



Lamprecht Pond Management Consulting

38 Yrs Experience Managing Fish Populations

Scott Lamprecht, SCDNR Retired

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July 12, 2022

Dear Mr. Stewart,

I am writing in reference to my July 1st assessment of Lake Frances and my re-visit on July 9th. This is part of the long term effort to manage the health of the lake. This aging lake has experienced many changes as its water shed has been developed and paved. Its weed problems have been successfully managed with biologic controls with minimal historic use of herbicides. Its level of salinity fluctuates with rainfall and tidal surges. The lake experienced a major low oxygen fish kill approximately 20 years ago, when Chief Greenburg was still serving. However, subsequent oxygen profiles in the last 10 years have shown healthy levels in all but the deepest portions in one arm of the lake.

This spring, the lake has experienced a chronic low level die-off of large grass carp. Up to this past week, the kill was restricted to grass carp in excess of 25 lb., but in this past week 3 large spottail bass were observed. A single species fish kill typically indicates a disease issue, while the death of large size individuals is indicative of a low oxygen issue. There is nothing that indicates the involvement of any toxic substance. The observation of the spottails prompted the effort to get direct readings of dissolved oxygen and salinity level.

It is important to understand that photosynthesis provides far more oxygen to a lake than is normally transfer from the atmosphere. Likewise decaying organic matter uses far more oxygen than respiration of fish and other aquatic animals. Also keep in mind that warm water holds less oxygen and that all biological processes (photosynthesis and respiration) accelerate during the warm season. In general, the highest oxygen levels should be observed just before sunset and lowest at dawn. On Friday the 8th, the mid-afternoon surface reading at the causeway, showed a somewhat depressed oxygen level during the time period where high levels would be expected. The reading also showed a higher level of salinity than previously documented in recent years.

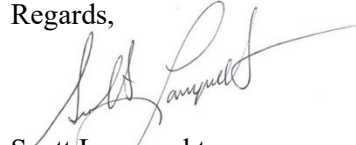
The recent fish mortality indicates that on some nights large individuals are unable to escape lethal levels of oxygen. On the morning of July 1, I counted 33 large grass carp carcasses in various stages of decay (1 to 10 days old). The ongoing chronic nature of this event indicates that the oxygen dynamic in the lake has not recovered on its own during this time period. It remains more vulnerable to an acute low oxygen fish kill than I have observed over the last 15 years. It could gradually correct itself, but the risk of a bad outcome is in my opinion unacceptable.

Having observed the Chief Greenburg era event, I would recommend making an effort to head off this cycle in the short term. No one on James Island that enjoys the stormwater benefits provided by Lake Frances would like to relive 6 tons of rotting fish, whether they live on the lake or not. Large scale aeration like pumping water into the air in a fine particles and allowing it to absorb oxygen from the air before falling back will be beneficial. I understand that a fire department surface water pump truck has practiced at the Lake Frances causeway in the past. Several hours of this type of activity would be a major boost in helping the lake rebalance itself.

With a long-term view of managing lake health, I would reiterate my mantra of minimizing inputs of organic material. You can't stop leaves from falling in the lake, but inputs of raked or blown leaves and grass clippings can be prevented and should be communicated to lawn care contractors. Feeding or encouraging semi-domestic water fowl (doesn't include Wood ducks) use of the lake should be discouraged. Even inputs from dog droppings can be largely prevented.

Additional water quality monitoring is warranted and should be continued throughout the summer of 2022 on an as needed basis.

Regards,

A handwritten signature in black ink, appearing to read "Scott Lamprecht", with a long, sweeping horizontal line extending to the right.

Scott Lamprecht
Fisheries Biologist