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October 7, 2014

Deer Lake Property Owners Association
PO Box 250
Loon Lake, WA 99148

RE: Deer Lake September 2014 Study Results

Dear Mike and DLPOA Board:

I am writing to present a short summary of the results from samples collected September 8, 2014. This summary of the Sept – 14 results is meant to compare with results presented in the 2005 study report.

Water samples and field measurements were taken September 8, 2014 at the same two in-lake stations as in the past studies ('Narrows' and 'South'). Field analysis were performed just below the water surface and at two meter intervals to the bottom. These consisted of temperature, dissolved oxygen, conductivity, and pH.

In the past studies, analysis were performed on samples collected every two meters in depth. However, due to budget constraints analysis were only performed on Epilimnion, Metalimnion, and Hypolimnion samples at the South site. Epilimnion was composed of surface, 2M, 4M and 6M samples. Metalimnion was composed of 8M, 10M, and 12M samples. Hypolimnion was made from samples 14M, 16M, 18M and 20M. The three layers were determined by the temperature gradient of the water column. The surface, 2M and 4M samples were combined from the Narrows site resulting in only one sample from this site.

In the past, Epilimnion and Hypolimnion samples were compared from different studies. The averages were determined using analysis from 2M, 4M and 6M for the Epilimnion and 14M, 16M and 18M for the Hypolimnion. These were made slightly different for this study. This was an oversight when samples were combined, but needs to be noted when comparing results with studies from different years. However, in the table included in this summary Aug – 05 results were averaged from the same depths as Sept – 14 samples to give a more true comparison between the two years.

Not included in the tables but on the Sept – 14 report are the Turbidity, Fecal Coliform, and Ammonia results. The Turbidity results were higher for this study compared to Aug – 05. They were not real high and could be attributed from many different causes. A couple being human activity and the samples being collected in September when the lake is starting to cool compared to August when samples were collected in the past. There were only one colony forming unit (CFU) found at each site which in Aug – 05 had 32 at the Narrows and zero at the South site. The South site hypolimnion sample was the only sample analyzed for ammonia. The result was <0.010 mg/L compared to 0.19 mg/L at 20 meters in Aug – 05. This correlates with the higher DO measurement that the bottom was not anoxic releasing nutrients into the water column as in the past.

In conclusion, Deer Lake is showing improvement in nutrient levels. The dissolved oxygen, total phosphorus and total nitrogen levels in the hypolimnion show an improvement from all years compared to past studies. It does appear that improvements that have been made by DLPOA have made a positive difference in the health of the lake.

Please don't hesitate to contact me with any clarifications or questions.

Best Regards,

Darren Lantzer
Lab Manager