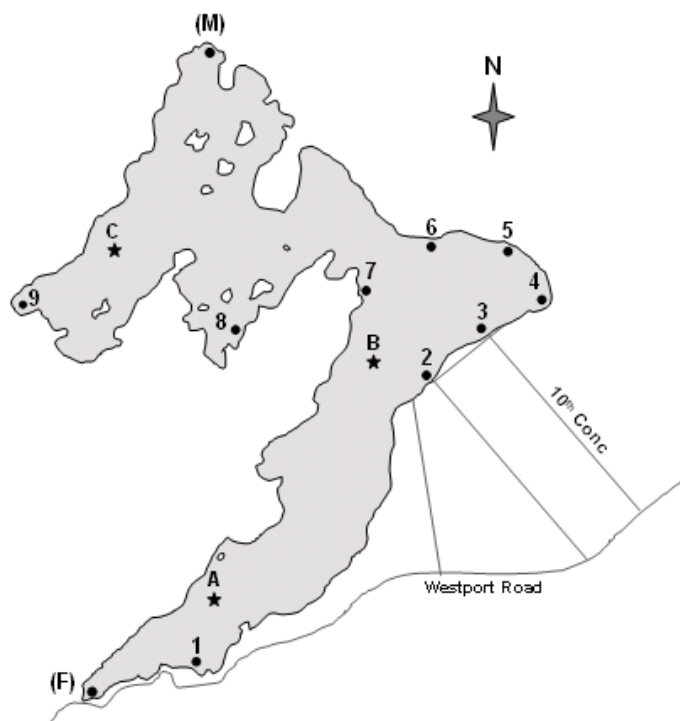


Water Quality 2012

Water Chemistry

Water quality was tested on 10 occasions in 2012. Deep-water samples taken at sites B and C on May 18, June 23, July 30, August 28, September 23 and October 9 were analyzed for total phosphorus (TP) concentration through the Lake Partner Program (Ministry of the Environment). Deep- and shallow-water samples were also taken at several sites by the Rideau Valley Conservation Authority (RVCA) on May 18, July 9, August 12 and October 12. These were analyzed for a number of variables including TP, calcium, total nitrogen, E. coli and dissolved oxygen concentration. The laboratory results from the Lake Partner Program are summarized in Table 1 and those from the RVCA in Table 2.



Sampling Sites for Water Testing in Wolfe Lake

(to reduce laboratory costs, samples are not taken at every site in any given year)

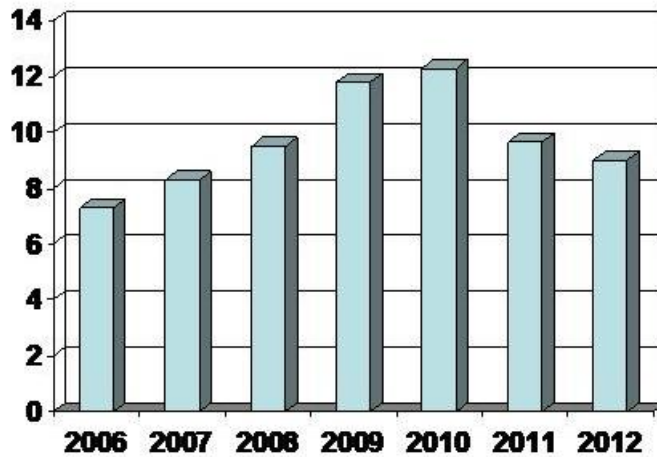
Table 1: TP Concentration, µg/L (Lake Partner Program Data)

Date	Site			
	B		C	
	Sample #1	Sample #2	Sample #1	Sample #2
May 18	7.8	7.4	7.0	7.0
June 23	9.2	9.8	9.8	9.4
July 30	8.4	8.2	9.2	10.2
August 28	8.8	8.8	8.6	9.0
September 23	10.2	10.0	9.2	9.4
October 9	9.6	11.0	11.6	11.8

Table 2: TP Concentration, µg/L (RVCA Data)

Date	Site					
	B	C	4	9	(F)	(M)
May 18	11	13				
July 9	3	5	5	6	5	6
August 12	12	9		13	15	34
October 12	6	10				

Deep-Water Total Phosphorus Concentration, July ($\mu\text{g/L}$)



Interpretation of Results

Total Phosphorus. Deep-water TP concentrations (Tables 1 and 2 and Figure 1) tended to be lower than those at similar sampling times for the past several years. As can be seen in Figure 1, the average July value of $9.0 \mu\text{g/L}$ reinforces last year's indication that the 5-year trend towards increasing phosphorus concentration seems to have ended. Shallow-water samples (Table 2) were similar to or slightly lower than in previous years with the exception of the August 12 result at site (M), which may have been a measurement error. Since much of our phosphorus enters the lake through streams and as rainwater runoff, last year's drier than normal summer may partially explain these encouraging results.

Additional chemical results. *E. coli* was measured at shallow water sites 4, 9, (M) and (F) on several occasions and all values were well within the safe limit. Total nitrogen results were similar to or slightly lower than those in previous years, indicating that nutrient enrichment had not increased. The deep-water dissolved calcium concentrations of 29.9 and 28.3 mg/L at sites B and C are unfortunately ideal for reproduction of zebra mussels, but there is little we can do about this.

Water Clarity

Secchi disc readings remained consistent and were over the 5 m standard for "excellent clarity". It has been noted before that in non-zebra mussel infested lakes, this measurement normally gives a good inverse correlation with TP concentrations (i.e., the

greater the water clarity, the lower the TP). There can be little doubt however that the extreme water clarity over the past 5 years is due to filtration by zebra mussels. As a result, Secchi disc readings can be misleading and therefore have not been included in this report.

Zebra Mussels

As noted last year, zebra mussel numbers seem to have remained no greater than in 2009. As outlined in previous newsletters, this ecological balance point occurs when they have filtered the water to the point that there is not enough plankton available to support further expansion in reproduction.