

Particulate Matters: Settling the Dust on the Owens Dry Lakebed | Emily Green



On January 28, 2013 the Owens Lake Master Plan Committee gathered in the Tallman Pavilion at the Bishop fairgrounds in Inyo County, California. Its roughly three-dozen members—representatives from a smattering of agencies, environmental non-profits, tribes, and local activist groups—were there to see schematic renderings of habitat restoration proposals for the Owens Dry Lakebed. They'd spent the last two years sweating the details of how strategically managed wetlands, boardwalks, and other amenities might be incorporated into more than 40 square miles of dust control work being done by the Los Angeles Department of Water and Power. Three of the most respected landscape architecture firms in Southern California had been brought in to consult on the plans.

However, walking in hopeful was no guarantee of walking out that way. Martin Adams, the LADWP's Director of Water Operations, had an announcement from his board of commissioners. The Master Plan Committee was to understand that there would be some *quid pro quo* involved in the habitat value integration. Enumerated in an accompanying memo, soon known as the "must have list," were the following:

- At least half of the estimated 92,000 to 95,000 acre-feet of fresh Owens River water currently being used for dust suppression on the dry lake must be returned to the aqueduct for export to Los Angeles. In increasingly dry times, the water going to dust suppression was more than a third of the aqueduct supply, which Los Angeles had to make up with water pumped from the stressed Sacramento-San Joaquin River Delta in Northern California.
- Los Angeles must be allowed to extract brackish groundwater from beneath the Owens Dry Lakebed to augment freshwater used for dust suppression. Adams estimated that the aquifer beneath Owens dry lake could sustain annual pumping of 10,000 to 15,000 acre-feet annually, or enough to cover 10,000 to 15,000 acres under a foot of water. Inyo County is warily considering allowing 7,000 acre-feet to be pumped.
- Local and state authorities must approve "waterless" dust control methods such as tilling the ground and chemical stabilizers to replace shallow flooding.
- Los Angeles must be given sole control of the lakebed instead of having to seek leases and permissions from its owner, the California State Lands Commission.
- After Los Angeles finishes treating 45-square-miles of the lakebed for dust, its obligation must be capped. Whatever else might blow off the 110-square-mile lakebed would be someone else's problem.
- The Master Plan's habitat elements must be restricted to areas currently being treated.
- LA must be allowed to violate air pollution regulations without facing fines when transitioning from wet to dry dust control methods. Construction is dusty.

Sign up for ARID

SUBSCRIBE

News & Events

A dedication to Mary Alm, PhD (1969-2013) from her husband and ARID co-author, Barry Lehman

ARID's Fall 2013 focuses on the Centenary of the Los Angeles Aqueduct: Call for submissions

Tyler Stallings' Aridtopia article in partnership with KCET Artbound

Our Partners

Arid Lands Institute

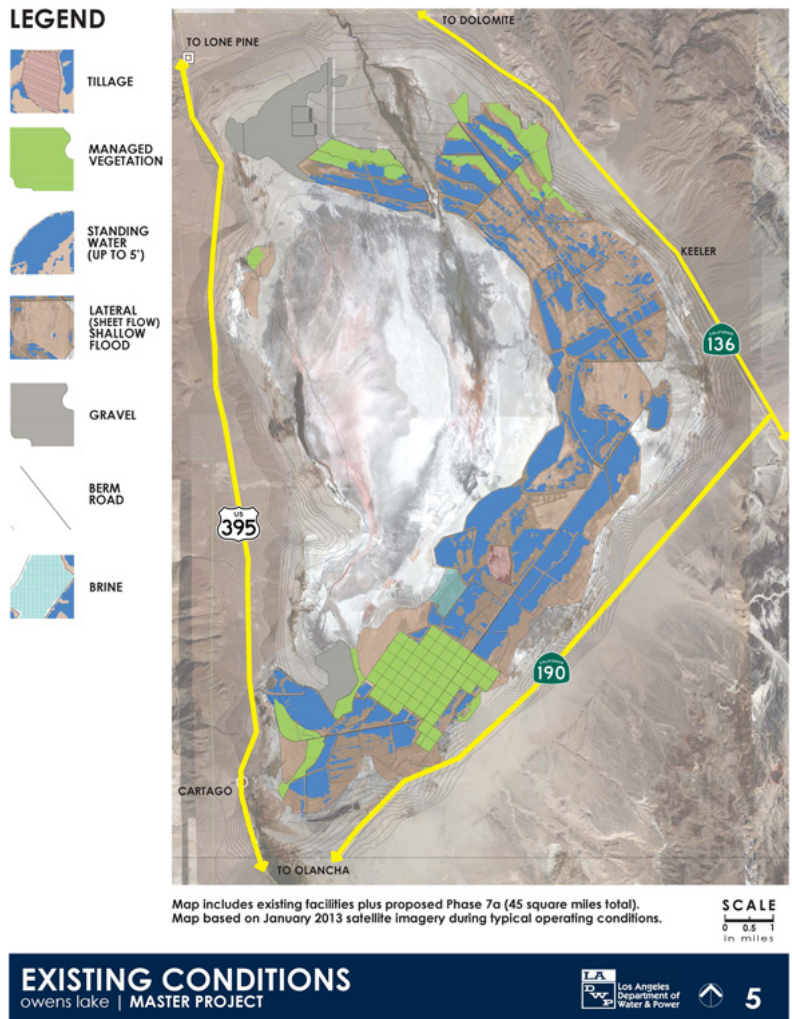
Center for Art + Environment

KCET Artbound

Land Arts of the American West

The Desert Initiative

UNM Art & Ecology



None of the points were new. All had come up in meetings and formal comments of a draft plan in the previous year. However, in planning committees, there are no “must haves” only “would likes.” Moreover, no one in the room had the power to oblige the demands of Los Angeles.

What the list did do was segregate a member of the Master Plan committee, a local air quality regulator named Ted Schade, and identified him as the biggest obstacle between the group and what it wanted.

In 23 years with the Great Basin Unified Air Pollution Control District, the 56-year-old (56 in September) civil engineer has forced the LADWP into an estimated \$1.2 billion worth of dust suppression work. His office’s recent issuance of yet more mitigation orders for Los Angeles is likely, by Adams’ estimate, to drive that number up to \$1.6 billion. Schade is so resented by Los Angeles that Adams and others name Schade personally when telling consumers that 15% of what they pay in their water bill is diverted by a “runaway regulator.” In October 2012, in a law suit filed in federal court, the LADWP expressly demanded that the Great Basin’s air pollution control officer covering Owens Valley be taken off any business involving the city.

And so, this, the centenary year of the Los Angeles Aqueduct, began with the LADWP making its underwriting of artful treatment of the Owens Dry Lakebed contingent on it being let off the hook for further dust control work.

+++



For the first 50 years that it diverted Owens River water to Los Angeles, the LADWP denied that dust was a problem on the river's former lakebed. In 1976 scientists at China Lake Naval Weapons Center in Ridgecrest, California, photographed clouds carrying an estimated 40,000 metric tons of fine alkali grit billowing out of the Sierra into the neighboring Mojave Desert foothills of Kern County, the LADWP claimed that Inyo County had some of the best air in the country and that, "there has been no substantiation of adverse health effects of alkali dust." In 1987 the U.S. Environmental Protection Agency deemed the severity of the fine-grain pollution issuing from Owens dry lake as the worst in the country, outside of forest fire smoke, as often as 24 days a year. LADWP was on record that the land impacted by its water exports was "such a small area we think it is insignificant.

Los Angeles only accepted the problem and responsibility for its part in it after 1997, when then Los Angeles Mayor Richard Riordan appointed the no-nonsense Tennessean S. David Freeman as general manager of LADWP. By the following year, under the former head of the Tennessee Valley Authority, Los Angeles began working in earnest on an Owens Valley dust control plan for submission to the regional, state, and federal air quality regulators.

As mitigation terms were hammered out, Schade's office faced a fundamental question. Just how much of the lakebed showed because of LA's pumping? How much ground should its dust suppression work cover? To find the answer, in 1997, the Great Basin Unified Air Pollution Control District hired a hydrologist from the Desert Research Institute in Reno, NV. "We asked him to create a model of what Owens Lake would look like if DWP never came," Schade says. "Luckily, the DWP keeps really good records, so the Desert Research Institute created a mathematical model using rainfall data, temperature data, diversion data and it concluded that the lake would have been at about 3,600 feet above sea level. So we said, 'Everything below that is DWP's responsibility. That is the regulatory shoreline'."

Not all, or even most, of the 110 square miles within the regulatory shoreline would need treating. A roughly 30-square-mile brine pool in the northeastern quadrant of the original terminal, saline lake had turned into a wind-resistant gel without any help. But the eastern border of the lakebed was volatile ground. According to retired UC Davis physicist Thomas Cahill, part of the problem was that the Lone Pine earthquake of 1872 had tilted the floor of Owens Valley. "The entire lake was tipped down in the west 30 feet," explains Cahill, "The result was an area about one mile wide on the eastern shore that was exposed to the wind."

And the winds in Owens Valley, says Cahill, are notorious. "The natural situation is extraordinarily bad," he says. "Owens Lake lies in an enormous, deep valley, which funnels the wind across the lakebed, where you can have a wind of 70 miles per hour at chest height and zero at your feet. It tends to take sand and move it, abrading the crust that's there. Look at old wood phone poles, and you can see the bottom has been chewed away."

More than a dozen suppression methods were considered in the lead-up to the first mitigation projects, including covering the lakebed in used automobile tires, but only three were eventually approved for widespread use: gravel cover, plants, and shallow flooding. Gravel, at \$33 million per square mile to install, was deemed prohibitively expensive. Plant cover, most of which had to be salt grass, cost \$15 million per square mile to install, then it needed irrigating. By far the cheapest immediate fix for a water company was to install bubblers to provide shallow flooding. LADWP estimates that the up-front cost of this was more like \$12.9 million per square mile.

Observers such as Schade expected LA to opt for the once-over-and-it's-all-over approach. "The old lake was a lifeless place," he says. "We assumed that the DWP would focus on gravel." But, as work steadily

progressed, of the roughly 40 square miles now treated, 36.25 square-miles were treated with shallow flooding.

+++



It was 2006 when Mike Prather of Eastern Sierra Audubon began seeing and getting reports of a renaissance on the old lakebed. “We had people who for years had been birding remnant wetlands around the shores,” he says. “We had seen a lot of bird use on [a] postage stamp-sized habitat back then. So we knew that once this project was coming about, that if water was going to be spread out there, there were going to be a lot of birds. That’s what came to pass.”

Prather began leading tours. There were snowy plovers, teal, wigeons, egrets, stilts, sandpipers, gadwall, mallards, geese and more. Stilt-legged elk appeared prancing through rippling new shallows. Worried that the oasis might dry up if the LADWP switched to “waterless” dust control methods, Prather and Andrea Jones, director of the California Important Bird Area program, approached wildlife agencies, Inyo County, and the LADWP to see if there wasn’t some way that areas treated with shallow flooding might also be managed as official bird habitats. They also wanted to work with LADWP on a sensitive way that it could drawdown aqueduct export water used for shallow flooding while not vampirizing valuable new habitats that had been created on the lakebed.

“We started a Conservation Action Plan,” recalls Jones. “We worked for a couple of years, but we never really had the buy-in of LADWP. Then, in 2009, one of the general managers, David Freeman, saw there was a real benefit to the CAP progress. We’d managed to bring all the parties together. He said, ‘Let’s take this process and formalize it.’ They had a facilitator; they had every stakeholder, the agencies, the miners, and the grazers. So that’s the process we’ve been in for the last couple of years writing the Master Plan.”

Freeman, who had brokered the dust deal back in the 1990s for then Mayor Richard Riordan, had in 2009 been dragooned back to his old job by then-embattled Mayor Antonio Villaraigosa. Less than a year later, after being caught in the crossfire between Mayor Villaraigosa’s office and city council over rate increases needed to cover the cost of renewable energy, conservation, and solar programs, Freeman left the LADWP.

+++

Almost 200 sensors have been placed across the Owens dry lakebed to monitor the frequency, severity, and density of autumn dust storms. As Schade got steadily better at monitoring, and the most emissive parts of the lakebed were pinpointed, Los Angeles was sent remediation notices and the LADWP treated the areas, mainly with shallow flooding by freshwater from the Owens River. Dust storms that used to push fine-grained air pollution particles more than 100 times the federal standard, dropped to levels closer to 10 times the federal standard.

As the mitigation notices kept coming, however, the LADWP began to cry foul. "The first plan in 1998 had about 16.5 miles plus some wiggle room for dust controls," says Adams. "In 2003, a new plan had 29 square miles. The 2008 plan had 43 square miles!" According to Adams, the amount of water now diverted from the aqueduct to dust control in Owens Valley is 95,000 acre-feet, or enough to cover those many acres in a foot deep of water, or, as the LADWP describes it, roughly what residents of San Francisco use in a year.

This would be a lot of water even in good times, and these are not good times. Southern California's imports from the Sacramento-San Joaquin Bay Delta are shrinking while the cost of the water is rising and, over on the Colorado River, member states are preparing for drought-caused shortage declarations.

+++



As Seattle energy executive Ron Nichols assumed general manager-ship of LADWP in early 2011, the bill for Owens Valley dust control had exceeded a billion dollars and the choice of shallow flooding had resulted in a third of LA's fresh water supply being diverted from the aqueduct system for Los Angeles to the dust suppression bubblers out on the lakebed. When a new dust abatement notice for 2.93 additional square miles arrived that summer, Nichols called in the lawyers in what has proved a sustained assault on the 1998 dust deal. Schade and Great Basin also went to the courthouse, filing suit against LA for non-compliance on an outstanding order. By October 2012, over in federal court, LADWP was suing Schade's department, naming him personally as a capricious and rogue regulator, and also naming the California Air Resources Board, the US Environmental Protection Agency, the California State Lands Commission, and the federal Bureau of Land Management as colluders. As the *Los Angeles Times* covered the suit, Nichol's predecessor at LADWP, David Freeman, asked reporter Louis Sahagun, "Ever heard of a polluter who didn't claim a regulator was biased?"

The recurring theme of the lawsuits is that Schade mis-drew the regulatory shoreline at an all-time-high elevation. Adams argues that it should be re-set at the elevation measured in 1905, the year William Mulholland returned to LA with Owens Valley leases and also the year that the lake was at a near record low after a decade-long drought. The switch to a 1905 contour would mean that not only would Los Angeles be off the hook for more work, but it would have also controlled 25 square miles of playa outside of the adjusted regulatory shoreline.

+++

Last April, Adams was back in front of the now somewhat diminished Owens Lake Master Plan committee. He'd come to show an impressive set of new drawings by the Orange County landscape architecture firm Nuvis. Working with Nuvis (one of three firms that had been collaborating with the Master Plan committee), LADWP took the habitat and viewshed elements of the Master Plan and combined those ideas with its "must have" list. This new hybrid, Adams told the group, was now called "The Owens Valley Master Project."

According to Adams, the reception was warm. "We got some very good reactions," he says. "Most people

said, 'It's like the Master Plan.' We said, 'Exactly.' It has some decisions, but those decisions weren't going to be made by the planning committee."

Those decisions include widespread use of an as yet un-validated waterless dust control method called "tillage," which will have to be approved by regulators including Schade before the meandering furrows shown in the Nuvis schematics could be plowed into the lakebed. "We're hoping that tillage, basically like farm tillage, will be approved," says Adams. "It costs about 10% of what it costs to do flooding. It's a huge savings for rate payers."

Adams has support from Schade on this. "We're working with the city on the tillage project," says the Great Basin's control officer. "We know it's possible, big clay clods that bake in the sun are non-emissive. We're trying to see how long the clods stay whole."

When three square miles of dust suppression construction is finished in 2015, LA will have treated 45 square miles, after which it insists, categorically, that it will be done. Hang the regulatory shoreline.

Adams loses Schade here. "That's completely untenable," says Schade.

The California State Lands Commission and Great Basin Unified Air Pollution Control District are checking where they are in lawsuits brought against them by the LADWP before commenting on the Master Project proposals. Los Angeles has told State Lands that it wants to be the lead agency, not the lakebed owner State Lands as originally planned, if the Master Project goes forward.

The California Department of Fish and Wildlife is also in wait-and-see mode. The Owens Valley Committee and Lone Pine Paiute-Shoshone Reservation withdrew over many issues. For the reservation, says air quality coordinator April Zrelak, the biggest issue was the insistence on pumping local groundwater. For the Lone Pine Paiute-Shoshone, any impact on local seeps and springs would be unacceptable.

Audubon is staying with the new project. "It's incredibly important," says Andrea Jones of California Audubon. "We know that a lot of water birds migrate through saline lakes—the Salton Sea, Owens Lake, Mono Lake, the Great Salt Lake. A lot of those habitats are in danger. The Salton Sea is drying up." If Audubon does not like the project description as California Environmental Quality Act (CEQA) documents are drawn up for review, it will comment then, she says. "In the mean time, we're staying at the table trying to make the project better."

The federal case brought by LADWP against Great Basin, the string of other air regulators, LADWP's landlord State Lands, and the landlord's neighbor the Bureau of Land Management, was dismissed last May, the same month Adams unveiled the Master Project to the Master Plan committee. "It was a long shot," Adams said of the lawsuit. "We haven't lost anything substantive." LADWP lawyers are currently preparing another suit challenging another order from Schade, he says.

In October, a month before the centenary celebrations, Los Angeles will be facing Great Basin in court to have non-compliance fines decided.

LADWP has succeeded in getting the thickness requirement for gravel cover halved, a potentially huge savings for its most costly waterless dust control technique, and the use of salt water for shallow flooding approved, a development only meaningful if the department is successful in its bid to pump the lakebed's brackish groundwater. Unflappable, the DWP is also proceeding with turning the Master Project schematics into a full-fledged project proposal for environmental review under CEQA as if the regulatory shoreline of Owens Lake has been lowered and LA's liability has been capped to 45 square miles. It's also taking it as accepted by Master Plan stakeholders and regulators that the unvalidated waterless dust control methods used in the schematic will be approved; that waivers to create dust without fines during changeover from shallow flooding will be given; that they will be allowed to pump Inyo County groundwater from beneath the lake to use for dust suppression; and that they no longer must abide by the original deal brokered under S. David Freeman in the 1990s with the federal Environmental Protection Agency, the California Air Resources Board, and the Great Basin Air Pollution Control District.

The Master Project should be through environmental review by 2015, says Adams. "We want to rush this thing," he says. "We want to get this done."

Emily Green is a journalist who has written frequently for major publications including the Independent (UK), New York Times, Los Angeles Times, Las Vegas Sun, and High Country News. In 2009 her work was recognized by the Associated Press Managing Editors Award and Best of the West Environment and Natural Resources Reporting Award for "Quenching Las Vegas's Thirst: A five-part series on plans by Las Vegas to tap the Great Basin Aquifer."

Like

79 people like this. [Sign Up](#) to see what your friends like.

Add a Comment

You must be logged in to post a comment.