislature to reverse that, and it’s just one of the many [water-centric political fights](#) happening statewide right now.

And that recharge happens naturally (though once aquifers collapse and land subsides it’s a much harder job to open back up space to be occupied by water molecules) through a little something call drainage. But it seems as though drainage is far too often an afterthought in the human-built landscape. Nowhere is that clearer than in Dubai, where last week’s record rainfall simply had nowhere to go. [It’s just really hard for water to penetrate concrete](#). Though Dubai gets its drinking water not from underground but desalinization of seawater, [they do know a little about subsidence](#), and given all of these studies, one has to wonder just how much [those feats of architecture and engineering](#) weigh down the earth’s crust.

Back in Louisiana, subsidence remains a major issue. In fact, it's likely the biggest issue that's completely ignored by the government in the whole state. Over in Southwest Louisiana, the federal government's Southwest Coastal Louisiana Project is [spending billions of dollars to keep communities functional](#). A lot of the economic motivation for that project comes from those communities' role in keeping the oil industry, umm, afloat. Unfortunately, that industry's [removal of fluids from the earth](#) is [also a major driver of subsidence](#) in coastal Louisiana. And [those effects run deep](#). Maybe there's [a new energy industry coming to town](#), though?

Gov. Jeff Landry and his compatriots in the Legislature are [pushing a lot of big ideas and consolidating power](#). And they have [lots of ideas about New Orleans](#), too. But none of them seem to be thinking about government's role in managing for subsidence – the one thing that could cure three of the Big Easy's greatest sources of infamy – [the water utility](#), [drainage](#), and [streets](#). While it's certain that [the future ain't what it used to be](#), it's clear that without making subsidence a primary concern, all of our plans have next to [no leeway](#).

Coming Up:

[2029 Louisiana Coastal Master Plan Community Conversations](#); Thibodaux, April 30 & Violet, May 7

Water jobs:

[Communications Senior Coordinator](#); Coalition to Restore Coastal Louisiana; New Orleans, LA

[Policy and Partnerships Manager](#); Bayou River City Water Keeper Houston, TX



The [Tulane Institute on Water Resources Law and Policy](#) is a program of the Tulane University Law School. The Institute is dedicated to fostering a greater appreciation and understanding of the vital role that water plays in our society and of the importance of the legal and policy framework that shapes the uses and legal stewardship of water.

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