Comprehensive carp management

Left: *Using electrofishing equipment, Prior Lake-Spring Lake Watershed District staff and consultants captured and removed schooled carp in May at the Arctic Lake outlet in Scott County.*

Below: *Commercial fishermen contracted by the watershed district seined carp in April on Upper Prior Lake's Mud Bay.* **Photo and graphic credits:** PLSLWD

With the University of Minnesota and other partners, the Prior Lake-Spring Lake Watershed District takes an integrated pest management approach to the invasive fish that contributed to four lakes within the district being placed on the impaired waters list

CLEAN WATER LAND & LEGACY AMENDMENT

Sediment-stirring, aquatic plant-uprooting common carp played a major role in landing four of the 12 lakes within Prior Lake-Spring Lake Watershed District (PLSLWD) on Minnesota's impaired waters list. Armed with Clean Water Funds and partners including the University of Minnesota, the district is fighting back. Its multi-pronged, adaptive management approach uses integrated pest management principles to manage the entire lake system instead of individual lakes.

Spring Lake and Prior Lake are among several popular metro-area recreational

water bodies within the PLSLWD that are on the impaired waters list. PLSLWD Board of Managers President Mike Myser said maintaining and improving water quality in watershed lakes is among the district's top priorities.

"Spring and Prior lakes are prized for recreation in the region, however, both are polluted by nutrients that impair fishing and swimming," Myser said. "One of the major reasons is the proliferation of common carp. Managers are committed to do whatever it takes to bring the carp numbers down to a manageable level."

The simple solution? Remove the carp from the lakes.

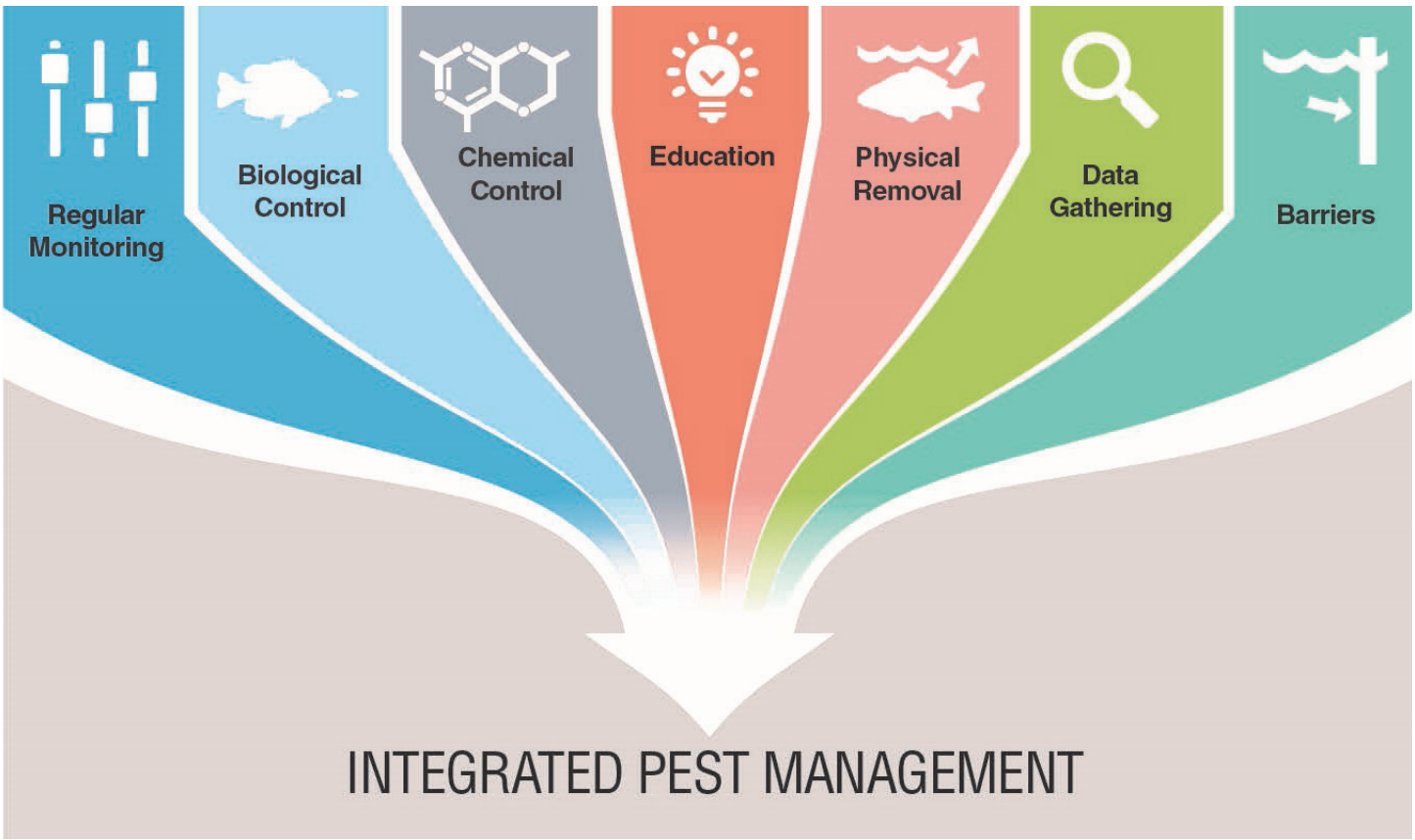
The challenge? Find the fish when and where they're schooling.

Combined, the district's three most heavily used lakes — Spring, Upper Prior and Lower Prior — contain 3 square miles of lakebottom where the carp can hide. Additionally, the carp have access to many upstream lakes and wetlands.

The district's IPM approach involves collecting data and tracking carp to determine migratory routes, aggregation areas and spawning grounds; exploring the feasibility and use of biological controls (such as bluegills); physically removing carp; installing carp barriers; and conducting community outreach.

Commercial fishermen seined 17 tons of carp in winter 2019 on Upper Prior Lake. Physical removal is one of seven tactics the watershed district is using to control carp populations. The graphic below elaborates on the seven methods.

In 2019, the PLSLWD received a $185,000 Clean Water Fund grant through the Minnesota Board of Water and Soil Resources (BWSR) Metro Watershed-based Funding pilot program, with $137,500 of that award dedicated to supporting the district's carp management program. The PLSLWD also leveraged local dollars. Multiple state and federal grants support the district's long-term comprehensive carp management efforts. Those include a Clean Water Partnership Grant for $67,323 awarded in 2015 from the Minnesota Pollution Control Agency (MPCA), federal 319 funding through the MPCA and a DNR Conservation Partners Legacy Grant for $18,160.



A primary management goal: Control the carp population and reduce the internal phosphorous load of Upper Prior Lake by 600 pounds annually.

"We appreciate the support we have received from Clean Water Funds — they have been critical to implementing the district's integrated pest management efforts, such as population monitoring, installation of fish barriers and physical removal," Myser said.

District staff members are trying to understand the system of interconnected lakes and associated channels and wetlands in order to determine where carp are congregating and spawning.

The first step is to track the carp. As many as 250 carp will be implanted with Passive Integrated Transponder (PIT) tags to track their movement as they pass through any of six stationary receivers strategically located throughout the watershed. The PLSLWD is also implanting an additional 30 carp with radio-tags, which allow the fish to be tracked manually with an antenna.

Tracking information will help the PLSLWD determine the best locations to install at least two barriers to spawning grounds and nursery areas. The data also will help determine where and when to place box traps and seine nets. Those will be situated in spots where the carp congregate or school together.

Larger hauls of carp captured by commercial fishermen are sold to markets throughout the United States for consumption. In some cases, carp eggs become caviar. Most often, smaller and mid-size carp are sent to markets on the East Coast while large carp are sent to the South to stock commercial game ponds. Smaller hauls go to the Shakopee Mdewakanton Sioux Community's Organics Recycling Facility which turns the carp into compost.

In 2017, the PLSLWD and the city of Prior Lake allowed the University of Minnesota to study carp at a wetland restoration site. In several ponds, University of Minnesota researchers analyzed the relationship between bluegills and carp.

The goal was to determine appropriate bluegill stocking levels as a potential carp management tool. Some native Minnesota fish species, such as bluegills, control carp populations by consuming their eggs and larvae. The study on the Prior Lake site proved 100 percent effective in eliminating carp recruitment, meaning no new larvae survived, and the overall study will help advance the research on this potential carp management tool.

Myser said the PLSLWD implements its long-term carp management program through key partnerships involving the city of Prior Lake, the University of Minnesota, the Shakopee Mdewakanton Sioux Community, the Spring Lake Association, and the Prior Lake Association.

The PLSLWD produced a video that offers a firsthand look at its carp management program.