

Executive Summary

Mackenzie Lake #1 West

2004

Stocking assessments were conducted at Mackenzie Lake #1 West in 2000, 2003 and 2004 to determine the status of the fishery. Mackenzie Lake #1 West is 16.9 ha and is situated 42 km South West of Prince George along the Blackwater Forest Service Road. Mackenzie Lake has good 2wd public access and a Forest Service Recreation Site with a launch suitable for car-top boats. The original management goal for Mackenzie Lake was to maintain an average quality fishery. Following these assessments, this goal was changed to management for an above average fishery with the objective of providing an average fish size of greater than 40 cm.

One standard floating gillnet 90 m in length (standard mesh) was set on October 26, 2003 and four sinking gill nets were set on June 28-29 July 4 and July 6 2000 and 28, 2000. The total sampling effort in 2003 was 25.5 hours resulting in a gillnet catch per unit effort (CPUE) of 3.73 fish per net hour. The total sampling effort in 2000 was 27 hours resulting in a gillnet catch per unit effort (CPUE) of 1.56 fish per net hour. A third assessment was completed in 2004 to assess reports of a fish-kill at ice-off in 2004. The rainbow trout sampled during the 2000-2003 assessments are reaching sizes suitable to provide for a average quality angling experience, with of significant proportion of the catch reaching lengths greater than 40 cm. Mean fish size in the net catch was approximately 34 cm in 2003 and 24 cm in 2000. Maximum fish size in 2003 was 49 cm for a fish estimated to be 5 years of age.

Mackenzie West has demonstrated periodic summer oxygen depletion a meter or two below the surface (Omineca Lakes Files), and based on the 2004 gillnet assessment it is clear that at least a partial winter kill occurred in 2004. Growth checks were also observed in scales from samples collected in 2003 and may be linked to low summer oxygen. Adipose fin marked RB were stocked in 2004 and are scheduled for stocking in 2005 to validate ages from future stock assessments. Periodic winter kill events and summer oxygen depletion make interannual comparisons of growth difficult, however the growth rates observed for Mackenzie West suggest that management of this lake with an objective of providing an above average fishery is possible.

It is recommended that the next stock assessment on Mackenzie lakes should be completed in 2007; the objective of these follow-up assessment are 1) to evaluate management changes on Mackenzie East and 2) evaluate the connectivity of these two lakes using adipose fin marked fish. If there is substantial movement of fish between the two lakes, consideration should be given harmonizing regulations and stock/ strain types used on both systems.



Figure 1. Photo of Mackenzie Lake #1 (West) facing East away from the boat launch.

**OMINECA REGION
LAKE STOCK ASSESSMENT REPORT**

LAKE NAME: 0 **ALIAS:** Mackenzie #1 West **BC WBID:** 01241LCHL

LAKE LOCATION: *Nearest center:* 42 km SSW Prince Georg *Drainage:* FRASER
UTM: 10.503441.5932676

LAKE ATTRIBUTES: *Surface Area:* 16.9 Ha *Elevation:* 854 m
Littoral Area: 13.3 Ha *T.D.S.:* 96 ppm
Max Depth: 9 m *Mean depth:* 3.8 m

MANAGEMENT OBJECTIVE (mean length in gillnet (cm)):

- 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 (20% > 50 cm for RB, 20% > 40 cm for EB)

MANAGEMENT/SURVEY HISTORY :

Previous gill net assessment(s): no yes CSTC 2000
Year(s) Surveyed: ,1988, 2000, 2003, 2004 PG Lakes Files 1988

STOCKING DATA:

Current Stocking Rate 148 Fish/Ha *Stocking Interval*
Stock Type **TUNKWA**
Species RB mixed
Previous Stocking Rate 148

SURVEY METHODS:

Method	Date (yy.mm.dd)	Survey Agency	Crew
Fish	SGN 2003-10-25	BCCF	Grant Carlson, Marcel Macullo
Chem.	Profile 1984	MOE	B Little, MOE, PG Lakes Files
Physical	Bathymetric 1984	MOE	B Little, MOE, PG Lakes Files
Temp.	Profile 1984	MOE	B Little, MOE, PG Lakes Files

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

SURVEY RESULTS:

Catch

	RB	EB	RSC	LKC	LSU	CSU	NSC	CAS	BT	LT
2003	95	0	0	0	0	0	0	0	0	0
2000	42	0	0	0	0	0	0	0	0	0
1988	30	0	0	0	0	0	0	0	0	0
2004	16	0	0	0	0	0	0	0	0	0

Survey Year	2003	2000	1988	2004	
Effort Hours	25.5	27	3.25	5	
RB CPUE:	3.73	1.56	9.23	3.20	RB/Net Hour
EB CPUE:	0.00	0.00	0.00	0.00	EB/Net Hour
# of Sets:	1	4	1	1	

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 type="checkbox"/>	<input type="checkbox"/>	
3. Above Average	<input checked="" type="checkbox"/>	<input type="checkbox"/>	22 percent of sample was larger than 40 cm
4. Trophy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	no fish were larger than 50 cm

RECOMMENDATIONS:

Assessment: Re-assess in 2007- monitor changes in length frequency of fish greater than 40 cm and greater than 50 cm. Assess both Mackenzie Lake at same time to- look for presence of marked fish in Mackenzie East to assess connectivity between lakes.

Management: Consider future regulation changes for Mackenzie West so that they are concordant with Mackenzie East. Growth rates from Mackenzie West appear to be high, and this lake may have more potential than Mackenzie East for quality fishery. Effort in 2001, as measured by SLIM boat counts indicated that Mack. West attracted less fishing effort than East.

Comments: 1) There were reports of a winter kill in spring 2004, associated with multiple reports of poor fishing success. The author checked the lake a few days after ice-off and observed one decomposing RB near the boat launch. A limited gill net assessment was conducted in fall 2004 to investigate a reported winter kill at ice-off in spring 2004. The growth trajectory (rapid) of RB captured in 2004 and the lack of fish under 200 mm suggests that there was a partial winter kill and not a complete kill. 2) Regulations were changed in 2004 in Mackenzie #2 East to increase opportunities for trophy fish. New regulations- Single barbless hook, bait-ban. 3 fish under 40 cm may be retained. Winter closure. November 1- April 30.

Uncertainties: 1) Mackenzie West has demonstrated periodic summer oxygen depletion a meter or two below the surface (Omineca Lakes Files). Growth checks were observed in scales from samples collected in 2003 and may be linked to low summer oxygen. Adipose marked RB were stocked in 2004 and are scheduled for stocking in 2005 to validate ages from future stock assessments. 2) Periodic winter kill events and summer oxygen depletion make interannual comparisons of growth difficult.

Recent Brood Request Comments:

Assessed in fall '03. Multiple growth checks (may have low winter O2) . Change stock to BLACKWATER- Lake Chubb Present.

History of Angling Regulations

Regional regulations Apply. No Special Restrictions

Reported by: Cory Williamson

Date: Jun-05

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Table 1. Rainbow trout physical attributes for all sample years by age:

Sample Year	Sample		Sample				Sample				Sample				Var
	Age	Size	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	
2000	1	18	131	110	181	21.0	27	15.6	75.3	16.4	1.12	0.84	1.27	0.1	0.01
1988	1	16	245	181	277	27.5	176	50	260	60.1	1.14	0.84	1.27	0.1	0.01
2003	2	7	236	193	276	28.2	138	56.7	198	52.9	1.00	0.79	1.26	0.1	0.02
2000	2	6	243	183	303	44.5	188	70	340	104.9	1.19	1.02	1.30	0.1	0.01
1988	2	6	274	256	303	15.6	241	185	325	47.1	1.16	1.08	1.24	0.1	0.00
2003	3	31	288	205	396	62.3	284	85	737	192.8	1.00	0.82	1.19	0.1	0.01
2000	3	11	332	278	403	51.1	415	250	650	167.1	1.09	0.90	1.34	0.2	0.02
1988	3	7	452	400	517	42.1	1154	850	1850	328.8	1.24	1.03	1.48	0.2	0.02
2003	4	35	361	238	448	45.4	516	142	964	184.5	1.01	0.00	1.21	0.2	0.04
2000	4	7	369	321	400	26.1	595	420	790	120.4	1.17	1.09	1.27	0.1	0.00
2003	5	14	428	359	495	33.3	810	482	1106	172.9	1.03	0.81	1.18	0.1	0.01
2003	6	3	385	360	404	22.7	633	539	737	99.6	1.10	1.04	1.15	0.1	0.00
2003	7	2	455	429	480	36.1	1049	907	1191	200.5	1.11	1.08	1.15	0.1	0.00

Table 2. Catch summary for all sample years.

Sample Year	Sample Size	Length (mm)				Weight (g)				Condition (k)				Var
		Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	
2003	95	341	193	495	75.4	472	57	1191	276.5	1.02	0.00	1.26	0.15	0.02
2000	42	239	110	403	107.1	246	16	790	245.6	1.13	0.84	1.34	0.11	0.01
1988	30	299	181	517	90.9	418	50	1850	442.8	1.17	0.84	1.48	0.11	0.01
2004	16	302	213	361	38.2	454	180	760	162.6	1.58	1.46	1.86	0.10	0.01

Table 3. Proportion of Catch (by survey year)

Survey Year	2003	2000	1988	2004
Less than 250 mm	17.9 %	50.0 %	23.3 %	6.3 %
Between 250-350 mm	31.6 %	23.8 %	53.3 %	81.3 %
Between 250-400 mm	60.0 %	47.6 %	56.7 %	93.8 %
Greater than 400 mm	23.2 %	4.8 %	23.3 %	0.0 %
Greater than 500 mm	0.0 %	0.0 %	3.3 %	0.0 %

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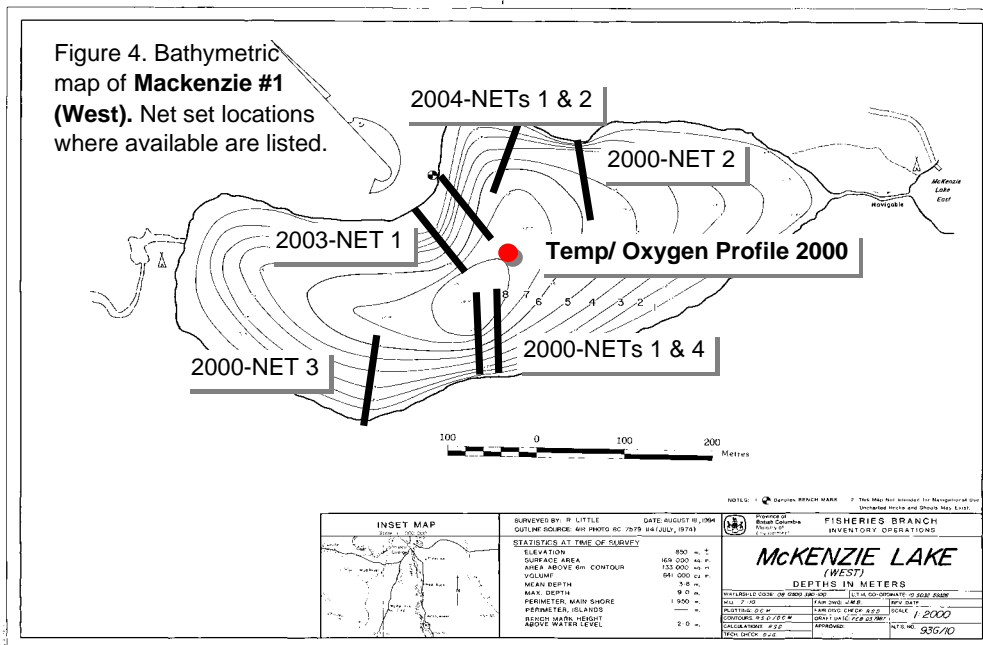
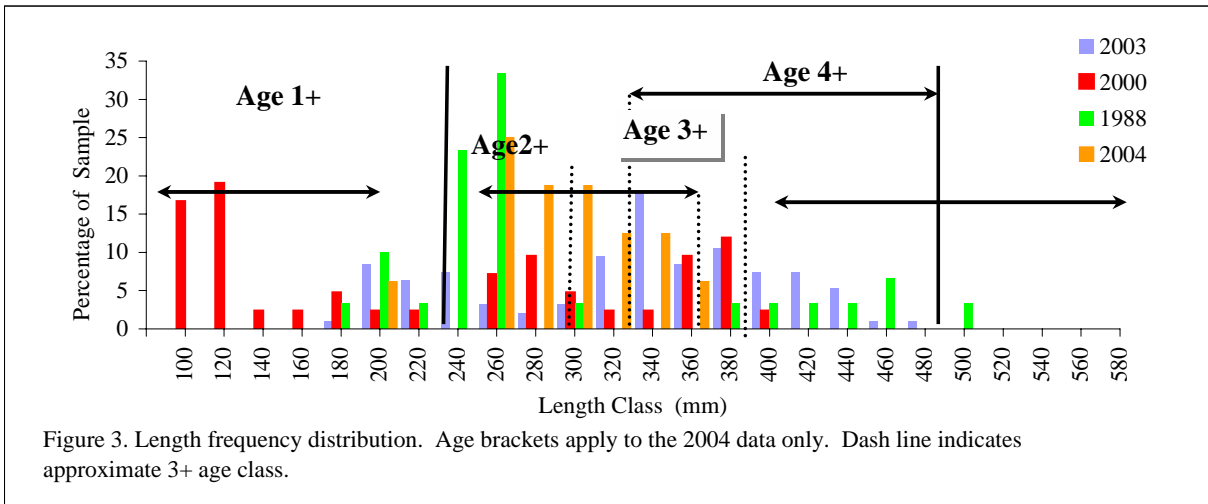
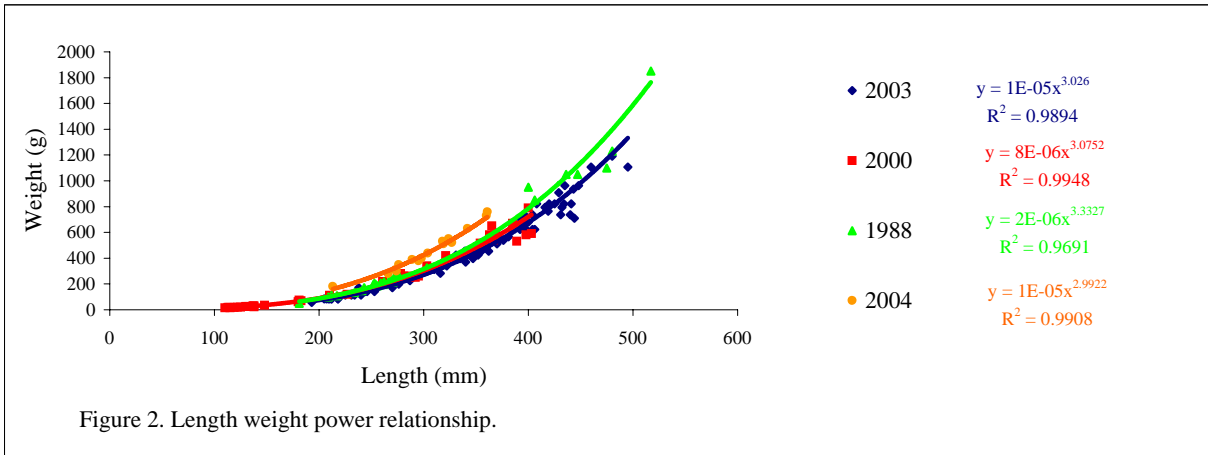


Table 4. Stocking History for Mackenzie Lake #1 (West) to 2005.

Release Date	Species Name	Fish Count	Stock	Mark	Average Size (gm)	Life Cycle Stage
8-Jun-05	RB	2500	TUNKWA		12.35	YEARLING
25-May-04	RB	2500	PENNASK PREM	Adipose	7.16	YEARLING
4-Jun-03	RB	2500	BADGER TUNKWA		7.91	YEARLING
19-Jun-02	RB	2500	BADGER TUNKWA		15.87	YEARLING
30-May-01	RB	2500	NRT DRAGON		9.52	YEARLING
30-May-00	RB	2500	NRT PREMIER		9.9	YEARLING
2-Jun-99	RB	2500	BADGER TUNKWA		13.9	YEARLING
29-May-98	RB	2500	BADGER TUNKWA		7.75	YEARLING
12-Jun-97	RB	2500	BADGER TUNKWA		7.35	YEARLING
4-Jun-96	RB	2500	BEAVER		4.63	YEARLING
8-Jun-95	RB	2500	TUNKWA GE		9.43	YEARLING
11-Jun-94	RB	2500	TUNKWA		7.46	YEARLING
27-May-93	RB	2500	TUNKWA		3.37	YEARLING
30-May-92	RB	2500	NRT PREMIER		6.58	YEARLING
28-May-91	RB	2500	NRT PREMIER		6.32	YEARLING
28-May-90	RB	2500	BADGER		19.8	YEARLING
18-May-89	RB	5000	TUNKWA		7.3	YEARLING
1-Jun-87	RB	2500	NRT PREMIER		2.4	UNKNOWN
1-May-86	RB	2500	NRT PREMIER		4.5	UNKNOWN
1-Jun-85	RB	2500	NRT PREMIER		3.5	UNKNOWN
1-May-84	RB	2500	NRT PREMIER		6.5	UNKNOWN
1-May-82	RB	5000	BADGER DR		5.5	UNKNOWN
1-May-81	RB	5000	NRT PREMIER		6.4	UNKNOWN
1-Jun-80	RB	5000	NRT PREMIER		5	UNKNOWN
1-Jan-79	RB	10000	NRT PREMIER		3.4	UNKNOWN
1-May-81	RB	5000	NRT PREMIER		6.4	UNKNOWN
1-Jun-80	RB	5000	NRT PREMIER		5	UNKNOWN
1-Jan-79	RB	10000	NRT PREMIER		3.4	UNKNOWN

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Table 5. Dissolved Oxygen/ Temperature Profile

28-Jun-00			04-Jul-00 Station UTM n/a					
Depth (m)	DO	Temp. °C	Depth (m)	DO mg/L	DO %sat	Temp. °C	pH	Cond (25°C)
0			0					
1	8.5	20	1	7		16.0		
2	9	16	2	5.2		15.5		
3	4.5	14	3	4		15.0		
4	0.7	10	4	0.5		11.0		
5	0.3	7	5	0.25		8.0		
6			6	0.2		7.0		
7			7					
8			8					
9			9					
10			10					
11			11					
12			12					
13			13					
14			14					

Table 6. Stock Assessment Data for 2000 (see lake files for additional survey data).

Lake	Sample#	Site	Number	Species	Origin	Age	Length	Weight	Condition	Scale Age	Structure	Cond.	Clip	Sex	Maturity
Mackenzie	1	1	1	RB		4	400	790	1.234375	4+	s	1		f	M
Mackenzie	2	1	1	RB		4	368	580	1.163817	4+	s	1		f	ST
Mackenzie	3	1	1	RB		3	305	325	1.14547	3+	s	3		m	ST
Mackenzie	4	1	1	RB		2	275	270	1.298272	2+	s	1		f	M
Mackenzie	5	1	1	RB		2	303	340	1.222225	2+	s	1		m	ST
Mackenzie	6	1	1	RB		3	278	280	1.303238	3+	s	1		f	im
Mackenzie	7	1	1	RB		2	227	119.4	1.020767	2+	s	1		f	im
Mackenzie	8	1	1	RB		2	210	112.2	1.211532	2+	s	1		f	im
Mackenzie	9	1	1	RB		2	183	70	1.142207	2+	s	1			im
Mackenzie	10	1	1	RB		1	181	75.3	1.26987	1+	s	1			im
Mackenzie	1	2	2	RB		1	138	30.8	1.171962	1+	s	1			im
Mackenzie	2	2	2	RB		1	115	16	1.052026	1+	s	1			im
Mackenzie	1	3	3	RB		2	261	217.3	1.222189	2+	s	1		m	ST
Mackenzie	2	3	3	RB		1	180	63	1.080247	1+	s	1			im
Mackenzie	1	4	4	RB		1	113	16.2	1.122741	1+	s	1			im
Mackenzie	2	4	4	RB		1	119	17.2	1.020675	1+	s	1			im
Mackenzie	3	4	4	RB		1	110	16	1.2	1+	s	1			im
Mackenzie	4	4	4	RB		1	113	17	1.2	1+	s	1			im
Mackenzie	5	4	4	RB		1	114	18	1.2	1+	s	1			im
Mackenzie	6	4	4	RB		1	133	26	1.1	1+	s	1			im
Mackenzie	7	4	4	RB		1	148	34	1.1	1+	s	1			im
Mackenzie	8	4	4	RB		1	130	25	1.2	1+	s	1			im
Mackenzie	9	4	4	RB		1	131	25	1.1	1+	s	1			im
Mackenzie	10	4	4	RB		1	137	31	1.2	1+	s	1			im
Mackenzie	11	4	4	RB		1	115	18	1.2	1+	s	1			im
Mackenzie	12	4	4	RB		1	122	21	1.1	1+	s	1			im
Mackenzie	13	4	4	RB		1	138	22	0.8	1+	s	1			im
Mackenzie	14	4	4	RB		1	125	21	1.1	1+	s	1			im
Mackenzie	15	4	4	RB		4	385	670	1.2	4+	s	2		f	M
Mackenzie	16	4	4	RB		3	363	580	1.2	3+	s	1		m	ST
Mackenzie	17	4	4	RB		4	321	420	1.3	4+	s	1		m	ST
Mackenzie	18	4	4	RB		4	387	650	1.1	4+	s	2		f	MT
Mackenzie	19	4	4	RB		3	285	260	1.1	3+	s	2		m	ST
Mackenzie	20	4	4	RB		4	354	515	1.2	4+	s	1		f	MT
Mackenzie	21	4	4	RB		3	389	530	0.9	3+	s	2		f	ST
Mackenzie	22	4	4	RB		4	367	540	1.1	4+	s	2		f	MT
Mackenzie	23	4	4	RB		3	365	650	1.3	3+	s	2		m	ST
Mackenzie	24	4	4	RB		3	398	580	0.9	3+	s	2		f	ST
Mackenzie	25	4	4	RB		3	295	260	1.0	3+	s	1		m	ST
Mackenzie	26	4	4	RB		3	281	260	1.2	3+	s	1		m	ST
Mackenzie	27	4	4	RB		3	292	250	1.0	3+	s	2		f	ST
Mackenzie	28	4	4	RB		3	403	590	0.9	3+	s	2		f	ST

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Table 7. Stock Assessment Data for 2003 (see lake files for additional survey data).

Lake	Sample#	Site	Number	Species	Origin	Age	Length	Weight	Condition	Scale Age	Structure	Cond.	Clip	Sex	Maturity
Mackenzie	1	1	1	Rb		5	444	709	0.8	6	S	1	No	M	Mt
Mackenzie	2	1	1	Rb		7	429	907	1.1	9	S	1	No	F	Mt
Mackenzie	3	1	1	Rb		5	460	1106	1.1	6	S	2	No	F	Mt
Mackenzie	4	1	1	Rb		4	370	510	1.0	n/a	S	9	No	M	Mt
Mackenzie	5	1	1	Rb		5	495	1106	0.9	7	S	2	No	M	Mt
Mackenzie	6	1	1	Rb		4	287	255	1.1	4	S	1	No	M	Mt
Mackenzie	7	1	1	Rb		4	362	454	1.0	5	S	1	No	F	Mt
Mackenzie	8	1	1	Rb		6	404	737	1.1	6	S	1	No	M	Mt
Mackenzie	9	1	1	Rb		4	319	369	1.1	4	S	1	No	F	Mt
Mackenzie	10	1	1	Rb		4	381	567	1.0	5	S	1	No	F	Mt
Mackenzie	11	1	1	Rb		3	396	737	1.2	5	S	1	No	F	Mt
Mackenzie	12	1	1	Rb		5	432	794	1.0	5	S	1	No	M	Mt
Mackenzie	13	1	1	Rb		3	253	142	0.9	3	S	1	No	M	IM
Mackenzie	14	1	1	Rb		4	347	425	1.0	4	S	1	No	F	Mt
Mackenzie	15	1	1	Rb		3	256	170	1.0	3	S	1	No	F	Mt
Mackenzie	16	1	1	Rb		3	346	454	1.1	5	S	1	No	F	Mt
Mackenzie	17	1	1	Rb		3	342	425	1.1	5	S	1	No	F	Mt
Mackenzie	18	1	1	Rb		5	420	822	1.1	5	S	1	No	M	Mt
Mackenzie	19	1	1	Rb		6	360	539	1.2	6	S	1	No	F	Mt
Mackenzie	20	1	1	Rb		3	335	397	1.1	5	S	2	No	F	Mt
Mackenzie	21	1	1	Rb		2	212	85	0.9	3	S	1	No	Unk	IM
Mackenzie	22	1	1	Rb		3	287	227	1.0	3	S	1	No	M	Mt
Mackenzie	23	1	1	Rb		3	369	595	1.2	4	S	1	No	M	Mt
Mackenzie	24	1	1	Rb		4	246	142	1.0	4	S	2	No	F	Mt
Mackenzie	25	1	1	Rb		3	264	198	1.1	4	S	1	No	Unk	IM
Mackenzie	26	1	1	Rb		3	360	510	1.1	5	S	1	No	F	Mt
Mackenzie	27	1	1	Rb		4	358	482	1.1	5	S	1	No	F	Mt
Mackenzie	28	1	1	Rb		5	435	964	1.2	6	S	1	No	F	Mt
Mackenzie	29	1	1	Rb		3	234	113	0.9	4	S	1	No	F	Mt
Mackenzie	30	1	1	Rb		3	270	170	0.9	4	S	1	No	F	Mt
Mackenzie	31	1	1	Rb		3	212	85	0.9	4	S	1	No	F	Mt
Mackenzie	32	1	1	Rb		3	244	142	1.0	4	S	1	No	F	Mt
Mackenzie	33	1	1	Rb		3	205	85	1.0	4	S	1	No	M	Mt
Mackenzie	34	1	1	Rb		3	240	113	0.8	4	S	1	No	M	Mt
Mackenzie	35	1	1	Rb		3	218	85	0.8	4	S	1	No	M	Mt
Mackenzie	36	1	1	Rb		3	210	85	0.9	4	S	1	No	M	Mt
Mackenzie	37	1	1	Rb		3	209	85	0.9	4	S	1	No	M	Mt
Mackenzie	38	1	1	Rb		2	252	170	1.1	3	S	2	No	M	Mt
Mackenzie	39	1	1	Rb		4	350	482	1.1	5	S	1	No	F	Mt
Mackenzie	40	1	1	Rb		4	340	454	1.2	0.001237	S	9	No	M	Mt
Mackenzie	41	1	1	Rb		4	395	652	1.1	0.000382	S	1	No	F	Mt
Mackenzie	42	1	1	Rb		6	392	624	1.0	0.000427	S	1	No	M	Mt
Mackenzie	43	1	1	Rb		3	207	85	1.0	0.155867	S	1	No	M	Mt
Mackenzie	44	1	1	Rb		2	225	113	1.0	0.068272	S	1	No	M	Mt
Mackenzie	45	1	1	Rb		4	231	113	0.9	0.063069	S	1	No	F	Mt
Mackenzie	46	1	1	Rb		3	218	85	0.8	0.133443	S	2	No	F	Mt
Mackenzie	47	1	1	Rb		4	238	142	1.1	0.036918	S	1	No	F	Mt
Mackenzie	48	1	1	Rb		3	252	170	1.1	0.021598	S	1	No	M	Mt
Mackenzie	49	1	1	Rb		4	352	454	1.0	0.001114	S	1	No	M	Mt
Mackenzie	50	1	1	Rb		5	359	482	1.0	0.000931	S	1	No	F	Mt
Mackenzie	51	1	1	Rb		4	331	425	1.2	0.001525	S	8	No	M	Mt
Mackenzie	52	1	1	Rb		4	441	822	1.0	0.000173	S	9	No	M	Mt
Mackenzie	53	1	1	Rb		4	406	624	0.9	0.000384	S	1	No	M	Mt
Mackenzie	54	1	1	Rb		4	400	680	1.1	0.000338	S	1	No	F	Mt
Mackenzie	55	1	1	Rb		4	425	822	1.1	0.000193	S	2	No	M	Mt
Mackenzie	56	1	1	Rb		5	416	794	1.1	0.00022	S	1	No	F	Mt
Mackenzie	57	1	1	Rb		4	448	964	1.1	0.00012	S	1	No	F	Mt
Mackenzie	58	1	1	Rb		7	480	1191	1.1	6.38E-05	S	1	No	M	Mt
Mackenzie	59	1	1	Rb		5	392	709	1.2	0.00033	S	1	No	F	Mt
Mackenzie	60	1	1	Rb		4	419	765	1.0	0.000232	S	1	No	F	Mt
Mackenzie	61	1	1	Rb		4	368	567	1.1	0.000624	S	3	No	M	Mt
Mackenzie	62	1	1	Rb		4	408	822	1.2	0.000218	S	1	No	F	Mt
Mackenzie	63	1	1	Rb		5	443	936	1.1	0.000131	S	1	No	F	Mt
Mackenzie	64	1	1	Rb		2	276	198	0.9	0.012078	S	1	No	M	Mt
Mackenzie	65	1	1	Rb		3	347	454	1.1	0.001163	S	1	No	F	Mt
Mackenzie	66	1	1	Rb		4	310	312	1.0	0.003452	S	1	No	Unk	IM
Mackenzie	67	1	1	Rb		4	334	397	1.1	0.001704	S	1	No	F	Mt
Mackenzie	68	1	1	Rb		5	384	624	1.1	0.000454	S	1	No	F	Mt
Mackenzie	69	1	1	Rb		3	330	397	1.1	0.001766	S	1	No	F	Mt
Mackenzie	70	1	1	Rb		4	360	482	1.0	0.000923	S	1	No	F	Mt
Mackenzie	71	1	1	Rb		4	404	624	0.9	0.00039	S	1	No	F	Mt
Mackenzie	72	1	1	Rb		4	347	404	0.9	#DIV/0!	S	1	No	Unk	Mt
Mackenzie	73	1	1	Rb		4	352	425	1.0	0.001268	S	1	No	M	Mt
Mackenzie	74	1	1	Rb		4	355	454	1.0	0.001086	S	1	No	F	Mt
Mackenzie	75	1	1	Rb		4	349	454	1.1	0.001143	S	1	No	M	Mt
Mackenzie	76	1	1	Rb		4	390	652	1.1	0.000397	S	1	No	F	Mt
Mackenzie	77	1	1	Rb		2	193	57	0.8	0.43269	S	1	No	M	Mt
Mackenzie	78	1	1	Rb		2	238	170	1.3	0.025637	S	1	No	M	Mt
Mackenzie	79	1	1	Rb		2	255	170	1.0	0.020844	S	1	No	F	Mt
Mackenzie	80	1	1	Rb		4	316	283	0.9	0.003943	S	1	No	F	Mt
Mackenzie	81	1	1	Rb		3	372	567	1.1	0.000604	S	1	No	F	Mt
Mackenzie	82	1	1	Rb		5	434	822	1.0	0.000181	S	1	No	M	Mt
Mackenzie	83	1	1	Rb		3	372	539	1.0	0.00067	S	1	No	F	Mt
Mackenzie	84	1	1	Rb		4	395	709	1.1	0.000323	S	1	No	F	Mt
Mackenzie	85	1	1	Rb		4	398	624	1.0	0.000408	S	3	No	F	Mt
Mackenzie	86	1	1	Rb		3	340	369	0.9	0.001873	S	1	No	F	Mt
Mackenzie	87	1	1	Rb		3	322	340	1.0	0.002588	S	1	No	F	Mt
Mackenzie	88	1	1	Rb		4	376	539	1.0	0.000648	S	1	No	F	Mt
Mackenzie	89	1	1	Rb		4	354	482	1.1	0.000971	S	1	No	M	Mt
Mackenzie	90	1	1	Rb		5	440	737	0.9	0.000216	S	1	No	F	Mt
Mackenzie	91	1	1	Rb		3	340	425	1.1	0.001407	S	1	No	M	Mt
Mackenzie	92	1	1	Rb		4	368	539	1.1	0.000692	S	1	No	M	Mt
Mackenzie	93	1	1	Rb		5	431	737	0.9	0.00023	S	1	No	F	Mt
Mackenzie	94	1	1	Rb		4	347	397	0.9	0.001519	S	1	No	M	Mt
Mackenzie	95	1	1	Rb		3	339	454	1.2	0.001248	S	3	No	M	Mt

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Table 8. Stock Assessment Data for 2004 (see lake files for additional survey data).

Lake	Sample#	Site	Number	Species	Origin	Age	Length	Weight	Condition	Scale Age	Structure	Cond.	Clip	Sex	Maturity	Ageing Co
Mackenzie	1	1	1	1 rb			361	760	1.615444				un			
Mackenzie	2	1	1	1 rb			360	730	1.564643				un			
Mackenzie	3	1	1	1 rb			324	550	1.617066				un			
Mackenzie	4	1	1	1 rb			304	440	1.566145				un			
Mackenzie	5	1	1	1 rb			319	510	1.571079				un			
Mackenzie	6	1	1	1 rb			342	630	1.574934				un			
Mackenzie	7	1	1	1 rb			327	520	1.487168				un			
Mackenzie	8	1	1	1 rb			318	530	1.648142				un			
Mackenzie	9	1	1	1 rb			289	390	1.615739				un			
Mackenzie	10	1	1	1 rb			295	380	1.48019				un			
Mackenzie	11	1	1	1 rb			298	400	1.511511				un			
Mackenzie	12	1	1	1 rb			276	350	1.664718				un			
Mackenzie	13	1	1	1 rb			273	310	1.52361				un			
Mackenzie	14	1	1	1 rb			266	280	1.487692				un			
Mackenzie	15	1	1	1 rb			274	300	1.458376				un			
Mackenzie	16	2	2	2 rb			213	180	1.86266				un			