

Vermillion River Watershed JPO tackles invasive fish, exceeds goals



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A \$300,000 Clean Water Fund grant BWSR awarded to the Vermillion River Watershed Joint Powers Organization in 2023 supported an electric fish barrier and invasive fish removal project in East Lake.



Above: Kelly Perrine, VRWJPO senior watershed specialist, showcased the project during a fall 2025 watershed tour that highlighted collaborative conservation projects and practices. **Photo Credit:** Anne Sawyer, BWSR **Right:** To help define population age classes and inform removal strategies, an invasive fish removal consultant sorted and measured carp and goldfish captured via electrofishing in May 2025. **Photo Credit:** Maria Friedges, city of Lakeville

LAKEVILLE – A partnership led by the Vermillion River Watershed Joint Powers Organization (VRWJPO) is helping to improve water quality in East Lake by reducing populations of invasive common carp and goldfish, which contribute to the lake’s nutrient impairment.

A \$300,000 competitive Clean Water Fund grant the Minnesota Board of Water and Soil Resources (BWSR) awarded to the VRWJPO in

2023 supported a \$361,000 project to install a low-voltage electric fish barrier and remove invasive fish from East Lake. The work aims to reduce internal phosphorous loading, improve water quality and support long-term lake restoration efforts.

The city of Lakeville and Dakota County are project partners. East Lake is impaired for nutrients, including excess phosphorus. One pound of phosphorus can produce up to 500 pounds of algae.



Project results exceeded expectations: Nearly 10,000 pounds of carp and goldfish were removed from East Lake in 2024 and 2025. Modeling estimates indicate the

removals reduced in-lake phosphorous by about 75 pounds per year, more than triple the project's goal.

East Lake receives runoff from a nearly 11,600-acre drainage area that includes portions of Lakeville and Apple Valley. Over the years, watershed partners have implemented projects to curb external nutrient-loading across the watershed. But fish surveys revealed that a significant source of phosphorus was coming from within the lake.

Beginning in 2018, the VRWJPO and city of Lakeville tracked carp movement and estimated fish populations within the lake. Surveys confirmed that populations of invasive carp and goldfish exceeded levels known to negatively affect water quality.

Carp and goldfish are bottom feeders, stirring up sediment and releasing nutrients into the water, which increases turbidity and can fuel algae growth — making it challenging for native aquatic plants to grow.

Goldfish, a carp relative and [invasive species in Minnesota](#), reproduce rapidly, compete with native fish for food and habitat, and also contribute to poor water quality.

“Goldfish are starting to show up in a lot of water bodies. When people no longer want their pet goldfish, they'll throw it into a nearby stormwater pond or a lake, and then it makes its way into the ecosystem,” said Kelly Perrine, VRWJPO senior watershed specialist.

East Lake is relatively isolated in terms of hydrology, meaning that



Top: In spring 2024, invasive fish removal consultants collected carp and goldfish captured in a baited box net on the southwest side of East Lake and disposed of them. **Photo Credit:** Brita Moore-Kutz, VRWJPO **Bottom:** The 2025 surveys found carp ranging in length from 7 to 29 inches, with the most common size being approximately 18 inches. Goldfish and goldfish hybrids ranged from 3 to 20 inches in length, with the majority measuring about 8 inches. **Photo Credit:** Maria Friedges, city of Lakeville



efforts to manage invasive fish could be successful, especially if fish migration routes are blocked. A 2020 feasibility study evaluated several options for controlling invasive fish movement to and from the lake. The partners selected a low-voltage electric fish barrier installed across culverts connecting East Lake and North Creek, a Vermillion River tributary. The barrier uses an electrical field, which affects

the muscular systems of the fish, causing them to swim back the way they came. Partners also had considered physical barriers, which would have required additional maintenance and permitting.

The barrier was installed in 2023 and augments ongoing fish removal efforts. Contractors use baited box nets to attract, capture and remove invasive fish.

During removal efforts,

partners discovered that nearly 90% of the fish captured were goldfish or goldfish hybrids.

The project also created a unique partnership. Some of the smaller goldfish removed from East Lake were donated to the Minnesota Zoo, which fed them to bears, otters and sea lions. The success of the feeding trial led the Minnesota Zoo to partner on similar fish-removal projects elsewhere in the metro area.

Perrine views the fish barrier and removals as the first phase of work. Perrine said partners would adjust future restoration activities based on how the lake responds to invasive fish removal.

Those efforts may include aeration, stocking predatory fish such as largemouth bass and re-establishing native aquatic vegetation.

As water clarity improves and algae levels decline, Perrine said she hoped East Lake could support healthier native fish and plant communities while providing better recreational opportunities for residents. The lake is part of East Lake Community Park and is connected to Dakota County's North Creek Greenway, a popular destination for fishing, paddling and trail use.

“My long-term goal is to, in my career, get this lake off of the impaired waters list,” Perrine said.

BWSR staff members write and produce Snapshots, a monthly newsletter highlighting the work of the agency and its partners.