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## California's Next Nightmare

By ALEX PRUD'HOMME

¶ 1 People tend to underestimate the power of floods: six inches of fast-moving water can knock you down; two feet of water can float most cars away. Floods kill an average of 127 Americans a year — more than tornadoes or hurricanes — and cause more than \$2 billion of property damage annually, according to the National Oceanic and Atmospheric Association.

¶ 2 This spring, the nation was riveted by images of blown levees and submerged towns in the Midwest along the Mississippi River. But an even more threatening situation looms in California, especially around the San Francisco Bay Delta. The delta is the link between two-thirds of the state's fresh-water supply — which originates in the Sierra Nevada and the rivers of the north — and two-thirds of the state's population, which resides in the south. Starting in the 1870s, farmers began building 1,100 miles of levees around the delta to control floodwaters and create farmland out of tule marshes. Today many of those levees are old, decrepit and leaking. Jeffrey Mount, a geologist at the University of California, Davis, predicts that there is a 64 percent chance of a catastrophic levee failure in the delta in the next 50 years.

¶ 3 Scientists consider Sacramento — which sits at the confluence of the Sacramento and American Rivers and near the delta — the most flood-prone city in the nation. Experts warn that there are two events that could destroy the levees and set off a megaflood. One is an earthquake; the second is a violent Pacific superstorm, like the one called the Pineapple Express, which sweeps water off the ocean around Hawaii and dumps it on the mainland with firehose intensity while battering the coast with high wind and waves. A megaflood would not arrive as gradual seepage; it would be a rapid submerging of hundreds of square miles. Salt water would be sucked from the bay (in what is known as the big gulp) and impelled into the delta, contaminating drinking supplies for 25 million people, destroying some of the nation's most productive farmland, washing away buildings, highways, gas lines and railroads and causing landslides. A flood in the delta could sink downtown Sacramento under as much as 20 feet of water, as well as cripple California (the eighth-largest economy in the world), hobble the nation and disrupt global trade.

¶ 4 Robert Bea, professor of engineering at the University of California, Berkeley, warns: "In terms of damage, deaths and long-term cost, a rupture in the delta levees would be far more destructive than what happened in Hurricane Katrina. This is a ticking bomb."

¶ 5 Sacramento has flooded many times, most infamously in 1862, when a 45-day rain turned the Sacramento and San Joaquin Valleys into vast inland seas. Gov. Leland Stanford attended his inauguration by rowboat, and the state capital was temporarily moved to San Francisco. It was the largest deluge in state history, though geologic records indicate that six other powerful storms swamped the region before then. The chance of a megaflood inundating Sacramento again is not only plausible, predicts the U.S. Geological Survey, but "perhaps inevitable."

*Alex Prud'homme (alex@alexprudhomme.com) is the author, most recently, of "The Ripple Effect: The Fate of Fresh Water in the 21st Century." Editor: Ilana Silverman (i.silverman-MagGroup@nytimes.com)*

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