

WaterQuality3D, LLC

March 12, 2024

Chair Hansen and Members:

Thank you for considering HF4365 – a bill extending the French Lake water quality grant availability for one year.

The 2023 legislature approved a two-year (2023-24), \$150,000 grant to Rice County, for water quality improvements on French Lake - an impaired waterbody in Rice County. The bill did not become law until mid-June, and permitting and contractual concerns precluded the system from going operational for enough of the summer season to have an effect.

Those issues have been addressed and the project is ready to go operational this year. We're proposing this bill to recapture the lost summer of 2023 and re-establish the project for the two-years the legislature intended to fund.

HF4365 extends the French Lake water quality improvement project by one-year, to 2025, with no additional appropriation necessary.

The 2023 French Lake provision was adopted in conference committee as a senate provision. As a relatively late introduction we didn't have a chance to introduce the device to this committee or talk about the positive and promising results being achieved on the lakes we've tested - so here is some background.

The WaterQuality3D treatment system is emerging as an affordable, non-chemical, non-intrusive, Minnesota made algae-fighting force of nature, that is quietly channeling new hope to lakeshore property owners and local governments frustrated by a lack of suitable options to make sick lakes healthy again.

The patented electrically powered WQ3D flow-through technology quietly delivers dissolved oxygen to anoxic aquatic dead-zones caused by nitrates and phosphates, while beginning the process of restoring the lake to its natural condition.

The device itself, depending on the project, is about the size of an automobile muffler and secured inside a screened-in protective box that is small enough to attach to a dock.

We've run numerous self-funded tests since 2017 and are developing a strong confidence in the ability of the system reduce the filamentous algae that make swimming or kayaking unpleasant, the neon-colored cyanobacteria or blue-green algae that mats mid-summer lakes and makes dogs sick, and we've reduce E.coli in every test we've run - from swimming pools to large lakes. Please see the Lake Alice E.coli chart from a similarly funded project we did execute last summer.

We appreciate Rep. Daniels bringing this bill forward and look forward to bringing results back to let you know how we did.

Sincerely,

Dan Larson

WaterQuality3D, LLC

WaterQuality3D
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Comments from Minnesota lakeshore property owners who have seen the system work:

Ron Teigen
Crystal Lake, Lake Crystal, MN

Crystal Lake Before System Install / 2017

“Thick algae blooms became a deep blue-green mat. Stinky. Dogs got sick. Nobody went in it. It was repulsive for recreation. Like smelly green paint.”

Crystal Lake After System Install / 2017

“The box stopped the surface algae in the test area - and stopped it quick. Like overnight. It stopped the green algae from going to the blue-green stage. It turned the algae grey and stopped the stink. And in a short-time it was gone. The box cleaned the lake up in the area I witnessed it operating.”

“I would definitely like to see this system continue to work on Crystal Lake and I support state funding for pilot projects over multiple years.”

Steve Hagen
Lake St. Olaf, Waseca, MN

Lake St. Olaf Before System Install / 2017

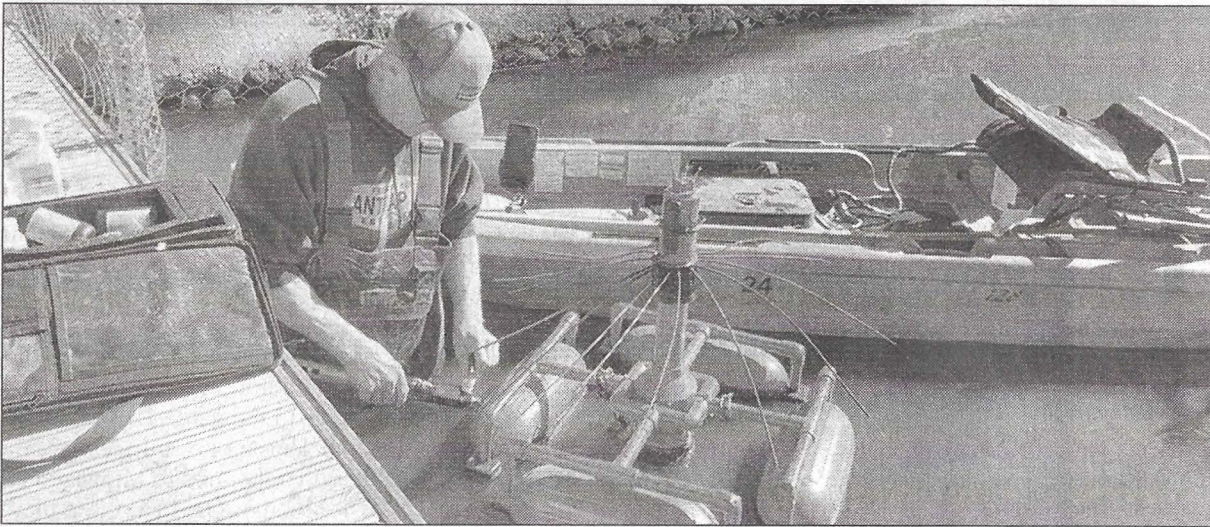
“The lake was full of algae, and it stunk. When it turned it was like you could walk on it. And full of carp.”

“My wife wouldn’t let the grandkids near it. The swimming beach shut down at the end of June, when the lake turned to a stinky gross, green carpet. You could hardly stand to have your windows open in the house. Nobody wanted to be around the lake when it was like that”.

Lake St. Olaf After System Install / 2017

“After putting the unit in it went from bad to good - and fairly quickly. Now the lake is clean and the water is clean. We started seeing changes in the mat within a month. It went from green to black and we really started noticing the difference by the end of the summer. The real change kicked-in the second year and the lake has been great since then. The carp went away and the game fish returned. The lake repulsed people before and now it is attracting people from around the region to swim and fish. We get kayakers now.”

“This system definitely works!”



George Klug deploying a WQ3D water testing device in Fergus Falls' Lake Alice.

Lake revitalization project getting state-wide attention

By **DEB BENTLY**
News Editor

"It's important to make funding available for something this exciting," says District 19 Senator John Jasinski regarding the lake revitalization system which has transformed Waseca's Loon Lake for the past two summers. "WQ3D has been phenomenal," he comments regarding the company which provides and maintains the system, represented locally by area resident George Klug.

Jasinske and others were given tours and shown statistics regarding the WQ3D's system; the senator went on to help shepherd a pilot program which provided funding to place treatment units during June in 20-acre Lake Alice, located within the city limits of Fergus Falls in Otter Tail County.

An October 17 article in the Fergus Falls Daily Journal quotes Otter Tail area senator Jordan Rasmussen as saying, "I was really excited to find a program to potentially help improve the water quality for this key asset; if the results continue to show promise it's something other communities both in Otter Tail County and across the state can be

interested in utilizing."

The article also states that E. Coli bacteria levels have dropped from being double the Minnesota Pollution Control Agency's maximum acceptable level at about 270 colony forming units per milliliter (CFUs) to being 18.

According to Klug, who has been to Fergus Falls to maintain the WQ3D units every two weeks since they were installed in June, "Each lake has its own ecological situation," and so Lake Alice has not shown as thorough a turnaround as Loon Lake did from June to September of its first year. However, along with the impressive reduction in E. Coli bacteria, there has been a significant decrease in the amount of algae and the lake is no longer a source of offensive odors, even though it had been for decades. Lake Alice had no significant problem with weeds, Klug observes, because the water was so murky plants could not grow.

According to Jasinski, more than \$225,000 in funding has been allocated to two communities using the WQ3D system for a "pilot program" meant to evaluate the effectiveness

of the WQ3D system. Treatments in Lake Alice will continue next year under that funding.

French Lake in Rice County will be outfitted with the system beginning next year. At more than 840 acres, it is the largest the company will have worked with so far, and will require up to eight mechanical units, according to Klug. Like Lake Alice, French Lake will be in the pilot program for at least two years.

Klug expresses guarded optimism that the pilot program might open the way for broader use of the WQ3D system.

Among Senator Jasinski's observations is the fact that WQ3D's system is versatile, does not use chemicals, and causes no disruption for property owners who live near the lake. "I know many of our lakes seem to be getting worse," he states. "This type of improvement is good for fishing, good for water sports, good for tourism."

He also states that a great deal of state money is allocated toward improving water quality: "It's important to be responsible with how we manage that money," he says.



Loon Lake as seen from Lisa Mackey's back yard.

Loon Lake improving as next door neighbor

By **DEB BENTLY**
News Editor

Waseca resident Lisa Mackey, 44, has had even more than a life-long association with Loon Lake. She says she has been grateful over the past two summers that the lake has been clear of weeds and the water has been clearer. As an offspring of the Fell family, she is aware a large piece of property along the lake was undeveloped field in the late 1800s. Her ancestor George Fell owned it and sold it to the city.

All her life, generations of her family have occupied a row of houses located directly on the lake-shore. Across that time, the lake has been a somewhat changeable neighbor.

"There were times when you would look out and think, 'What a peaceful view.'"

Mackey says she enjoys watching the many birds which come and go across the seasons, up to and including eagles, pelicans, loons and swans, with geese, ducks, coots, and seagulls as near constants. "The lake can be a really good place to have a house," she observes. She remembers times in the

'80s and '90s when family members would catch enough fish for a "fish fry" get-together in the backyards.

And then there have been other times.

"The summer would start, the lake would be blue," she remembers, "and then...seaweed." For much of her life, boating would be impossible as the summer advanced because of the heavy growth that floated on a majority of the lake's surface.

And then the smell would come. As the excess plants would die, they would begin to rot and then to stink.

Mackey also remembers a time in her childhood when a cousin decided to slide into the water to cool off, and came back out coated in small, black leeches which had been clinging to shoreline rocks. "I never went into the water again after that," Mackey recalls.

City council member Stacy Schroeder lives within easy walking distance of Loon Lake and also has lifelong memories associated with it—including family picnics in the park pavilion. A distinct recollection from her childhood is col-

lecting snail shells along the shore and sometimes catching live snails "and watching them climb up a glass."

In more recent times, she tells of having often altered the routes of her daily walks because of the smell coming from the water; what she describes as "an ugly, frothy foam" would also be unappealing.

With the water in the lake staying clear and open as it has for the past two summers, Schroeder says she is persistently noticing and appreciating new elements.

"I was on one of my walks and I suddenly thought to myself, 'Hey, it doesn't smell bad.'" Fairly recently she noticed snails in the water near the shore.

"I think everyone appreciates that the lake is becoming an asset again," says Schroeder. "And that it can be done in such a low-profile way, after all the things that have been tried over time, that's also a benefit.

"I hope the equipment that's helping our lake can do the same good for many, many more communities."

https://www.fergusfallsjournal.com/news/clearing-things-up-early-positive-results-on-lake-alice-project/article_e12d3758-6c5f-11ee-8728-17a8b6cea2a1.html

Clearing things up: Early positive results on Lake Alice project

By James Allen Daily Journal Media
Oct 17, 2023

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Left to Right: Fergus Falls Mayor Ben Schierer, Gary Leaf with WQ3D, Ward Two council member Scott Kvamme, Sen. Jordan Raabe, Sen. Bill Ingebrigtsen and city public works director Len Taylor.

JAMES ALLEN | DAILY JOURNAL MEDIA

Lake Alice in Fergus Falls is part of a two year pilot project approved by the Minnesota State Legislature and according to the data coming in now over the last summer, the transformation is astounding.

E. coli levels, which make a body of water murky and inhospitable for recreational purposes, have drastically dropped in Lake Alice.

As previously reported, Walter Quality 3D's device (WQ3D) is normally stationed on a dock, but with Lake Alice, it became a floating object that was purpose built for the lake. The proprietary technology utilizes a flow through water treatment system to enhance and restore water quality. WQ3D says their device initiates and provides a buffering effect.

Dan Larson, a partner in WQ3D, stated that they have demonstrated "some really remarkable results" when applied to address some of the states' most stubborn water quality issues and even aquatic invasive species issues that are facing state and local governments.

The project was first proposed by former Sen. Bill Ingebrigtsen who included a grant funding provision in the 2022 bonding bill. He then passed the torch to his successor, Sen. Jordan Rasmusson (R-09) when the 2022 bonding bill failed to pass. Rasmusson co-sponsored the successful pilot project grant bill in 2023. Fergus Falls City Council member for Ward Two, Scott Kvamme, has led the city effort.

Larson mentioned the Minnesota Pollution Control Agency has mandated E. coli levels to be below 126 per colony forming units, more commonly abbreviated CFU's, per 100 million or less.

"Lake Alice was around 270 CFU's. We dropped it between Jun. 25 to Jul. 28, in a month to 18. This is not new, we're used to this," said Larson.

Larson said the goal of the WQ3D system is to breathe more oxygen into oxygen-starved lakes to give the lake a better chance at fighting algae growth. Results are still being studied and Larson states that the system reduced measurements on two key nutrients - E. coli and rugged dissolved oxygen, over the summer.

"What we say we like to do is restore the balance of a lake's ecosystem and bring it back to its natural equilibrium," said Larson.

Also, according to the report, for dissolved oxygen, "The WQ3D system improved it significantly by reducing the amount of top measurement algae and elevating bottom-level oxygen. Also top surface measurements show algae in sharp decline until hitting an equilibrium in the hottest months. The key takeaway is the WQ3D system reduced top-level algae significantly, thereby reducing the volume of dead algae falling to the bottom to become part of the already substantial internal load and additional fuel for the next bloom."

Larson said they are also, as a company, working on solutions on the agriculture side of things as well.

On Oct. 17, several area dignitaries, current and former legislators including Ingebrigtsen, Rasmusson and Kvamme, along with company officials and others will be on hand on the north shore of Lake Alice to see the changes.

Ingebrigtsen said being part of the Minnesota Finance Committee he had seen millions of dollars already being spent on water quality.

"Then this project came along and was intriguing to me, so I followed up on it. I thought why not give it a shot, Let's take a look at it. There were some real successes. They were just getting this off the ground in Minnesota," said Ingebrigtsen.

Ingebrigtsen said the real challenge was getting it approved by the Minnesota Pollution Control Agency and the Department of Natural Resources and that once that hurdle was crossed the project became a reality.

Rasmusson said he was very excited at the progress so far: "Lake Alice is this amazing asset that we have here in Fergus Falls, so I was really excited to find a program to potentially help improve the water quality for this key asset and if the results continue to show promise it's something other communities both in Otter Tail County and across the state can be interested in utilizing."

Kvamme said these kind of results early on are great: "I'm really encouraged. As Dan said this is a two year project, so we're pretty early on. The fact that the they're able to show some pretty positive results in this short window of time that we've had I think is very encouraging."

Others in attendance also echoes those comments as well, including Mayor Ben Schierer.

"Just making the investments in this, I really appreciate the work of Sen. Ingebrigtsen and the state to see this as a project, to see the importance," said Schierer.

WaterQuality3D Treatment System

Lake Alice E.Coli Drops to 18 CFU/100 mL from 270CFU/100 mL in one month

