

Executive Summary

Chief Gray Lake

2004

A stocking assessment was conducted at Chief Gray Lake on October 14, 2004; this was the first assessment completed since the inception of stocking in 1987. The objective of this assessment was to document the status of the fishery. Chief Gray is a 33 ha lake situated 91 km south of Vanderhoof; it is currently being managed as a trophy rainbow trout fishery. There is a 4 km undeveloped trail leading from the Hobson Lake Forest Recreation site to the lake. Chief Gray lake is a hike-in lake suitable for float tubes and/or shore anglers. Special fishing regulation on Chief Gray Lake include a rainbow trout release, a bait ban, and fishing is restricted to the use of a single barbless hook. Chief Gray is also closed to angling November 1 to April 30.

In 2004, one floating and one sinking standard gillnet 90 m in length were deployed. The total sampling effort was 40 hours, resulting in a gillnet catch per unit effort (CPUE) of 1.00 fish per hour. At this time the rainbow trout population is providing for an above average angling experience with many fish exceeding 400 mm in length, however this falls short of the objective for a trophy fishing experience. Anecdotal information from anglers suggests that Chief Gray Lake had very large (>4 kg) rainbow trout present prior to the first stocking event in 1987. This is supported by a gillnet survey conducted in 1984 where a net set for two hours yielded one 72 cm rainbow trout. A large proportion of fish in the 2004 stocking assessment were noted to be spawnbound. To better meet the objective of supporting a hike-in trophy angling experience, Chief Gray Lake will be stocked in 2005 with sterile Blackwater (AF3N) strain rainbow trout to replace the 2N naturalized rainbow trout stain currently utilized. This will help to achieve two management goals: 1) to provide for better growth opportunities for rainbow trout in this catch and release trophy fishery, 2) to reduce the genetic risks to any native rainbow trout persisting in the outlet stream.



Figure 1. 72 cm Rainbow trout (11 lbs) captured in Chief Gray Lake prior to stocking in September 1987.

Omineca Region Stocked Lake Assessment Report

**OMINECA REGION
LAKE STOCK ASSESSMENT REPORT**

LAKE NAME: Chief Gray **ALIAS:** Bitch **BC WBID:** 01185CHES

LAKE LOCATION: *Nearest center:* S 91 KM of Vanderhoof *Drainage:* FRASER
UTM: 10.382519.5940222

LAKE ATTRIBUTES: *Surface Area:* 33.1 Ha *Elevation:* 926 m
Littoral Area: 8.5 Ha *T.D.S.:* na ppm
Max Depth: 15.4 m *Mean depth:* 8.2 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 (> 50 cm for RB, > 40 cm for EB)

MANAGEMENT/SURVEY HISTORY:

Previous gill net assessment(s): no yes Labach 1987
 Year(s) Surveyed: 1987

STOCKING DATA:

Current Stocking Rate 76 Fish/Ha *Stocking Interval* Odd years
Stock Type **DRAGON**
Species RB
Previous Stocking Rate 76

SURVEY METHODS:

Method	Date (yy.mm.dd)	Survey Agency	Crew
Fish	SGN 2004-10-14	BCCF	Chad Robertson, Kevin Mernickle
Chem.	DO, pH, Cond		
Physical	bathymetric	MOE	R.G. Westcott
Temp.	profile		

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	40	0	0	0	0	0	0	0	0	0

Survey Year	2004
Effort Hours	40
RB CPUE:	1.00 RB/Net Hour
EB CPUE:	0.00 EB/Net Hour
# of Sets:	2

Next Assessment **2009**

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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"/>	50% of catch > 40 cm
4. Trophy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No rainbow trout captured > 50 cm

RECOMMENDATIONS:

Assessment: Next stock assessment 2009; however, it may be worthwhile to assess outlet stream for indication of natural recruitment sooner. Change all future stocking to AF3N to prevent introduced rainbows from utilizing spawning habitat needed by rainbows native to Chief Gray Lake (if any still persist).

Management: Many of the fish, both male and female, were spawnbound during the 2004 assessment. Recommend stocking AF3N fish to prevent this from occurring and to minimize genetic risks to any native rainbows still persisting in the lake. Recommend changing stock to BW AF3N.

Comments: There was one previous survey conducted on Chief Gray Lake in 1987 where a gill net was set for two-hours during the day. Only one fish was captured (11 lb rainbow in photo above). The survey suggested there was minimal habitat for spawning; however a survey conducted by DWB Forestry in 2000 found suitable spawning habitat (no fish sampling was conducted) for at least 3-km below the outlet. There were beaver dams present at the outlet in both surveys that may restrict access to the spawning habitat during low water periods. Recommend some type of assessment to determine if natural spawning is still occurring in outlet creek. It may be necessary to electrofish the outlet stream to determine the presence/absence of juvenile rainbow trout.

Uncertainties: The amount of natural reproduction in the outlet stream.

Recent Brood Request Comments:

- 2005 Odd Year. Assessed '04. Most large fish spawnbound. Change to Blackwater AF3N- Quality Fishery- catch and release.
- 2004 Odd year stocking, due for assessment. Angler reports of fish with low body condition. Due for assessment. Change to Pennask AF3N

History of Angling Regulations

Chief Gray Lake is closed to angling from Nov 1- Apr 30, mandatory rainbow trout release, bait ban, single-barbless hook

Reported by: Adrian Clarke

Date: Feb-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	13	235	200	270	19.9	163	92	230	50.5	1.22	0.92	1.46	0.1	0.02
2004	3	20	412	349	480	32.3	860	520	1310	184.8	1.22	0.96	1.35	0.1	0.01
2004	4	7	460	416	495	27.3	1156	880	1400	189.5	1.19	0.95	1.43	0.2	0.03

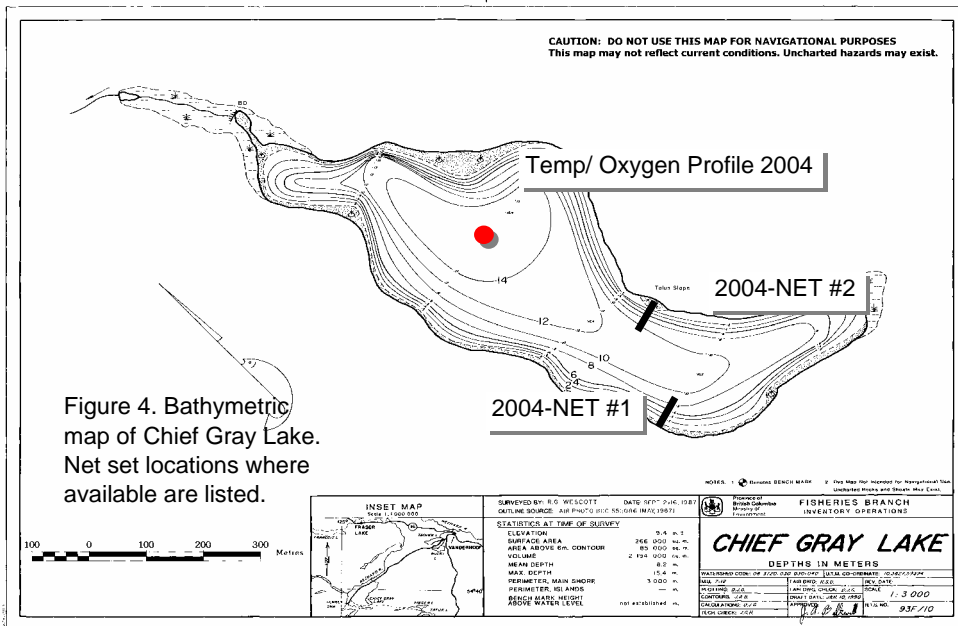
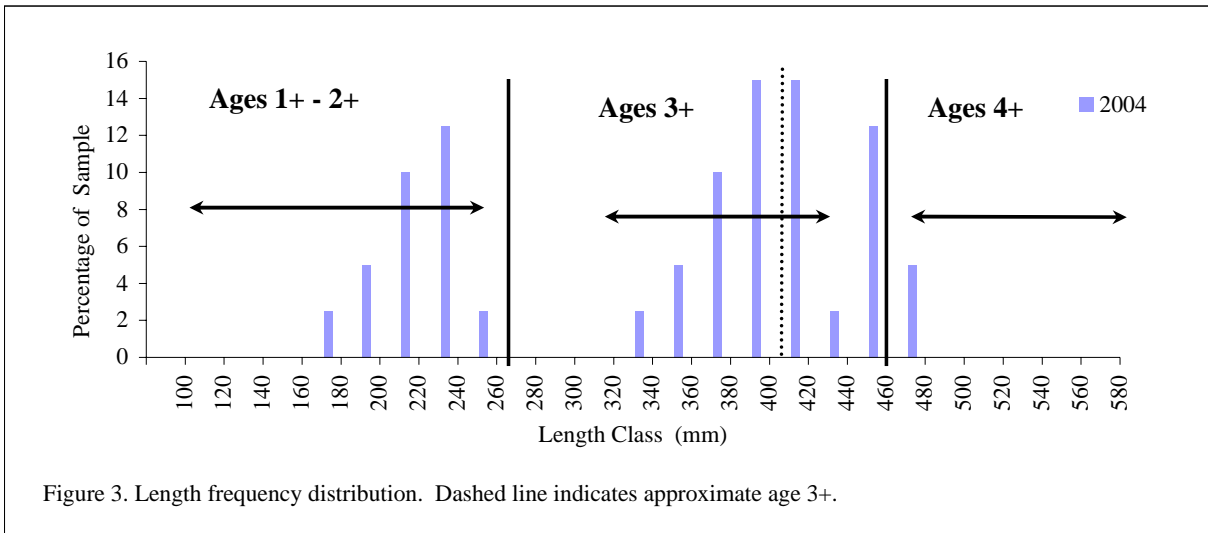
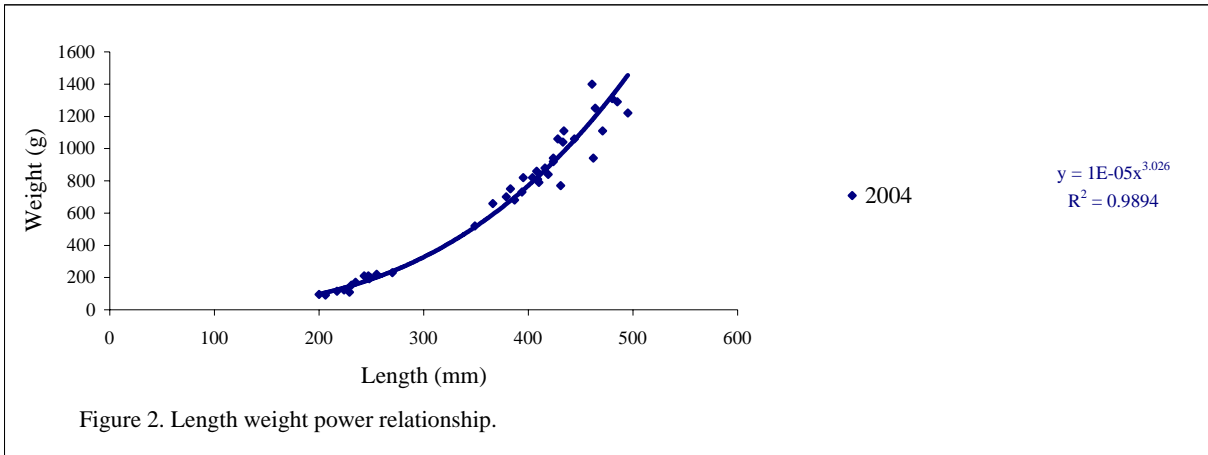
Table 2. Catch summary for all sample years.

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	40	40	363	200	495	95.5	685	92	1400	411.2	1.21	0.92	1.46	0.13	0.02

Table 3. Proportion of Catch (by survey year)

<i>Survey Year</i>	2004
Less than 250 mm	27.5 %
Between 250-350 mm	7.5 %
Between 350-400 mm	22.5 %
Greater than 400 mm	50.0 %
Greater than 500 mm	0.0 %

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Table 4. Stocking History of Chief Gray Lake to 2004.

Release Date	Species Name	Fish Count	Stock	Mark	Average Size (gm)	Life Cycle Stage
10-Sep-03	RB	2500	DRAGON		1.48	FALL FRY
6-Sep-01	RB	2500	BADGER TUNKWA		1.26	FALL FRY
15-Sep-99	RB	2500	NRT DRAGON		1.39	FALL FRY
10-Sep-97	RB	800	NRT DRAGON		0.99	FALL FRY
10-Sep-97	RB	1700	BADGER TUNKWA		0.83	FALL FRY
4-Sep-96	RB	2500	NRT DRAGON		0.94	FALL FRY
8-Sep-94	RB	2500	PREMIER DR		1.69	FALL FRY
1-Sep-92	RB	2500	DRAGON		0.88	FALL FRY
29-Aug-90	RB	2500	DRAGON		0.6	FALL FRY
23-Aug-89	RB	2500	DRAGON		0.8	FALL FRY
1-Aug-88	RB	2500	DRAGON		0.9	UNKNOWN
1-Oct-87	RB	2500	NRT PREMIER		1.1	UNKNOWN

Table 5. Dissolved Oxygen/ Temperature Profile

16-Oct-84			26-Oct-04 Station UTM 10.382628.5940005					
Depth (m)	DO	Temp. °C	Depth (m)	DO mg/L	DO %sat	Temp. °C	pH	Cond (25°C)
0	8.5	14	0	7.36	65.5	10.2	8.2	247
1	8.5	14	1	7.35	65.6	10.2	8.1	247
2	8.4	13.9	2	7.31	65.6	10.2	8.1	247
3	8.6	13.8	3	7.42	65.8	10.1	8.1	251
4	8.5	13.8	4	7.36	65.2	9.9	8.1	252
5	8.6	13.5	5	7.34	65.4	9.9	8.1	250
6	8.6	13.2	6	7	63.1	9.9	8.1	249
7	6.5	12.2	7	7.14	62.0	9.8	8.1	250
8	3.3	11	8	7.05	62.6	9.8	8.1	251
9	0.5	9	9	6.95	61.6	9.8	8.1	251
10	bottom	bottom	10	6.83	60.1	9.7	8.1	252
			11	6.55	58.2	9.7	8.1	256
			12	6.18	54.2	9.7	8	264

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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	Comments
Chief Gray	1	1	RB	4	464	1250	1.3	4+	OT	F	ST		loose eggs/red stripe
Chief Gray	2	1	RB	4	485	1290	1.1	4++	OT	M	M		milt intact
Chief Gray	3	1	RB	3	394	730	1.2	3+	OT	M	M		milt intact
Chief Gray	4	1	RB	4	462	940	1.0	4+	OT	M	M		thin fish
Chief Gray	5	1	RB	3	431	770	1.0	3+	OT	M	ST		thin fish
Chief Gray	6	1	RB	3	395	820	1.3	3++	OT	F	M		
Chief Gray	7	1	RB	4	434	1110	1.4	4++	OT	F	ST		loose eggs/red sides
Chief Gray	8	1	RB	3	480	1310	1.2	3++	OT	M	M	translucent	milt intact
Chief Gray	9	1	RB	3	433	1040	1.3	3++	OT	F	M		bright fish
Chief Gray	10	1	RB	3	408	860	1.3	3++	OT	M	M		semi bright fish
Chief Gray	11	1	RB	3	428	1060	1.4	3++	OT	M	M	translucent	red operculum markings
Chief Gray	12	1	RB	3	349	520	1.2	3++	OT	M	M	translucent	healthy fish
Chief Gray	13	1	RB	3	404	820	1.2	3++	OT	M	M		
Chief Gray	14	1	RB	3	410	790	1.1	3++	OT	M	M	translucent	bright fish
Chief Gray	15	1	RB	1	255	220	1.3	1++	OT	F	IM		small bright fish
Chief Gray	16	1	RB	1	270	230	1.2	1++	OT	F	IM		
Chief Gray	17	1	RB	1	217	116	1.1	1++	OT	F	IM		
Chief Gray	18	1	RB	1	231	152	1.2	1++	OT	M	M		small fish/large gonads
Chief Gray	19	1	RB	1	229	110	0.9	1++	OT	F	IM		
Chief Gray	20	2	RB	4	461	1400	1.4	4+	OT	F	M		bright fish
Chief Gray	21	2	RB	3	379	700	1.3	3++	OT	M	M		
Chief Gray	22	2	RB	3	366	660	1.3	3++	OT	F	ST		tight/loose eggs
Chief Gray	23	2	RB	3	471	1110	1.1	3++	OT	M	M	translucent	
Chief Gray	24	2	RB	3	419	840	1.1	3++	OT	M	M		
Chief Gray	25	2	RB	4	495	1220	1.0	4+	OT	M	M		long thin fish/colored
Chief Gray	26	2	RB	3	383	750	1.3	3+	OT	F	M	translucent	
Chief Gray	27	2	RB	3	409	810	1.2	3++	OT	M	M		
Chief Gray	28	2	RB	3	387	680	1.2	3++	OT	F	M		bright fish
Chief Gray	29	2	RB	1	243	210	1.5	1++	OT	F	IM	broken	
Chief Gray	30	2	RB	1	235	170	1.3	1++	OT	F	IM		
Chief Gray	31	2	RB	1	248	192	1.3	1++	OT	F	IM		
Chief Gray	32	2	RB	3	444	1060	1.2	3++	OT	F	M	translucent	bright fish
Chief Gray	33	2	RB	3	424	940	1.2	3++	OT	M	M	translucent	dark red stripes
Chief Gray	34	2	RB	4	416	880	1.2	4++	OT	F	ST	translucent	loose eggs/slight colouration
Chief Gray	35	2	RB	3	424	920	1.2	3++	OT	F	M	translucent	
Chief Gray	36	2	RB	1	247	210	1.4	1++	OT	F	IM		
Chief Gray	37	2	RB	1	249	200	1.3	1++	OT	F	IM		
Chief Gray	38	2	RB	1	224	124	1.1	1++	OT	F	IM		
Chief Gray	39	2	RB	1	200	96	1.2	1++	OT	F	IM	translucent	
Chief Gray	40	2	RB	1	206	92	1.1	1++	OT	F	IM	translucent	