

New Orleans-style disaster could happen again - in California

November 3 2005

Is California vulnerable to a New Orleans-style levee break?

"The land in the Sacramento-San Joaquin Delta, where California's two great rivers drain into San Francisco Bay, lies as much as 20 feet below sea level," warns Jane Wolff, author of *Delta Primer: A Field Guide to the California Delta* (2003). "If the levees that protect the region fail, we will lose valuable farmland, a unique ecological system and the centerpiece of the state's water-supply system."

Wolff — assistant professor of landscape and urban design in the Sam Fox School of Design & Visual Arts at Washington University in St. Louis — points out that New Orleans wasn't always below sea level, but actually subsided as levees altered the Mississippi River's natural floodplains.

Similarly, when Congress opened the California Delta to agricultural reclamation in 1850, the land lay slightly higher than the ordinary level of the rivers that ran through it. Yet as the marshy ground was drained and cultivated, and as farmers built low levees to stop seasonal flooding, the land began to subside at the rate of several inches a year. Raising levees higher only compounded the problem by limiting water's access to the floodplain.

"Sediment was deposited on the bottom of the channels instead of on the floodplain," Wolff explains. "Soon river levels were elevated even during the dry season. Flooding became a constant hazard."

More recently, urbanization in the Bay Area and Central Valley has dramatically expanded residential development at the delta's edges. Ironically, the highly engineered levees now surrounding these new neighborhoods actually increase the chances that older, weaker levees nearby will fail.

"The situation is not so different from New Orleans," Wolff summarizes. "There's a river delta in which land has subsided. The subsided land is protected by levees. The levees are old and weren't engineered for the circumstances they now face, so they could break."

The state's Department of Water Resources estimates the cost of shoring up the system to be about \$4 billion, a figure that includes repairs to existing levees as well as other measures related to flood control.

Yet a breach on the scale of that in New Orleans would prove catastrophic for California — the world's sixth-largest economy, home to approximately 10 percent of the U.S. population — and thus for the nation as a whole. In addition to property destruction, it would allow salt water from San Francisco Bay to migrate upstream, contaminating the water supply for much of Southern California, including major cities such as Los Angeles and San Diego. Meanwhile, the ecology of the delta would be irrevocably changed.

Wolff recommends three courses of action to state and federal governments:

Bolster the levee system. The delta's levees serve statewide and national interests and require support at those levels. The maintenance burden should be transferred from local farmers to taxpayers.

Regulate development. Allowing urbanization in areas subject to flooding simply puts people in harm's way. Low-lying land should

remain agricultural or be treated as floodplain and wildlife habitat.

Balance current uses. Protecting the public water supply is essential, but farmers and environmental advocates also have legitimate claims. Models such as the Yolo Bypass — which combines private land ownership with strict public regulation — demonstrate that cooperation is possible and mutually beneficial.

"The landscape needs to be reconsidered as an essential piece of infrastructure, like the highway system or the electrical grid," Wolff concludes. "And the public needs to take responsibility for its future."

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