Defensive Measures

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Gavins Point Hatchery Adds Filtration System To Halt Spread Of Zebra Mussels

Two 30-mircon drum filters were installed at Gavins Point Fish Hatchery to prevent the spread of aquatic invasive species to the facility.

Since zebra mussels were first found in the Missouri River more than two years ago, many different organizations have had to adjust the way they operate in order to prevent the further spread of aquatic invasive species.

The Gavins Point Fish Hatchery, which focuses on sturgeon recovery, Missouri River paddlefish restoration and providing recreational sport fish like walleye and yellow perch, is one of those organizations.

"In 2003, they found the first suspect veliger (zebra mussel larvae) in Lewis and Clark Lake," said Jeff Powell of Gavins Point Fish Hatchery. "That was when we set up a hazard analysis and critical control points (HACCP) plan. So, basically, since 2003, we have treated our lake water as positive for zebra mussels."

The ensuing zebra mussel invasion would require a slew of new precautions for the hatchery to ensure that they would not contaminate any other bodies of water across the state.

"We had to begin using filter socks on our ponds and drum filters on our sturgeon and endangered species buildings," Powell said. "We also had to start using a chemical treatment on our fish prior to stocking to ensure that there are no zebra mussels in the water."

The new precautions didn’t just affect the water coming into the facility, but they also changed the way that fish were transported out of the facility.

"We switched over to only hauling on well water," Powell said. "We don’t use surface water anymore. That means we don’t use lake water for distribution trips. We only use heated well water. In order to make sure that there isn’t anything in the water, we will fill the truck up and add the fish and then treat the water. It’s all safe for the fish, but will kill the mussels."

When the first actual adult zebra mussels was found in Lewis and Clark Lake, the threat of contamination became more real for the hatchery and required a more solid defense system.

"When that first adult zebra mussel was found (in 2004), we decided to put in for a project to get a filter building," Powell said. "We knew we were going to have to filter our water because we knew that we would have millions of these things coming down towards us at the hatchery.

That why we wanted to add the filter as a first line of defense against all aquatic invasive species."

At a total cost of approximately $700,000 to the South Dakota Fish and Wildlife Service, the filter building, all the underground piping and two 30-micron filters were finished and installed last winter.

The two rotary drum filters that were installed can pump up to 3,000 gallons of lake water per minute and will filter out even the smallest of veliger, which are approximately 40 microns in size.

"We may have some intake problems down the line, but we will do yearly inspections and monitor the flow to make sure mussels aren't clogging our intake pipes," Powell said.

The hatchery only runs one filter at a time for eight months out of the year, but during summer production months, both are often used.

"Every six months, we have to disassemble the filters and they get a cleaning and full maintenance," Powell said. "We actually take the old panels off, acid clean them and put new panels on every six months."

Before the spread of zebra mussels, the hatchery could open a pond without worrying about filtrations systems. It also allowed the hatchery to pump nearly 4,000 gallons of water per minute into the facility instead of the current 3,000 gallon rate allowed by the filtration system.

"It takes a lot of extra steps now to do our job," Powell said. "It probably takes us 12 percent longer on our daily activities between all staff members."

While the new filtration system has created a barrier against any future aquatic invasive species from entering the facility, it has also stopped some of the hatchery's natural food sources from entering as well.

"It filters out all the zooplankton and some of the phytoplankton," Powell said. "That has caused a little shift in our fertilization rates because we don't get that larger amount of plankton. It puts us about a week behind, so we have to be a week ahead of where we used to be when filling up our ponds."

If a zebra mussel ever did enter the facility, the hatchery has contingency plans and can perform isolated treatments to kill the mussels.

Overall, the new system has proved to be effective, however.

"These filters were a good addition to our facility because they don't just protect us from the threat of zebra mussels that we are facing now," Powell said. "They also protect us from any future threats that might be heading our way."