



## *Lamprecht Pond Management Consulting*

*38 Yrs Experience Managing Fish Populations*

Scott Lamprecht, SCDNR Retired

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Dear Mark,

Just a quick note about my pond check on Saturday September 17, 2022. This visit was a follow up to our conversation earlier in the week about an additional fish mortality event.

My observations were made between 2 and 3:30 pm on day with minimal overcast. The dead fish I observed were several days old and included large grass carp, largemouth bass, large menhaden, large gizzard shad, two flounder, and bluegill sunfish. Fish sizes were primarily larger fish, but I was provided with some photos of smaller fish taken near Harborview Drive in the central deep arm. There may have been more smaller fish involved in the event, but they tend to be 'cleaned up' more easily by scavengers and several days had passed since the event took place. With observation made by the Marine Center and Saturday's observations, this mortality event can be attributed to a short-lived low oxygen event.

On Saturday, the water appeared brownish green color with visibility less than 10 inches. This was caused by a single cell algae bloom. DNR determined on Friday that species of algae was not one that causes toxic condition for animals or humans. The heavy bloom does affect dissolved oxygen concentrations (DO). When the sun shines oxygen production from photosynthesis can drive DO levels far above normal saturation levels and this was occurring during my check on Saturday. I had readings at 1' depths that were over 200% saturation (supersaturated). While producing oxygen when the sun is shining, blooms start consuming oxygen after sunset. Nighttime respiration can easily exceed daytime oxygen production if cloudy weather persists for several days. Though the remaining fish in the lake have been given a reprieve from earlier lethally low DO, the lake remains in a vulnerable state. Aeration during periods of oxygen supersaturation is actually counterproductive as oxygen is lost to the atmosphere rather than added to the lake water.

Heavy algae blooms tend to come on fast and then gradually wane depending on the environmental conditions. Several of these conditions can't be controlled, however the most prominent factor can be; excess fertility has to be present to produce blooms of this magnitude. Domesticated mallards, non-migratory Canada Geese, and other exotic waterfowl are major contributors to this system. Pet waste, lawn fertilizer, and yard waste also contribute to the problem and these can all be actively minimized. After voicing years of concern, I am still seeing large concentrations of mallards and geese that can only be gathered and sustained by people feeding them. This isn't an overbearing HOA suggestion, the practice of encouraging domesticated waterfowl has contributed greatly to where the lake stands today; the lake can't assimilate all the nutrient input it is receiving from upstream sources and internally. Everything should be done to discourage ducks and geese from using the lake. The next bloom that occurs many include algae species that produce toxins that can affect more than just fish.

The increase in rainfall over the last month and a half has reduced the July salinity readings of 9.1 ppt to 5.1 ppt. Mid July salinity levels were approaching upper limits for most freshwater fish and may have played a part in the spring and early summer grass carp mortalities. Under normal conditions, Lake Frances has a salinity of between 2 and 4 ppt. For reference, full strength sea water is approximately 35ppt and most freshwater fish can survive up to 10ppt, though reproduction stops at 3 to 4 ppt.

Regards,

A handwritten signature in black ink, appearing to read 'Scott Lamprecht'. The signature is fluid and cursive, with a long horizontal stroke extending to the right.