



**Laurier Lake Fall Walleye Index Netting  
Survey Memo 2010**

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12/13/2010

**Memorandum**

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**OUR REFERENCE**

**TO** File

**DATE** December 13, 2010

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**SUBJECT** Laurier Lake Test Netting, September 8-9, 2010. Project ID:14487

The Cold Lake area Fisheries Management team conducted a Fall Walleye Index Netting (FWIN) survey on Laurier Lake (22-56-4 W4M, FWMIS water body ID 5040) on September 8-9, 2010. The survey design and methodology followed was as outlined in Ontario's Ministry of Natural Resources Fall Walleye Index Netting manual (Morgan 2000). The purpose of this survey was to assess the relative abundance and population structure of the fishery, primarily focussing on walleye. Samplers were; A. Foss, D. Latty, A. Morin, and J. Walker.

Nets used were half the length of a standard 8 panel FWIN net. Each panel of mesh was 1.8 meters tall but only 3.8 meters long. All of the nets set had two extra panels (12 mm and 19 mm) added to the "half sized" FWIN net using a 10 m gap to reduce leading effect bias. A total of 8 nets were set in Laurier Lake over the sampling period, however only 7 were recovered<sup>1</sup> (Figure 1). Water temperatures were between 14 and 15 °C.

A total of 601 fishes were captured, representing five species; yellow perch (64.0% of catch), fathead minnow (33.6%), northern pike (2.0%), brook stickleback (0.2%), and white sucker (0.2%) (Table 1). No walleye were captured during this survey.

Northern pike sampled ranged in size from 623 to 854 mm TL, with a mean of 746 mm; and ranged in weight from 1475 to 3650 g, with a mean of 2755 g. Ages ranged from 3 to 12 years, with a mean of 8.2. There were seven males and five females, all of which were mature.

Yellow perch sampled ranged in size from 46 to 331 mm TL, with a mean of 108 mm. They ranged in weight from 1 to 325 g, with a mean of 28 g. Most of the perch were too small to confidently identify sex; however of the 82 fish that were identified, 44 were male.

Historically Laurier Lake contained walleye and spottail shiners, yet none were captured during the survey. Additionally, there were no records of fathead minnows being present in the original 1980 lake survey inventory. Based on this survey, it is likely that walleye have been extirpated from Laurier Lake.

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<sup>1</sup> Approximately 8 hours of effort were spent on September 9 and 10, 2010 to recover the missing net. Recovery efforts included dragging the lake bottom in the vicinity of the set location in an expanding search pattern, and surveying the entire shoreline for the missing net. It was concluded that the net was deliberately removed.

Water levels have dropped approximately three meters since 1974<sup>2</sup> (Figure 2) and records indicate the lake has experienced several partial winterkill events over the last 40 - 50 years. Winter oxygen levels have been recorded below 3 mg/L prior to ice-off in recent years. These factors are likely to have adversely affected walleye recruitment and overwintering survival, and explain the presence of the low-oxygen tolerant species fathead minnows, northern pike, small yellow perch and the decrease in spottail shiners.

Complete test netting data can be found in the FWMIS database under Project ID:14487.

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<sup>2</sup> Laurier Lake 2008 Report. The Alberta Lake Management Society Volunteer Lake monitoring report.  
[http://www.alms.ca/userfiles/LaurierLake\\_2008Final\\_Sept09\(1\).pdf](http://www.alms.ca/userfiles/LaurierLake_2008Final_Sept09(1).pdf)

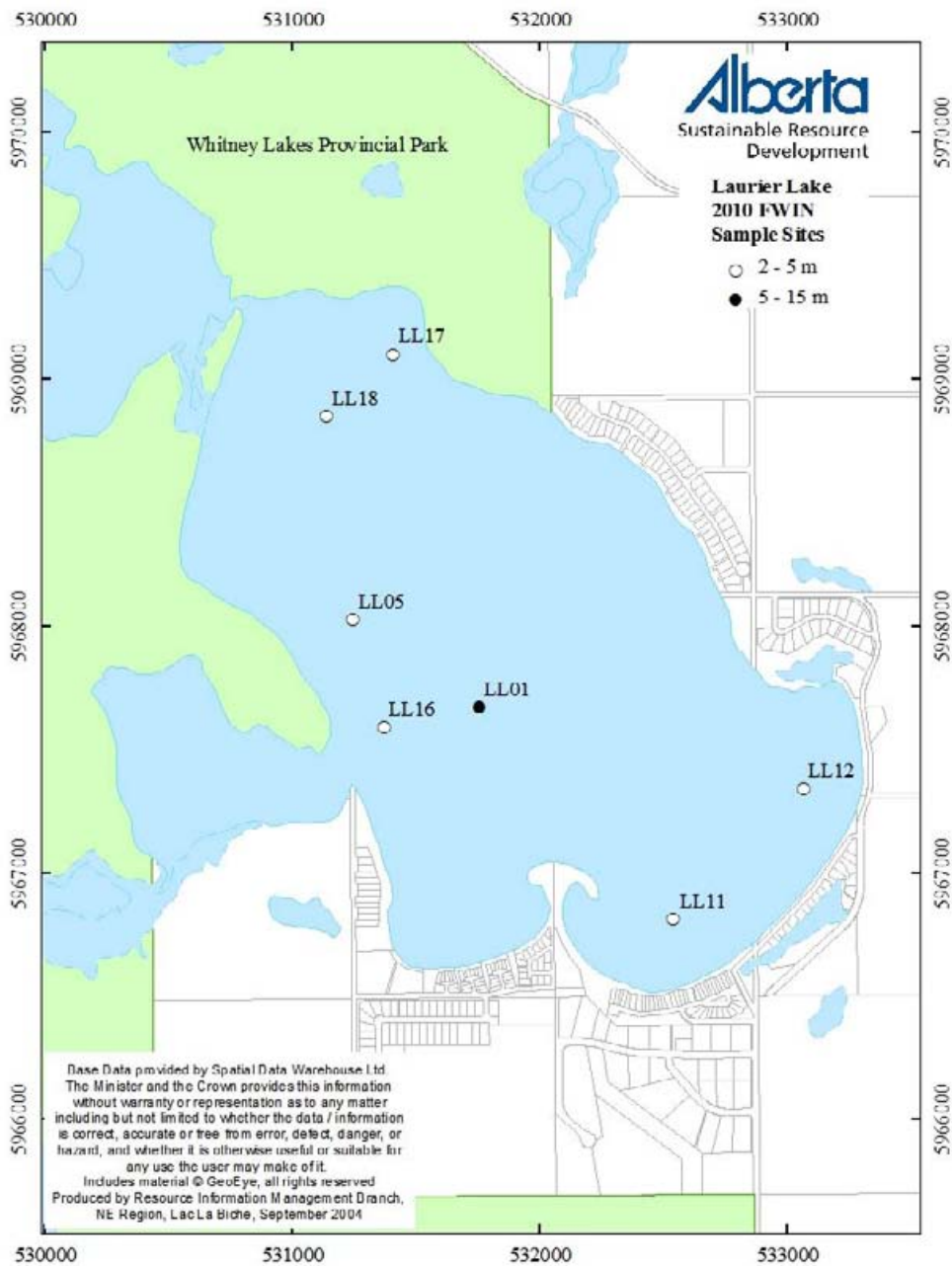


Figure 1. Sample locations for the Laurier Lake 2010 FWIN survey. Sample locations were selected randomly and were weighted by strata. Six of the seven nets were set in the 2-5 m stratum.

Table 1. Laurier Lake 2010 FWIN catch summary.

Set ID	Easting <sup>†</sup>	Northing <sup>†</sup>	Date Pulled	Set	# BRST	# FTMN	# NRPK	# WHSC	# YLPR
				Duration (hours)					
LL1	531754	5967671	9-Sep-10	24.45	0	12	2	0	62
LL5	531243	5968024	9-Sep-10	24.92	0	24	1	0	51
LL11	532540	5966808	9-Sep-10	24.12	0	31	2	0	66
LL12	533064	5967336	9-Sep-10	24.33	1	53	4	1	32
LL16	531369	5967585	9-Sep-10	23.77	0	46	2	0	44
LL17	531407	5969098	9-Sep-10	23.45	0	10	0	0	58
LL18	531136	5968847	9-Sep-10	24.7	0	26	1	0	72
Grand Total				169.74	1	202	12	1	385

<sup>†</sup>UTM 12U, NAD 83 map datum.

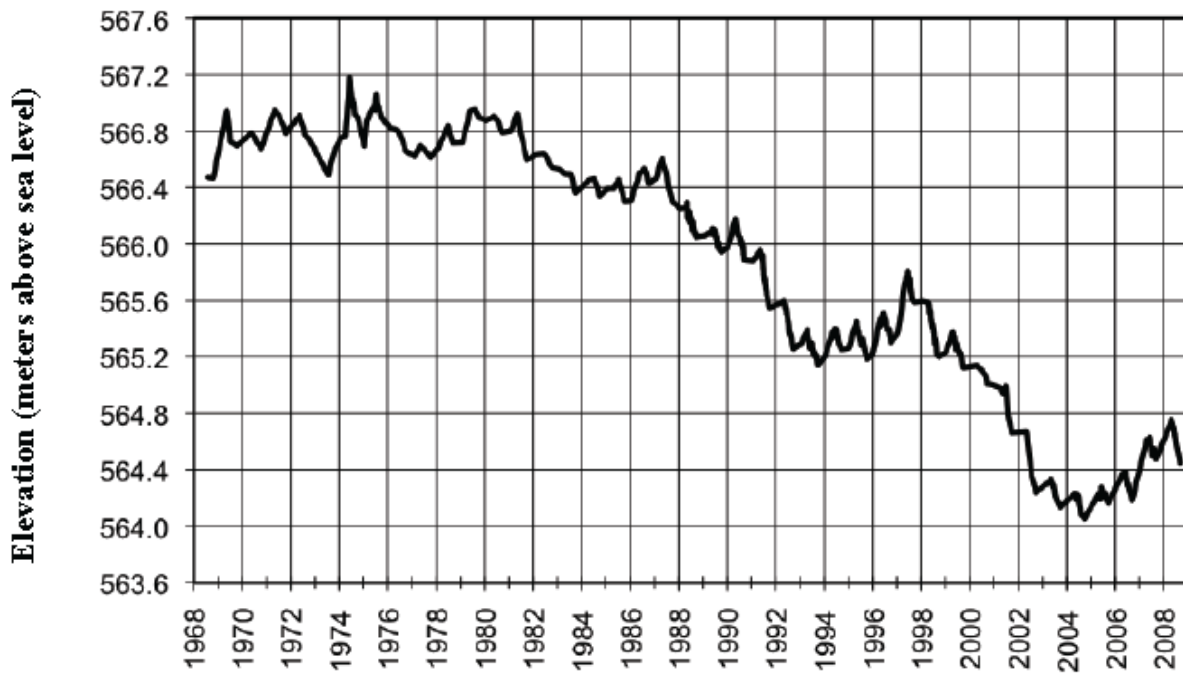


Figure 2. Historical water levels (meters above sea level) in Laurier Lake, Alberta 1968 – 2009.