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Open Forum: More floods are coming

By Tim Palmer, May 23, 2019

This has been a year of floods, and they're not over.

It started with the Russian River surging through Guerneville (Sonoma County) and other towns of the north Bay Area. Then blizzards pummeled the Great Plains, followed by rain, all making a sea out of the Missouri River and slicing 62 levees into soggy shreds. Then — with all dams full — the Mississippi River spilled over the heartland of America.

The damage occurs in spite of our best efforts to stop it.

In California and all across our country, governments have spent billions of dollars to avoid the flooding we've seen daily in the news. We built levees and dams, and repeatedly paid for relief — as anyone but the heartless must do — to victims whose houses become smothered in mud.

Aiming to get ahead of this problem, Congress created the National Flood Insurance Program in 1968 to insure property owners rather than to dole out relief. The strategy coupled incentives for subsidized insurance with zoning requirements to prevent new flood- prone structures from being built. But real estate interests pushed to water down the regulations, and the insurance subsidy too often incentivizes development on floodplains rather than prevents it. The program is now $20 billion in debt.

Flood losses increase because development in the path of harm keeps growing. Building has continued on land that historically flooded, such as Sacramento's Natomas Basin, where 42 miles of levees must be maintained to keep floodwaters out. Sacramento is the riskiest area in the country for river flooding.

The most alarming dispatches are about floods yet to come, and the most shocking of those in America are in California. Not even recognized by meteorologists until 20 years ago, "atmospheric rivers" of saturated air have historically produced storms making Guerneville's February dousing look like a minor April shower. An 1862 flood inundated Sacramento and a 300-mile length of the Central Valley for months; the governor rowed through the streets of Sacramento to his inauguration. Then the Legislature moved to San Francisco while the floodwaters subsided. Dozens of today's dams and hundreds of miles of costly levees from the redwood coast to San Diego will do little to curtail the damage of a comparable 43-day storm when it comes again.

Evidence hidden in San Francisco Bay sediments going back 2,000 years reveals that floods of the 1862 scale or greater reoccurred every 150 years or so, and there's no reason to expect they won't continue, according to paleoclimatologist B. Lynn Ingram of UC Berkeley. Analysts at the U.S. Geological Survey and UCLA calculated that the expected mega-flood will cause more damage than California's apocalyptic "big-one" earthquake. None of this factors in uncertainties like what we saw at Oroville Dam in 2017 when 180,000 people were ordered to flee their homes — just the first in a greater wave of evacuations that might have been needed.

Meanwhile the climate is changing. Flood levels are increasing because of warming temperatures, intensified storms and amplified atmospheric rivers. The Sierra Nevada's snowfall is transforming into rain that washes off the mountains with savage immediacy. Scripps Institution researchers warned that the Sierra's snowpack could be reduced by up to 80% this century — not because of less precipitation, but because it will come as rain instead of snow.

In retrospect, it's clear: We've misunderstood how rivers work. They don't follow wishful parameters of the Army Corps of Engineers' 100-year flood guidelines, or the routes we've

penciled in between levees, or even the climatic expectations of the past. A national program that presumes we can choreograph today the floods of tomorrow is fundamentally flawed.

It's time to recognize that the rivers will have their way. Therefore we need to get *out* of the way.

This is a bitter pill for cities built on waterfronts, so they'll reinforce their levees where possible. But federal and state programs that have poured a deluge of subsidies into doomed efforts to control all floods need, instead, to entice and reimburse our movement away from danger zones. Efforts have started, thanks to nationwide reforms after the Great Flood of 1993 along the Mississippi and Missouri rivers combined with efforts of California's Central Valley Flood Protection Board and others, but what has been accomplished needs to be expanded.

It's high water — not us — that belongs on the bottomlands, which owe their existence to soil harmlessly delivered by floods through the millennia in a process that we challenge at our peril. That process will continue; it's up to us to decide if we want to suffer the damage or not.

Relocation is not for everyone, but national, state and local policies can support it rather than enticing us to develop floodplains more. We can avoid the cycle of mud-stained houses, daily misery and permanent entrapment in poverty. Instead, we can restore riverfronts made magnificent with life and recreational opportunities for all. Floodplains need not be places of danger, but rather green and beautiful waterfronts — if only we would get out of the way.

We will not stop the floods of the future. Now is the time to prepare by seeking higher ground.

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