Executive Summary Tacheeda Lake (south) 2004

A stocking assessment was conducted on the Tacheeda lakes between August 30 and September 3, 2004. The Tacheeda lakes were last assessed in 1984, however, samples sizes for rainbow trout were not large enough to make conclusions about fishery quality and stock status. The management goal for the Tacheeda lakes was to maintain a high-use, average-quality fishery for rainbow trout. Prior to this assessment it was unclear whether wild rainbow trout recruitment was sufficient or whether supplementation with hatchery fish was needed to support the fishery. Tacheeda lake south has been supplemented with hatchery rainbow trout since 1988, and stocking was completed annually from 1993 to 2004, however, this is the first stock assessment since supplementation began. Rainbow trout have access to both lake through two large culverts that pass under the road between the two water bodies.

This report will focus on Tacheeda Lake (south), Tacheeda Lake (north) will be reported separately. Tacheeda Lake (south) is 362 ha and is situated 67 km North of Prince George. Fisheries work and management on this lake in the last 20 years has included attempts at improving the quality of the rainbow trout fishery through supplementation with rainbow trout (1988-2004) and improvement of the lake trout fishery through supplementation in 1978. Tacheeda Lake (South) supports substantial populations of non-game fish including northern pike-minnow, red-side shiners, long-nose and large-scale suckers as well as pygmy whitefish; sports-fish include lake trout, bull trout, kokanee, rainbow trout, mountain whitefish and lake whitefish.

The objective of the 2004 survey was to assess the contribution of wild rainbow trout to the fishery. In 2003, prior to the survey a cohort of hatchery rainbow trout yearlings marked with adipose fin clips were stocked to aid this assessment. Three nets were set in Tacheeda Lake (south) between September 1 and September 3, 2004. Three multi-mesh nets (one floating and two sinking, RISC standard mesh sizes) gillnets were used. The total sampling effort was 94.1 hours, resulting in a gillnet catch per unit effort (CPUE) of 0.43 rainbow trout per net-hour. Supplementation with stocked yearling-trout does not appear to contribute to the fishery as marked fish were not captured in the nets. Wild rainbow trout within the age range of the stocked fish were caught during the survey and were in relatively low abundance compared to lakes stocked with rainbow trout, however gillnet CPUE is similar to other wild lakes in the region. An assessment of Morfee Lake in 2006 recorded a CPUE of 0.49 rainbow trout per net/hour. The mean rainbow trout size in the sub-sampled catch was 215 mm and 120 g and more than 50% of the catch was comprised of Age-1 fish. Only 14 trout older than age-1 were captured which suggest that abundance of wild rainbow trout is low.

Based on the results of this survey it is recommended that stocking of rainbow trout into Tacheeda Lake (south) be discontinued for the foreseeable future; ongoing management of the lake should focus on wild game-fish including kokanee and lake trout.

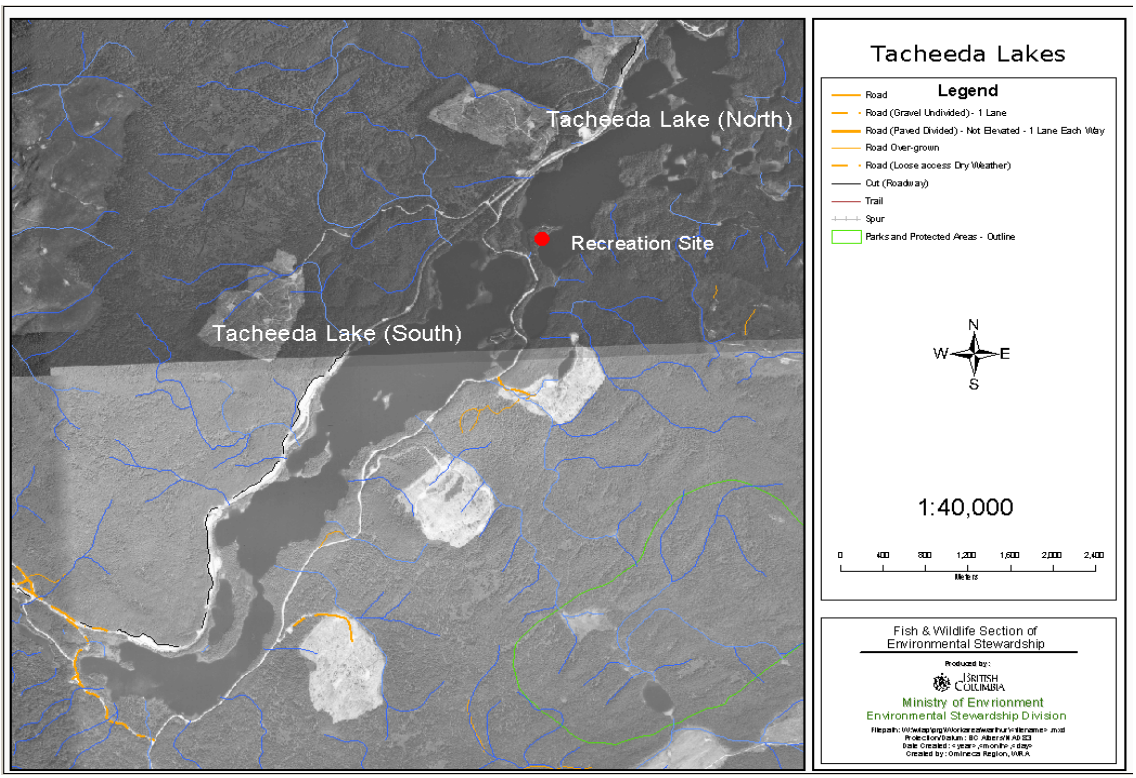

Figure 1. Map of Tacheeda lakes (North and South) showing the location of the recreation campsite.

OMINECA REGION
LAKE STOCK ASSESSMENT REPORT

LAKE NAME: Tacheeda Lakes ***BC WBID:*** 00582PARS

ALIAS: Tacheeda South

LAKE LOCATION: *Nearest center:* Prince George (67 km south) *Drainage:* Arctic

UTM: 10.529765.1447.6062096.81

LAKE ATTRIBUTES:

Surface Area:	362.4 Ha	*Elevation:*	734 m
Littoral Area:	83.8 Ha	*T.D.S.:*	151 ppm
Max Depth:	48 m	*Mean depth:*	N/a 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 ☐ 1984 MOE- Prince George Lakes Files

Year(s) Surveyed: 1984

STOCKING DATA:

Most Recent Stocking Rate	Rainbow	55	Yearling/Ha	Annually
Strain	Rainbow	20000		
Percent of rate:	Rainbow:	26.9 %		

Recommended Stocking Rate:
(Stringer, 1988)

	Total	Fish/Ha
Fry	744212	2054
Fingerlings	148842	411
Yearlings	74421	205

SURVEY DETAILS:

Date (yy.mm.dd)	Survey Agency	Crew
2004-09-01	MWLAP	cjw, rjz

Netting Specifications: *Net type:* Standard Experimental *Net length: 90m (3x30m)*

Setting: Sinking and Floating *Panel Mesh: RISC- Standard Gill Net*

Duration: Overnight

CATCH COMPARISON:

Survey Date	**1-Sep-04**		**25-Oct-84**	
Net Hours	94.06		46.83	
# of Sets:	3		2	
	Catch	CPUE	**Catch**	CPUE
Rainbow	40	0.43	3	0.06
Eastern brook trout	0	-	0	-
Kokanee	14	0.15	0	-
Lake Trout	2	0.02	7	0.15
Bull Trout	2	0.02	2	0.04
Burbot	0	-	0	-
Red-side Shiner	16	0.17	13	0.28
Lake Chubb	0	-	0	-
Peamouth Chubb	0	-	0	-
Long Nose Sucker	22	0.23	5	0.11
Large Scale Sucker	25	0.27	0	-
Northern Pikeminnow	113	1.20	10	0.21
Mountain Whitefish	13	0.14	0	-
Lake Whitefish	17	0.18	4	0.09
Pygmy Whitefish	0	-	0	-

SURVEY CONCLUSIONS:

	Objectives Achieved For Stocking Program		
Objective	Yes	No	Reason
1. Family	☐	☐	
2. Average	☐	☒	No- adipose marked rainbow trout were not captured in the gill nets.
3. Above Average	☐	☐	
4. Trophy	☐	☐	

Next Assessment : **N/A**

NOTES/ RECOMMENDATIONS:

Assessment: No adipose marked rainbow trout were captured in net assessments for both Tacheeda lake basins in 2004.

Management: Cease stocking as stocked rainbow trout are not contributing to this fishery. Monitor summer kokanee as well as lake trout population and manage Tacheeda Lakes as a wild system.
There have been multiple anecdotal reports that a substantial fishery for kokanee has developed on the Tacheeda lakes.

Comments: The first unconfirmed record of kokanee was from 1993 (see lakes file) There was only one gillnet sampling event prior to this in 1984 which did not capture kokanee.
The next record kokanee record was from 1997 (Linda Rankin) during sampling for pygmy whitefish (see PG Lakes files) Six were captured.
Kokanee were first stocked into Manson Creek and Nation River in 1990 in the Williston Lake watershed as 1-g fry.

Uncertainties: There is a possibility that the marked fish were not stocked into the lake, however several other surveys in similar water bodies around the region (ex. Cluculz, Nadsilnich, Naltesby and Bednesti) containing a natural mixed species assemblage demonstrated similar results, in some case with two cohorts of marked hatchery fish.
It is also possible that the stocked fish were not detected due to the large size of the lake, small sample size for 2+ rainbow trout, and the relatively low stocking densities, however significant effort was expended in rainbow habitat (littoral zones) suggesting that hatchery rainbow trout are not contributing to the fishery.

Recent Brood Request Comments:

2004 Assessed in 99. Only 8 rainbow captured, unsure if hatchery stock. Slow growth. Rec. clip to assess contribution of hatch stock to rec fishery in 04/05. Cease Stocking

2005 Assessed in 99. Only 8 rainbow captured, unsure if hatchery stock. Slow growth. Rec. clip to assess contribution of hatch stock to rec fishery in 04/05. Cease Stocking

History of Angling Regulations

No special restrictions.

Reported by: Cory Williamson
Date: Jan-08

Table 1. Rainbow trout physical attributes for rainbow trout from Tacheeda Lake (South) for each age class (2004 only as ages structure were not collected in 1984)

			Length (mm)				Weight (g)				Condition (k)			
Sample Year	Age	Sample Size	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev
2004	1	25	186	129	210	19.2	75	23.5	104	19.7	1.13	1.06	1.23	0.0
2004	2	7	241	233	250	7.4	152	131	170	15.6	1.08	1.00	1.18	0.1
2004	3	7	284	260	336	26.5	232	174	332	51.5	1.00	0.87	1.08	0.1

Table 2. Summary of rainbow trout physical attributes for fish collected in 1984 and 2004.

		Length (mm)				Weight (g)				Condition (k)			
Sample Year	Sample Size	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev
Rainbow Trout													
2004	40	215	129	336	44.7	120	24	332	69.1	1.10	0.87	1.23	0.07
1984	4	303	276	315	17.9	288	225	350	52.0	0.00	0.00	0.00	0.00

Table 3. Proportion of Catch (by survey year) for Tacheeda Lake (south) rainbow trout.

Survey Year	2004	1984
Less than 250 mm	80.0 %	0.0 %
Between 250-300 mm	17.5 %	25.0 %
		75.0
Between 300-400 mm	2.5 %	50.0 %
Greater than 400 mm	0.0 %	0.0 %
Greater than 500 mm	0.0 %	0.0 %

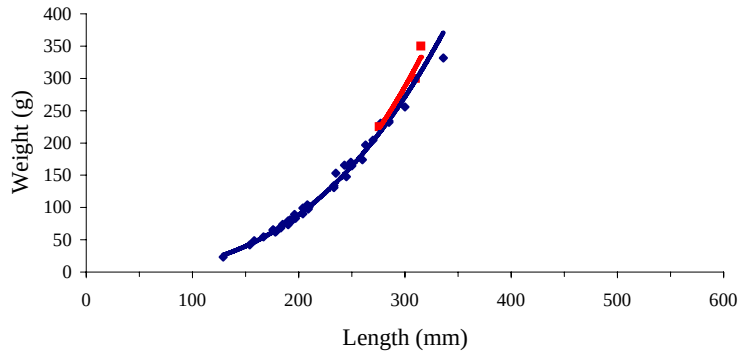

Figure 2. Length weight power relationships for Tacheeda Lake (south) rainbow trout.

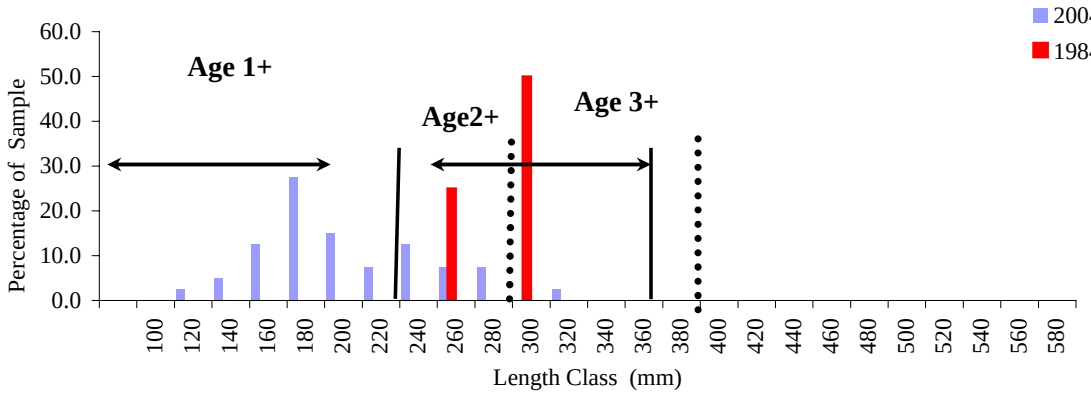

Figure 3. Length frequency distribution for Tacheeda Lake (south) rainbow trout. Age brackets apply to 2004 survey data only .

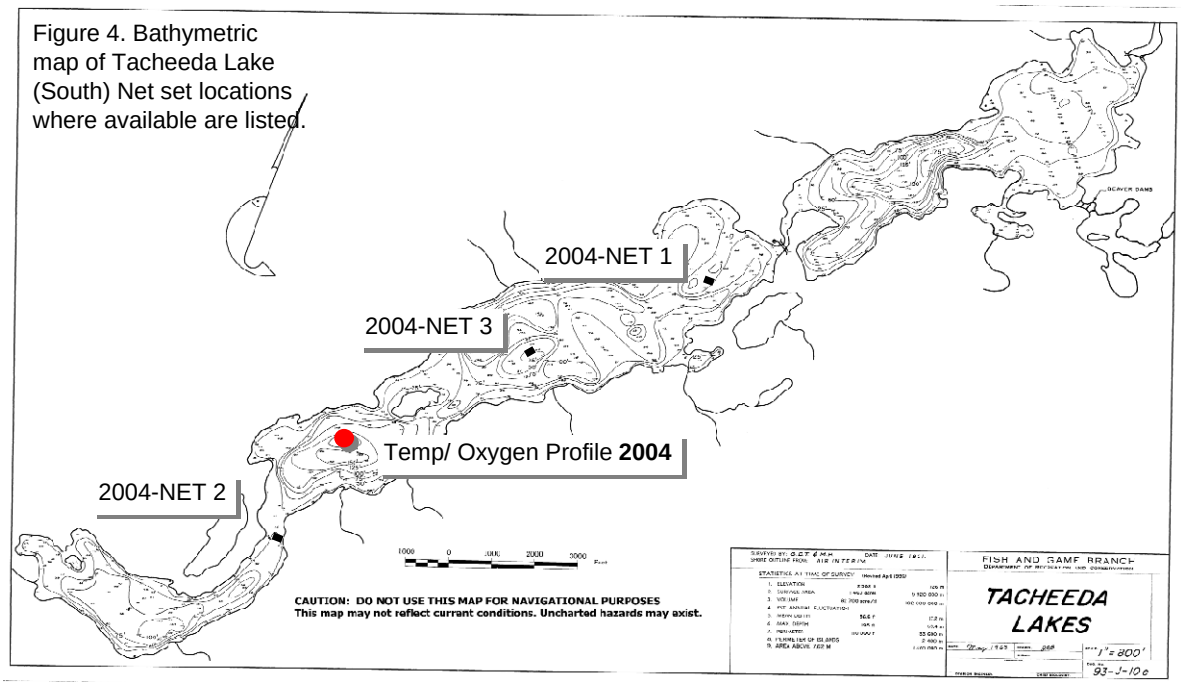

Figure 4. Bathymetric map of Tacheeda Lake (South) Net set locations where available are listed.

Table 4. Complete stocking history for Tacheeda Lake (South) (1978-2004).

Release Date	Species Name	Fish Count	Strain	Mark	Average Size (gm)	Life Cycle Stage
2004-06-03	Rainbow trout	20000	TUNKWA 2N		9	Yearling
2003-05-27	Rainbow trout	20000	TUNKWA 2N	Adipose	9.9	Yearling
2002-06-03	Rainbow trout	20000	TUNKWA 2N		10.3	Yearling
2001-05-29	Rainbow trout	20000	PREMIER 2N		8.1	Yearling
1999-06-05	Rainbow trout	16500	PENNASK 2N		6.3	Yearling
1999-06-02	Rainbow trout	3580	PENNASK 2N		6.4	Yearling
1997-06-12	Rainbow trout	20000	TUNKWA 2N		7.4	Yearling
1995-05-31	Rainbow trout	15000	BLACKWATER 2N		12.2	Yearling
1994-06-11	Rainbow trout	20000	TUNKWA 2N		11.3	Yearling
1993-06-10	Rainbow trout	20000	DRAGON/TUNKWA/BEAVER 2N		4.5	Yearling
1992-06-19	Rainbow trout	10000	PREMIER 2N		6.5	Yearling
1991-06-20	Rainbow trout	20145	PREMIER 2N		6.8	Yearling
1988-05-01	Rainbow trout	20000	TUNKWA 2N		9.9	Unknown
1978-01-01	Lake Char	37950	UNKNOWN KOOTENAY MOAT 2N	Adipose	10.5	Unknown

Table 5. 2004 Limnological profile for Tacheeda Lake (South)

01-Sep-04	Station UTM		10.527694.6059936		
Depth (m)	DO mg/L	DO %sat	Temp. ^{0}C	pH	Cond (25^{o}C)
0	8.86	n/a	16.38	8.4	236
1	8.86	n/a	16.38	8.4	236
2	8.86	n/a	16.38		
3	8.85	n/a	16.38		
4	8.84	n/a	16.38		
5	8.84	n/a	16.37		
6	8.85	n/a	16.35		
7	9.34	n/a	15.59	8.3	241
8	10.68	n/a	11.06	8.1	251
9	10.28	n/a	8.47	7.9	251
10	9.43	n/a	7.42	7.8	254
15	7.46	n/a	6.1	7.7	255
20	6.63	n/a	5.65	7.57	252
25	6.07	n/a	4.92	7.51	257
30	5.35	n/a	4.66	7.47	260
35	4.85	n/a	4.6	7.45	260
40	4.48	n/a	4.46	7.41	262
45	3.82	n/a	4.41	7.38	265
48	bottom				

Table 6. Stock Assessment Data for Tacheeda Lake (south) in 2004 (see lake Prince George lakes files for additional survey data).

Fish Sample#	Species Caught	Age	Length (mm)	Weight (grams)	Condition (k)	Age Structure	Clip	Sex	Maturity	Ageing Comments
29	rainbow trout	1++	208	100.4	1.12	otolith	none	female	immature	
30	rainbow trout	1++	185	73.8	1.17	otolith	none	male	immature	
31	rainbow trout	1++	204	90.0	1.06	otolith	none	female	immature	translucent
32	rainbow trout	3+	285	232.2	1.00	otolith	none	male	spent	
33	rainbow trout	1++	183	68.2	1.11	otolith	none	female	immature	
34	rainbow trout	1++	190	79.1	1.15	otolith	none	female	immature	
35	rainbow trout	1++	178	61.8	1.10	otolith	none	female	immature	
36	rainbow trout	1++	154	42.2	1.16	otolith	none	female	immature	
37	rainbow trout	1++	183	69.8	1.14	otolith	none	female	immature	
38	rainbow trout	1++	190	77.0	1.12	otolith	none	male	immature	
39	rainbow trout	1++	179	63.6	1.11	otolith	none	male	immature	translucent
40	rainbow trout	1++	158	48.5	1.23	otolith	none	male	immature	
41	rainbow trout	1++	190	74.3	1.08	otolith	none	male	immature	
42	rainbow trout	1++	204	98.9	1.16	otolith	none	male	immature	
43	rainbow trout	2+	243	165.5	1.15	otolith	none	female	maturing	
44	rainbow trout	2+	233	130.8	1.03	otolith	none	male	immature	
45	rainbow trout	2+	249	169.8	1.10	otolith	none	female	immature	
46	lake whitefish		403	800.0	1.22	otolith	none	male	mature	
47	lake trout		630	3300.0	1.32	otolith	none	male	spent	
48	rainbow trout	3+	263	196.6	1.08	otolith	none	female	mature	
49	lake whitefish		415	800.0	1.12	otolith	none	male	mature	
50	lake whitefish		355	440.0	0.98	otolith	none	female	maturing	
51	lake whitefish		345	500.0	1.22	otolith	none	female	mature	
52	lake whitefish		375	440.0	0.83	otolith	none	female	maturing	
53	lake whitefish		367	555.0	1.12	otolith	none	female	mature	
54	lake whitefish		370	560.0	1.11	otolith	none	female	mature	
55	lake whitefish		375	580.0	1.10	otolith	none	female	mature	
56	rainbow trout	1++	176	65.3	1.20	otolith	none	male	immature	
57	rainbow trout	1++	176	64.8	1.19	otolith	none	female	immature	
58	rainbow trout	1++	190	73.4	1.07	otolith	none	male	immature	
59	rainbow trout	1++	197	83.3	1.09	otolith	none	female	maturing	
60	rainbow trout	1++	196	89.2	1.18	otolith	none	female	immature	
61	rainbow trout	1++	210	101.4	1.09	otolith	none	male	immature	
62	rainbow trout	1++	208	104.2	1.16	otolith	none	male	immature	
63	rainbow trout	2+	235	153.3	1.18	otolith	none	female	maturing	
64	rainbow trout	2+	245	147.5	1.00	otolith	none	female	immature	
65	rainbow trout	2+	250	164.4	1.05	otolith	none	male	spent	
66	rainbow trout	1++	129	23.5	1.09	otolith	none	male	maturing	
67	rainbow trout	1++	167	54.4	1.17	otolith	none	female	immature	
68	rainbow trout	1++	194	80.5	1.10	otolith	none	male	immature	
69	rainbow trout	1++	192	81.0	1.14	otolith	none	female	immature	
70	rainbow trout	1++	209	97.6	1.07	otolith	none	male	immature	
71	rainbow trout	2+	233	133.9	1.06	otolith	none	male	maturing	
72	rainbow trout	3+	260	173.9	0.99	otolith	none	male	immature	
73	rainbow trout	3+	270	204.2	1.04	otolith	none	female	maturing	
74	rainbow trout	3+	277	230.5	1.08	otolith	none	female	maturing	opaque center; vague 1st annulus
75	rainbow trout	n/a	285	234.2	1.01	otolith	none	male	spent	broken; unreadable
76	rainbow trout	3+	300	255.7	0.95	otolith	none	male	maturing	
77	rainbow trout	3+	336	331.6	0.87	otolith	none	female	maturing	translucent