Executive Summary   Nadsilnich Lake   2006

A stocking assessment was conducted at Nadsilnich (West) Lake between May 3 and May 5, 2006. This was the first successful assessment completed since the inception of stocking in 1976. A stocking assessment was attempted in 1989, however, only three rainbow trout were captured. The management goal for Nadsilnich Lake is to maintain an average quality fishery for rainbow trout. Prior to this assessment it was unclear whether wild rainbow trout recruitment was sufficient to meet the needs of the fishery. Nadsilnich Lake has been supplemented with hatchery rainbow trout annually, since 1976.

Nadsilnich Lake is 503 ha and is situated 20 km South of Prince George. West Lake Provincial Park is located the north end of Nadsilnich Lake and there is extensive fore-shore development, including seasonal and permanent residences around most of the lake's perimeter. Nadsilnich Lake can be accessed off Blackwater Road through West Lake Provincial Park as well as numerous private access points. Fisheries management on this lake in the last 20 years has focussed on numerous attempts at improving the quality of the rainbow trout fishery with a secondary objective of reducing non-game fish abundance. Nadsilnich Lake has extensive populations of non-game fish including northern pike minnow, peamouth chub, red-side shiners, large scale suckers; while sports-fish include lake whitefish, burbot and rainbow trout. Previous projects have included: 1) an attempt at improving spawning habitat on the lake outlet (Beaverly Creek), 2) installation of a course fish barrier on the main inlet tributary (St. George Creek and, 3) stocking of a piscivorous strain of rainbow trout (Gerrard) with the hope that they could utilize a non-game fish forage base. It is unclear whether any of these projects improved the fishery,as none were successfully evaluated. Stocking of Gerrard rainbow trout was discontinued after two years and, the outlet habitat improvements were deemed unsucessful as they were largely buried in sand within a short time after installation.

The objective of the 2006 survey was to assess the contribution of wild rainbow trout to the fishery in a mixed species environment containing northern pike-minnow by utilizing a marked cohort of hatchery rainbow trout yearlings that were stocked in 2005. Seven nets were set in Nadsilnich Lake between May 3 and May 5, 2006. Four multi-mesh floating (RISC standard mesh sizes) gillnets and three SLIN gillnets (2 inch mesh) were used. The total sampling effort was 120.1 hours, resulting in a relatively low gillnet catch per unit effort (CPUE) of 0.57 rainbow trout per net-hour. Based on this assessment and an informal creel survey during the Bob Harkins fishing derby in 2005, this fishery appears to be providing an average to below average quality angling experience, as 73.5% of the fish sampled in the stock assessment were between 250 - 300 mm in length and net catch rates were low. The mean rainbow trout size was 281 mm and 243 g. The contribution of stocked fish to this fishery was minimal as only one of 11 age-two rainbow trout collected, was marked with an adipose fin clip (indicating that it was of hatchery origin).

Based on the results of this survey, along with multiple unsuccessful attempts to improve this fishery, it is recommended that 1) the stocking program for rainbow trout in Nadsilnich Lake be concluded as of 2006; 2) Nadsilnich Lake should be evaluated for possible stocking of all female sterile Kokanee in future once these fish become available and once evaluation of the stocking program on 10-mile Lake in Region 5 (Cariboo) is complete. Kokanee are pelagic foragers and have the potential to co-exist with wild rainbow trout and other non-game fish species in environments such as Nadsilnich Lake. In many locations, kokanee are popular sport-fish that provide an important opportunity for entry level anglers. These features in combination with close proximity of Nadsilnich Lake to Prince George, make this opportunity worth investigating.
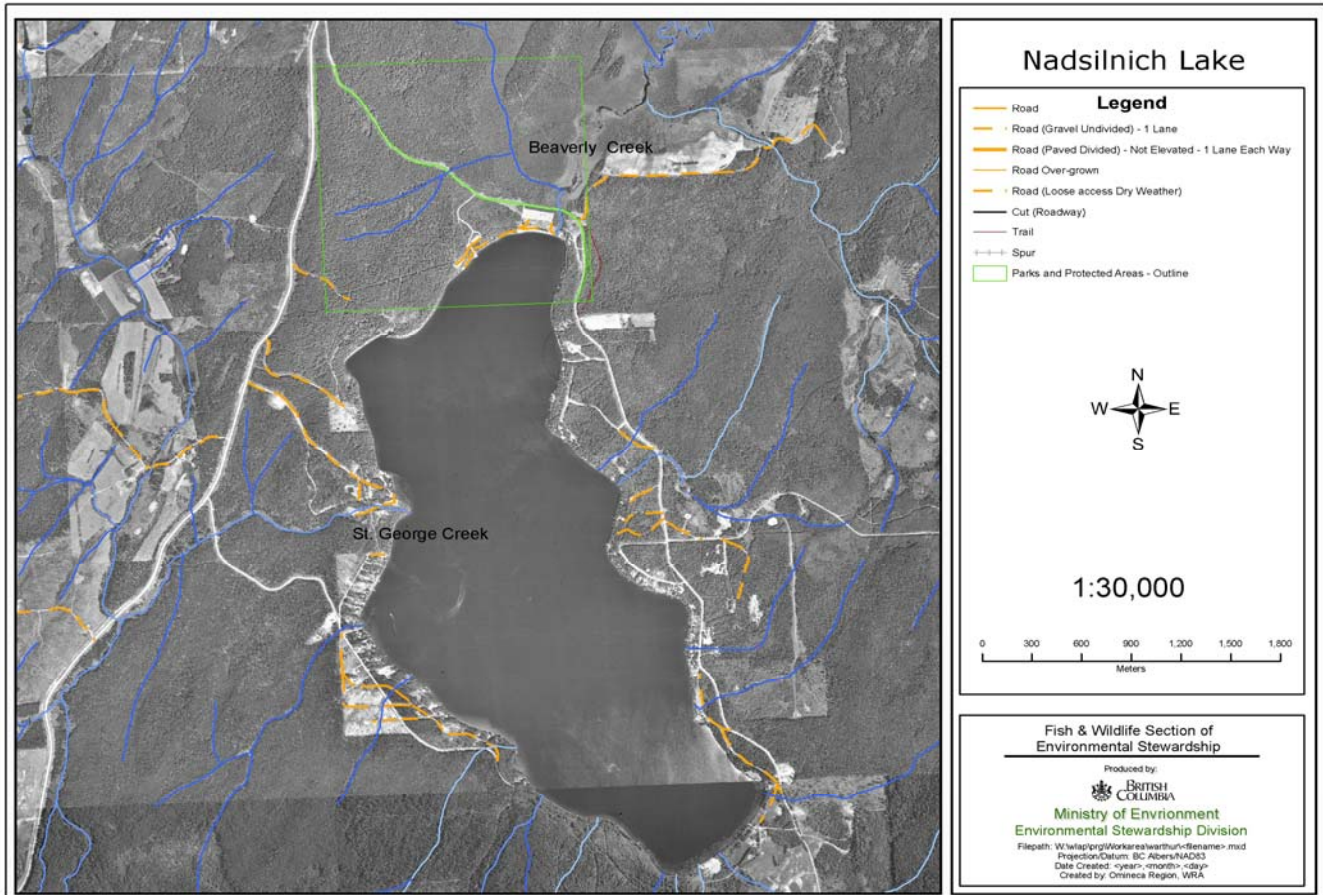
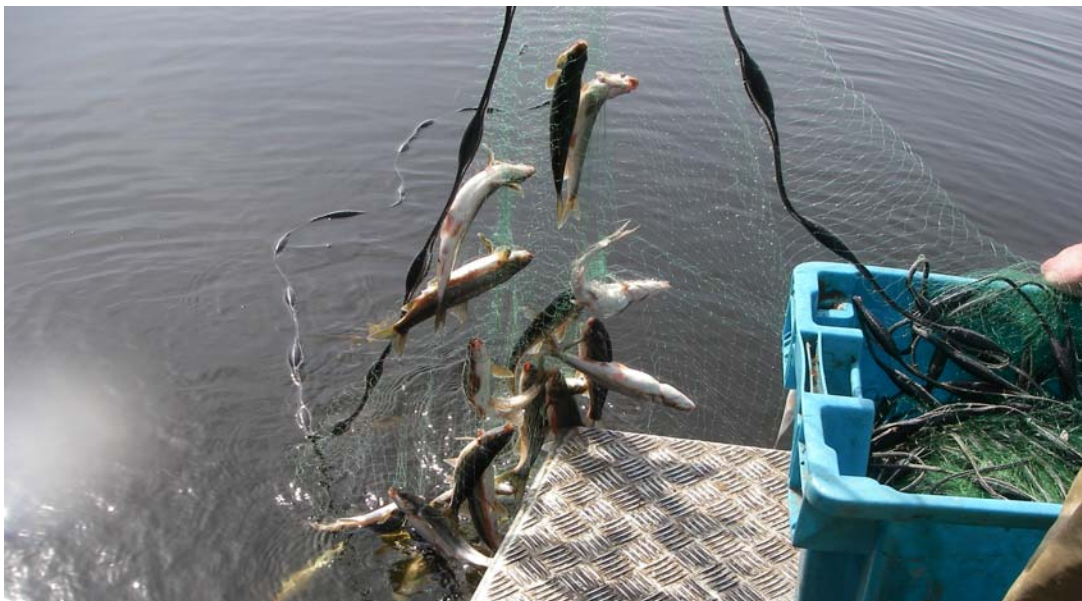Figure 1. Map of Nadsilnich Lake showing the major inlet and outlet streams.

Figure 2. Gillnet set from Nadsilnich Lake showing a large catch of peamouth chub.

OMINECA REGION

LAKE STOCK ASSESSMENT REPORT

LAKE NAME: NADSILNICH   **ALIAS:** WEST   **BC WBID:** <u>00763LCHL</u>

LAKE LOCATION: *Nearest center:* <u>20 Km S Prince George</u>   *Drainage:* <u>FRASER</u>
                      UTM: <u>10.509104.5953285</u>

LAKE ATTRIBUTES: *Surface Area:* <u>503</u> Ha   *Elevation:* <u>697</u> m
                           Littoral Area: <u>175.8</u> Ha   *T.D.S.:* <u>85</u> ppm
                           Max Depth: <u>15.2</u> m   *Mean depth:* <u>7.9</u> 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 ☑   Prince George Lakes Files
Year(s) Surveyed: 1996

STOCKING DATA:

Current Stocking Rate   20   Fish/Ha   Yearly
Stock Type   BLACKWATER DR
Species   RB mixed, northern pikeminnow
Previous Stocking Rate   20

SURVEY METHODS:

Method		Date (yy.mm.dd)	Survey Agency	Crew
Fish	SGN	2006-05-03	BCCF	Marcel Macullo; Andrew Walker
Chem.	Profile	16/08/1952; 17/05/1977	F&W Branch; MOE	
Physical	Bathymetric	1952-08-16	F&W Branch; MOE	
Temp.	Profile	16/08/1952; 17/05/1977	F&W Branch; MOE	

Netting Specs: *Net type:* Standard Experimental and SLIN   *Net length:* 90m (3x30m)
                   Setting: Floating and sinking   *Panel Mesh:* 2 inch for SLIN net.

SURVEY RESULTS:

Catch

	RB	EB	RSC	LW	LSU	CSU	NSC	CAS	BB	PCC
2006	68	0	18	161	152	0	325	0	10	1715
1996	0	0	0	0	0	0	0	0	0	0

Survey Year	**2006**	**1996**
Effort Hours	120.1	
RB CPUE:	0.57	
Other sp. CPUE:	19.83	
# of Sets:	7	

Next Assessment: **None Planned**

SURVEY CONCLUSIONS:

Objective	Objectives Achieved		Reason
	Yes	No	
1. Family	☐	☐	
2. Average	☐	☒	Supplementation of rainbow trout does not result in a return to the fishery.
3. Above Average	☐	☐	
4. Trophy	☐	☐	

RECOMMENDATIONS:

Assessment: Only one two year old marked rainbow trout caught in nets (i.e., 9% of 2 year old catch). No further assessment required for rainbow trout fishery. The wild stock appears to be healthy and appears to support the fishery.

Management: Recommend cease stocking with rainbow trout based on the results of this survey as well as the results from other mixed species lakes containing northern pikeminnow (exs. Cluculz, Norman, Bednesti, Graveyard and Fyfe) Consideration should be given to development of AF3N kokanee fishery pending outcome of trials for 10-mile lake in Region 5.

Comments: Rainbow trout CPUE in Bob Harkins Fishing derby appeared to be high in June 2005 (See lakes file) although this evaluation was informal and not quantitative. No marked fish were retained in the derby. Note: The 1996 data is from a fish fence on St. George Creek.

Uncertainties: Relatively low CPUE of 2-year-olds resulted in low sample size. Note: Marked fish captured were the largest age two fish in the catch and were well within the size range of the age three fish which suggests that low gill net vulnerability was not an issue for that age class and size range.

Recent Brood Request Comments:

Annual. Provincial Park. Assessed in '06. No marked fish captured despite substantial rainbow catch. Cease Stocking rainbow. Consider AF3N kokanee when available.

History of Angling Regulations

No special restrictions.

Reported by: Cory Williamson
Date: Jan-07

Table 1. Nadsilnich Lake rainbow trout physical attributes for 2006 by age:

Sample Year	Age	Sample Size	Length (mm)				Weight (g)				Condition (k)				
			Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Var
2006	1	1	122	122	122		22	22	22		1.21	1.21	1.21		
2006	2	11	255	176	283	28.9	177	80	220	41.9	1.06	0.93	1.47	0.1	0.02
2006	3	47	286	255	333	15.4	248	170	350	35.0	1.06	0.88	1.24	0.1	0.01
2006	4	6	308	290	330	15.2	338	250	405	63.9	1.14	1.03	1.24	0.1	0.01
2006	5	1	350	350	350		380	380	380		0.89	0.89	0.89		

Table 2.   Nadsilnich lake catch summary for 2006.

Sample Year	Sample Size	Length (mm)				Weight (g)				Condition (k)				
		Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Var
2006	68	281	122	350	30.9	243	22	405	63.3	1.07	0.88	1.47	0.10	0.01

Table 3. Proportion of Catch (by survey year)

Survey Year	2006
Less than 250 mm	5.9 %
Between 250-300 mm	73.5 %
Between 300-400 mm	20.6 %
Greater than 400 mm	0.0 %
Greater than 500 mm	0.0 %

Figure 3. Length weight power relationship for Nadsilnich Lake rainbow trout. Note: 1996 rainbow trout data are from a creel survey.

Figure 4. Length frequency distribution for Nadsilnich Lake rainbow trout for 2006 gillnet and 1996 creel samples. Age brackets apply to the 2006 data only. Dash line indicates approximate 2+ and 3+ age classes. Note: 1996 rainbow trout data are from a creel survey.

Figure 5. Bathymetric map of Nadsilnich Lake Net. Showing gill netset locations for 2006.
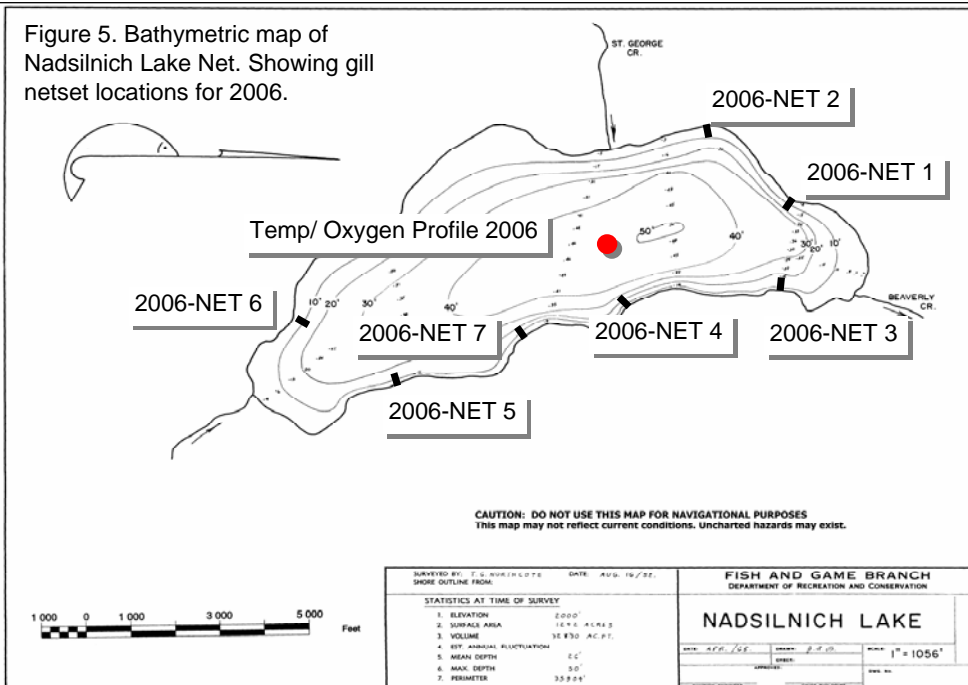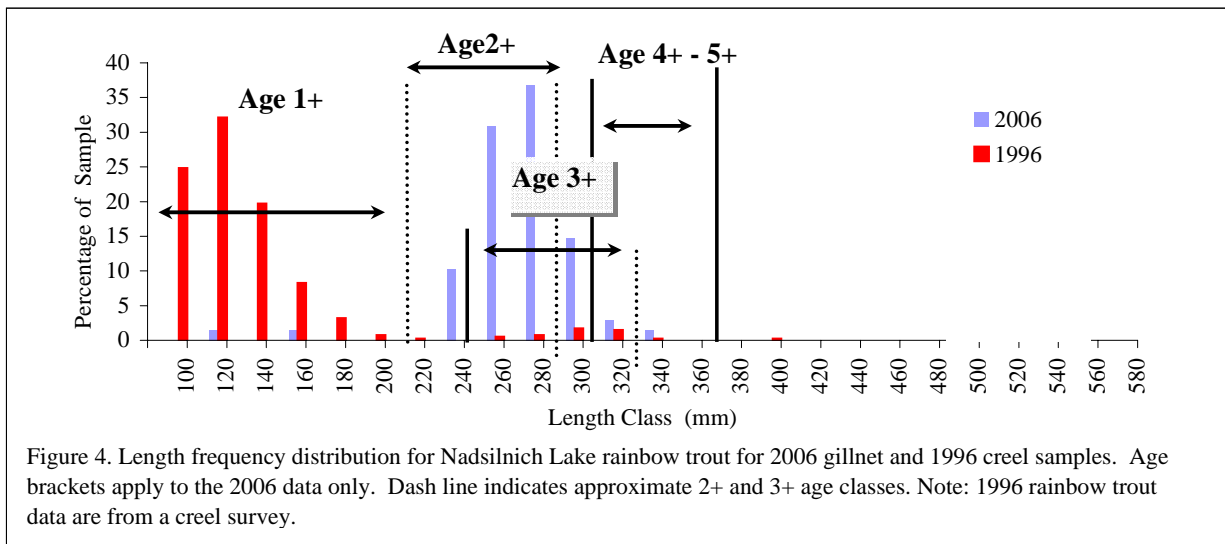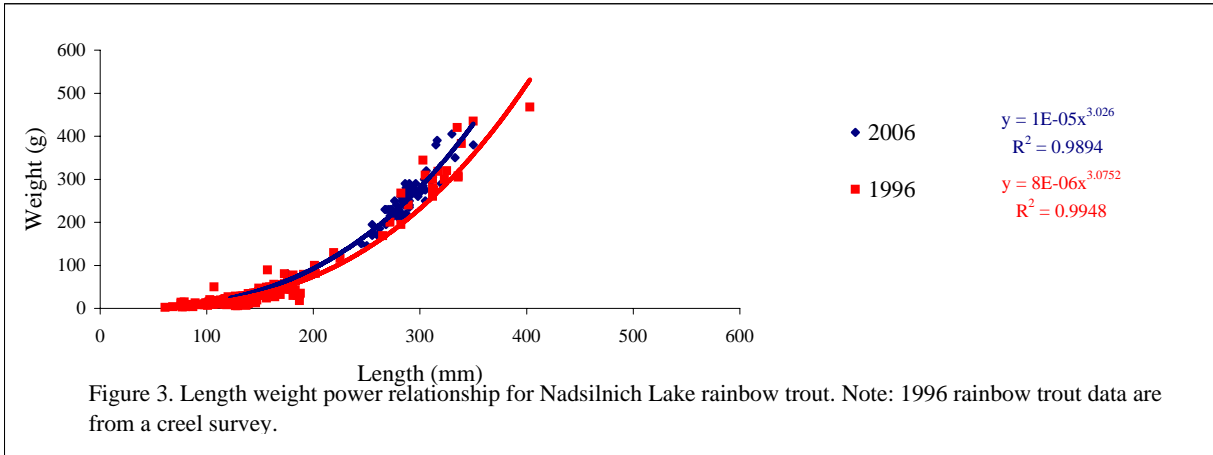
Table 4. Complete stocking History for Nadsilnich Lake (1976-2006).

Release Date	Species Name	Fish Count	Stock	Mark	Average Size (gm)	Life Cycle Stage
13-Jun-06	RB	10000	BLACKWATER DR		23.7	YEARLING
31-May-05	RB	10000	BLACKWATER DR	Adipose	25.69	YEARLING
27-May-04	RB	218	BLACKWATER DR	Adipose RM	22.57	YEARLING
27-May-04	RB	7782	BLACKWATER DR		21.83	YEARLING
6-May-04	RB	2000	BLACKWATER DR		17.8	YEARLING
16-Jun-03	RB	10000	BLACKWATER DR		23.2	YEARLING
5-Jun-02	RB	10000	BLACKWATER DR		21.79	YEARLING
30-May-01	RB	10000	BLACKWATER DR		19.7	YEARLING
31-May-00	RB	10000	BLACKWATER DR		23.64	YEARLING
25-May-99	RB	10000	BLACKWATER GE		19.84	YEARLING
27-May-98	RB	15000	BLACKWATER DR		30.13	YEARLING
23-Jun-97	RB	10712	BLACKWATER		9.62	YEARLING
13-Jun-97	RB	5760	BLACKWATER		10.42	YEARLING
3-Jun-97	RB	3800	BLACKWATER DR		26.37	YEARLING
3-Jun-96	RB	10000	BADGER TUNKWA		5.32	YEARLING
7-Jun-95	RB	10000	BLACKWATER DR		27.5	YEARLING
31-May-94	RB	10000	TUNKWA		10.42	YEARLING
3-Jun-93	RB	10000	TUNKWA		9.85	YEARLING
30-May-92	RB	10000	NRT PREMIER		6.58	YEARLING
28-May-91	RB	10000	NRT PREMIER		6.32	YEARLING
29-May-89	RB	5000	GERRARD		11	YEARLING
18-May-89	RB	10000	TUNKWA		9.7	YEARLING
1-May-88	RB	15000	TUNKWA		9.9	UNKNOWN
1-May-87	RB	15000	TUNKWA		15.04	UNKNOWN
1-May-86	RB	15000	NRT PREMIER		4.5	UNKNOWN
1-Jun-85	RB	10000	BEAVER		18.2	UNKNOWN
1-Sep-84	RB	13000	NRT PREMIER		25	UNKNOWN
1-May-82	RB	10000	BADGER DR		5.5	UNKNOWN
1-May-81	RB	20000	NRT PREMIER		6.4	UNKNOWN
1-Jun-80	RB	20000	BADGER		6.3	UNKNOWN
1-Jan-79	RB	30000	TUNKWA		4.8	UNKNOWN
1-Jan-78	RB	30000	NRT PREMIER		4	UNKNOWN
1-Jan-76	RB	50000	PENNASK		1.4	UNKNOWN

Table 5. Dissolved Oxygen/ Temperature Profiles

07-Aug-52		
Depth (m)	**DO**	**Temp. ^{0}C**
0		
1		
2	11.27	
3	8.55	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14	1.04	

05-May-06 Station UTM **10.509836.5952066**					
Depth (m)	**DO mg/L**	**DO %sat**	**Temp. ^{0}C**	**pH**	**Cond (25°C)**
0	10.1	86.4	8.76	7.45	120
1	9.36	79.9	8.5	7.09	
2	9.54	79.2	7.37	6.07	
3	9.43	78.1	6.94	4.6	
4	9.26	74.9	6.5	4.42	
5	9.1	73.6	6.48	4.3	
6	8.81	71.5	6.39	4.48	
7	8.79	70.9	6.33	4.2	
8	9.01	73	6.27	4.24	
9	8.95	71.9	6.15	4	
10	9.08	73.3	6.11	3.95	
11	9.02	73.1	6.05	3.86	
12	9.18	73.9	6	3.53	
13	8.81	70.5	5.86	3.8	
14	8.78	70.9	5.69	3.62	
15	8.78	71	5.63	3.67	
16	6.88	60	5.6	3.36	
17	4.27	35	5.59	3.06	
18	3.29	26.6	5.58	2.96	
19					

Table 6. Stock Assessment Data for 2006 (see lake files for additional survey data).

Lake	Sample#	Site	Haul	Species Caught	Age	Length (mm)	Weight (grams)	Condition (k)	Calender Age	Age Structure	Ageing Confidence (0-9)	Clip	Sex	Maturity
Nadsilnich	wl1	1	1	rb	2*	255	176	1.1	2	Otolith	7		f	Maturing
Nadsilnich	wl2	1	1	rb	3*	305	275	1.0	3	Otolith	7		f	Maturing
Nadsilnich	wl3	1	1	rb	3*	278	220	1.0	3	Otolith	7		f	Maturing
Nadsilnich	wl4	1	1	rb	3*	282	215	1.0	3	Otolith	8		m	Maturing
Nadsilnich	wl5	1	1	rb	3*	273	210	1.0	3	Otolith	8		f	Maturing
Nadsilnich	wl6	1	1	rb	3*	279	215	1.0	3	Otolith	8		f	Maturing
Nadsilnich	wl7	1	1	rb	2*	250	146	0.9	2	Otolith	6		m	Maturing
Nadsilnich	wl8	1	1	rb	2*	268	195	1.0	2	Otolith	8		f	Maturing
Nadsilnich	wl9	1	1	rb	5*	350	380	0.9	5	Otolith	8		f	Spent
Nadsilnich	wl10	1	1	rb	3*	333	350	0.9	3	Otolith	6		f	Mature
Nadsilnich	wl11	2	1	rb	3*	270	205	1.0	3	Otolith	8		m	Maturing
Nadsilnich	wl12	2	1	rb	3*	296	290	1.1	3	Otolith	8		m	Maturing
Nadsilnich	wl13	3	1	rb	3*	280	210	1.0	3	Otolith	8		f	Maturing
Nadsilnich	wl14	3	1	rb	3*	320	290	0.9	3		8		m	Maturing
Nadsilnich	wl15	3	1	rb	3*	272	215	1.1	3	Otolith	7		m	Maturing
Nadsilnich	wl16	3	1	rb	n/a	285	215	0.9		Otolith	-		m	Maturing
Nadsilnich	wl17	3	1	rb	3*	280	215	1.0	3	Otolith	8		f	Maturing
Nadsilnich	wl18	3	1	rb	3*	298	260	1.0	3	Otolith	7		f	Maturing
Nadsilnich	wl19	3	1	rb	3*	255	195	1.2	3	Otolith	7		f	Maturing
Nadsilnich	wl20	3	1	rb	2*	283	220	1.0	2	Otolith	6	adipose	m	Maturing
Nadsilnich	wl21	3	1	rb	3*	290	275	1.1	3	Otolith	7		f	Mature
Nadsilnich	wl22	3	1	rb	3*	285	240	1.0	3	Otolith	8		f	Maturing
Nadsilnich	wl23	3	1	rb	3*	278	220	1.0	3	Otolith	8		m	Maturing
Nadsilnich	wl24	3	1	rb	2*	245	150	1.0	2	Otolith	7		m	Maturing
Nadsilnich	wl25	3	1	rb	1+	122	22	1.2	1	Otolith	7		m	Immature
Nadsilnich	wl26	3	1	rb	2*	255	170	1.0	2	Otolith	6		m	Maturing
Nadsilnich	wl27	3	1	rb	3*	262	186	1.0	3	Otolith	7		f	Maturing
Nadsilnich	wl28	3	1	rb	3*	312	305	1.0	3	Otolith	6		f	Maturing
Nadsilnich	wl29	3	1	rb	3*	260	170	1.0	3	Otolith	7		m	Maturing
Nadsilnich	wl30	3	1	rb	3*	305	250	0.9	3	Otolith	6		f	Maturing
Nadsilnich	wl31	3	1	rb	3*	290	235	1.0	3	Otolith	7		f	Maturing
Nadsilnich	wl32	3	1	rb	3*	290	240	1.0	3	Otolith	7		f	Maturing
Nadsilnich	wl33	4	1	rb	3*	300	270	1.0	3	Otolith	8		f	Maturing
Nadsilnich	wl34	4	1	rb	4*	290	250	1.0	4	Otolith	7		f	Spent
Nadsilnich	wl35	4	1	rb	3+	290	280	1.1	3	Otolith	7		f	Maturing
Nadsilnich	wl36	4	1	rb	4+	316	390	1.2	4	Otolith	6		f	Mature
Nadsilnich	wl37	4	1	rb	3*	286	290	1.2	3	Otolith	8		m	Maturing
Nadsilnich	wl38	4	1	rb	3*	282	260	1.2	3	Otolith	8		f	Maturing
Nadsilnich	wl39	5	1	rb	3*	280	230	1.0	3	Otolith	8		f	Maturing
Nadsilnich	wl40	5	1	rb	3*	286	260	1.1	3	Otolith	7		f	Maturing
Nadsilnich	wl41	5	1	rb	see comment	304	300	1.1		Otolith	7		f	Maturing
Nadsilnich	wl42	5	1	rb	3*	278	240	1.1	3	Otolith	8		f	Maturing
Nadsilnich	wl43	5	1	rb	4*	315	380	1.2	4	Otolith	8		f	Mature
Nadsilnich	wl44	5	1	rb	4*	330	405	1.1	4	Otolith	7		f	Maturing
Nadsilnich	wl45	6	1	rb	3*	295	270	1.1	3	Otolith	7		f	Maturing
Nadsilnich	wl46	6	1	rb	3*	290	260	1.1	3	Otolith	7		f	Maturing
Nadsilnich	wl47	6	1	rb	4*	293	280	1.1	4	Otolith	7		f	Maturing
Nadsilnich	wl48	6	1	rb	3*	270	230	1.2	3	Otolith	7		f	Maturing
Nadsilnich	wl49	6	1	rb	3*	303	285	1.0	3	Otolith	-		f	Maturing
Nadsilnich	wl50	6	1	rb	3*	290	290	1.2	3	Otolith	7		f	Maturing
Nadsilnich	wl51	6	1	rb	3*	272	230	1.1	3	Otolith	6		f	Maturing
Nadsilnich	wl52	6	1	rb	3*	273	230	1.1	3	Otolith	6		f	Maturing
Nadsilnich	wl53	6	1	rb	3*	267	230	1.2	3	Otolith	8		f	Maturing
Nadsilnich	wl54	6	1	rb	3*	287	280	1.2	3	Otolith	7		f	Mature
Nadsilnich	wl55	6	1	rb	3*	283	265	1.2	3	Otolith	7		m	Maturing
Nadsilnich	wl56	6	1	rb	3*	288	265	1.1	3	Otolith	8		f	Maturing
Nadsilnich	wl57	6	1	rb	3*	276	250	1.2	3	Otolith	6		f	Maturing
Nadsilnich	wl58	6	1	rb	3*	283	250	1.1	3	Otolith	7		m	Maturing
Nadsilnich	wl59	6	1	rb	2*	267	200	1.1	2	Otolith	6		f	Maturing
Nadsilnich	wl60	6	1	rb	3*	268	230	1.2	3	Otolith	7		f	Maturing
Nadsilnich	wl61	6	1	rb	2*	275	220	1.1	2	Otolith	6		m	Maturing
Nadsilnich	wl62	6	1	rb	3*	287	220	0.9	3	Otolith	7		f	Spent
Nadsilnich	wl63	6	1	rb	2*	277	220	1.0	2	Otolith	6		m	Maturing
Nadsilnich	wl64	6	1	rb	3*	286	250	1.1	3	Otolith	6		m	Maturing
Nadsilnich	wl65	6	1	rb	3*	310	295	1.0	3	Otolith	7		f	Spent
Nadsilnich	wl66	7	1	rb	2*	255	170	1.0	2	Otolith	7		f	Maturing
Nadsilnich	wl67	7	1	rb	4*	306	320	1.1	4	Otolith	5		m	Mature
Nadsilnich	wl68	7	1	rb	2*	176	80	1.5	2	Otolith	7		m	Immature