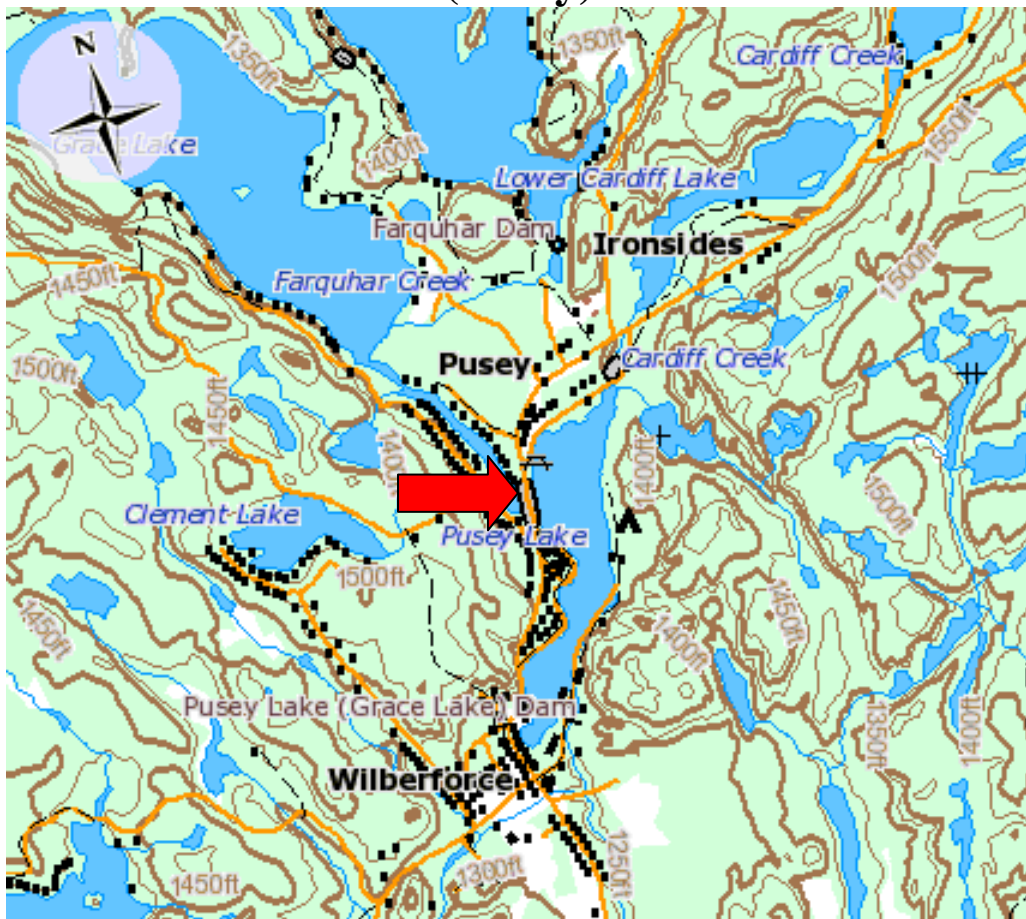


# Dark (Pusey) Lake



## LOCATION

**County:**..... Haliburton  
**Township:**..... Highlands East  
**Watershed:**..... Trent River  
**Zone:**..... 17T  
**Easting:**..... 719375  
**Northing:**..... 4992250  
**Topographic Sheet:**..... Wilberforce 31 E/1

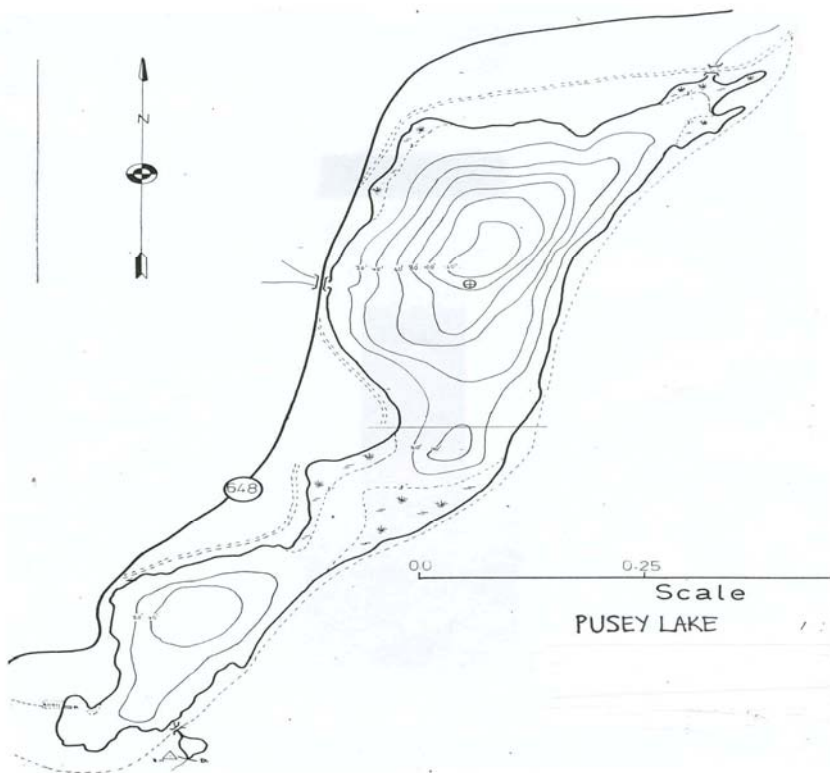
## SHORELINE DEVELOPMENT (2002)

**Residences:**  
 Permanent:.....35  
 Seasonal:.....31  
 Vacant Lots of Record:.....5  
  
**Commercial Establishments:**.....3

## MORPHOMETRY

**Surface Area:**..... 57 ha  
**Lakeshed Area:**..... 343 ha  
**Watershed Area:**..... 5484 ha  
**Shoreline Length:**..... 5.63 km  
**Maximum Depth:**..... 38.1 m  
**Mean Depth:**..... 10.67 m  
**Total Volume:**..... 6 050 000m<sup>3</sup>

**Figure 1. Pusey Lake: Bathymetry Map.**



**WATER CHEMISTRY**

**Table 1. Pusey Lake Water Chemistry (all values mg/L unless noted)**

PARAMETER	May 23, 2001		July 23, 2001		August 21, 2001		September 11, 2003	
	Surface	Meter off Bottom	Surface	Meter off Bottom	Surface	Meter off Bottom	Surface	Meter off Bottom
Secch Disk (m)	6.1		3.9		4.8		5.2	
Total Phosphorus	0.006	N/A	0.008	0.012	0.008	0.014	0.005	0.007
Ammonia-Nitrogen	0.010	N/A	0.008	0.084	0.016	0.116	0.018	0.039
Nitrite-Nitrogen	0.002	N/A	0.001	0.002	0.002	0.003	0.001	0.001
Nitrate-Nitrogen	0.076	N/A	0.024	0.165	0.043	0.093	0.049	0.233
Total Kjeldahl Nitrogen	0.24	N/A	0.26	0.32	0.26	0.34	0.26	0.26
Dissolved Organic Carbon	3.7	N/A	3.6	2.9	3.9	3.3	4.1	3.3
Dissolved Inorganic Carbon	7.4	N/A	6.4	11.4	6.4	11.8	7.3	11.5
pH (none)	7.73	N/A	7.63	7.32	7.76	7.73	7.83	7.72
Total Alkalinity	32.5	N/A	29.5	50.0	31.5	49.0	31.7	46.0
Conductivity	94	N/A	90	145	93	143	94	142

Phosphorus and nitrogen concentrations in Pusey Lake were low which would likely preclude the formation of nuisance algal populations.

The Secchi disk visibility between 3.8 meters and 6.1 meters indicates good water clarity.

The DOC concentration around 3.5 mg/L is a low amount likely indicating little organic material input from the watershed.

Based on pH and total alkalinity, Pusey Lake is not considered sensitive to acidification.

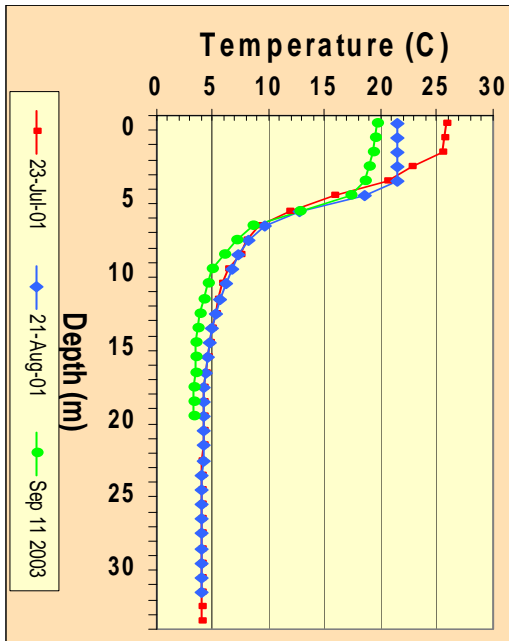
The oxygen and temperature profiles are presented in Table 2 and Figures 2 and 3. The temperature profile indicates that Pusey Lake has well defined thermally stratified layers. The dissolved oxygen profiles show oxygen enrichment in the metalimnion. This is a common variation referred to as a positive heterograde, and is likely due to thermally trapped algae that can still photosynthesize because of very good water clarity.

By the late summer critical period the mean hypolimnetic dissolved oxygen (DO) was 3.06 mg/L on September 12, 2003. Previous historical mean hypolimnetic dissolved oxygen concentrations have also been lower than the 7 mg/L criterion for recruitment of lake trout. Historical values were 3.75 mg/L in 2001, 3.51 in 1986 and 2.89 in 1984.

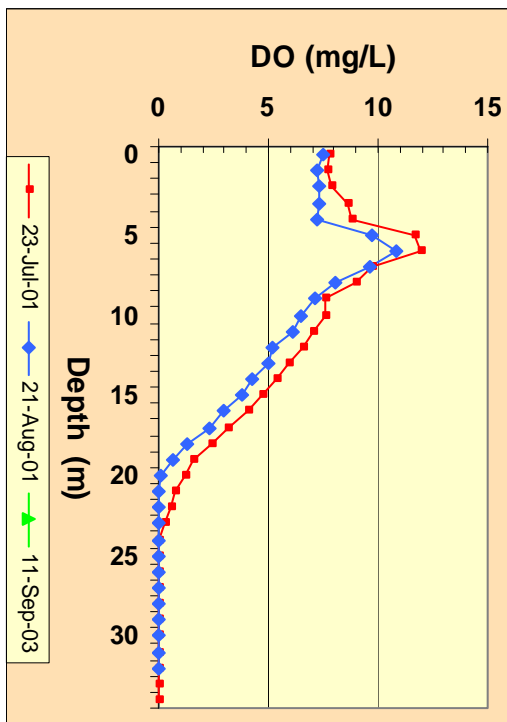
**Table 2. Pusey Lake, Temperature and Dissolved Oxygen Profiles: July 23, 2001, August 21, 2001, and September 11, 2003**

Depth (m)	July 23, 2001		August 21, 2001		September 11, 2003	
	Temp (°C)	DO (mg/L)	Temp (°C)	DO (mg/L)	Temp (°C)	DO (mg/L)
0.1	25.90	7.74	21.50	7.49	19.70	8.24
1	25.60	7.71	21.50	7.26	19.50	8.33
2	25.40	7.85	21.50	7.35	19.20	8.22
3	22.80	8.59	21.50	7.36	19.00	8.25
4	20.50	8.79	21.50	7.23	18.60	8.21
4.5	18.40	9.29	21.40	7.42	18.40	7.96
5	15.80	11.71	18.60	9.74	17.30	8.28
5.5	14.20	12.03	15.90	10.86	14.70	10.31
6	11.90	11.93	12.70	10.80	12.70	10.73
6.5	10.80	10.83	11.00	10.20	10.10	10.09
7	9.10	9.71	9.60	9.67	8.60	8.77
7.5	8.50	9.20	9.00	8.60	7.70	8.51
8	8.00	8.94	8.20	8.03	7.10	8.43
8.5	N/A	8.30	7.70	7.52	6.60	8.02
9	7.50	7.60	7.30	7.10	6.00	7.96
9.5	6.60	7.85	N/A	N/A	5.50	7.24
10	6.30	7.59	6.70	6.51	5.00	6.96
11	5.80	7.06	6.10	6.10	4.50	6.67
12	5.50	6.59	5.60	5.17	4.20	6.11
13	5.20	5.88	5.20	4.97	3.80	5.38
14	4.90	5.34	4.90	4.30	3.60	4.13
15	4.70	4.70	4.70	3.84	3.50	3.35
16	4.50	4.09	4.50	3.00	3.40	1.70
17	4.40	3.12	4.40	2.34	3.40	0.68
18	4.20	2.37	4.20	1.31	3.30	0.55
19	4.10	1.55	4.20	0.69	3.30	0.52
20	4.10	1.16	4.10	0.13	3.30	0.48
21	4.10	0.73	4.10	0.01		
22	4.10	0.57	4.10	0.00		
23	4.00	0.31	4.10	-0.04		
24	4.00	0.00	4.00	-0.04		
25	4.00	-0.04	4.00	-0.04		
26	4.00	-0.04	4.00	-0.04		
27	4.00	-0.04	4.00	-0.04		
28	4.00	-0.04	4.00	-0.04		
29	4.00	-0.04	4.00	-0.04		
30	4.00	-0.04	4.00	-0.04		

**Figure 2. Pusey Lake, Temperature Profiles**



**Figure 3. Pusey Lake, Dissolved Oxygen Profiles**



**FISHERIES SUMMARY**

MNR to provide