

Executive Summary

Sawmill Lake 2004

A stocking assessment was conducted on Sawmill Lake during the fall of 2004. The original management goal for Sawmill Lake was for a low to moderate use fishery for rainbow trout. The objectives of this assessment were to document the status of the fishery and to evaluate our stocking protocol to date. Sawmill Lake is a 10.7 ha lake located 72 km northeast of Prince George that receives moderate to high angler use during the summer.

Both a standard sinking and a floating gillnet 90 m in length were set on September 16, 2004. The total sampling effort was 33.5 hours resulting in a gillnet catch per unit effort (CPUE) of 0.78 fish per hour. The rainbow trout sampled during the 2004 assessment had a mean length of 272 mm and a maximum length of 359 mm. An assessment conducted in 1985 determined that there was a naturally viable population of rainbow trout present prior to stocking. Sawmill Lake was assessed in 1999 for the first time since stocking was initiated in 1986. The objective set in 1999 was to have three-year old catchable fish. Stocking density was subsequently reduced in 2002 to 1000 yearlings annually to enhance the growth of rainbow trout in the lake. The reduction in stocking density did allow for an increase in the mean size of rainbow trout from 178 mm to 272 mm. Overlapping age-classes in both the 1999 and 2004 assessments indicate that natural recruitment may be occurring. As well the small size of the three-year old size class present in Sawmill Lake during the 2004 assessment is inadequate to satisfy most anglers needs. Rainbow trout in Sawmill Lake do not exceed 300 mm until they reach five years of age. Marked AF3N (sterile) fish will be stocked in the spring of 2005 and 2006. A follow-up assessment is recommended for the fall of 2007 to assess natural recruitment at Sawmill Lake.



Figure 1. Photo of Sawmill Lake taken during the 2004 stock assessment survey.

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**OMINECA REGION
LAKE STOCK ASSESSMENT REPORT**

LAKE NAME: Sawmill **BC WBID:** 00387LSAL

LAKE LOCATION: *Nearest center:* NE 72 km from Prince George *Drainage:* FRASER
UTM: 10.488086.6019142

LAKE ATTRIBUTES: *Surface Area:* 10.7 Ha *Elevation:* 820 m
Littoral Area: 4.4 Ha *T.D.S.:* 88 ppm
Max Depth: 23 m *Mean depth:* 8.8 m

MANAGEMENT OBJECTIVE:

- Objective 1 Family Fishery (High CPUE <30 cm)
- Objective 2 Average Quality (30-40 cm)
- Objective 3 Above Average (40-50 cm)
- Objective 4 Trophy (> 50 cm for RB, > 40 cm for EB)

MANAGEMENT/SURVEY HISTORY:

Previous gill net assessment(s): no yes Philip 1985; Zimmerman 1999
 Year(s) Surveyed: 1985; 1999

STOCKING DATA:

Current Stocking Rate 93 Fish/Ha Annually
Stock Type **PENNASK AF3N**
Species RB mixed
Previous Stocking Rate 93

SURVEY METHODS:

Method	Date (yy.mm.dd)	Survey Agency	Crew
Fish	SGN 2004-09-16	BCCF	Chad Robertson, Kevin Mernickle
Chem.	DO 1985-09-16	MOE	D.F. Philip, L.W. Emerson
Physical	bathymetric 1985-09-16	MOE	D.F. Philip, L.W. Emerson
Temp.	profile 1985-09-16	MOE	D.F. Philip, L.W. Emerson

Netting Specs: *Net type:* Standard Experimental *Net length:* 90m (3x30m)
Setting: Sinking and Floating *Panel Mesh:* Standard

SURVEY RESULTS:

Catch

	RB	EB	RSC	LKC	LSU	CSU	NSC	CAS	BT	LT
2004	26	0	0	8	0	0	0	0	0	0
1999	36	0	0	13	0	0	0	0	0	0

Survey Year	2004	1999
Effort Hours	33.5	44.25
RB CPUE:	0.78	0.81
EB CPUE:	0.00	0.00
# of Sets:	3	2

Next Assessment **2007**

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SURVEY CONCLUSIONS:

Objective	Objectives Achieved		Reason
	Yes	No	
1. Family	<input type="checkbox"/>	<input type="checkbox"/>	
2. Average	<input checked="" type="checkbox"/>	<input type="checkbox"/>	58% of rainbow trout are between 250-400mm. No fish captured were larger than 400mm.
3. Above Average	<input type="checkbox"/>	<input type="checkbox"/>	
4. Trophy	<input type="checkbox"/>	<input type="checkbox"/>	

RECOMMENDATIONS:

Assessment: The next assessment is scheduled for 2007 to assess the amount of natural recruitment occurring at Sawmill Lake.

Management: An assessment conducted in 1985 determined that there was a naturally viable population of rainbow trout prior to stocking. Overlapping age-classes in both the 1999 and 2004 assessments indicates that natural recruitment may still be occurring. Marked AF3N fish will be stocked in the spring of 2005 and 2006. A follow-up assessment is recommended for the fall of 2007 to assess natural recruitment at Sawmill Lake.

Comments: Sawmill Lake was assessed in 1999. Stocking density was subsequently reduced to 1000/year from 2500/year to enhance the growth of rainbow trout in the lake. The reduction in stocking density has allowed for an increase in mean size of rainbow trout since 1999 from 178mm to 272mm. The objective set in 1999 was to have 3-year old catchable fish. The 2004 assessment determined that 3-year old fish were between 222-272mm. The 3-year old size class present in Sawmill Lake is inadequate to satisfy most anglers needs. Rainbow trout in Sawmill Lake do not exceed 300mm until they reach 5 years of age.

Uncertainties: Natural recruitment is likely occurring at Sawmill Lake.

Recent Brood Request Comments:

2005 Annual- Assessed in '04. Evidence of natural recruitment. Mark two years and reassess in fall '07.

2004 Assessed in 99, reduced from 2,500/a to 1000/a to enhance growth.01 aerial survey indicates moderate-high angler use. Few anglers seen in 2002 creel of area. Reassess 03.

History of Angling Regulations

There are no special angling regulations for Sawmill Lake.

Reported by: Adrian Clarke

Date: Mar-05

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Table 1. Rainbow trout physical attributes for sample years:

Sample Year	Sample		Length (mm)				Weight (g)				Condition (k)				
	Age	Size	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Var
2004	2	10	227	194	272	25.7	108	65	200	42.4	0.89	0.79	1.08	0.1	0.01
1999	2	26	124	114	140	6.9	19	13.8	31.3	3.7	0.96	0.81	1.22	0.1	0.01
2004	3	4	252	222	274	22.8	150	85	200	54.6	0.91	0.78	1.03	0.1	0.01
2004	4	3	274	264	288	12.7	247	205	295	45.4	1.20	1.05	1.30	0.1	0.02
1999	4	2	249	235	262	19.1	163	127	199	50.5	1.04	0.98	1.10	0.1	0.01
2004	5	8	329	290	359	24.9	385	245	490	78.5	1.08	0.98	1.29	0.1	0.01
1999	5	7	309	264	399	44.3	287	189	550	122.8	0.95	0.70	1.15	0.1	0.02
2004	6	1	352				480				1.10				

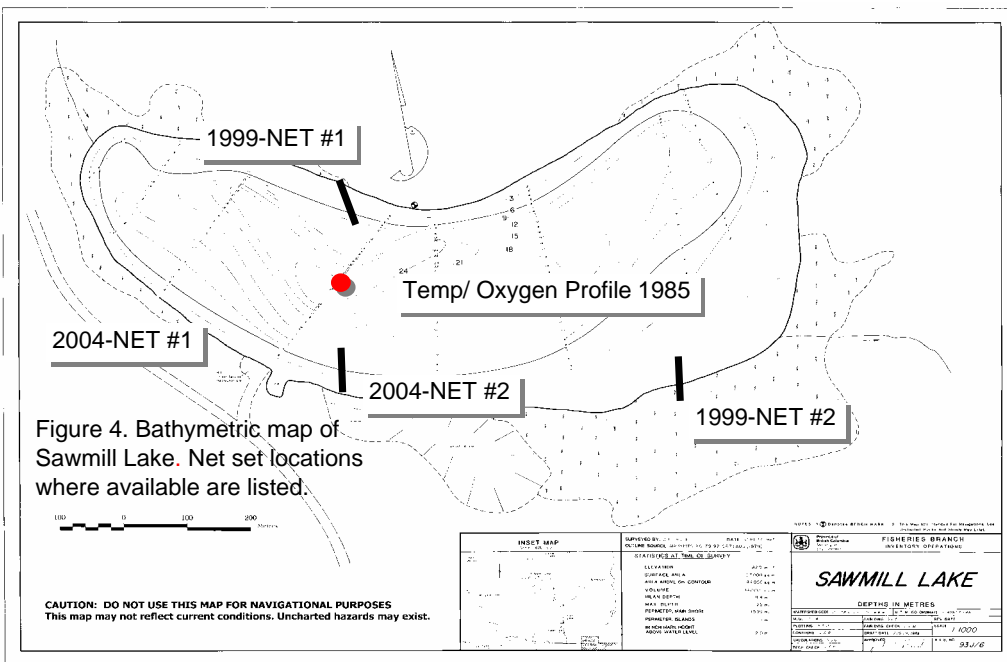
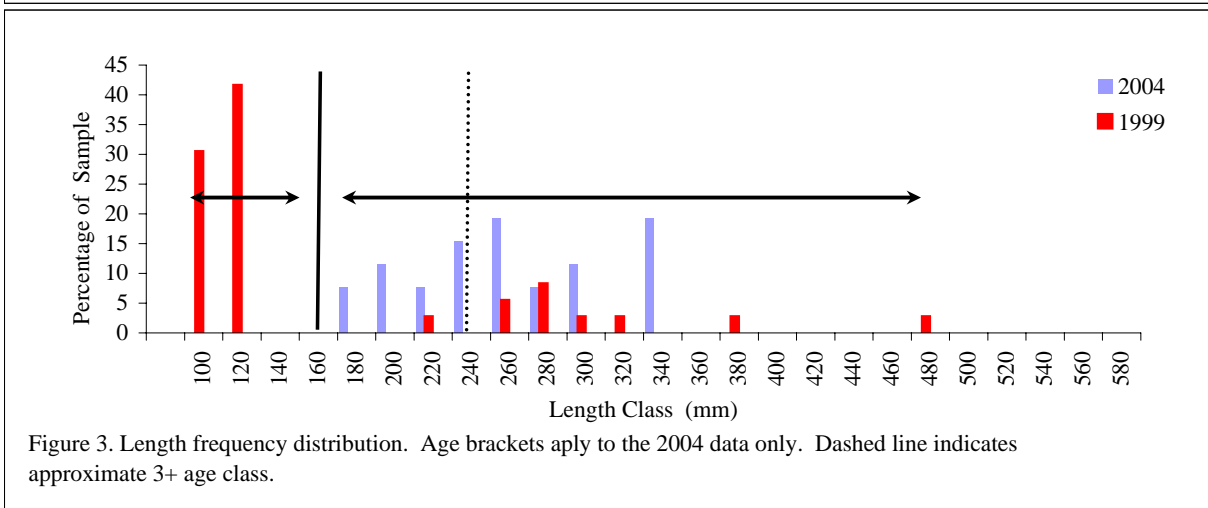
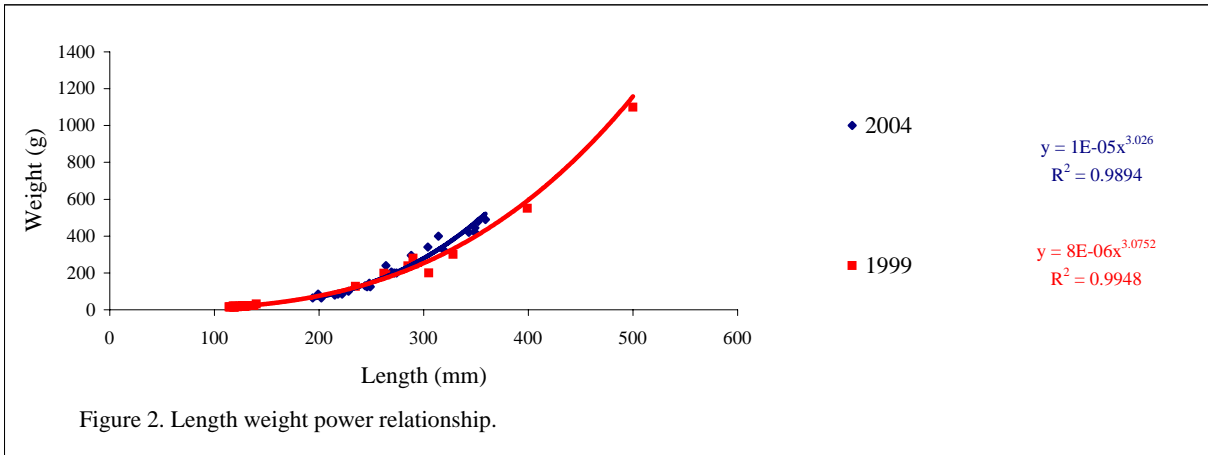
Table 2. Catch summary for all sample years.

Sample Year	Sample		Length (mm)				Weight (g)				Condition (k)			
	Size	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Var
2004	26	272	194	359	51.4	230	65	490	141.8	0.99	0.78	1.30	0.15	0.02
1999	36	178	114	500	51.4	109	14	1100	208.0	0.96	0.70	1.22	0.11	0.01

Table 3. Proportion of Catch (by survey year)

<i>Survey Year</i>	2004	1999
Less than 250 mm	42.3 %	75.0 %
Between 250-350 mm	50.0 %	19.4 %
Between 350-400 mm	57.7 %	22.2 %
Greater than 400 mm	0.0 %	2.8 %
Greater than 500 mm	0.0 %	2.8 %

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Table 4. Stocking History for Sawmill Lake to 2004.

Release Date	Species Name	Fish Count	Stock	Mark	Average Size (gm)	Life Cycle Stage
5-Jun-04	RB	1000	PENNASK AF3N		13	YEARLING
3-Jun-03	RB	1000	PENNASK AF3N		15.15	YEARLING
15-Jun-02	RB	1000	PENNASK AF3N		15.55	YEARLING
12-Jun-01	RB	2500	PENNASK AF3N		14.17	YEARLING
31-May-00	RB	2500	NRT PREMIER		9.13	YEARLING
2-Jun-99	RB	2500	PENNASK		6.54	YEARLING
29-May-98	RB	2500	BADGER TUNKWA		7.75	YEARLING
17-Jun-97	RB	2500	BADGER TUNKWA		8.33	YEARLING
3-Jun-96	RB	2500	BADGER TUNKWA		5.32	YEARLING
8-Jun-95	RB	2500	NRT GENIER		13.64	YEARLING
12-Jun-94	RB	2500	TUNKWA		7.46	YEARLING
31-May-93	RB	2500	TUNKWA		2.94	YEARLING
16-Jun-92	RB	2500	NRT PREMIER		9.01	YEARLING
27-May-91	RB	2500	BADGER		9.62	YEARLING
25-Jun-90	RB	2500	NRT PREMIER		7.1	YEARLING
31-May-89	RB	2500	TUNKWA		10.8	YEARLING
1-May-88	RB	2500	NRT PREMIER		3.7	UNKNOWN
1-Aug-87	RB	2500	DRAGON		0.9	UNKNOWN
1-Aug-86	RB	2500	TUNKWA		0.6	UNKNOWN

Table 5. Dissolved Oxygen/ Temperature Profile

16-Oct-84			16-Oct-84		
Depth (m)	DO	Temp. °C	Depth (m)	DO	Temp. °C
0	8.8	8.9	16	0	2.0
1	8.8	8.8	17	0	1.7
2	8.8	8.8	18	0	1.7
3	8.8	8.8	19	0	1.7
4	8.8	8.6	20	0	1.7
5	7.6	8	21	0	1.7
6	2.8	4.7	22	0	1.7
7	2.8	4.7	23	0	1.7
8	1.5	3			
9					
10	0.4	2			
11					
12	0.2	2			
13					
14	0.1	2			
15					
16	0	2			

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Table 6. Stock assessment data for 2004 (see lakes files for additional survey data).

Lake	Sample#	Site	Species Caught	Age	Length (mm)	Weight (grams)	Condition (k)	Scale Age	Structure	Sex	Maturity	Ageing Comments
Sawmill	1	1	rb	4	264	240	1.3	4+	ot	f	st	
Sawmill	2	1	rb	6	352	480	1.1	6+	ot	m	m	
Sawmill	3	1	rb	5	359	490	1.1	5+	ot	m	m	
Sawmill	4	1	rb	3	264	190	1.0	3+	ot	f	im	translucent
Sawmill	5	1	rb	5	320	320	1.0	5+	ot	m	m	translucent; vague 5th annulus
Sawmill	6	1	rb	5	343	420	1.0	5+	ot	m	m	
Sawmill	7	1	rb	4	288	295	1.2	4+	ot	f	st	
Sawmill	8	1	rb	2	202	65	0.8	2+	ot	f	im	
Sawmill	9	1	rb	5	290	245	1.0	5+	ot	m	m	translucent
Sawmill	10	1	rb	5	349	445	1.0	5+	ot	m	m	translucent
Sawmill	11	3	rb	5	304	340	1.2	5+	ot	m	m	
Sawmill	12	3	rb	3	274	200	1.0	3+	ot	f	im	
Sawmill	13	3	rb	3	246	125	0.8	3+	ot	f	im	
Sawmill	14	3	rb	5	349	420	1.0	5+	ot	m	m	translucent; vague 1st annulus
Sawmill	15	3	rb	2	199	85	1.1	2+	ot	f	im	
Sawmill	16	3	rb	5	314	400	1.3	5+	ot	f	st	translucent; vague 4th annulus
Sawmill	17	3	rb	2	249	125	0.8	2++	ot	f	im	
Sawmill	18	3	rb	2	248	145	1.0	2++	ot	f	im	
Sawmill	19	3	rb	2	215	80	0.8	2++	ot	f	im	
Sawmill	20	3	rb	2	244	130	0.9	2+	ot	f	mt	translucent
Sawmill	21	3	rb	2	218	85	0.8	2+	ot	f	im	
Sawmill	22	3	rb	2	228	100	0.8	2+	ot	f	im	translucent
Sawmill	23	3	rb	2	272	200	1.0	2++	ot	f	im	
Sawmill	24	3	rb	3	222	85	0.8	3+	ot	f	im	
Sawmill	25	3	rb	4	269	205	1.1	4+	ot	m	m	
Sawmill	26	3	rb	2	194	65	0.9	2+	ot	f	im	translucent