Mono Lake Facing Another Crisis

Drought is taking its toll on Mono Lake, which is hovering close to a level that endangers its vital bird habitat. Low lake levels also affect air quality and water diversions to Los Angeles.

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Mono Lake tufa towers are seen near Lee Vining, Calif. The ancient towers, composed of calcium carbonate, were formed underwater when fresh water springs mixed with minerals in the lake water. They have become visible over the past 60 years as the lake water receded due to water diversion to Los Angeles. (Ben Margot, Associated Press)

MONO LAKE IS FACING A CRISIS – again. Four consecutive drought years and a disappointing El Niño winter have reduced the lake, on the east side of California's Sierra Nevada, to levels that threaten thousands of nesting birds and its fragile ecological balance.

Measurements taken in early April put Mono Lake at 6,378.11ft (1,944m) above sea level. That's a mere 13in (33cm) above the elevation scientists consider "ecologically precipitous" – when salinity escalates dangerously and the habitat declines in the deltas where feeder streams empty into the lake. Below 6,377ft, land bridges begin to emerge from the mainland to

the islands, exposing the world's second largest rookery of California gulls to predators.

"We were hoping for that wet El Niño winter to drop the moisture and stoke the snow up here. It didn't happen," said Geoff McQuilkin, executive director of the Mono Lake Committee, an organization dedicated to preserving Mono Lake.

Along with threats to wildlife, lower lake levels will expose more and more of the shoreline, increasing dust storms and reducing air quality. And they will almost certainly curtail water exports to Los Angeles 350 miles (560km) to the south.

It is these exports from Mono Lake to the burgeoning southern California city that set in motion the problems now besieging the lake. Located in a basin of haunting horizons and spare, sweeping vistas, Mono Lake is an ancient landlocked sea, one of the oldest in North America. Tufa towers looming on its shoreline add to the eerie surrealism of the basin that serves as the eastern gateway to Yosemite National Park.

The Los Angeles Department of Water and Power (DWP) acquired water rights to the lake's major streams, and in 1941 began diverting four of

them south to the sprawling metropolis. The 6,417ft (1,956m) level dropped quickly. By 1974 Los Angeles was funneling four-fifths of Mono's natural flow into an aqueduct that carried water through Owens Valley, where a similar export scheme had all but dried up Owens Lake by 1913. In 1982 Mono Lake was reduced to an elevation of 6,372ft (1,942m), the lowest ever recorded.

Salinity increased and air quality decreased as winds stirred up dust from the newly exposed lakeshore. But it was the plight of Mono Lake's birds that drew the most public outrage. David Gaines, a self-described bird freak, became alarmed in 1974 by the ecological changes caused by the reduced flow of water into the lake. In 1978 he and a handful of fellow graduate students formed the Mono Lake Committee. "Save Mono Lake" bumper stickers began appearing on cars throughout the West.

It took more than a decade of court battles and public hearings, but in 1994 the State Water Resources Control Board limited the amount of water Los Angeles could withdraw. The order it issued restricts exports to Los Angeles to 16,000 acre-feet (over 19 million cubic meters) a year until the lake level reaches 6,392ft (1,948m) in elevation.

With water from its feeder streams now flowing into the lake, levels rose steadily, peaking in 2007 at 6,384.8ft (1,946m). “We thought we were on a sure path toward achieving the Water Board goal,” said Phillip L. Kiddoo, the air pollution control officer of the Great Basin Unified Air Pollution Control District.

Instead, water levels began dropping in 2008 as precipitation declined, resulting in a downhill slide that hit its lowest in 2015. “We’re almost back to where we started,” Kiddoo said.

The most pressing wildlife issue is the threat posed by lowered lake levels to the islands where birds nest, protected from coyotes and other predators on the mainland. Last year came close to exposing a path along a volcanic flow from the lake’s northwest shoreline to Negit Island, where as many as 50,000 California gulls nest each year.

Mono Lake is seen from the air. Drought could expose land bridges to the lake's islands, putting nesting bird populations at risk of predators. (Jerry Raia, Flickr)

"Coyotes and gulls are not a good mix," said McQuilkin.

To avoid that combination, he and other Mono Lake officials are discussing ways to keep coyotes from discovering the food source on Negit. One possibility is erecting a temporary fence on the land bridge to keep the predators clueless.

"Once coyotes realize there are eggs for the taking on Negit, there's little we can do to outsmart them," McQuilkin said.

He is also concerned about the increase in salinity as lake levels drop. It is now nearly

double the concentration it was in 1941, when Los Angeles began exporting water.

Mono Lake's unique combination of algae, brine shrimp and alkali flies make it one of the most productive ecosystems in the world. Along with nesting gulls and snowy plovers, eared grebes join nearly 100 species of birds flocking to the lake by the thousands. Wilson's phalaropes arrive from southern Canada in mid-summer to gorge on brine shrimp before departing in October for South America.

When salinity increases it affects the production of brine shrimp, which in turn affects the birds. "Increment by increment, this ecosystem is taking a hit from the drought," said McQuilkin.

As the lake level has dropped, air quality issues have increased. The amount of lakebed now exposed is 12,700 acres (5,140 hectares) – double what it would be at 6,392ft, the goal of the Water Board plan. Winds sweeping off the Sierra Nevada escarpment stir up the bare soil, whipping it into choking dust clouds. In the past few years annual air-quality issues at Mono have exceeded those at Owens Lake, until recently the single largest source of air pollution in the nation, said Kiddoo.

The best dust control – the method that has worked at Mono for centuries – is snow, he said. But during the four years of California's drought, snowfall has been sparse on both sides of the Sierra Nevada.

On April 1 the snowpack was 84 percent of the average, said McQuilkin. That measurement will help forecast the annual runoff, which will assist in forecasting the lake level through the rest of 2016. Officials should know by mid-May whether Mono Lake will stay above the 6,377ft (1,944m) "ecologically precipitous" elevation.

Los Angeles pays a high price for low lake levels. Since 1941, the Department of Water and Power has diverted 4.28 million acre-feet (over 5,000 million cubic meters) of water from the Mono Basin. After 1994, the annual exports were in 16,000-acre-feet increments – until last year. Then, with the lake level at 6,378ft, the state-ordered plan reduced the city's annual export to 4,500 acre-feet (5.5 million cubic meters).

To make up for these losses, the city has adopted aggressive water conservation measures, increased local supplies of recycled and captured storm water, and boosted its purchases of water from the State Water Project and Colorado River,

said Amanda Parsons, a DWP spokeswoman.

Negotiating the export reduction has been harmonious, said McQuilkin: “DWP has not disputed the decrease. It’s always been part of the plan.” He and DWP officials expect 2016 to be another 4,500-acre-feet export year.

Los Angeles is also responsible for air quality in the basin and will be charged with abating any issues that arise, said Kiddoo.

No one is happy about the drought-induced changes at Mono Lake. Up until 2007 the lake was on target to reach the 6,392ft level, when scientists thought the ecosystem would stabilize. Drought has reversed that path.

“We’re going in the wrong direction,” said McQuilkin. “Now we’re just waiting for water.”

About the Author

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