

The Country club board began working with Jeff Fender of Fender Hatchery in 2018 to address problems with Algae and other issues in the fishing lake. During this time Mr. Fender came out and studied our lake to see the types of fish we had in the lake, their condition and the condition of the water in our lake. This was to help create a plan to clean up the lake and improve the quality. Some of the issues we were having include:

Fish dying once or twice a year and floating to the top of the lake

A very foul order developing late in the year especially toward the spillway

Algae growth throughout the lake.

Below is a list of what Mr. Fender suggested:

A: Our lake did not have enough aeration and poor oxygen levels so he wanted us to add 6 more aerators to the lake. Those were purchased and 3 of them were installed in 2018. The other 3 are in the garage and will be installed this year.

B: We were using too much copper sulfate and algaecide, this was killing both the good bacteria, bad bacteria and algae. He stated that the reason for the foul order and the fish becoming slimy and dying was the overuse of chemicals to kill the algae. The algae would die settle at the bottom begin to rot and there was not enough good bacteria and oxygen to consume the algae. So as it began to decompose gases would be released into the air causing the foul odors as it worked its way toward the spillway.

C: The fish that make up our lake are out of balance. He suggested we add another 125 White Amurs. These are the large fish that you see in our Lake. The White Amurs are widely known as a safer, easier and more economical approach over the long term than any other physical or chemical control strategy for ecologically enhanced and self-sustaining ponds and lakes. He stated that "if you are looking for a way to control vegetation and/or algae in your pond, we recommend adding 10-15 per acre for a normal pond and more for a fertile pond." We have a 13 acre lake. The Amurs that we had at that time were very old and already at their maximum length of 4 feet so they were not eating as much algae as what they used to.

These fish are very expensive so in the last two years we have added 40 of them. These fish take up to two years to begin consuming algae at a rate of 2 to 3 times their body weight each day. This is one of the reasons we have been saying this is a 3 year plan to clean up the lake and make it healthy again.

D: Add Shell Crackers to our lake these fish help protect the other fish because they feed on insects, and snails. These fish are one of the most effective tools for preventing or eradicating worms (grubs) in your sport fish! Parasitic worms most commonly found in sport fish, begin their lifecycle as eggs in the throat of fish eating birds. While the birds are foraging in your pond, the worms are released into the water. Once in the water, they have only a short period of time to locate their next host, the freshwater snail. The worms will stay within the digestive glands of the snail until they have developed physically to the point they are able to make the transition to their next host, your fish. Upon contact with your fish, the worm will bury itself under their skin,

easily visible to the naked eye, and will remain there indefinitely. When an infected fish is consumed by a fish eating bird, the worm will be released into the stomach cavity of the bird then eventually travel back up the esophagus and attach itself to the throat and the process will start over again as eggs are produced. The past two years we have added 250.

E: His final suggestion was to add natural pond cleaning bacteria to the lake but only after adding the additional aeration. This bacteria will help destroy the leaves and other organic material that settle at the bottom of the lake and serves as food for the algae to grow. We have added 24 gallons of the pond cleaning bacteria this year. As part of this treating he asked that we limit our use of copper sulfate to 9 lbs every 7 days he asked that we spread this copper sulfate on the algae that we see floating on the top of the water. So far this year we have used 200 Lbs of copper sulfate.

We are asking for patience and help to fix our lake. We believe some of the reactionary approaches to the management of the lake in the past is what has caused many of the problems we are seeing today. If you would like to help in anyway, here are some suggestions:

1. Assist in buying Amurs. They are very expensive and we can only afford to do so many per year.
2. Volunteer for a day to help us install the last three aerators. This takes 3-4 guys to get these in the lake correctly. With all the issues we had with trees, storms and events at the club we simply didn't have enough time or manpower to get these last three aerators in.
3. Volunteer to help fix the two broken aerators toward the spillway. These are our oldest aerators, the lines need replaced because they are not the new weighted lines and they need placed in buckets with a buoy so they are easily serviceable.
4. Volunteer to help spread the copper sulfate. Our Caretaker will give you proper instructions following the guidelines that were given to us and give you an area to treat with the copper sulfate.
5. Educate the people that complain: Most people do not understand what is going on. They simply see the algae and assume the board and the caretaker are lazy and don't care. This is not the case. So when you hear someone complain inform them of what we are trying to do to correct the problem. We have attempted to send out emails, post this on social media and address this at the annual meeting but it does not seem to be working. We realize that some people do not believe this method or approach will work. We think it is worth a shot and we are listening and following the lead of someone who deals with lakes and fish everyday. While we are trying patiently to not listen to the complaints and take a reactionary approach to this problem.

We realize there are other options:

There are lake management companies that will come out and clean up the lake. We have called and got quotes. Those came in a \$1500-\$2000 per acre. For a 13 acre lake we would be looking at \$13,000 .

Having the lake dredged this would cost about \$30,000-\$50,000

Red or Blue Tilapia are a fish that would clear the lake quickly. These fish are more expensive than the amurs and they will not survive more than one year in the lake due to temperature restrictions. They cannot survive in cold weather.