Memorandum

Date: **April 07, 2024**

To: **Forrest Pengra, Director of Strategic Initiatives and Dominique O'Brien, Director of Community Services, Seguin Township**

From: **Kris Hadley, Hutchinson Environmental Sciences Ltd.**

Re: **J100033 – 2023 Water Quality Monitoring Summary**

In 2023, Seguin Township completed year 15 of sampling for its Water Quality Monitoring Program. This program collects total phosphorus (TP) concentration data and other pertinent lake information (e.g., Secchi depth, dissolved oxygen concentration, lake depth, dissolved organic carbon, and major ion concentrations) in support of the water quality model developed to predict phosphorus concentrations in the Township[1]. Continued monitoring will also allow the Township to identify any changes in lake water quality as they emerge.

Monitoring in 2023 was conducted by summer students employed by Seguin Township. HESL staff provided sampling instructions which consisted of two half day training sessions in the spring and fall and ongoing technical guidance and assisted coordination with the laboratory at Dorset Environmental Science Centre (DESC). Duplicate water samples were collected from 51 sites for analysis of spring overturn TP concentration and in August, 31 sites were revisited to measure dissolved oxygen and temperature profiles, Secchi depth and lake depth.

Spring total phosphorus data are also collected by volunteers for several of the lakes in the Township under the province's Lake Partner Program (LPP) using the same sampling protocols as Seguin's program and analyzed at DESC. As with previous years, available LPP total phosphorus data collected since 2002 were compiled, reviewed and added to the Seguin data set to provide more data for more lakes and years. Combined, these two monitoring programs provide spring overturn total phosphorus data for 88 of the 129 lakes in Seguin Township that have a surface area of at least 10 ha.

The major findings from the 2023 Seguin monitoring and the results of the combined data from Seguin's monitoring program and the LPP are summarized below, and recommendations are provided for future sampling.

[1] *Hutchinson Environmental Sciences, Ltd., 2016.* Review, Update and Refinement of Seguin Township's Water Quality Model (SWQM) and Phosphorus Management Approach. *Final report prepared for Seguin Township. January 2016. 67pp*

1. Spring Total Phosphorus

1.1 Data Screening

Water samples for analysis of total phosphorus are taken into duplicate laboratory-provided glass tubes. Contamination of samples can occur during sample collection which can produce elevated TP concentrations and 'bad splits' between the field duplicates. Even with careful sampling, bad splits occur in approximately 10% of sample submissions to DESC (pers. comm., Bev Clark, MOECP retired). All sample pairs that differed by more than a) 40% from the minimum of the two values, and b) 4 μg/L, were therefore flagged and the higher of the two values was removed, assuming contamination.

There was one bad split identified in the 51 samples collected by Seguin Township in 2023 (Table 1). This represents continued good sampling practices as the percentage of bad splits has remained below 10% since 2012. We recommend continued vigilance in following sampling protocol when collecting water samples to maintain the good record of minimum sample contamination.

Table 1. Bad Splits between Duplicate Samples Collected by the Seguin Township Monitoring Program and the Lake Partner Program (LPP) for Seguin Township Lakes

Year	# of Bad Splits	Total # of Samples	% Bad Splits
2008	3	25	12
2009	7	37	19
2010	4	36	11
2011	8	47	17
2012	4	50	8
2013	1	53	2
2014	1	46	2
2015	0	40	0
2016	1	49	2
2017	0	50	0
2018	2	45	4
2019	4	43	9
2021	5	57	9
2022	0	27	0
2023	1	51	2
Seguin Township (08-23)	43	667	6.4
LPP (02-16)	23	455	5.1

Outliers from the data set were identified using the Dixon's Q and Grubbs' outlier tests[2] at a significance level of α = 0.05. Eleven values were identified as outliers in the 2002-2023 data set and were removed from the dataset prior to analysis (Table 2). No new outliers were identified in the 2023 data, while a previous outlier at McNutt Lake was no longer a mathematical outlier when 2023 data were added to the dataset.

[2] *For lakes with 3 to 10 years of data, a sample was considered to be an outlier based on both the Dixon and Grubb's test. For lakes with more than 10 years of data, only the Grubb's test was used to identify outliers.*

Table 2. Outlier Total Phosphorus Values (2002-2023)

Lake	Year	Outlier TP (µg/L)	Mean 2002-2023 TP (µg/L) (outlier excluded)
Armishaw Lake	2018	14.1	5.4
Black Water Lake	2008	16.2	9.5
Cosh Lake	2008	21.0	7.0
Gilbank Lake	2006	13.9	7.1
Little Whitefish Lake	2006	10.1	5.1
Maple Lake	2002	18.2	10.2
McKechine Lake	2021	9.8	4.3
Murdock Lake	2018	68.8	11.2
Oastler Lake	2014	10.8	6.8
Salmon Lake	2002	13.2	5.8
Scott Lake	2013	12.3	5.4

1.2 Summary

Mean spring total phosphorus concentrations for the 92 lakes with data from 2002 to 2023 ranged from 3.6 to 20.78 µg/L, with an overall average of 7.85 µg/L (Table 3). Seventy-six (76) of the lakes had spring TP concentrations <=10 µg/L, which provides a high level of protection against aesthetic deterioration due to excessive algal production in lakes (MOE 1994). No new lakes were added to the dataset in 2023.

The MOECP recommends a minimum of two years of spring overturn TP data to be 95% confident of being within 20% of the mean spring concentration of a lake (Clark and Hutchinson 1992). Eighty-six (86) lakes in Seguin Township now meet or exceed the minimum monitoring data requirements to provide reliable estimates of long term, spring total phosphorus concentrations.

Mann Kendall trend analysis was used to determine whether TP concentrations were changing significantly over time (2002-2023) in lakes with at least 10 years of data. Twenty-nine (29) lakes in the data set met the criteria for trend analysis. No significant increasing trends in total phosphorus were detected.

Table 3. Mean Spring Total Phosphorus (TP) Concentrations in Seguin Township Lakes (n=92)

Lake name	TP 2023 (µg/L)	# of Years Sampled (02-23)	Mean TP (02-23) (µg/L)
Anselmi Lake		1	8.9
Armishaw Lake	5.5	5	5.4
Baby Lake		10	9.2
Back Lake	7.0	7	7.9
Black Water Lake		10	9.5
Blue Lake	4.9	10	4.0
Brennan Lake		6	10.3
Brush Lake	4.7	7	5.4
Burr Lake		4	7.4
Capton Lake		5	7.2
Carruthers Lake		4	6.3
Clear Lake	4.2	18	3.6
Cosh Lake	7.2	7	7.0
Diamond Lake	7.0	8	9.2
Draper Lake		8	7.6
Dyson Lake		11	4.9
Fair Lake	7.1	7	7.5
Faris Lake	3.7	8	4.2
First Lake	7.0	9	7.9
Flaxman Lake	4.8	6	4.5
Forget Lake		9	6.2
Gerow Lake		4	9.5
Gilbank Lake	4.6	13	7.3
Haines Lake	7.7	8	7.9
Home Lake		1	16.9
Hooton Lake		4	6.1
Horseshoe Lake		19	7.2
Isabella Lake	10.1	19	9.5
Joselin (Burnt) Lake		19	5.9
Kight Lake	9.9	6	10.9

Lake name	TP 2023 (µg/L)	# of Years Sampled (02-23)	Mean TP (02-23) (µg/L)
Kingshott Lake	8.6	7	9.7
Lake Adele		4	20.8
Lake Leba		4	11.7
Lane Lake		9	5.9
Lieback Lake	7.3	5	5.7
Limestone Lake		1	7.3
Linger Long (Napken) Lake		9	9.1
Lioness Lake		3	8.6
Little Lake Joe		9	6.3
Little Otter Lake		8	7.1
Little Seguin/Duck Lake	11.3	17	9.6
Little Whitefish Lake		16	5.1
Long Lake	3.5	8	6.2
Long Lake 1		3	4.3
Lower Fry Lake	12.4	8	12.9
Manitouwaba Lake	4.9	18	6.2
Maple Lake	9.8	14	10.4
Martin Lake	6.1	9	6.7
McDonald Lake		9	8.7
McGown Lake	6.6	19	5.1
McKechine Lake	5.5	7	4.3
McLean Lake	8.8	7	7.6
McNutt Lake	16.5	10	9.5
McTaggart Lake		3	10.5
Mill Lake		1	6.0
Mirror Lake	5.6	8	7.0
Mohan Lake		1	5.4
Murdock Lake	8.6	6	11.4
Mutton Lake	5.9	7	9.7
Neville Lake	9.9	7	11.6
Oastler Lake	5.1	18	6.5

Lake name	TP 2023 (µg/L)	# of Years Sampled (02-23)	Mean TP (02-23) (µg/L)
Otter Lake	3.8	20	6.1
Pender Lake	6.1	6	5.7
Pickering Lake		9	13.3
Portage Lake	4.6	10	5.9
Rankin Lake	6.4	18	8.4
Richmond Lake		5	6.7
Roberts Lake		9	7.2
Salmon Lake	6.3	18	5.7
Scime Lake		2	9.3
Scott Lake		7	5.4
Second Lake	9.9	8	11.4
Sovereign Lake		2	6.2
Star Lake	8.6	18	10.1
Storm Lake	5.1	6	6.3
Sucker Lake	6.4	11	6.4
Sugar Lake	5.5	19	6.7
Ten Mile Lake	11.8	5	9.9
Third Lake	8.6	7	10.4
Three-Legged Lake	4.7	15	4.9
Tiffin Lake/Silver	5.8	9	6.5
Trout Lake		8	5.1
Tub Lake	7.2	6	7.0
Tucker Lake	8.4	11	8.7
Turtle Lake		15	8.1
Upper Fry Lake	15.5	18	14.0
Virtue Lake		10	9.9
Watson Lake		3	8.4
Whitefish Lake	4.4	13	4.5
Windfall Lake	9.1	7	8.0
Wright Lake		1	6.4
Yarrow Lake		5	9.2

2. Dissolved Organic Carbon and Major Ions

Water quality samples were collected and analyzed for dissolved organic carbon during the spring sampling, however samples were not collected for major ions in 2023.

Past sampling performed for the Township of Seguin has focused on the qualitative assessment of dissolved organic substances by water colour observation, however, beginning in 2017 dissolved organic carbon (DOC) samples were also collected to begin to better quantify DOC and identify lakes in which TP concentrations reflect elevated DOC concentrations. Dissolved organic carbon sampling was performed for the fourth time in the 2023 monitoring campaign. Water samples were collected and submitted to the water chemistry lab at ALS for analysis (Table 4). DOC is the dominant factor explaining TP concentrations in Precambrian Shield Lakes and lakes sampled by the District of Muskoka Lake System Health Program show a significant relationship of TP to DOC (HESL 2016). Lakes with high DOC concentration (i.e., >10 mg/L) will have naturally enriched TP concentrations and may not model well because they fall outside the range of DOC in lakes that were used to develop and calibrate the Province's Lakeshore Capacity Model (Ontario, 2010) which was used as the basis of the Seguin Water Quality Model. No lakes sampled in 2023 had DOC concentrations above 10 mg/L (Table 4) but Palmer and Yan (2013) reported that DOC concentrations are increasing in Muskoka area lakes. We recommend continued DOC sampling to expand the DOC data set in Seguin and inform future modelling.

3. August Field Sampling

Dissolved oxygen and temperature profiles, and lake depth were monitored (Table 5) at 32 study sites in August 2023. Of the lakes monitored, ten were shallow and mixed to the bottom. Twenty-one of the lakes displayed low oxygen concentrations (<2.0 mg/L) within 1 m of the lake bottom. These lakes have potential for internal phosphorus loading via hypolimnetic anoxia and were therefore sampled for total phosphorus at the surface and in the deep water (Table 5). In six lakes (i.e., Clear, Cosh, Kight, Neville, Oastler, and Whitefish) only the bottom-most interval displayed low oxygen concentrations which may suggest sampling error (i.e., interference of sediment with measurement), avoiding this issue in the future will be discussed during training in 2024.

The Seguin Township monitoring program collected samples for total phosphorus from 1 meter above bottom (1mob) to document the potential for phosphorus release from lake sediments (internal loading) in lakes whose dissolved oxygen concentrations fell below 2.0 mg/L (n=21, Table 5). Samples for Forget Lake, Oastler Lake (bottom) and Lower Fry Lake were not collected or were damaged in sampling and analysis; therefore no data was available. Of the remaining 18 top/bottom samples, 5 had little to no change between the top and bottom sample, including Clear, Cosh, Kight, Portage and Whitefish lakes. All of the other 13 sites sampled in fall of 2023 showed higher phosphorus concentrations in the bottom sample. The magnitude of the increase was small in Blue, Brush, Flaxman, Joselin, Neville, Sucker, and Third Lakes indicating that the increase was more likely related to settling of particulate phosphorus from the surface waters than to internal loading. In Isabella, Lieback, Pender, Sugar, Tucker, and Turtle Lakes, we recorded a marked increase in bottom water total phosphorus concentrations suggesting internal loading is likely contributing phosphorus to these water bodies. Continued top/bottom sampling of Seguin Township lakes is recommended to identify any additional lakes which may experience internal loading of phosphorus.

Table 4. Summary of Dissolved Organic Carbon Sampling Conducted in 2023.

Lake Name	Results	Date Sampled
Armishaw Lake	6.39	23-May-2023
Back Lake	6.43	17-May-2023
Blue Lake	3.78	10-May-2023
Brush Lake	4.96	19-May-2023
Clear Lake	2.9	19-May-2023
Cosh Lake	6.94	08-May-2023
Diamond Lake	6.18	16-May-2023
Fair Lake	5.95	09-May-2023
Faris Lake	4.64	24-May-2023
First Lake	4.7	15-May-2023
Flaxman Lake	3.66	18-May-2023
Gilbank Lake	4.41	08-May-2023
Kingshott Lake	7.68	10-May-2023
McGown Lake	6.17	24-May-2023
McKechine	4.27	23-May-2023
McNutt Lake	5.51	12-May-2023
Mirror Lake	3.55	09-May-2023
Murdock Lake	7.49	26-May-2023
Neville Lake	5.38	24-May-2023
Oastler Lake	4.98	26-May-2023
Pender Lake	5.2	17-May-2023
Sugar Lake	4.81	16-May-2023
Tiffin/Silver Lake	6.69	23-May-2023
Tub Lake	5.65	16-May-2023
Tucker Lake	8.61	19-May-2023
Upper Fry Lake	9.78	31-May-2023
Windfall Lake	4.85	01-Jun-2023

Table 5. Summary of August 2023 Field Sampling Results.

Lake	Depth (m)	Surface Water Temperature (˚C)	Dissolved Oxygen (mg/L)[1]	Potentially Anoxic Hypolimnion?[2]	Shallow Mixed Water Column?[3]	Total Phosphorus Top (mg/L)	Total Phosphorus Bottom (mg/L)
Blue Lake	15	22.5	7.8 (0.3)	Y	N	3.83	8.02
Brush Lake	15	21.9	8.2 (0.07)	Y	N	4.86	20.2
Clear Lake	30	21.6	8.2 (0.59)	N	N	4.32	5.63
Cosh Lake	4	20.4	7.8 (1.0)	N	Y	5.79	7.2
Diamond Lake	3	22.3	7.5	N	Y		
Dyson Lake	14	23.2	7.6	N	N		
Fair lake	3	21.8	7.4	N	Y		
First Lake	2	21.6	8.8	N	Y		
Flaxman Lake	19	21	8.5 (0.4)	Y	N	4.81	13.1
Forget Lake	22	23.4	8.3 (0.3)	Y	N	-	-
Haines lake	14	21.8	8.7	N	N		
Isabella Lake	7	22.8	7.9 (0.2)	Y	N	9.81	119.5
Joselin (Burnt) Lake	10	21	8.7 (0.9)	Y	N	6.1	22.5
Kight Lake	4	21.4	7.1 (0.2)	N	Y	9.37	13.5
Kingshot Lake	3	22.3	7.4	N	Y		
Lieback Lake	18	21.4	8.2 (0.2)	Y	N	6.7	78.1
Lower Fry Lake	9	21.6	7.2 (0.2)	Y	N	-	-
McKechine Lake	5	21.3	7.3	N	Y		
Mirror Lake	3	22.3	8.45	N	Y		
Neville Lake	4	21.2	7.7 (0.38)	N	Y	9.88	33.4
Oastler Lake	19	22.9	8.6	N	N	5.95	-
Pender Lake	13	21.6	8.1 (0.1)	Y	N	3.93	39
Portage Lake	19	20.5	7.9 (0.3)	Y	N	4.66	6.97
Salmon Lake	9	23.5	8.2	N	N		
Second Lake	2	20.8	8.2	N	Y		
Sucker Lake	17	22.8	8.2 (0.2)	Y	N	4.35	17.2
Sugar Lake	18	22.4	7.97 (0.04)	Y	N	7.01	196
Third Lake	8	21.1	8.8 (0.8)	Y	N	9.51	20.4
Three-Legged Lake	30	22.5	7.73	N	N		
Tucker Lake	7	21.5	8.4 (0.1)	Y	N	6.74	38.7
Turtle Lake	14	22.3	7.81 (0.1)	Y	N	7.65	28.5
Whitefish Lake	30	21.5	8.5 (0.64)	N	N	4.59	5.45

[1]value in brackets is the deepest D.O. measurement; [2]mean hypolimnetic dissolved oxygen concentration <2.0 mg/L; [3]weak stratification refers to lakes that have a thermocline (>1°C change/1 m depth) that extends to the lake bottom.

4. Summary and Recommendations

The 2023 Seguin Water Quality Monitoring Program successfully expanded our understanding of water quality in the Township. Samples were collected for total phosphorus, dissolved oxygen, and temperature, providing important data to inform the ongoing assessment of development capacities and aid in the identification of emerging lake health issues in the Township.

The key results of this years monitoring program and recommendations for future sampling are:

- A total of 92 of 129 lakes (72%) in Seguin Township have measured spring total phosphorus concentration data, and 84 of these lakes have at least 3 years of data as of the end of the 2023 sampling season. It is important that Seguin Twp. continue to build this record to inform their lake management program.
- August monitoring of dissolved oxygen, temperature, and lake depth was completed for 32 sites in 2023. These data have been useful to flag lakes where internal loading of phosphorus may pose future management challenges. Continued expansion of this database to include additional lakes and to look for changes over time is recommended but should not be considered authoritative as the sampling period ends well before the end of the period of stratification and so does not capture the maximum oxygen stress.
- We recommend that the monitoring program continue with the focus on lakes that have little or no TP data ('B' lakes), while expanding the long-term monitoring of more frequently monitored lakes and include the collection of top/bottom total phosphorus samples in low oxygen lakes.
- Quantitative analysis of DOC was carried out in 2023 for the fourth time. The majority (n=78) of the lakes that are assessable and frequently sampled by the Township now have at least a single year of DOC data. Some "B" lakes (n=51) have not yet been sampled for DOC, however we note that many of these lakes have not been sampled for total phosphorus due to accessibility issues. HESL will work with Seguin Township to select the most appropriate lakes for additional DOC sampling and discuss the future of DOC as a part of the long-term monitoring program. A combination of adding new lakes to the dataset and re-assessing DOC concentrations in some previously sampled lakes will provide both new data but also an understanding of year-to-year variability in the region.
- Outlier and bad split assessments suggest that the sampling in 2023 was excellent. It is important to reinforce the need for proper field protocol for sample collection and record keeping among the student crew. We recommend that an orientation "refresher" continue to be conducted for the students prior to the August sampling with additional attention to dissolved oxygen sampling methods.

5. References

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Appendix A. Seguin Township 2024 Lake Sampling Recommendations

Lakes to Sample in 2024		
Baby Lake	Limestone Lake	Trout Lake
Black Water Lake	*Linger Long (Napken) Lake*	Turtle Lake
Brennan Lake	Lioness Lake	Virtue Lake
Burr Lake	*Little Lake Joe*	Watson Lake
Capton Lake	Little Otter Lake	Wright Lake
Carruthers Lake	Little Whitefish Lake	Yarrow Lake
Draper Lake	*McDonald Lake*	Aikman Lake
Dyson Lake	McTaggart Lake	Cochrane Lake
Forget Lake	Mill Lake	Dick Lake
Gerow Lake	Mohan Lake	Hamer Lake
Home Lake	*Pickering Lake*	Heaslip Lake
Hooton Lake	Richmond Lake	Home Lake
Horseshoe Lake	Richmond Lake	Lovell Lake
Joselin (Burnt) Lake	*Roberts Lake*	*First Lake*
Lake Adele	Scime Lake	*McNutt Lake*
Lake Leba	Scott Lake	*Tiffin Lake/Silver*
Lane Lake	Sovereign Lake	

Note: Shaded lakes have not been sampled previously. Lakes in italics have 9 years of data and will qualify for trend analysis with the addition of 2024 data.

Appendix B. Seguin Township Lake List

Lake Name	2009 Model Lake	Accessible?	DOC	'A'	'B'
1	26	-			x
2	27	-			x
3	1	-			x
4	100	-			x
5	87	-			x
7	89	-			x
8	126	-			x
9	127	-			x
10/Good Lake	95	No			x
6/Vinett Lake	88	All Marsh			x
Aikman Lake	54	Yes			x
Anselmi Lake	101	No			x
Armishaw Lake	102	Yes	x	x	
Baby Lake	61	Yes	X	x	
Back Lake	49	Yes	x	x	
Bennett Lake	28	-			x
Black Water Lake	97	Yes	X	x	
Blue Lake	2	Yes	x	x	
Brennan Lake	15	Yes	x	x	
Brush Lake	103	Yes	x		x
Burr Lake	104	Yes			x
Capton Lake	50	-	x	x	
Carruthers Lake	62	Yes			x
Carter Lake	105	-			x
Catfish Lake	29	-			x
Clear Lake	63	Yes	x	x	
Clear Lake 1	30	-			x
Clubbe Lake	106	No			x
Cochrane Lake	51	Yes			x
Cosh Lake	64	Yes	x	x	
Dainty Lake	65	No			x
Dell Lake	44	-			x
Diamond Lake	66	Yes	x	x	
Dick Lake	107	Yes			x
Draper Lake	108	Yes	X	x	
Dyson Lake	109	Yes	X	x	
Fair Lake	110	Yes	x	x	
Faris Lake	67	Yes	x	x	
First Lake	16	Yes	X	x	
Flaxman Lake	17	Yes	x	x	
Forget Lake	31	Yes	x	x	
Fume Lake	90	No			x
Gerow Lake	111	Yes			x
Gilbank Lake	68	Yes	X	x	
Haines Lake	42	Yes	x	x	
Hamer Lake	112	Yes			x
Heaslip Lake	32	Yes			x
Hines Lake	33	-			x
Home Lake	45	Yes			x
Hooton Lake	55	Yes	x		x
Horn Lake	84	No			x
Horseshoe Lake (includes Virtue	18	Yes	X	x	
Hurst Lake	113	No			x
Isabella Lake	60	Yes	x	x	

Jelso Lake	91	No			x
Joselin (Burnt) Lake	34	Yes	x	x	
Kight Lake	52	Yes	x	x	
Kingshott Lake	35	Yes	x	x	
Krapek Lake	114	No			x
Lane Lake	43	Yes	X	x	
Lieback Lake	69	Yes	x	x	
Linger Long Lake/Napken	3	Yes	X	x	
Lioness Lake	19	Yes	x		x
Lipscombe Lake	56	No			x
Little Manitouwaga Lake	98	No			x
Little Seguin/Duck Lake	70	Yes	x	x	
Little Whitefish	71	Yes	X	x	
Long Lake	53	Yes	x	x	
Long Lake 1	72	Yes		x	
Loucks Lake	115	No			x
Lovell Lake	4	Yes			x
Lower Fry Lake	85	Yes	x	x	
Manitouwaba Lake	99	Yes	x	x	
Maple Lake	73	Yes	X	x	
Martin Lake	74	Yes	x	x	
McCan Lake	116	No			x
McCauley Lake	75	No			x
McCoy Lake	57	No			x
McDonald Lake	5	Yes	x	x	
McGowan Lake	36	Yes	x	x	
McGruther Lake	46	-			x
McKechine Lake	37	Yes	x	x	
McLean Lake	76	Yes	x	x	
McNutt Lake	47	Yes	x	x	
McTaggart Lake	117	Yes			x
Mirror Lake	118	Yes	X	x	
Mohan Lake	77	No			x
Motley Lake	119	No			x
Murdock Lake	6	Yes	x	x	
Mutton Lake	78	Yes	x	x	
Neville Lake	48	Yes	X	x	
Oak Lake	38	No			x
Oastler Lake	7	Yes	x	x	
One Island Lake	39	No			x
Otter Lake	8	Yes	X	x	
Payne Lake	40	No			x
Pender Lake	20	Yes	x	x	
Pickering Lake	120	No	x		x
Ponsford Lake	79	No			x
Portage Lake	128	Yes	X	x	
Rankin Lake	9	Yes	x	x	
Richmond Lake	41	Yes			x
Roberts Lake	121	Yes	X	x	
Salmon Lake	10	Yes	X	x	
Santa Lake	96	-			x
Scime Lake	11	Yes		x	
Scott Lake	12	Yes	x	x	
Second Lake	21	Yes	x	x	
Sovereign Lake	13	Yes	x		x
Spectacle Lake	22	-			x
Star Lake	80	Yes	x	x	
Storm Lake	94	Yes	x	x	

Sucker Lake	122	Yes	X	x	
Sugar Lake	81	Yes	X	x	
Tarver Lake	58	No			x
Ten Mile Lake	92	Yes	x	x	
Third Lake	23	Yes	x	x	
Three-Legged Lake	59	Yes	X	x	
Tiffin/Silver Lake	123	Yes	x	x	
Trout Lake	72.5	Yes	x	x	
Tub Lake	93	Yes	x	x	
Tucker Lake	124	Yes	X	x	
Turtle	82	Yes	X	x	
Upper Fry Lake	86	Yes	x	x	
Watson Lake	125	Yes			x
Whitefish Lake	83	Yes	X	x	
Windfall Lake	24	Yes	x	x	
Wright Lake	14	Yes			x
Yarrow Lake	25	Yes	x	x	

KRH