Star Lake

(Christie Geographic Township)

2002 Winter Creel Survey Report

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Summary:

An intensive, roving creel census was conducted on Star Lake from January 16 to March 31, 2002. We estimate a total effort of 1,448 angling hours, a total catch of 64 lake trout and harvest of 41.

Fishing quality for lake trout was exceptionally poor with 22.6 angler hours of effort required to catch a fish (EUC) and 35.3 angler hours required to harvest one (EUH). Notwithstanding the poor angling quality, fishing intensity was very high with an estimated 9.2 angler hours of fishing effort per hectare. Relative to historic creel data for Star Lake, it appears there may be a trend of decreasing angling quality (EUC) in the winter fishery since 1978. Within this time frame there has been a 13-year period (1988 – 2001) for which no data is available making any trend analysis very dubious.

Since 1978, the catch of lake trout in Star Lake as reported in winter creel survey data has been primarily comprised of planted fish. Of 200 lake trout sampled, 189 (95%) were planted fish. There is little or no evidence of natural reproduction by lake trout in Star Lake.

With wide assumption liberties, we estimate the current annual harvest of planted lake trout is in the order of 50 – 100 fish per year. This translates into a harvest rate of stocked fish of approximately 5 – 10%. We consider this a satisfactory harvest rate for the purpose of providing artificial, lake trout angling opportunities.

Table of Contents

		Page
1.0	Introduction ……..	3
2.0	Methods	
	2.1 Field Activities ……	3
	2.1.1 Scheduling …….	3
	2.1.2 Log Activity Counts ……..	4
	2.1.3 Creel Interview and Sampling Data ……..	4
	2.2 Estimates of Effort, Catch and Harvest ……..	4
3.0	Results	
	3.1 Effort ……..	5
	3.2 Observed Fishing Quality and Catch and Harvest Estimates …….	5
	3.3 Lake Trout Biosampling Data ……	6
4.0	Discussion ……	7
5.0	Acknowledgements ……..	9
6.0	Literature Cited ……	9
Appendix A.	Star Lake 2002 Winter Creel Survey Schedule …….	10
Appendix B1.	Star Lake 2002 Winter Creel Activity Counts – Weekdays Only ……	11
Appendix B2.	Star Lake 2002 Winter Creel Activity Counts – Weekends & Holidays …….	12
Appendix C.	Star Lake 2002 Winter Creel Survey Interview Data …….	13
Appendix D.	Star Lake 2002 Winter Creel Survey Biosampling Data for Lake Trout …….	16

1.0 Introduction:

Star Lake is located in the Geographic Township of Christie, now part of the Municipality of Sequin. It is readily accessible via the Turtle Lake Road on the east-side of the lake and Swords Road on the west-side. The lake is well developed with approximately 13 permanent residential lots, 81 cottage lots and 30 undeveloped lots of record as of 1993 (OMNR, file data). There is one commercial resort on the lake that provides public access. At 158 hectares it is considered a medium size lake.

Star Lake is reported to originally have had a native lake trout population (Thurston, 1981). It does have an extensive stocking record for lake trout that commences in 1949 and continues to present day. Throughout that period, lake trout plantings have pretty much occurred on a bi-annual basis, generally with approximately 2,000 fish stocked per event. It is unclear what the original intention was for these plantings, but probably to supplement natural production in an effort to improve angling quality. Present-day plantings are solely intended to provide artificial, put-grow-take angling opportunities for lake trout.

Star lake has a diverse fish community consisting of lake trout (planted), smallmouth bass, largemouth bass, northern pike, lake whitefish, cisco, rainbow smelt, common white sucker, brown bullhead, yellow perch, rock bass, mottled sculpin, spottail shiner and bluntnose minnow (MNR, 1986). The ice fishery of Star Lake is directed at lake trout with some incidental catch of other species.

The purpose of this survey was to evaluate the success of current lake trout plantings at providing artificial angling opportunities.

2.0 Methods:

2.1 Field Activities:

2.1.1 Scheduling:

Initially the creel survey was intended to cover the period of January 1, 2002 to March 31st (90 days). Due to unsafe ice conditions that prevailed at the beginning of the creel, the start date was postponed until January 16th. Eight creel days not surveyed during that period were rescheduled into the remaining creel period.

The creel period was stratified into “Weekdays” and “Weekend / Holidays days”. An approximately equal proportion of *weekend / holidays* and *weekdays* were surveyed (20 of 28 weekend / holiday days or 71% and 41 of 62 weekdays or 66%). The creel schedule is shown in Appendix A.

2.1.2 Log Activity Counts:

The creel clerk was directed to record as many *activity counts* as possible given the following guidelines:

- On a monthly basis, activity counts should be approximately equally distributed through out the 10-hour creel day (i.e. 8 a.m. to 6 p.m.) (Appendix B1 and B2).
- Activity counts to be as close to an instantaneous count as possible.
- The activity count is the total number of anglers fishing (not parties).
- Activity counts to be taken as close to the 'half hour' (i.e. 8:30, 9:30, etc.) as possible.
- Activity counts could be 'back calculated' based on interview data when it was certain that all activity could be accounted for. (For example: From interviews conducted at 10 a.m., activity counts for previous hours could be calculated provided the creel clerk was certain that no anglers had departed the lake.)
- Activity counts could be supplemented by volunteer anglers who collected this data at times when the creel operator was not present on the lake. Such data was only acceptable if the creel operator was confident the information was reliable and accurate.

2.1.3 Creel Interview and Biosampling Data:

All anglers fishing on the lake were to be interviewed. Interview data included: date; effort expended (i.e. number in party x hours fished = angling effort); number and species of fish caught and harvested (Appendix C). (*Angler origin data was also collected but deleted from the report due to irreconcilable discrepancies between various options*.)

Any game fish harvested were to be sampled. Collection of biosampling data included: date, species, total length, fork length, weight and fin clips (Appendix D).

2.2 Estimates of Effort, Catch and Harvest:

Total daily fishing effort was determined for both *weekdays* and *weekend / holiday* day-types and by month (Appendix B1 and B2). Mean hourly activity counts were summed to determine an estimate of mean, daily fishing effort. Mean daily fishing effort, stratified by day-type and month, were then multiplied by the number of days in the stratum to determine an estimate of stratum fishing effort (Table 1). The sum of all stratum effort estimates produced an estimate of over-all fishing effort for the creel period (Jan. 16 – Mar. 31).

Interview data used to calculate fishing quality and catch and harvest estimates was stratified by month. Observed, monthly *Catch per Unit Effort* (CUE) and *Harvest Per Unit Effort* (HUE) rates were multiplied by monthly effort estimates to determine monthly estimates of the number of lake trout caught and harvested (Table 2).

3.0 Results:

3.1 Effort:

Due to a significant difference in mean daily angling effort between *weekdays* and *weekends/holidays*, we stratified effort by day-type and month (Table 1 and Appendix B1 and B2).

Table 1. Estimated Fishing Effort for the Star Lake 2002 Winter Creel Survey:

Day-type	Month	Mean Daily Effort	No. of days	Monthly Effort	Total Day-Type Effort
Weekday	Jan.	5.49	12	65.88	
	Feb.	15.59	20	311.8	
	Mar.	13.24	20	264.8	642.48
Weekend	Jan.	14.83	4	59.32	
	Feb.	43.32	8	346.56	
	Mar.	36.29	11	399.19	805.07
			Estimated Total Effort:		1447.55

(Note: Creel Period extended from Jan. 16 – March. 31)

We estimated a total fishing effort of 1,448 angler hours. Fishing effort for February and March was probably representative of a typical year. Such was not the case for January however. Mild weather and very poor ice conditions contributed to very low fishing effort.

3.2 Observed Fishing Quality and Catch / Harvest Estimates:

Observed Fishing quality for lake trout was exceptionally poor (Table 2). Fishing quality was best in March when it took 17 angler hours to catch a lake trout (EUC) and 34 to harvest one (EUH). Fishing was poorest in February when it took 34 hours to catch a late trout and 41 hours to harvest one. In January it took 22 hours to both catch and harvest a lake trout (i.e. all caught lake trout were kept). Overall, lake trout EUC was 22.6 angler hours and EUH was 35.3.

Table 2. Lake Trout Catch and Harvest Estimates for the 2002 Winter Creel Survey on Star Lake.

Month	Effort	CUE Observed	CUH Observed	Catch Estimate	Harvest Estimate	EUC Observed	EUH Observed
January	125.2	0.045	0.045	6	6	22	22
February	658.4	0.029	0.024	19	16	34	41
March	664	0.059	0.029	39	19	17	34
Over-all	1447.6	0.044	0.028	64	41	22.6	35.3

Our interview data surveyed 662 angling hours of fishing effort (Appendix C) or 45.8% of the total estimated angling effort of 1448 hours. We estimate a total catch of 64 lake trout and a harvest of 41 (Table 2). Observed release rate of lake trout was 36%.

Also observed in the catch (*for which over-all estimates of catch and harvest were not computed*) were 22 rock bass, 10 yellow perch, 5 rainbow smelt, 4 smallmouth bass (released) and 4 northern pike (Appendix C).

3.3 Lake Trout Biosampling Data:

Seventeen lake trout were sampled during the course of the survey. Mean length was exceptionally large at 61.7 cm. (24½ inches) and mean weight was 2607 grams (5.7 pounds) (Appendix D).

By virtue of all planted lake trout having fin clips unique to year of stocking, we were able to conclusively determine a mean age of 11.5 years for all lake trout sampled (Appendix D). All year classes planted between 1987 and 1999 were present in the sample (Table 3), suggesting survival of planted fish has been quite good. Indeed, lake trout planted between 1987 and 1991 accounted for 11 of the 17 fish sampled (65%).

Table 3. Lake Trout Age Summary From Star Lake 2002 Winter Creel Survey.

Year Planted	Number Planted	Fin Clip	Age (years)	Number Sampled
2001	2,000	RP	2	0
1999	2,000	LV	4	2
1995	2,000	LP	8	1
1993	1,700	Ad	10	3
1991	2,000	RP	12	6
1989	2,000	LV	14	1
1987	2,500	RV	16	4

3.0 Discussion:

This survey represents the first concerted effort to monitor the sport fishery of Star Lake with the intention of determining estimates of total fishing effort as well as total catch and harvest. Although there is an abundance of *'spot-check'* and *'volunteer'* creel data available for most Parry Sound Area lake trout lakes, there are but a handful of creel surveys in which a concerted effort has been made to survey lakes in sufficient intensity to calculate the above parameters.

We reviewed the Star Lake file and discovered a plethora of raw creel data described above as *'spot check'* and *'volunteer'* information. For comparison purposes with our survey it is summarized in Table 4.

Table 4. Summary of Creel Data Available for Star Lake

Season & Year	Creel Data Type	Effort (angler hrs)	Catch	Harvest	EUC (angler hrs)	Observed fin clips
Winter, 1978	Spot check by Cons. Officer	90.0	27	17	3.3	20 of 22 lake trout observed with fin clips
Winter, 1978	Volunteer (J. Orsers)	303.5	61	-	5.0	60 of 61 lake trout observed with fin clips
Winter, 1979 *	Spot check by Cons. Officer	83.0	11	-	7.5	10 of 11 lake trout observed with fin clips
Winter, 1980	Volunteer (J. Orsers)	463.5	48	-	9.7	20 of 23 lake trout observed with fin clips
Winter, 1981	Volunteer (J. Orsers)	351.7	25	-	14.1	22 of 27 lake trout observed with fin clips
Winter, 1982	Spot check by Cons. Officer	152.2	8	-	-	8 of 8 lake trout observed with fin clips
Winter, 1984	Volunteer (J. Welburn)	-	-	24	-	24 of 24 lake trout observed with fin clips
Winter, 1987	Volunteer (J. Welburn)	-	-	7	-	7 of 7 lake trout observed with fin clips
Winter, 2002	Intensive Creel Survey	1,448	64	41	22.6	17 of 17 lake trout observed with fin clips

* Reported in Baldwin, 1980
(Note: 2002 data are total estimates whereas all previous data are actual observed.)

Acknowledging the variable nature of data collection for the above data set, we are reluctant to *read too much* into the results. We do note however the wide range of fishing quality as measured by EUC (*Effort per Unit Catch*) from 1978 to 1982. Also, there is an extensive span of 13 years with no data between 1988 and 2001. Notwithstanding the foregoing, there may be a trend of decreasing fishing quality for lake trout between 1978 and 2002.

We also note in the data set the rare incidence of native lake trout in the catch. The last observation of any native lake trout was in 1981 when J. Orsers reported 5 in his creel. Likewise, a gill-net survey to assess the status of the lake trout population conducted in the summer of 1989 caught 7 lake trout in 5 over-night sets (Deary, 1990). All seven lake trout were planted fish. We suspect natural lake trout production in Star Lake is negligible or non-existent.

We have only three winter creel surveys conducted on lake trout lakes in 2001 with which to directly compare our results with (Table 5). (*A similar winter creel was also conducted on Little Seguin Lake in 2002 but fishing pressure was exceedingly light and lake trout catch was zero. This survey is not included for comparative purposes.)*

Table 5. Summary of Intensive Winter Creel Survey Data Available for the Parry Sound Area.

Creel Survey Season & year	Star Lake Winter 2002	Darling Lake Winter 2001	Lorimer Lake Winter 2001	Trout Lake Winter 2001
Est. Total Effort (angler. hrs)	1448	381	1620	1096
Fishing Intensity (angler. hr / ha)	9.2	19.6	3.5	4.8
Estimated Number Caught	64	42	50	147
Estimated No. Harvested	41	24	46	81
E.U.C. (angler hrs)	22.6	8.8	36.2	7.0
E.U.H. (angler hrs)	35.3	16.4	39.2	12.7
Source		*McIntyre, 2002a*	*McIntyre, 2001*	*McIntyre, 2002b*

In our comparative data set above, Star Lake had the second highest winter fishing intensity (9.2 angler hours / hectare), the second poorest catch rate (22.6 angler hours to catch a lake trout) and the second poorest harvest rate (35.3 angler hours to harvest a lake trout).

Considering the very poor fishing quality for lake trout (high EUC and EUH – Table 5), we were surprised at the high intensity of fishing pressure, 9.2 angler hours per hectare. Clearly, fishing pressure is being maintained at a high level on Star Lake in spite of poor fishing quality.

We have no reliable means of estimating lake trout catch or harvest for the open-water season (April to September). Typically however, ice fishing for lake trout is more intense and has a higher success rate than does the open-water season. Consider the fishing intensity is likely to be lower, the success rate lower but the season length longer for the open water season; we '*guessed*' that the harvest of lake trout is likely to be approximately equivalent to the ice fishery. In very approximate terms, we suspect the annual lake trout harvest on Star Lake is in the neighbourhood of 50 – 100 fish per year. Star Lake is currently stocked with 2000 lake trout on a bi-annual basis. Hence, the harvest rate of stocked lake trout is approximately 5 to 10% (i.e. 100 – 200 lake trout harvested every two years). For the purpose of providing an artificial lake trout fishery, we consider the stocking objectives to be successfully met at such a harvest rate.

The Ministry of Natural Resources has recently released its "*Guidelines for Stocking Fish in Inland Waters of Ontario*" (OMNR, 2002). It recommends a stocking rate for lake trout of 20 yearlings per hectare of water between 15 and 35 meters in depths. This translates into a bi-annual stocking rate of 1,060 yearling lake trout for Star Lake (53 ha. > 15 m. & < 35 m. multiplied by 20 = 1,060). We recommend this new stocking rate for Star Lake. Should harvest levels remain consistent with those observed in this survey under this new stocking regime, the harvest rate of stocked lake trout will essentially double to the neighbourhood of 10 to 20%.

5.0 Acknowledgements:

Field-work was very ably conducted by Mr. Stan Sutey of *Accipter Fish & Wildlife Service* on a contract basis.

We acknowledge the generosity by the owners of Star Lake Lodge in allowing our creel clerk to use their property to access the lake.

6.0 Literature Cited:

Baldwin, R. W. 1980. Intensive winter creel census on six lake trout lakes in the Parry Sound District (1979). OMNR Parry Sound District fisheries file report. 8 p.

Deary Environmental Consultants, 1990. Summary report for lake trout (Salvelinus namaycush) assessment of thirteen lakes in the Parry Sound District. OMNR Parry Sound District fisheries file report. 12 p. + figures and appendixes.

MNR, 1986. Aquatic habitat inventory survey report (lake survey). OMNR Parry Sound District fisheries file report. 2 p.

McIntyre, E. 2001. Lorimer Lake (Hagerman and Ferguson Geographic Townships) winter 2001 creel survey. OMNR Parry Sound District fisheries file report. 17 p.

McIntyre, E. 2002a. Darlington Lake (Town of Parry Sound) winter 2001 creel survey report. OMNR Parry Sound District fisheries file report. 13 p.

McIntyre, E. 2002b. Trout Lake (McDougall Township) winter 2001 creel survey report. OMNR Parry Sound District fisheries file report. 16 p.

MNR, 2002. Guidelines for stocking fish in inland waters of Ontario. Fisheries Section, Fish and Wildlife Branch. 44 p.

Thurston, L. 1981. A historical review of native versus non-native lake trout lakes in the Parry Sound District. OMNR Parry Sound District fisheries file report. 7 p.

Appendix A. Star Lake 2002 Winter Creel Survey Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January 2002			16 Creel	17 Creel	18 Creel	19 Creel
20 Creel	21 Creel	22 Creel	23 Creel	24 Off	25 Off	26 Creel
27 Creel	28 Creel	29 Creel	30 Off	31 Off		
February 2001					1 Creel	2 Creel
3 Creel	4 Creel	5 Creel	6 Creel	7 Creel	8 Creel	9 Creel
10 Creel	11 Off	12 Creel	13 Creel	14 Creel	15 Creel	16 Creel
17 Creel	18 Creel	19 Creel	20 Creel	21 Creel	22 Creel	23 Creel
24 Creel	25 Creel	26 Creel	27 Creel	28 Off		
March 2002					1 Off	2 Creel
3 Creel	4 Creel	5 Creel	6 Creel	7 Creel	8 Creel	9 Creel
10 Off	11 Off	12 Creel	13 Creel	14 Creel	15 Creel	16 Creel
17 Creel	18 Creel	19 Off	20 Creel	21 Creel	22 Creel	23 Creel
24 Creel	25 Creel	26 Creel	27 Creel	28 Off	29 Off	30 Off
31 Off						

Appendix B1. Star Lake 2002 Winter Creel Activity Counts – Weekdays Only

Time:	8-9 am	9-10 am	10-11 am	11-12 pm	12-1 pm	1-2 pm	2-3 pm	3-4 pm	4-5 pm	5-6 pm	Daily Total
Jan. 16	2	2	2	0	0	0	0	0	0	0	
Jan. 17	2	2	2	2	0	0	0	0	0	0	
Jan. 18	0	0	0	0	0	0	0	0	0	0	
Jan. 21	0	0	0	0	0	0	0	0	0	0	
Jan. 22	0	0	0	0	0	0	0	0	0	0	
Jan. 23	0	0	0	0	0	0	0	1	3	3	
Jan. 24											
Jan. 25	2	2	2								
Jan. 28	0	1	2	2	2	2	2				
Jan. 29	0	0	0	1	1	1	2	1			
Jan. 30											
Jan. 31											
Mean	0.67	0.78	0.89	0.63	0.38	0.38	0.50	0.29	0.50	0.50	5.49
Feb. 1	4	4	4	3	3	0	0	0	0	0	
Feb. 4		0					0				
Feb. 5							2	2	2	2	
Feb. 6		0					0				
Feb. 7			0								
Feb. 8		0				1	1	1		2	
Feb. 11											
Feb. 12			0	0					0		
Feb. 13	1	1	1	1	1			0			
Feb. 14	2	2	2	2				0			
Feb. 15	0	0				1	1	1	1		
Feb. 18			2	2	2	3	3	3	3	3	
Feb. 19			1	1		1	1	3	3		
Feb. 20		1	1	1			1	1	1	1	
Feb. 21		0	0				1	1			
Feb. 22			1	1	4	4	4	4			
Feb. 25	3	4	4	2	2			0			
Feb. 26								0			
Feb. 27		1	2	2			1	1	1	1	
Feb. 28											
Mean	2.00	1.18	1.50	1.50	2.40	1.67	1.25	1.21	1.38	1.50	15.59
Mar. 1											
Mar. 4		1	1	1	2	4	4	2	2	2	
Mar. 5				1	1			1	1		
Mar. 6				1	1	1	1	1	1		
Mar. 7						1	1	1	1		
Mar. 8		0						0	0		
Mar. 11											
Mar. 12			0					0			
Mar. 13						0	0	0	0		
Mar. 14			0						0	0	
Mar. 15			3	1	1				0		
Mar. 18			0								
Mar. 19											
Mar. 20			0								
Mar. 21			0						0		
Mar. 22		0					0	0			
Mar. 25		1	1	1	1	1	1	1	1	1	
Mar. 26	5	5	5	5					0		
Mar. 27	1	1	2	2	1		1	1	1		
Mar. 28											
Mean	3.00	1.33	1.20	1.71	1.17	1.40	1.14	0.70	0.58	1.00	13.24

Appendix B2. Star Lake 2002 Winter Creel Survey Activity Counts – Weekends & Holidays

Time:	8-9 am	9-10 am	10-11 am	11-12 pm	12-1 pm	1-2 pm	2-3 pm	3-4 pm	4-5 pm	5-6 pm	Daily Total
Jan. 19	0	0	0	0	0	0	0	0	0	0	
Jan. 20	0	0	0	0	0	0	0	0	0	0	
Jan. 26	5	5	6								
Jan. 27	3	5	6	6	6	6	3	1			
Mean	2.00	2.50	3.00	2.00	2.00	2.00	1.00	0.33	0.00	0.00	14.83
Feb. 2	4	4	5	5	5	4	4	1			
Feb. 3					2	2	2	2	2	2	
Feb. 9	2	6	6	6	9	6	8	8	8		
Feb. 10	2	6	7	7	5						
Feb. 16	3	3	5	4			1	1			
Feb. 17	3	3	3	3			2	2	2	2	
Feb. 23	4	8	4	4	4	5	5	9	3		
Feb. 24	3	8	9	9	9	9		1	3	3	
Mean	3.00	5.43	5.57	5.43	5.67	5.20	3.67	3.43	3.60	2.33	43.32
Mar. 2	7	7	8	6	6	5	4		2		
Mar. 3			1	3	6	6	5	5	5	5	
Mar. 9		3	3	3	5	5	7	7	4		
Mar. 10											
Mar. 16	1	1	1	1			0	0	0		
Mar. 17	2	2	2	2					0	0	
Mar. 23		2	2	2					0		
Mar. 24		5	5	5							
Mean	3.33	3.33	3.14	3.14	5.67	5.33	4.00	4.00	1.83	2.50	36.29

Appendix C. Star Lake 2002 Winter Creel Survey Interview Data

Date	Lake Trout Caught	Lake Trout Harvested	Effort	Incidental Catch
Jan. 16	0	0	6.0	
Jan. 17	0	0	8.0	
Jan. 23	1	1	0.5	
Jan. 23	0	0	2.0	1 rock bass
Jan. 25	1	1	7.0	
Jan. 26	2	2	6.0	
Jan. 26	0	0	5.0	
Jan. 27	0	0	7.0	1 rock bass; 1 yellow perch
Jan. 27	0	0	10.5	1 smallmouth bass
Jan. 27	0	0	3.0	
Jan. 27	0	0	11.0	
Jan. 28	0	0	10.0	
Jan. 28	0	0	8.0	
Jan. 30	0	0	0.5	
Jan. 30	0	0	3.5	
Totals	4	4	88.0	
CUE/H	0.045	0.045		
EUC/H	22	22		
Feb. 1	0	0	4.5	
Feb. 1	0	0	3.0	
Feb. 1	0	0	10.0	
Feb. 2	1	1	19.5	1 pike; 3 rock bass
Feb. 2	0	0	4.5	
Feb. 2	0	0	5.5	
Feb. 3	0	0	12.0	
Feb. 7	0	0	7.0	
Feb. 8	1	1	2.0	
Feb. 8	0	0	3.0	
Feb. 9	1	1	3.5	
Feb. 9	1	1	7.5	
Feb. 9	0	0	8.5	
Feb. 9	0	0	7.5	1 pike; 1 perch
Feb. 9	1	0	20.0	
Feb. 9	0	0	5.0	1 pike
Feb. 10	0	0	9.0	
Feb. 10	0	0	7.0	
Feb. 10	0	0	3.5	
Feb. 10	0	0	1.5	
Feb. 13	0	0	4.5	
Feb. 14	0	0	7.0	1 rock bass
Feb. 15	0	0	3.5	
Feb. 16	0	0	2.0	

Feb. 16	1	1	12.0	1 rock bass
Feb. 16	0	0	3.0	
Feb. 16	0	0	1.0	
Feb. 16	0	0	1.0	
Feb. 17	0	0	8.5	
Feb. 17	1	1	12.0	
Feb. 18	0	0	19.5	
Feb. 18	0	0	6.0	
Feb. 19	0	0	2.0	
Feb. 19	0	0	6.5	
Feb. 19	0	0	3.0	
Feb. 20	1	1	3.0	
Feb. 20	0	0	4.0	
Feb. 21	0	0	2.0	
Feb. 21	0	0	4.0	
Feb. 22	0	0	1.0	
Feb. 22	0	0	6.0	1 rock bass
Feb. 23	0	0	6.0	
Feb. 23	1	1	3.0	
Feb. 23	0	0	28.0	3 yellow perch; 1 smallmouth bass
Feb. 23	0	0	2.0	
Feb. 23	0	0	3.0	1 yellow perch
Feb. 23	0	0	5.0	
Feb. 24	0	0	6.0	
Feb. 24	0	0	8.0	
Feb. 24	0	0	9.5	
Feb. 24	0	0	3.0	
Feb. 24	0	0	8.0	
Feb. 24	1	1	4.0	
Feb. 24	0	0	6.0	
Feb. 24	0	0	3.0	
Feb. 25	1	0	3.5	
Feb. 25	0	0	9.0	
Feb. 25	0	0	2.0	
Feb. 27	0	0	3.0	
Feb. 27	0	0	3.0	
Feb. 27	0	0	2.0	
Total	11	9	372.5	
CUE/H	0.029	0.024		
EUC/H	34	41.4		

Mar. 2	3	2	15.0	
Mar. 2	0	0	2.5	
Mar. 2	0	0	6.0	
Mar. 2	0	0	5.0	
Mar. 2	0	0	3.0	
Mar. 2	1	1	4.0	3 rock bass
Mar. 3	0	0	3.5	1 rock bass
Mar. 3	0	0	19.5	

Mar. 3	0	0	9.0	1 yellow perch
Mar. 4	1	1	5.5	
Mar. 4	0	0	2.0	
Mar. 5	0	0	3.5	
Mar. 7	0	0	4.0	
Mar. 9	0	0	19.5	
Mar. 9	0	0	9.0	2 smelt
Mar. 9	0	0	6.0	
Mar. 15	0	0	2.5	3 smelt
Mar. 15	0	0	5.0	
Mar. 16	3	0	8.0	
Mar. 17	2	1	3.0	
Mar. 17	1	0	3.5	1 rock bass
Mar. 4	0	0	8.0	
Mar. 6	0	0	6.0	
Mar. 23	0	0	6.0	2 rock bass
Mar. 24	0	0	12.5	
Mar. 25	0	0	4.0	1 rock bass; 1 smallmouth
Mar. 25	0	0	4.0	
Mar. 26	0	0	9.0	4 rock bass, 4 yellow perch
Mar. 26	0	0	6.0	1 rock bass
Mar. 27	1	1	2.5	2 rock bass, 1 smallmouth
Mar. 27	0	0	3.5	
Mar. 27	0	0	2.0	
Total	12	6	202.5	
CUE/H	0.059	0.029		
EUC/H	16.9	33.7		

Appendix D.

Star Lake 2002 Winter Creel Survey Biosampling Data for Lake Trout

	Total Length (mm)	Weight (grams)	Calculated Age	Fin Clip	Year Planted
	314	200	4	LV	1999
	327	300	4	LV	1999
	560	1700	8	LP	1995
	641	2900	10	AD	1993
	637	2900	10	AD	1993
	641		10	AD	1993
	602	1950	12	RP	1991
	631	2300	12	RP	1991
	611	1850	12	RP	1991
	692	3000	12	RP	1991
	683	3000	12	RP	1991
	647	3500	12	RP	1991
	620		14	LV	1989
	654	2900	16	RV	1987
	724	4200	16	RV	1987
	697	3200	16	RV	1987
	805	5200	16	RV	1987
Mean	616.8	2606.7	11.5		
Standard Deviation	124.152	1309.698	3.710		
Sum		39100			
Count	17	15	17		