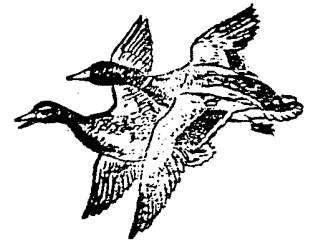


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COMMONWEALTH OF KENTUCKY

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DEPARTMENT OF FISH & WILDLIFE RESOURCES

DON R. MCCORMICK, COMMISSIONER

January 16, 1989

Mr. Mathew J. Wenner
Clen-Flo Laboratories, Inc.
4342 Shady Oak Road
Hopkins, Minnesota 55343

Dear Mathew:

Glad to be of assistance concerning improved conditions at our six-acre lake here at the Game Farm.

As you know, the lake is in a high visibility area where tourists and sportsmen (by whom the Kentucky Department of Fish and Wildlife is funded) are present all year. It is imperative that the lake look good and also provide a good fishery. Unfortunately, these conditions have not been met for many years. Due to high organic matter content due to animal wastes, and a shallow, rocky shore area, the lake exhibited extensive filamentous algae growths and low oxygen levels during warm months.

Our Clean-Flo aeration system (one pump and diffuser) was installed in early December of 1987 and has been in continual operation for about a year now. The most obvious improvement during the summer of 1988 was a lack of filamentous algae or vascular plant problems. A plankton bloom was present continually, and oxygen was present from the surface to the bottom throughout most of the lake. 1988 was also a season of drought in Kentucky. The lake level averaged 3 to 4 feet below normal most of the year, a situation which would normally worsen vegetation and stratification problems. Even with these conditions, the lake remained productive and remained free of problematic vegetation.

It is too early to tell if fish growth has been enhanced, though I feel it has. This growth will be followed and documented over the next few years. Good reproduction of all fish species in the lake was observed, some of which exhibited low spawning success prior to the aeration system. Again, more than one year is needed to prove a point, but I feel that each year for the next few years will be even more productive than the last. As water quality improves, benthic invertebrate populations will improve providing a more beneficial forage for panfish, juvenile bass, and catfish.

Enclosed are dissolved oxygen and water temperature profiles casually taken to monitor progress.

Also of note was the lack of a foul smell emitted from the sediments. Some individuals at our main office expressed concern that the odor from years of accumulated wastes would be quite strong. This situation never happened and we received no complaints from the public.

I hope our information will be of help to you. Glad to be of assistance.

Sincerely,



Kerry W. Prather
Central Fishery District Biologist

KWP/kh

1988 Water Temperature (°F)

Depth	June	July	August	September	October
Surface	73.5	84	85	71.5	55.5
5 ft	71.5	78.5	80	69.5	55.5
10 ft	71.5	77.5	80	69.5	53.5
Bottom (12-15')	70.5	77.5	80	68	53.5

Dissolved Oxygen (ppm)

Depth	June	July	August	September	October
Surface	9.0	13.0	14.2	9.0	9.5
5 ft	5.8	8.4	3.8	4.1	8.9
10 ft	4.2	4.6	3.7	3.6	8.9
Bottom (12-15')	3.6	2.2	3.4	2.5	6.0

The information above was collected in the deepest area of the lake, well away from the diffuser, during the first two weeks of the month.

I expect higher dissolved oxygen levels in the deeper areas in the future as organic material is "digested". The above readings are quite an improvement as last summer dissolved oxygen was absent below 3 feet.