

Executive Summary

Warhorse Lake 2004

A stocking assessment was conducted on Warhorse Lake during the fall of 2004. The original management goal for Warhorse Lake was to stock periodically to supplement the natural rainbow trout population. The objectives of this assessment were to document the status of the fishery and to evaluate the stocking protocol for this lake. Warhorse Lake is 26.4 ha and is located 43 km south from Mackenzie along the access road to Carp Lake Provincial Park.

Two floating gillnets 90 m in length were set on October 19, 2004. The total sampling effort was 49 hours resulting in a gillnet catch per unit effort (CPUE) of 0.65 fish per hour. The rainbow trout sampled during the 2004 assessment had a mean length of 254 mm and a maximum length of 317 mm. Growth and yield appear low even with the reduction in stocking density to 2000/year (yearlings) implemented after the 1999 stock assessment. The first survey for Warhorse lake conducted in 1982 (four years prior to initial stocking) demonstrated the highest gillnet CPUE recorded for Warhorse Lake. The survey crew at the time commented that the wild rainbow trout population appeared healthy and some of the sampled fish were maturing. Burbot and various species of cyprinids were captured during the initial and in subsequent surveys. At this time, it does not appear that there has been an increase in angling quality since the inception of stocking activities. Warhorse Lake is a priority for angler creel/satisfaction surveys, mainly to determine the level of effort at this lake. If angler interest or use appears low, Warhorse Lake will be removed from the stocking list in the future and managed as a wild fishery; otherwise it is recommended that only sterile stock be used in Warhorse Lake in the future.

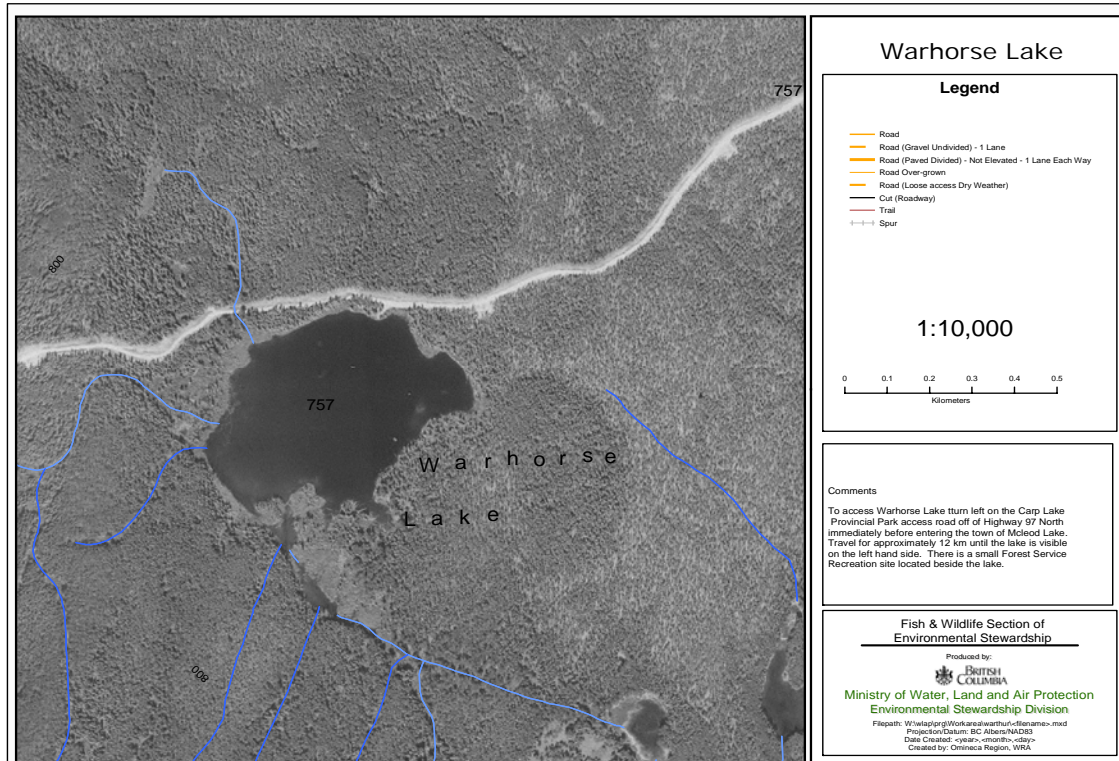


Figure 1. Orthophoto map of Warhorse Lake.

Omineca Region Stocked Lake Assessment Report

**OMINECA REGION
LAKE STOCK ASSESSMENT REPORT**

LAKE NAME: War Horse **BC WBID:** 00292CARP

LAKE LOCATION: *Nearest center:* S 43 km from Mackenzie *Drainage:* FRASER
UTM: 10.492751.6088231

LAKE ATTRIBUTES: *Surface Area:* 26.4 Ha *Elevation:* 758 m
Littoral Area: 26.4 Ha *T.D.S.:* na ppm
Max Depth: 2 m *Mean depth:* 1.2 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 (20% > 50 cm for RB, 20% > 40 cm for EB)

MANAGEMENT/SURVEY HISTORY:

Previous gill net assessment(s): no yes Little 1982
 Year(s) Surveyed: 1982; 1999

STOCKING DATA:

Current Stocking Rate 76 Fish/Ha Even years
Stock Type **TUNKWA**
Species RB, mixed cyprinids
Previous Stocking Rate 76

SURVEY METHODS:

Method	Date (yy.mm.dd)	Survey Agency	Crew
Fish	sgn 2004-10-19	BCCF	Chad Robertson, Kevin Mernickle
Chem.	DO 2004-10-19	BCCF	Chad Robertson, Kevin Mernickle
Physical	Bathymetric 1982-10-15	MOE	B. Little
Temp.	profile 2004-10-19	BCCF	Chad Robertson, Kevin Mernickle

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
2004	32	0	0	3	0	0	0	0	0	0
1999	17	0	0	0	0	86	0	0	0	0
1982	23	0	0	1	1	0	0	0	0	0

Survey Year	2004	1999	1982	
Effort Hours	49	24.6	22.5	
RB CPUE:	0.65	0.69	1.02	RB/Net Hour
EB CPUE:	0.00	0.00	0.00	EB/Net Hour
# of Sets:	2	2	1	

Next Assessment 2005 (effort)

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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 checked="" type="checkbox"/>	Most of the fish sampled are <300mm
3. Above Average	<input type="checkbox"/>	<input type="checkbox"/>	
4. Trophy	<input type="checkbox"/>	<input type="checkbox"/>	

RECOMMENDATIONS:

Assessment: The next scheduled stocking event is spring 2006. Warhorse Lake should be assessed for angler effort prior to this stocking event. If effort is low this lake will be removed from the stocking program. Growth and yield still appear low even with the reduction in stocking density implemented in 1999.

Management: The original management objective for Warhorse Lake was to supplement the natural rainbow trout population to manage for a low-moderate sport fishery. One potential option available now is to cease stocking Warhorse Lake as there was a viable self-sustaining sport fishery for rainbow trout prior to the first stocking event in 1986. There does not appear to be any increase in angling quality since stocking supplementation was initiated.

Comments: The initial survey conducted four years prior to initial stocking demonstrated the highest Gillnet CPUE recorded for Warhorse Lake. The survey crew at the time commented that the wild rainbow trout population appeared healthy and some of the sampled fish were maturing. Burbot and various species of cyprinids were captured during the initial and in subsequent surveys. Warhorse Lake is connected to the McLeod River system and fish movement is not restricted, as a result stocked rainbow trout have the opportunity leave the system which may result in genetic introgression with local wild stocks.

Uncertainties: The amount of natural recruitment occurring at Warhorse Lake.

Recent Brood Request Comments:

2005 Assessed in 99. Poor growth and yield. Reduced from 2500 to 2000. Even year stocking. Change stock to BW- mixed cyprinids (no NPM)- was NRT

History of Angling Regulations

There are no special angling regulations for Warhorse 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	1	12	222	165	263	29.2	147	54	245	58.2	1.28	1.18	1.39	0.1	0.00
1999	1	1	160				20				0.49				
2004	2	10	261	221	284	17.3	236	150	300	42.8	1.32	1.18	1.40	0.1	0.01
1999	2	5	227	195	284	34.9	80	25	200	69.4	0.57	0.34	0.87	0.2	0.04
1982	2	8	216	180	270	26.7	98	43	199	47.6	0.91	0.72	1.09	0.1	0.02
2004	3	9	292	268	315	18.2	331	245	410	62.0	1.32	1.14	1.45	0.1	0.01
1999	3	2	301	281	320	27.6	248	175	320	102.5	0.88	0.79	0.98	0.1	0.02
1982	3	10	234	203	275	28.0	141	85.5	228	51.9	1.05	0.96	1.18	0.1	0.01
1999	4	9	303	257	370	40.2	244	125	400	96.6	0.84	0.67	1.02	0.1	0.01
1982	4	5	272	245	304	23.3	205	143	285	54.7	1.00	0.97	1.04	0.0	0.00

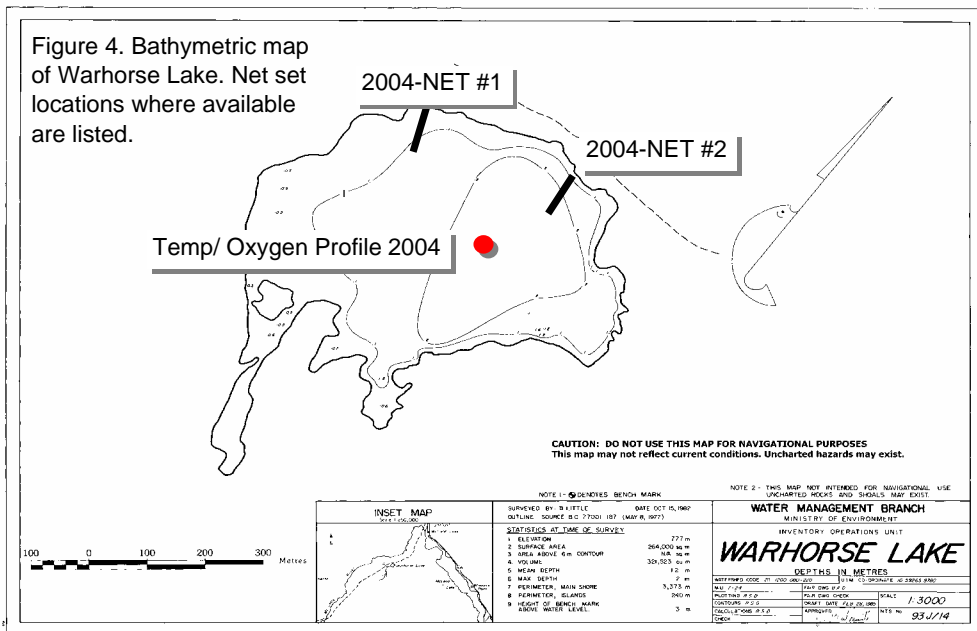
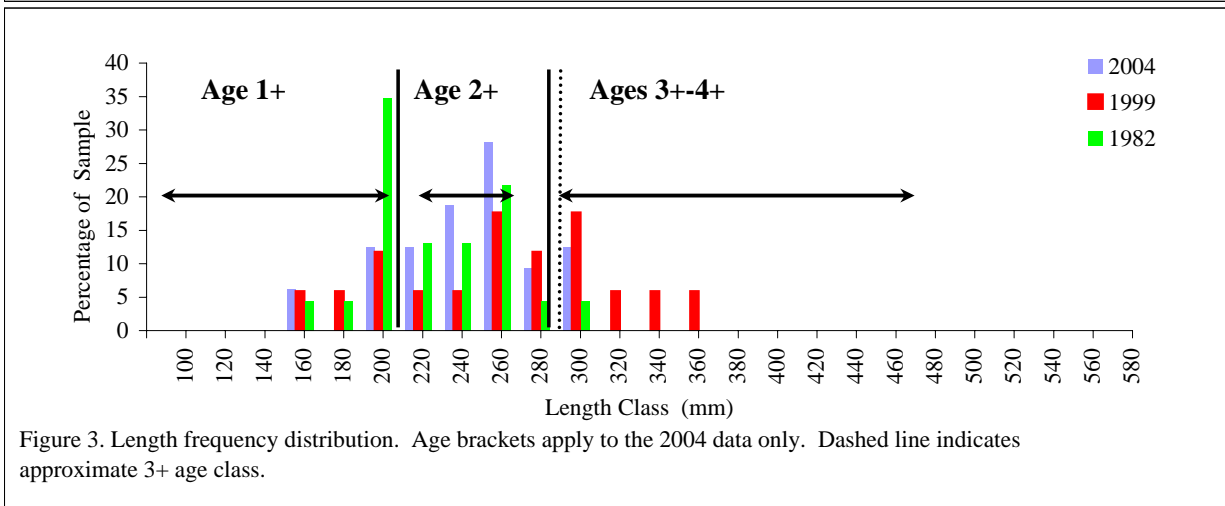
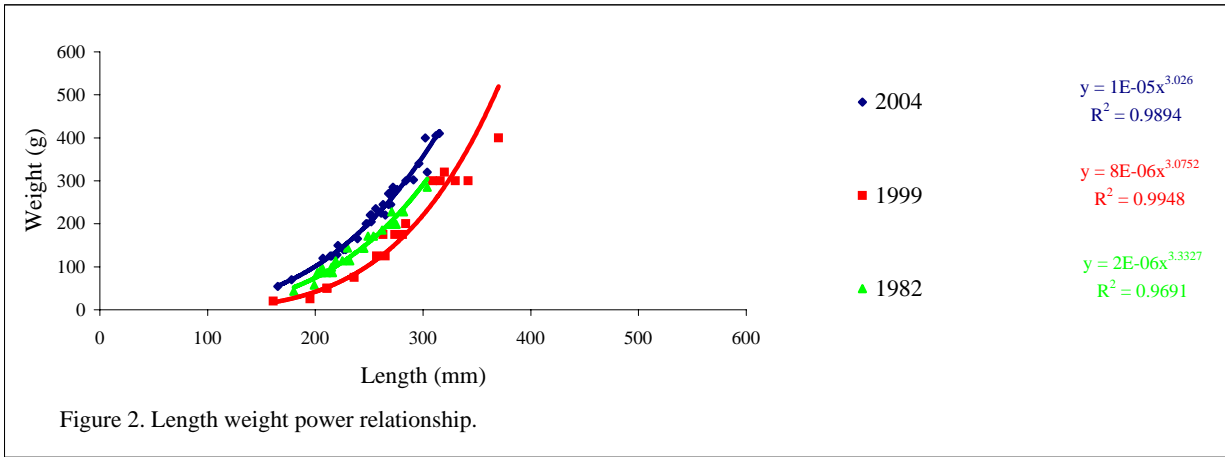
Table 2. Catch summary for all sample years.

Sample Year	Sample		Length (mm)				Weight (g)				Condition (k)				
	Size		Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Mean	Min	Max	StdDev	Var
2004	32		254	165	315	36.3	227	54	410	92.0	1.30	1.14	1.45	0.08	0.01
1999	17		272	160	370	36.3	183	20	400	119.0	0.74	0.34	1.02	0.20	0.04
1982	23		236	180	304	32.9	140	43	285	63.0	0.99	0.72	1.18	0.11	0.01

Table 3. Proportion of Catch (by survey year)

Survey Year	2004	1999	1982
Less than 250 mm	37.5 %	29.4 %	65.2 %
Between 250-350 mm	62.5 %	64.7 %	34.8 %
Between 250-400 mm	62.5 %	70.6 %	34.8 %
Greater than 400 mm	0.0 %	0.0 %	0.0 %
Greater than 500 mm	0.0 %	0.0 %	0.0 %

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Table 4. Stocking History for Warhorse Lake to 2004.

Release Date	Species Name	Fish Count	Stock	Mark	Average Size (gm)	Life Cycle Stage
2-Jun-04	RB	2000	TUNKWA		9.02	YEARLING
21-Jun-02	RB	2000	BADGER TUNKWA		16.85	YEARLING
3-Jun-00	RB	2500	NRT PREMIER		8.43	YEARLING
1-Jun-98	RB	2500	BADGER TUNKWA		6.9	YEARLING
4-Jun-96	RB	2500	BADGER TUNKWA		6.05	YEARLING
11-Jun-94	RB	2500	TUNKWA		11.3	YEARLING
19-Jun-92	RB	2500	NRT PREMIER		8.33	YEARLING
28-May-90	RB	2500	BADGER		20	YEARLING
3-Jun-89	RB	2500	TUNKWA		8.4	YEARLING
1-May-87	RB	2500	TUNKWA		15.3	UNKNOWN
1-May-86	RB	2500	NRT PREMIER		4.5	UNKNOWN

Table 5. Dissolved Oxygen/ Temperature Profile

15-Oct-82			19-Oct-04 Station UTM 10.493049.6087843					
Depth (m)	DO	Temp. °C	Depth (m)	DO mg/L	DO %sat	Temp. °C	pH	Cond (25°C)
0	11.1	7.3	0	8.4	64.9	3.92	7.8	142
1	11	7.3	1	8.72	67.3	4	7.9	143
2	10.9	7.2	2	bottom				
3	11	7.2	3					
4	5.3	7.2	4					

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Table 5. 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
War Horse	1	1	rb	3	272	285	1.4	3+	ot	f	m	
War Horse	2	1	rb	2	270	274	1.4	2+	ot	f	m	
War Horse	3	1	rb	1	220	128	1.2	1++	ot	f	im	
War Horse	4	1	rb	3	304	320	1.1	3+	ot	f	mt	
War Horse	5	1	rb		239	165	1.2		ot	f	im	broken; unreadable
War Horse	6	1	rb	3	302	400	1.5	3+	ot	f	m	
War Horse	7	1	rb	3	312	405	1.3	3+	ot	m	m	
War Horse	8	1	rb	3	268	270	1.4	3+	ot	f	m	
War Horse	9	1	rb	3	291	302	1.2	3+	ot	m	m	
War Horse	10	1	rb	2	268	245	1.3	2+	ot	m	m	
War Horse	11	1	rb	2	256	235	1.4	2++	ot	f	mt	
War Horse	12	1	rb	2	265	220	1.2	2+	ot	m	m	
War Horse	13	1	rb	1	226	140	1.2	1++	ot	f	im	
War Horse	14	1	rb	2	252	205	1.3	2+	ot	f	mt	
War Horse	15	1	rb	2	252	221	1.4	2+	ot	f	mt	
War Horse	16	1	rb	2	284	300	1.3	2+	ot	m	m	
War Horse	17	1	rb	3	296	340	1.3	3+	ot	f	m	
War Horse	18	1	rb	1	263	245	1.3	1++	ot	f	im	
War Horse	19	2	rb	2	221	150	1.4	2++	ot	m	m	
War Horse	20	2	rb	3	315	410	1.3	3+	ot	m	m	
War Horse	21	2	rb	2	261	225	1.3	2+	ot	f	m	
War Horse	22	2	rb	1	248	200	1.3	1++	ot	f	im	
War Horse	23	2	rb	3	270	245	1.2	3+	ot	m	m	
War Horse	24	2	rb	1	251	220	1.4	1++	ot	f	im	
War Horse	25	2	rb	2	276	280	1.3	2+	ot	f	mt	
War Horse	26	2	rb	1	247	200	1.3	1++	ot	m	m	translucent
War Horse	27	2	rb	1	228	140	1.2	1++	ot	f	im	
War Horse	28	2	rb	1	207	120	1.4	1++	ot	f	im	translucent
War Horse	29	2	rb	1	215	125	1.3	1++	ot	f	im	translucent
War Horse	30	2	rb	1	214	125	1.3	1++	ot	f	im	
War Horse	31	2	rb	1	165	54	1.2	1++	ot	f	im	
War Horse	32	2	rb	1	178	70	1.2	1++	ot	m	mt	translucent