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Rensselaer Fresh Water Institute, Troy, New York 12180-3590

SPRING 93 REPORT

August 15, 1993

Mr. Jim Davis
Eagle Lake
Ticonderoga, NY 12883

Dear Jim,

I have enclosed the results for the chemistry and coliform bacterial analyses on the samples you provided from Eagle Lake.

There are three different State bacterial standards which can be applied to waters used for different purposes within New York State.

The first standard is for drinking water. New York State assumes that all drinking waters will be treated and the standard calls for no Coliform Bacteria to be present in drinking waters.

The second standard, and the one more applicable to Eagle Lake, would be the standard for surface waters used or at least classified as drinking waters. Eagle Lake holds such a classification. This standard recommends that Coliform Bacteria levels not exceed 50 per 100 milliliters of sample. None of the samples that you provided, exceeded this standard.

The third standard is for waters used for contact recreation (swimming, wading, etc.). This standard requires that Total Coliform Bacteria levels not exceed 2400 per 100 milliliters of sample in 20 percent of samples or that a single sample not exceed 5000 Total Coliform Bacteria per 100 milliliters of sample. The contact recreation standard also requires that Fecal Coliform Bacteria levels not exceed 200 per 100 milliliters of sample in 20 percent of samples or that a single sample not exceed 1000 Fecal Coliform Bacteria per 100 milliliters of sample. All of the samples you provided were well within acceptable ranges according to this standard.

I have also enclosed the results for the water chemistry samples your association members collected from Eagle Lake on July 7, 1993. The data from these samples shows the lake to be a soft water, low productivity (oligotrophic) lake. There was also very little difference in chemical water quality between the five samples you provided, with the exception of nitrate in sample 1.

The results for pH and alkalinity indicate that Eagle Lake remains alkaline (pH greater than 7.0) with a buffering capacity currently adequate to offset any inputs of acid from acid rain. Alkalinity levels have changed very little from the data collected in 1989 as part of the lakewide survey or the data collection by your lake association in 1992. In other words, the residents of Eagle Lake do not have to fear any impacts to the lake from acid rain in the near future.

Available nutrients (orthophosphorus and nitrate) present in the lake which act as fertilizers to the rooted aquatic plants (macrophytes) and the floating algae (phytoplankton) are very low in concentration. These two nutrients come from a variety of sources such as agricultural and garden runoff of fertilizers, runoff of rainfall and the eroded sediments it carries, and inlet streams, particularly those which drain large wetland areas. Nitrate and orthophosphorus concentrations remain comparable to those reported in 1989 with the exception of site 1. Nitrate values on the order of those reported for site 1 are more typical of streams which tend to add nitrate to downstream waters.

Chloride concentrations are a measure of the amount of salts present in the lake water. Chlorides, generally a result of the runoff of road deicing salts, are moderate in Eagle Lake indicating the possibility of some impact from highway runoff. Chlorides are a good indicator of excessive highway runoff to a lake, and the large load of pollutants it can carry such as heavy metals and fuel and lubricating products. Chloride levels are comparable to those measured in 1992.

In summary, the chemical water quality of Eagle Lake is excellent. The concentrations of soluble nutrients in the lake are low and as discussed are largely controlled by the amount of available nutrients (nitrate and orthophosphorus) present in the water and sediments of the lake. Reduction in the amounts of these nutrients reaching the lake as a result of the runoff of rainfall from the drainage basin should still be a consideration of your lake association. One of the best ways to accomplish a reduction in soil erosion and highway runoff is through the assistance of county agencies such as the Soil Conservation Service and the Cooperative Extension Service.

Jim Davis

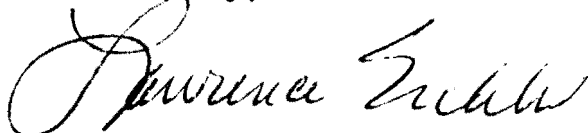
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I would be interested in seeing the results for Secchi Disk transparency that you collect from the lake if this is currently done.

If you have any questions or would like to discuss any of the findings, don't hesitate to contact us.

Sincerely,

A handwritten signature in cursive script, appearing to read "Lawrence Eichler".

Lawrence Eichler
Research Scientist

Enc.

EAGLE LAKE MICROBIOLOGICAL SAMPLING RESULTS: July 07, 1993				
Eagle Lake #	Sample #	Sampling Location	Total Coliform /100 mls	Fecal Coliform /100 mls
1	93-082	Route 74 Bridge	< 10	< 10
2	93-083	Muelich	50	10
3	93-084	Middle West Island	< 10	< 10
4	93-085	R.C. Stevens	< 10	< 10
5	93-086	Harris	< 10	< 10
A	93-087	Lang	< 10	< 10
B	93-088	East Bay	< 10	< 10
C	93-089	Crown Point Bay	< 10	< 10
D	93-090	West of Bridge	< 10	< 10
E	93-091	Raral	< 10	< 10

Maximum Allowable Levels of Coliform Bacteria in Waters Used for Contact Recreation (NYS Dept. of Health Regulations).		
Bacterial Test	Maximum 5 Sample Mean	Maximum Single Result
Total Coliform	2400 per 100 mls	5000 per 100 mls
Fecal Coliform	200 per 100 mls	1000 per 100 mls

LABORATORY RESULTS FOR SAMPLES PROVIDED BY
 Mr. J. Davis & R. Tiedemann
 Samples Collected 07-JULY-93
 From Eagle Lake, Essex County, NY

ANALYTE	SAMPLING SITE				
	1	2	3	4	5
Laboratory pH	7.75	7.58	7.79	7.78	7.93
Alkalinity mg/l as CaCO ₃	30.5	30.5	30.0	31.0	31.0
Ortho Phosphorus (ug/l as P)	lt 1	lt 1	lt 1	lt 1	lt 1
Chloride (mg/l)	12.0	11.3	11.2	11.4	11.6
Nitrate (mg/l as N)	0.14	0.01	0.02	0.04	0.01
Sulfate (mg S/l)	2.05	1.87	1.90	1.89	1.89

lt is less than.