June 15, 2018

I'm writing in reference to my early morning visit to Lake Francis on the morning of May 26th. There had been concern about excessive growth of filamentous algae and increased growth of coontail (submersed and branched aquatic plant).

Moving counter clockwise from the spillway, the first narrow finger of the lake still had significant and excessive surface mats of filamentous algae. Filamentous algae starts growing in the spring on the bottom and other surfaces. Oxygen bubbles produced during photosynthesis are trapped by the filamentous grow and float whole mats to the surface where the more intense sunlight starts to kill the plant. You often see patches of different color mats due to how long they have been on the surface. Rain will beat the bubbles out of the mats and you won't see it again for a day or two until the cycle begins again. I measured depressed oxygen levels in this area from both shading and plant decay. Filamentous algae can be controlled with copper based herbicides and biologically with tilapia and to some degree with grass carp. This finger had the biggest problem and I suggested the stocking of tilapia, which do a good job on this algae. They will reproduce during the summer and if the winter is not too cold, you can get several years of control from a single stocking. They are typically stocked at a rate of 250-400 an acre. Since this portion of the lake had the majority of the problem and it was fairly contained, I recommended stocking 750 tilapia directly into the affected area.

The second finger also showed the same pattern of oxygen depression in the narrow and shallow headwater, with gradual improvement as you moved out towards the main body of the lake. This can be attributed to shaded nature of the finger and the time of day the readings were taken. One would expect to see improved oxygen levels as the day progressed.

As observed last year, the deep middle finger of the lake continues to show strong stratification, with extremely low oxygen occurring below 10' depth. This continues to be a potential problem if a thorough mixing of the pond were to occur during an extreme weather event. With this said, the pond has experienced several such events in the last ten years without a significant fish kill occurring.

The main body of the lake and the last finger of the lake had excellent oxygen levels, which may be a factor of the late morning observations and more open exposure to light and wind.
The growth of coontail (*Ceratophyllum demersum*) appears to be more abundant than last year. This plant is susceptible to grass carp and it is best to controlled before it gets too abundant. I would once again suggest that 5 grass carp per acre be added to the aging group of carp that still are present in the system, but that are unable to suppress this regrowth.

To put my over-all impression of the lake's health in perspective, if last year's grade was an A then this year's grade would be a B, given the filamentous algae and coontail growth. I would add that the removal of the downed oak tree in the first finger and the suspension of waterfowl 'feeding stations' are good long term improvements. Tilapia and grass carp stocking would be significant steps to take this year to keep the health of the lake moving in a positive direction

Regards,

Scott Lamprecht