

PROTECTING THE ENVIRONMENT

# Tule Lake emptied to improve habitat, fight disease

**BY ALEX SCHWARTZ**  
(Klamath Falls) Herald and News  
TULELAKE — Once spanning 100,000 acres at the foot of the Medicine Lake Volcano, it's unlikely that Tule Lake has been as low as it is now for millions of years.

What used to be a massive network of open water and fringe wetlands is now essentially a giant mud puddle, spelling trouble for migratory birds that have used it as a rest stop for thousands of years.

The solution, at least for now? Dry it up.

The U.S. Fish and Wildlife Service, which manages the Tule Lake National Wildlife Refuge and Tulelake Irrigation District, is working with waterfowl conservation organization Ducks Unlimited to move as much as 12,000 acre-feet of water between two large wetland units on the refuge. Biologists and irrigators alike hope the undertaking will give birds a better chance at surviving this summer's historic drought.

After the Bureau of Reclamation drained much of Tule Lake in the early 20th century to make way for Klamath Project farmland, the refuge was essentially divided into four quadrants. Sump 1A, in the northwest, is approximately 9,000 acres of open water and fringe wetlands at the mouth of Lost River.

The southwest and northeast sumps are both made up of agricultural leaselands, where farmers operate in cooperation with refuge goals to provide habitat and food for migratory birds. Sump 1B, in the southeast, comprises a little over 3,000 acres of permanent wetlands, connected to Sump 1A through a large canal known as the "English Channel."

Clearly visible along the road to the north entrance of Lava Beds National Monument, Sump 1A is what most visitors to the area would consider "Tule Lake." For decades

it was mostly open water, with a few marshy areas near where the Lost River enters from the north.

By mid-June in 2021, almost all the water was gone in that area, and the large cracks characteristic of severe drought ran through the dry lakebed.

"In the last thousand years it has never looked like that," said Tulelake farmer John Crawford.

**'Dead marsh'**

Jeff McCreary, director of operations for Ducks Unlimited's western region, said while the open water of Sump 1A may have looked like an avian paradise because of the sheer number of birds there in past years, it did not provide them much by way of habitat or nutrition.

"We call it a dead marsh. It's not productive," McCreary said. "Birds just go there to land and rest."

Sump 1B, conversely, had become veritable wetland Eden after being drawn down last year. Food and habitat for a variety of bird life cycle needs are growing in abundance this summer.

Fish and Wildlife has been trying to achieve similar results for Sump 1A, which has been kept chronically wet even in drought years.

But the project would have been costly, especially considering the fact that most of the Klamath Project's tailwater ends up in the sump and would have to be diverted.

This year, that was the one thing the Tulelake Irrigation District and refuge managers didn't have to worry about, as deep drought and Endangered Species Act considerations combined to create conditions necessary to draw down the massive body of water.

"Sump 1A has never had that luxury until this year," McCreary said. "Unfortunately, it's taking a zero allocation out of



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the Project to get to this point."

The hope is that removing the water from Sump 1A will bring new life to that cracked earth. Despite wetlands' name, McCreary said they actually need some dry years to remain healthy. Plants like smartweed and goosefoot, some of ducks' favorite foods, don't germinate when they're consistently inundated with silty water, as they have been in Sump 1A.

Brad Kirby, manager of Tulelake Irrigation District, said he expects the barren landscape to look very different in a month or so.

"It'll look like a meadow," he said.

But the germination of wetland plants is only a secondary goal of the drawdown, which is being done mainly to mitigate a botulism outbreak during what's expected to be a long, hot, dry summer.

On the south end of the sump, conditions are a little more concerning. Tiny amounts of water still remain across a wide area, forming what's essentially muck that only a bird could stand in without sinking. Once temperatures increase later this month,

conditions there will be ripe for a botulism outbreak if more water isn't removed.

Botulism lies dormant in wetland soils and lakebeds but awakens when water is low and calm, and temperatures are hot. Birds contract the bacteria through maggots and become paralyzed to varying degrees. Once they're unable to move their heads, they'll flop over in the shallow water and eventually drown.

Refuge managers have two options to mitigate botulism outbreaks: Give the area an infusion of cool, clear water or drain it completely to dry out the bacteria's habitat. In 2021, the former would be a literal pipe dream.

"We're trying to eliminate as much of this as we can," Crawford said. "Unfortunately, the birds love this. They love to be able to stand instead of swim. And that is a recipe for botulism."

Last year, Tule Lake and Lower Klamath National Wildlife Refuges experienced one of their worst botulism outbreaks in history, which killed at least 60,000 ducks and sent thousands of waterfowl to Bird Ally

X's duck hospital in Arcata, Calif., which struggled to handle the influx of patients with limited funding and staff.

In addition to assisting with the Sump 1A drawdown, McCreary said Ducks Unlimited is also working with Fish and Wildlife to provide more funding to the duck hospital in advance of this year's botulism season. Bird Ally X is also seeking donations for this year's botulism response.

But he said the drawdown should give refuge managers a serious head start in combating outbreaks this summer.

In May, after the English Channel had been opened and the two sumps reached equilibrium, Tulelake Irrigation District began using one of its existing pumps to transfer more water from 1A to 1B. About 150 C'waam (Lost River suckers) were also moved from Sump 1A to Sump 1B prior to the drawdown to comply with Endangered Species Act requirements.

Having been dried out last year, 1B's lakebed was more compacted and, therefore, able to be filled deeper than 1A, Kirby said.

**Challenges remain**

Kirby said it was tough to figure out exactly how much water he was working with in Sump 1A, given how much silt was in it. It got to a point where he couldn't really tell where the water stopped and the lakebed began. The only tool he had to estimate the lake's volume was a 1986 area capacity curve, which likely didn't take into account how much silt would have accumulated in the lake over so many decades.

"Nobody knows what the bottom of this thing really looks like," Kirby said.

He and refuge biologists have since settled on about 12,000 acre-feet, and there's actually a concern that will not even be enough water to fill Sump 1B.

McCreary said Fish and Wildlife may use a "floating excavator" to dig channels in the muddy lakebed and allow the thin, puddled water still remaining to flow to the pumps' intake and on to Sump 1B.

It turns out that even amid one of the Klamath Basin's worst droughts in recorded history, it's proving difficult to get the very last drops of water out of Sump 1A. "We're down to the point of where we have to get creative," Kirby said.

Crawford said some of Sump 1A still has the ability to fill a ditch delivering water to the Southwest Sump, allowing more bird food to be grown on those leaselands. Farmers there have contracts with the refuge to leave behind a certain percentage of grain in their fields after harvest for the express purpose of migratory bird snacks.

Still, the district and the refuge are in a race against time. Their goal is to have Sump 1A as dry as possible by July 1, when biologists typically go on alert for botulism outbreaks.

"We still expect that there will be some level of a botulism outbreak, but the amount of shallow water will be less," McCreary said.

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