



Refuge turns to electronic barrier to block carp from Blitzen River

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by Lauren Brown

The proliferation of the invasive common carp has been an issue in Malheur Lake for a century. The non-native fish were introduced into the lake in the 1920s. Carp crowd out native fish and destroy the lakebed with their foraging behavior, which uproots vegetation and creates turbid water.

There have been numerous efforts over the years by Malheur National Wildlife Refuge staff to remove carp from the lake. Most recently, the refuge has been battling to keep the destructive fish out of the Donner und Blitzen River through fish traps. The Sodhouse fish trap can catch up to 1,800 carp if left open overnight. "Working with that can be a nightmare, and it jams up the system," said Dominic Bachman, aquatic biologist with Malheur National Wildlife Refuge.

This has prompted Bachman to seek out a different method, electric fish barrier, to keep carp out of the river. This particular kind of electric fish barrier has never been used in the western United States but has been used successfully in Minnesota, according to Bachman. It is made by a company called Carp Solutions, which specializes in technologies for invasive carp management. The new electric carp barrier will be installed in September and offers the refuge more flexibility in handling the carp than a traditional cement water diversion structure with a fish ladder.

Current carp removal methods



Current forms of carp removal involve using fish traps, like the previously mentioned Sodhouse trap or electrofishing, which requires shocking the water to stun the fish and then physically removing them from the water. Both methods require hand-removal by refuge staff and have their own drawbacks.

Rounding up carp through electrofishing, retrieving them from the water and tossing them to the bank.

Fish traps get crowded quickly. Bachman said they can catch 100 carp in 45 minutes and many more if left overnight. "It tends to murder all of the native fish if there

are any native fish in there," Bachman said. "These big carp flopping around in the trap kill them, so that's been really unfortunate. One of the values of the electric barrier is that it would help us reduce that load." The electric barrier will allow the smaller native fish to pass through.

Electrofishing also has disadvantages. It's much easier to electrofish in shallow water, but when the carp move to the river, they tend to congregate in deep pools around bridges. "Some of those bridge pools are 6 to 12 feet deep, and it's really difficult to stop the fish from disappearing and getting away from you," Bachman said.

A telemetry study conducted in 2021 found that when conditions in Malheur Lake are poor, the carp head to the Blitzen River as a refuge, where they can survive and breed.

In 2022, a major drought caused many carp to die off in the lake. As a result, the lake habitat greatly improved in 2023, 2024 and 2025, which were good water years. It was an opportunity for refuge staff to see what the lake habitat could be without

the vast numbers of carp working against them. “We’re just trying to reduce their ability to move into the river, move into the wetlands and the Blitzen Valley, and really to thrive,” Bachman said.



Under the surface of Malheur Lake August of 2023 following the 2022 drought when many carp died.

How it works

Working with the High Desert Partnership’s Harney Basin Wetlands Collaborative funding was secured from the Oregon Watershed Enhancement Board and legislative funds. This funding made it possible to install an underground powerline to power the barrier. “We had to do an archaeological clearance, and we basically ran it right down the middle of the levee that we used to drive on out to the boat launch to the site,” Bachman said. At the site, a 30-amp plug-in was installed, similar to something one

might use in a backyard to power a hot tub. That phase of the project was completed in 2025.

The barrier itself will involve installing buoys in the water with lights attached to them. The buoys give off a current that the fish instinctively avoid. “They go across the entire river, and there’s actually a set of them at the top and at the bottom for fish coming downstream and fish going upstream,” Bachman said.

He noted that this type of barrier works well in average water years. It can be removed in highwater years, when flooding occurs and there is water everywhere making it possible for the carp to skirt the barrier.

The barrier includes a fish trap that is about the size of a truck bed. The fish trap allows smaller fish to pass through, but the big 7- to 10-pound carp can be removed from the trap by a conveyor belt that allows them to be sorted. Bigger native fish can be collected and returned to the river while the carp are moved via conveyor into a trailer where they are hauled off.

The last two and half years have been healthy water years for the Harney Basin and as result, native fish, such as redband trout, have thrived to the point where some of them might be too big to pass through the electric barrier’s fish trap. These large native fish can be sorted off the conveyor belt and sent upstream.

The automated conveyor belt system will save refuge staff from having to physically lift fish from the water. “I’m closer to 50 than 40, and I’m starting to feel it when I do an 1,800 carp day,” Bachman said. “This is way better technology than me jumping into a deep pool with a net and lifting out carp by hand.”

Helping the lake and river habitat

When many of the carp died out because of the drought in 2022, it allowed submergent and emergent vegetation to grow in and around Malheur Lake. Successive years allowed the refuge staff to see how the lake and its surrounding habitat could rebound without the vast numbers of destructive carp. Keeping them out of the Blitzen River is an important part of protecting the watershed and helping native fish thrive; the electric fish barrier will greatly help with that objective.

While the barrier will be installed in September and functioning, the refuge will probably see the real benefits of it in the spring.

This article is provided by High Desert Partnership; a Harney County nonprofit convening and supporting six collaboratives including the Harney Basin Wetlands Collaborative and the Malheur National Wildlife Refuge Comprehensive Conservation Plan.

