

Sacramento-San Joaquin Delta's ecological decline is breathing new life into bypass proposals

A plan for a huge tunnel is the leading contender as the state looks for a way to save the delta at the same time it slakes thirsts in Southern California.

Bettina Boxall, Los Angeles Times, 11-25-10

A drilling rig bit into the bed of California's biggest river, hauling up sage-green tubes of clay and sand the consistency of uncooked fudge.

The rig workers rolled the muck into strips, dried it in sugar-sized cubes and crushed them under their palms. They packed slices into carefully labeled canning jars for testing at an engineering lab.

They were taking the river bottom samples for a \$13-billion project that would shunt water around — or under — the Sacramento-San Joaquin Delta to the big aqueducts that ferry supplies south.

Nearly three decades after a proposed delta bypass was killed by voters in a divisive initiative battle, the idea is back in vogue.

Pumping water from the delta's southern edge has helped shove the West Coast's largest estuary into ecological free fall, devastating its native fish populations and triggering endangered species protections that have tightened the spigot to San Joaquin Valley farms and Southern California cities.

The mounting delta problems, along with the potential threats of a rise in sea level and a major earthquake, have turned the attention of state and federal agencies to an "alternative conveyance": either a canal or, more likely, a 40-mile water tunnel system that would be the nation's longest, some 150 feet beneath the delta.

But the plans, still in draft stage, follow years of failed attempts to stem the delta's collapse while quenching California's thirst — leaving open the question of whether it is possible to do both.

The urban and agricultural water districts that would pick up the tab for the bypass hope to restore or increase their water deliveries. But already, the giant Westlands Water District, a volatile player in California water politics, has lost confidence that will happen. It angrily announced this week that it was pulling out of the planning process.

Environmentalists and delta advocates warn that if the new project ramps up water exports, it will accelerate the delta's decline, further imperiling the delta smelt, hurting water quality and threatening migrating salmon.

"I am uncertain about how this will work out," said UC Davis geology professor Jeffrey Mount, who has repeatedly warned of the delta's vulnerability to a destructive earthquake. "The only certainty I have is that if it doesn't work out, we will all get worse together."

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Matt Nobriga, a U.S. Fish & Wildlife biologist, peers over the edge of a boat in the central delta. The water is clear. A bright green forest of aquatic plants waves slowly in the current. "If you want to go bass fishing," he said, "this is the spot."

It is a scene befitting a fresh-water lake. And it is all wrong for the tidal estuary, a snapshot of how profoundly 150 years of human intervention has upended nearly everything about the place. The delta's look, seasonal rhythms, fish and wildlife all bear little resemblance to the "swampland" roamed by elk and grizzlies that Gold Rush settlers were eager to drain and turn into farms to feed booming San Francisco.

A tranquil maze of farm islands, duck hunting clubs and winding channels, the delta retains a seductive 19th century pastoralism. Narrow levee roads connect 100-year-old towns with a few hundred residents. Great blue herons flap in slow motion toward the horizon. Orchestras of blackbirds play in the breeze-rustled reeds. Fishermen drift down sloughs, oblivious to all but a tug on their lines.

The idyllic image is deceiving. From an ecological standpoint, the delta is more artificial than natural. Armies of invasive plants and aquatic life, such as largemouth bass and the Brazilian waterweed that Nobriga pointed out, have taken over. Natives like the once-abundant Chinook salmon and delta smelt are on the endangered species list or headed there.

The delta's fragile peat soils have vanished in the wind during more than a century of farming, leaving behind a network of sunken islands that have turned much of the delta into California's Holland. More than 1,000 miles of weak earthen levees, some built in the mid-1800s by laborers with wheelbarrows, imprison the web of water channels that used to wander and flood freely, providing a rich fish nursery and pantry.

The list of players in the delta's ecological slide is long and varied. But the two giant pumping plants northwest of Tracy, one operated by the U.S. Bureau of Reclamation, the other by the state Department of Water Resources, are the most conspicuous villains.

Their combined energy of 468,000 horsepower surpasses that of 100 diesel locomotives — enough to reverse the flow of southern delta channels, pull fish to their deaths and sabotage the natural ebb and flow of brackish and fresh water that shaped the delta's tidal ecology.

The current system "does not allow the delta to be itself or rebuild itself," said William Stelle, regional administrator for the National Marine Fisheries Service, which oversees salmon protections. To Stelle, taking water from the Sacramento River as it enters the delta farther north and transporting it to the southbound aqueducts "is a no-brainer."

But how to do that? And how much water?

Discussion initially focused on a canal routed along the delta's western or eastern edge, as was planned in the '80s. But the proposed aqueduct's enormous footprint — as wide as 11 Santa Monica freeways — has shifted the focus to a tunnel that would require less land and avoid protracted legal fights with delta property owners who won't even let state survey crews on their farms to take soil samples.

State engineers also say a deep tunnel would be less susceptible to earthquake damage than a canal, which would be subject to amplified surface movement.

Planners are considering five intakes and six pumping stations that would suck water from the Sacramento River near Hood and send it into concrete tunnels. For most of its length, the system would consist of two side-by-side tunnels with 33-foot diameters — taller than a two-story building and big enough to carry 15,000 cubic feet of water per second. Supplies would still be pumped from the south delta, but to a lesser degree.

Proponents argue that large-capacity tunnels would give the state's plumbing system greater flexibility, allowing water managers to take a "big gulp" during high river flows and send supplies into storage for dry times. If an earthquake completely shut down south delta pumping, it would also sustain exports.

The agricultural and urban water contractors that would finance the facility hope that rearranging the diversion points, along with an ambitious program of habitat improvement, will allow them to recoup water they have lost to increasingly severe fish protections.

"If it makes conditions better, then there should be more water presumably available than we have today," said Jeffrey Kightlinger, general manager of the Metropolitan Water District of Southern California. While frustrated with the pace of the planning effort, he said his agency is not ready to follow in Westlands' footsteps and jump ship.

But environmentalists and delta agencies are blanching at a tunnel capacity that exceeds the river's average summer flows. And they worry that the project's potential operating rules could rob the delta of even more water and leave districts that draw from the south delta with saltier supplies.

"You turn the south and central delta effectively into a cesspool at times," said Greg Gartrell, assistant general manager of the Contra Costa Water District, which serves 550,000 Bay Area residents.

Federal biologists have also warned that if the project increases exports and diminishes the delta's fresh-water flow into San Francisco Bay, the low salinity zones favored by smelt will shift, drawing the fish into poor habitat and increasing their risk of extinction.

Taking water from the Sacramento River could also hurt migrating salmon, especially juveniles swimming to the sea. If the new intakes are not properly designed, they could create pools of slow water where predators could lurk or flows that would smash confused young salmon against the fish screens.

"There are hundreds of design parameters that will go into this thing to work right. If you think this is just an off-the-shelf technology, you're dreaming," Stelle said.

Mark Wilson is one of the farmers who refused to let state survey crews on the 1,600 acres of wine grapes, alfalfa and wheat his family grows near Clarksburg.

"It's kind of a protest to the way the process is going," said Wilson, who, like many delta residents, complains that the project is being rammed down his throat. "If we can slow the process down, maybe they'll be more reasonable."

The Wilsons have farmed the delta since his grandparents arrived on a horse-drawn wagon in 1922. Some of his neighbors trace their families' local roots to the Gold Rush. They live on relatively high ground in the north delta, which hasn't lost as much natural habitat as the south delta. So they don't buy into the "delta is a disaster" narrative.

"If the canal came though, it would wipe out from here to the deep-water ship channel," Wilson says, gesturing across more than a quarter mile of his petite syrah vines as he drives a pickup truck down a rutted dirt track. The lover of Mexican food has stuck a bottle of hot sauce in the cup holder for his meals on the go.

If the tunnel is built, he worries that he could lose land to the extensive habitat restoration that would be part of the project. "They're not going to put habitat in the cities," he says. "It's going to be in the ag lands."

For all his qualms, Wilson says he understands the water contractors' desire for a system that would give them some relief from the constraints on south-delta pumping. But big tunnels would be too much of a temptation.

"I don't trust 'em." Wilson says. "I'm concerned they're going to buy and adjudicate more water rights" and have a "big gulp year 'round."