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Sacramento Delta in Decline

Weak levees threaten the state's economy and S.D. water supply

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WALNUT GROVE – Every time farmers till their ground on the puzzle-piece islands of the Sacramento-San Joaquin Delta, they threaten a prime source of drinking water 500 miles south in San Diego.

When the delta's fertile soil is exposed to the air, microbes digest the rich peat and release it as a gas. The result is that some of the levee-protected lands slip an inch or two farther below sea level each year.

A century of this sinking has increased pressure on the already unstable levees, earthen berms that run for about 1,100 miles through the delta. If key sections of these century-old dikes fail, they would no longer stem the flow of saltwater pushing eastward from the Pacific Ocean. Massive state pumps that supply drinking water to more than 22 million residents, mostly in Southern California, would be contaminated.

Major breaches in the levees – caused by decades of disrepair or natural disasters such as earthquakes and floods – could disrupt water deliveries for more than 15 months, according to a doomsday scenario from the state's top water official.

With memories of Hurricane Katrina's devastating effect on New Orleans levees still fresh, Gov. Arnold Schwarzenegger has proposed raising \$2.5 billion to improve California's flood defenses. More than one-third of the money would be



HOWARD LIPIN / Union-Tribune

Swaths of the 1,100 miles of levees in the Sacramento-San Joaquin Delta don't meet federal safety standards.

directed to the delta. The governor's bond package for infrastructure upgrades could go to voters as early as June.

In San Diego County, water reserves are relatively slim, though the Metropolitan Water District of Los Angeles said it has enough to help Southern California weather a prolonged shutdown of the state pumps.

Such assurances haven't lessened the urgency of demands for a comprehensive upgrade to the delta levees.

“We have a trillion-dollar economy that is teetering on top of this fragile levee system,” said Steve Hall, executive director of the Association of California Water Agencies in Sacramento. “Shame on us if we can't act.”

No comprehensive plan

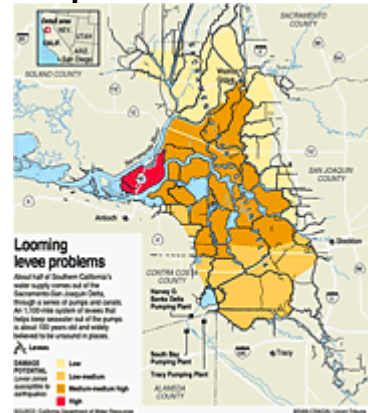
Despite more than 20 years of warnings about the levees, there's no overarching plan to preserve the water supply, protect rapidly disappearing fish species and address issues ranging from farming to transportation. In fact, the berms' weaknesses still are being cataloged and flood-plain maps remain outdated.

What has become clear, however, is that several hundred miles of the berms don't meet federal safety standards.

“This is a dynamic landscape that is changing at a pace that exceeds the ability of our policy and law to adjust,” said Jeffrey Mount, director of the Center for Integrated Watershed Science and Management at University of California Davis.

The delta's plight was dramatized New Year's Eve, when a storm dropped 3½ inches of rain in less than a day. On the Sacramento River, heavy winds drove 8-foot

Graphic:



Looming levee problems



RICH PEDRONCELLI / Associated Press
A boat entered a break in a levee to take depth readings in June 2004 after the berm gave way and flooded Jones Tract Island.

waves that scoured the levees and threatened a road near the hamlet of Clarksburg.

“Every 15 minutes, we were losing another foot of levee,” said Bob Webber, manager of a reclamation district that serves the area.

Emergency crews dumped tons of concrete chunks into the levee's most washed-out section. The barrier held, but Webber doesn't sound confident about the future.

“All of our fixes are Band-Aids,” he said. “It's triage.”

In June 2004, a 12,000-acre island called Jones Tract flooded when a levee gave way despite the delta's low summer flows. Fixing the damage cost nearly \$100 million.

These days, many water officials point to the Jones Tract flood as a precursor of what's to come unless federal, state and local agencies can draw up a blueprint for the future.

That's tricky business, partly because the levees mainly are owned and maintained by farmers on the islands. While this made sense when the delta was developed for agriculture, now it doesn't account for the entire state's dependence on the levee system.



HOWARD LIPIN / Union-Tribune
Fierce winds during a Dec. 31 storm caused 8-foot waves on the Sacramento River that scoured levees and threatened to flood an area near Clarksburg.

Money challenges and environmental concerns also have created major barriers. In addition, a multiagency coalition formed in the 1990s to address the interlocking issues has been widely criticized as lacking leadership.

“Instead of decisions, we now see endless process,” former Gov. Pete Wilson said at an August hearing on the coalition, known as the CALFED Bay-Delta Program. Wilson was among many who testified during a Little Hoover Commission assessment of delta governance.

Multiple threats

The shimmering strands of water that carve up the delta slow travel and development south of the Interstate 80 corridor between Sacramento and the San

Francisco Bay Area. About 40 percent of the state's land area drains into these serpentine waterways, where the Pacific Ocean mixes with Sierra snow melt. The channels also act as a giant plumbing system for California by diverting Sacramento River water to a forebay for the state pumps near Tracy.

The waters flow past Sacramento and dozens of islands to the south. These islands are protected by the mounded dirt berms that have helped turn the ancient marsh into farmable land.

Hundreds of thousands of acres in the delta are covered with wine grapes, alfalfa and other crops that thrive in the rich black soils. New subdivisions also are squeezing into the flood plain.

Two-lane roads link small towns and the many marinas that cater to vacationers when the winter fog leaves. Outsiders come in search of bass, bluegill, crawdads and catfish.

If visitors rest long enough at Mel's Mocha and Ice Cream in Walnut Grove, they may notice something unusual: Mel's well-worn wood floor slopes gently away from the river.

The back of the shop rests on the flatland, which is sinking faster than the levee that supports the front door. Geologists call the phenomenon “subsidence” and say it's a central factor in the levees' instability.

At UC Davis, Mount calculated that 2.5 billion cubic meters of delta soil have been lost during the past century because of sinking, erosion and oxidation.

Combined with rising sea levels, Mount said, subsidence is increasing the amount of water pressure on the levees, most of which rest on squishy peat soils.



CRAIG SANDERS / The Stockton Record

“There is no structural integrity,” said Michael Miller, the state's official delta tour guide.

For example, one spot of Andrus Island – part of the delta's island network – sits about 20 feet below the water line in the adjacent slough. Miller shows the disparity to his guests, then pulls a map from the back of his Jeep.

“You are standing on an earthquake fault zone,” he said, pointing to a bright line on the map. “This one runs right through the heart of the delta.”

At least four other faults are close enough to the delta to cause major damage, but the last big quakes in the area hit before the modern levee system was erected.

In a scenario dubbed the “Big Gulp,” several deeply sunken islands would flood and levees would fail at the same time, sucking billions of gallons of seawater into the delta. The water would be too salty to drink, forcing a shutdown of the state's water pumps.

There's a 2-in-3 chance of a catastrophic delta flood or earthquake by 2050, Mount estimated. Partly based on Mount's analyses, the state's water resources director, Lester Snow, delivered a speech in San Diego late last year titled “How a Delta Earthquake Could Devastate California's Economy.”

Snow's presentation showed 16 flooded islands, submerged highways, oil pipeline ruptures, thousands of inundated homes, and water deliveries slashed for more than a year.

Angling for momentum

The delta supplies about one-third of San Diego County's water; most of the rest comes from the Colorado River.

As part of its emergency response plan, the San Diego County Water Authority is increasing its water storage capacity and connecting two reservoirs to allow better distribution of water countywide.

Bob Webber is the manager of Water Reclamation District 999 in Clarksburg, one of about 1,000 districts that guard the levees in the Sacramento-San Joaquin Delta.



CRAIG SANDERS / The Stockton Record
Water poured through this 300-foot break in the Bacon Island Road levee during the Jones Tract flood in June 2004. Flood repairs cost nearly \$100 million.

By about 2012, the agency's upgrades are expected to allow county residents to receive 75 percent of normal water supply for up to six months in case of emergencies such as levee failure.

But if deliveries from the delta stopped sooner, it's anybody's guess how long San Diego could hold out.

“We are prepared to a degree, but something of that magnitude – that would be a catastrophic failure of the system that is not a typical planning scenario,” said water authority official Ken Weinberg.

Not to worry, said Debra Man, interim CEO of the Metropolitan Water District, the main water supplier for Southern California.

Avoiding a levee catastrophe is a top priority for the agency. But she said it has enough groundwater and reservoir storage to make up for shortages in San Diego County and elsewhere even if state water pumps are idled for two years.

From the air, it's still possible to see the faint remnants of a decades-old idea for improving Southern California's link to the delta. The concept was to bypass the levee system and all of its complications by building a canal east of the delta to transport water. It was overwhelmingly defeated by voters in 1982.

But before the “peripheral canal” proposal was spiked, pits along the projected path were excavated to help build Interstate 5. A few of the long and narrow trenches remain. To the trained eye, they make a dot-to-dot from Sacramento to Tracy.

People in the water industry still talk about such a canal, but it's unlikely to gain political traction anytime soon. One main reason is that it's easily cast as a Los Angeles water grab.

Plenty of other concepts are being floated to improve the delta's future.

“We have the best chance now that we have ever had to make some substantial changes and improvements in the delta,” said Snow at the state water agency.

Ideas include removing non-critical levees and allowing certain islands to flood. Other islands might be connected to reduce the number of levees. Improving maintenance programs also has gotten lots of support. So has bulking up key dikes and adding habitat for birds and fish at the edge of the islands.

The Army Corps of Engineers, backed by congressional funding, is completing a report about immediate repair needs. Already, the state is pushing a plumbing plan that could increase the delta's capacity to export water. Predictably, it is backed by water purveyors and opposed by conservationists.

But even environmentalists generally support increased spending on levee improvements because a catastrophic failure would upset the ecosystem as well as the economy.

“This is how the delta works now,” said Carrie McNeil, Stockton-based director of the Deltakeeper, a program of the Baykeeper watchdog group. “What we care about is that it's done in an environmentally sensitive manner.”

While interest groups scrutinize the governor's bond proposals, a split has developed in Sacramento. Republicans are demanding environmental concessions and many Democrats refuse to yield on that issue. A two-thirds vote and the governor's signature are required to send the bond package to voters, which could happen during the June election.

A separate initiative that includes levee repair money sponsored by environmentalists and water interests was cleared to start collecting signatures last month.

Though it remains unclear what will emerge, lawmakers say chances are good for some sort of flood-management bond, given post-Katrina fears.

■Michael Gardner of Copley News Service contributed to this report.

Sacramento-San Joaquin Delta

History: The delta, an ancient tidal marsh, was largely “reclaimed” by levee development starting in the 1860s.

Species: The delta has more than 750 types of plants and animals,

including fish that have declined rapidly in recent years.

Functions: The delta is used as a water supply and for flood control, sewage discharge, shipping, fishing and boating.

Water supply: About 40 percent of the state's land area drains into the delta, which provides up to half of Southern California's drinking water and irrigation water for about 4 million acres of farms in the Central Valley.

Levees: Some 1,100 miles of levees protect hundreds of thousands of acres of farmland and water pumps for the state. The levees need up to \$5 billion in upgrades.

SOURCE: *California Department of Water Resources*