PPL Montana, 45 Basin Creek Road, Butte, Montana 598701

PPL MONTANA, LLC

PPLM-TFalls-2919

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

March 26, 2012

RE: Filing 2011 Annual Activity, Fish Passage and Bull Trout Take Report for the Thompson Falls Hydroelectric Project

Dear Secretary Bose:

Herein attached, per Item D of Commission Order February 12, 2009, is the 2011 Annual Activity, Fish Passage and Bull Trout Take Report for the Thomson Falls Project which PPL Montana has completed in consultation with agencies (USFWS, MFWP and MDEQ) and the Confederated Salish and Kootenai Tribes. USFWS email of approval for this report and filing with the Commission is provided on page 2.

Sincerely,

Jon Jourdonnais
Manager Hydro Licensing and Compliance

Cc: Mark Wilson, USFWS
Wade Fredenberg, USFWS
Tim Bodurtha, USFWS
Craig Barfoot, CSKT
Andy Welch, PPLM
Kenneth Breidinger, MFWP
Jim Darling, MFWP
Brent Mabbott, PPLM
Gordon Criswell, PPLM
Dave Kinnard, PPLM
Carrie Harris, PPLM
Ginger Gillin, GEI
Kristi Webb, Steigers Corp
Erich Gaedeke, FERC Portland

Jourdonnais, Jon H

From: Mark_Wilson@fws.gov
Sent: Monday, March 26, 2012 9:34 AM
To: Jourdonnais, Jon H
Subject: RE: TFalls Fish Passage Annual Report to Commission (ready for USFWS consideration of approval)
Attachments: pic24626.gif

Hi Jon: The U.S. Fish and Wildlife Service approves the annual (2011) report for Thompson Falls fish passage activities.

Thank you.

Mark

R. Mark Wilson, Field Supervisor
U.S. Fish and Wildlife Service
Division of Ecological Services
585 Shepard Way
Helena, MT 59601-6287
406/449-5225, ext. 205

2011 Annual Report
Fish Passage Project
Thompson Falls Hydroelectric Project
FERC Project Number 1869

Submitted to:
Federal Energy Regulatory Commission
Washington, D.C.

Submitted by:
PPL Montana, LLC
Butte, Montana

In Collaboration With:
Montana Fish Wildlife and Parks
Thompson Falls, Montana

U.S. Fish and Wildlife Service
Kalispell, Montana

Montana Department Of Environmental Quality
Helena, Montana

Confederated Salish and Kootenai Tribes
Pablo, Montana

With Assistance From:
GEI Consultants, Inc.
Lake Oswego, Oregon

Steigers Corporation
Missoula, Montana

March 2012

Table of Contents

List of Tables

List of Figures

List of Photos

Executive Summary

PPL Montana, LCC is owner and operator of the Thompson Falls Hydroelectric Project (No. 1869), located on the Clark Fork River near Thompson Falls, Montana. The current Federal Energy Regulatory Commission (FERC or Commission) License was issued to Montana Power Company (now PPL Montana) in 1979 and is scheduled to expire on December 31, 2025.

In 1998, the bull trout (*Salvelinus confluentus*) was federally-listed under the Endangered Species Act as a threatened species. Critical habitat was designated in 2005 and revised in 2010. PPL Montana conducted 5 years of studies and filed a Biological Evaluation with the Commission on April 7, 2008 discussing the effects of the Thompson Falls Project on bull trout and proposed conservation measures.

The 2008 Biological Evaluation was adopted as the Commission's final Biological Assessment and submitted to the U.S. Fish and Wildlife Service (FWS) on May 1, 2008. On November 4, 2008 the FWS filed with the Commission a Biological Opinion and an associated Incidental Take Statement, which includes reasonable and prudent measures, and Terms and Conditions to minimize incidental take of bull trout. On February 12, 2009 the Commission issued an Order Approving Construction and Operation of Fish Passage Facilities for the Thompson Falls Project. This order included the reasonable and prudent measures, Terms and Conditions, and conservation recommendations from the Biological Opinion. The FERC agreed with the FWS's conclusion that the Thompson Falls Project is currently adversely affecting bull trout and PPL Montana's proposed conservation measures will reduce, but not totally eliminate, adverse impacts of the Project.

The FERC Order required PPL Montana to file with the Commission, by April 1 of each year through the remainder of the License, the annual report referenced in Term 7a of the FWS's Terms and Conditions. In addition to the requirements stipulated in Term 7a, the annual report shall also address the Licensee's compliance with the FWS's Terms and Conditions.

This report is intended to fulfill the annual reporting requirement, as specified in Term 7a of the Biological Opinion and the requirements of the FERC Order. This report summarizes PPL Montana's 2011 activities (Sections 2.0 through 7.0), PPL Montana's compliance with the FWS's Terms and Conditions of the Biological Opinion (Section 8.0), and PPL Montana's proposed actions in 2012 (Section 9.0).

Baseline Fisheries Studies

In 2011, PPL Montana continued to collect baseline fisheries data as presented in Section 2.0 of this report. Baseline fisheries data includes spring electrofishing in Thompson Falls Reservoir, fall electrofishing in Thompson Falls Reservoir above the Island Complex, fall electrofishing between the towns of Paradise and Plains in the Clark Fork River, and fall gillnetting in

Thompson Falls Reservoir. Montana Fish, Wildlife and Parks (FWP) also provided electrofishing data for two sections surveyed in the middle Clark Fork River in 2010 and 2011 that are included in this section.

Upstream Fish Passage (10-Year Fish Passage Evaluation Plan)

In 2011, the FERC issued two Orders, one on June 9, 2011 approving PPL Montana's 10-year *Fish Passage Facility Evaluation Plan Phase 2 Action Plan* (2011-2020) (Fish Passage Evaluation Plan) and the second on June 17, 2011 approving PPL Montana's *Final Thompson Falls Fish Ladder – Fishway Operations Manual 1.0*. The upstream fish passage facility (fish ladder) became operational in 2011. PPL Montana implemented the first year of studies outlined in the Fish Passage Evaluation Plan and the 2011 data are presented in Section 3.0.

The upstream fish passage facility commenced operation on March 17, 2011 and was winterized on October 17, 2011. During ladder operations, approximately 1,805 fish representing 10 species and one hybrid, including two bull trout, ascended the ladder. The first bull trout ascended the entire ladder and the second bull trout was caught in a lower ladder pool during an operation change in weir mode. Fish that ascended the ladder and released upstream were marked via fin clip, visible implant elastomer (VIE) tag, or Passive Integrated Transponder (PIT) tag. Of the 1,805 fish that ascended the ladder, a total of 1,722 fish were released upstream into the Thompson Falls Reservoir. A total of 83 fish (80 non-salmonids, two rainbow trout, and one lake trout) were not released upstream, primarily due to mortality at the ladder associated with mechanical issues (since corrected). Lake trout and walleye were not authorized by FWP for release upstream if captured in the ladder. In 2011, one lake trout and zero walleye were captured at the ladder. Additional details summarizing the number and size of fish and species, timing of fish ascending the ladder, recaptures, fallback, etc., are provided in Section 3.0.

Avista Bull Trout Passage and Monitoring

Avista Corporation (Avista) continued their Upstream Fish Passage Program, including trap and haul, in 2011. Avista captured a total of 64 unique bull trout below Cabinet Gorge Hydroelectric Project of which 18 were genetically assigned to natal streams located in Region 4 (i.e. upstream of Thompson Falls Dam). Five of the 18 bull trout were transported to Region 4; with four of the five bull trout released in the Thompson River and one bull trout released in the South Fork Jocko River. Eleven of the 18 bull trout were released in Noxon Reservoir (Region 3) upstream of Vermilion Bay; with eight bull trout implanted with radio transmitters (and PIT tags) and three bull trout released with PIT tags and no radio transmitters. Although the 11 bull trout that were genetically assigned to Region 4, these fish were released in Region 3 to monitor and evaluate movement to the Thompson Falls fish ladder. The remaining two bull trout captured below Cabinet Gorge Hydroelectric Project and genetically assigned to Region 4 had been previously captured as juveniles in Regions 2 and 3 tributary streams and thus were released back to these tributary streams in Regions 2 and 3, respectively.

Of the eight radio tagged fish in 2011, Avista monitored two bull trout (referred to as Bull Trout 35 and Bull Trout 37) and FWP monitored six bull trout (referred to as Bull Trout 26, 29, 36, 38, 39, and 40). Two bull trout initially tagged in 2010 (bull trout 30 and 32) were also detected and monitored in 2011 by FWP. During the 2011 monitoring effort, three bull trout (bull trout 26, 38, 40) were detected via radio telemetry immediately downstream of Thompson Falls Dam in the months of June and/or July 2011. A summary of bull trout transported upstream and movements of the bull trout monitored in 2011 is provided in Section 4.0. A table detailing bull trout detections during the radio telemetry monitoring period is also available in Table B-1 in Appendix B.

Total Dissolved Gas

In 2011, Total Dissolved Gases (TDG) were monitored from April 8 to July 27. Monitoring sites were 1) above dam, 2) High Bridge, and 3) Birdland Bay Bridge. The High Bridge monitoring site captures information on TDG at a location that is downstream of the Main Dam spillway and the falls, but is upstream where the Dry Channel Dam spill enters the river. The Birdland Bay Bridge monitoring site captures information on the level of TDG entering Noxon Rapids Reservoir. All three sensors suffered failures during some periods during the 2011 monitoring season. However, the data recovery is sufficiently complete to draw conclusions on TDG in the Clark Fork River during 2011.

Peak discharge in the Clark Fork River in the project area in 2011 was approximately twice as much as the long-term average, reaching approximately 120,000 cfs in mid-June 2011. In addition, the high flow period lasted about twice as long as is typical; with river flow in excess of 60,000 cfs until mid-July 2011. Clark Fork River flows in the area of the Thompson River Hydroelectric Project were significantly higher in 2011 than in any other year since the TDG study began in 2003.

TDG upstream of the Thompson Falls Hydroelectric Project peaked at approximately 108 percent of saturation during 2011. TDG levels at the High Bridge approached 130 percent of saturation, and TDG at the Birdland Bay Bridge site was approximately 122 percent of saturation in 2011. These readings were higher than recorded in previous years at these locations, corresponding to the higher streamflows. The unusually high TDG readings in 2011 occurred during the time period when the Clark Fork River was flowing in excess of 70,000 cfs.

The report includes recommendations for TDG management in the project area, in Section 6.

Gas Bubble Trauma Monitoring

PPL Montana continued to monitor for gas bubble trauma (GBT) in fish sampled below the Thompson Falls Hydroelectric Project in 2011. In 2011, higher TDG resulted in a higher number of fish detected with GBT symptoms. Of the 949 fish examined, 67 fish were noted to exhibit external symptoms of GBT, seven were noted to have bubbles and one rainbow trout was noted to have exophthalmia (‘pop eye’). All the other external symptoms noted were minor.

Thompson River Drainage (5-Year Reservoir Plan)

In 2010, PPL Montana developed and submitted the 5-Year Reservoir Monitoring Plan (2011-2015) to the FERC. The FERC issued an Order on February 9, 2011 approving the plan. PPL Montana started to implement the plan in 2011.

The overall goal of the Reservoir Plan is to gather information that will assist in developing recommendations to *maximize survival of outmigrant juvenile and adult bull trout through Thompson Falls Reservoir and Dam*. In order to address this goal, two objectives were identified including the:

1. Characterization of bull trout in the Thompson River drainage
2. Characterization of the affect that the Thompson Falls Reservoir has on bull trout emigrating from the Thompson River drainage and migrating downstream in the Clark Fork River.

To address the first objective, PPL Montana coordinated with the Thompson Falls Technical Advisory Committee (TAC), FWS, Plum Creek Timber Company, Avista, and U.S. Forest Service (USFS) to review available historic data, available literature, identify data gaps and develop a plan for future data collection/studies/projects in the Thompson River drainage. As a result of the data collected, PPL Montana developed a Thompson River database to assist in evaluating available information and assessing data gaps. A detailed description of the Thompson River drainage database and process of developing the database is provided in Section 5.1.1.

FWP completed a fisheries survey of West Fork Thompson River drainage in 2010. These data are summarized in Section 5.2. The raw data are provided in Appendix C of this report.

Avista completed a fisheries survey of Fishtrap Creek drainage in 2011. A summary of these data and the salmonids observed and recorded is provided in Section 5.3.1. The raw data are provided in Appendix D of this report.

Bull Trout Incidental "Take"

In 2011, PPL Montana collected a total of five bull trout, all of which were released live. Three bull trout were collected via electrofishing downstream of the Thompson Falls Hydroelectric Project on May 31, 2011. The three bull trout were released live after measurements of length and weight were recorded, a genetic sample was taken, and a PIT tag was implanted. The three bull trout measured 180 millimeters (mm) and 50 grams (g); 247 mm and 130 g; and 482 mm and 966 g, respectively. Genetic samples indicate these fish originated from natal streams in Region 4. Additional details of the three bull trout are provided in Section 8.7.

In 2011, two bull trout ascended the Thompson Falls fish ladder and were released live upstream in the Thompson Falls Reservoir after measurements of length and weight were recorded, a genetic sample was taken, and a PIT tag implanted. Lengths and weights of the bull trout were

365 mm and 364 g; and 547 mm and 1,438 g, respectively. Both fish were genetically assigned to Region 4. Additional details of the two bull trout are provided in Section 8.7.

2011 TAC Funded Projects

In 2011, PPL Montana allocated approximately $5,582 to bull trout genetic analysis from samples collected in the Clark Fork River drainage to improve the genetic baseline database. Genetic samples were taken from juvenile bull trout in the Fishtrap Creek drainage in 2011 and also from bull trout collected in the Clark Fork River in the project area. Results from the Fishtrap Creek sample were not available at the time this report was prepared. Results from the Clark Fork River are included in Section 7.1.1. A description of this project is provided in Section 7.0.

1.0 Introduction

1.1 Background

PPL Montana is owner and operator of the Thompson Falls Hydroelectric Project (No. 1869), located on the Clark Fork River near Thompson Falls, Montana. The current Federal Energy Regulatory Commission (FERC or Commission) License was issued to Montana Power Company (now PPL Montana) in 1979 and is scheduled to expire on December 31, 2025.

In 1998, the bull trout (*Salvelinus confluentus*) was federally-listed under the Endangered Species Act (ESA) as a threatened species (Federal Register, 1998). Critical habitat was designated in 2005 (Federal Register, 2005) and revised in 2010 (Federal Register, 2010). U.S. Fish and Wildlife Service (FWS) proposed a revision to the critical habitat designation on January 13, 2010. The Final Critical Habitat Designation Rule for bull trout was submitted by FWS on September 30, 2010 and was effective as of November 17, 2010. The Thompson Falls Project area is within the designated critical habitat for bull trout. Because bull trout are present within the Project area, a draft Biological Evaluation was prepared for the Thompson Falls Project and submitted to the FWS and FERC in 2003.

After 5 years of studies, PPL Montana filed a new Biological Evaluation discussing the effects of the Thompson Falls Project on bull trout and proposed conservation measures with the Commission on April 7, 2008. PPL Montana's Biological Evaluation identified several factors directly related to project operation that negatively impact bull trout in the Clark Fork River. Inhibition of upstream migration and access to spawning habitat by the Thompson Falls Hydroelectric Project was identified as a major concern. Consequently, PPL Montana proposed to install a full height fishway at the Project and filed 90-percent drawings for the structure on April 7, 2008. The filing also contained a Memorandum of Understanding (MOU) signed by PPL Montana, the Confederated Salish and Kootenai Tribes of the Flathead Nation (CSKT), Montana Fish Wildlife and Parks (FWP), and FWS (MOU, 2008).[1]

The Commission concluded that the Thompson Falls Project is adversely affecting bull trout and the proposed conservation measures will reduce, but not totally eliminate, the Project's adverse effects on bull trout. The 2008 Biological Evaluation was adopted as the Commission's final Biological Assessment and submitted to the FWS on May 1, 2008.

On November 4, 2008 the FWS filed with the Commission a Biological Opinion and associated Incidental Take Statement, which includes reasonable and prudent measures and Terms and Conditions to minimize incidental take of bull trout. The FWS concluded in its Biological Opinion that the

[1] The MOU provides Terms and Conditions regarding the collaboration between the Licensee and the FWS, FWP, and CSKT and the implementation of minimization measures for bull trout.

Thompson Falls Project is currently adversely affecting bull trout and PPL Montana's proposed conservation measures will reduce, but not totally eliminate, adverse impacts of the Project.

On February 12, 2009 the Commission issued an Order Approving Construction and Operation of Fish Passage Facilities for the Thompson Falls Project. This order included the reasonable and prudent measures, Terms and Conditions, and conservation recommendations from the FWS Biological Opinion.

1.2 Compliance with the FERC Order

The FERC Order required PPL Montana to file with the Commission for approval, study and operational plans referenced in the FWS's Terms and Conditions (TC) numbers 1 through 7, after development and approval by the FWS and the Thompson Falls Technical Advisory Committee (TAC). In order for the Commission to ensure compliance with the FWS's Terms and Conditions, PPL Montana is required to file with the Commission, by April 1 of each year through the remainder of the License, the annual report referenced in Term 7a[2] of the FWS's Terms and Conditions. In addition to the requirements stipulated in Term 7a the report should also address the Licensee's compliance with the FWS's Terms and Conditions.

This report is intended to fulfill the annual reporting requirement, as specified in Term 7a of the Biological Opinion and the requirements of the FERC Order. This report summarizes PPL Montana's 2011 activities in Sections 2.0 through 7.0, PPL Montana's compliance with the FWS's Terms and Conditions of the Biological Opinion (Section 8.0), and PPL Montana's proposed actions in 2012 (Section 9.0).

[2] Term 7a states, "Annually, by April 1 of each year for the remainder of the License (expires 2025), PPL Montana will prepare and submit to the Service for approval a report of the previous year's activities, fish passage totals, and next year's proposed activities and other fisheries monitoring that may result in intentional as well as incidental take of bull trout. The report will quantify the number of bull trout proposed to be incidentally taken by each activity and summarize the cumulative extent of incidental take from all previous year activities."

2.0 Baseline Fisheries Studies

Fisheries monitoring of the Thompson Falls Reservoir using gillnets and electrofishing has been conducted annually, within the same general time frame, since 2004. The locations for fall and spring electrofishing and fall gillnetting are displayed in Figures 2-1 and 2-2. In 2010, PPL Montana added a new upstream electrofishing site in the Clark Fork River upstream of the Thompson Falls Hydroelectric Project between the towns of Plains and Paradise, Montana. This site was electrofished in the fall of 2010 and 2011 and PPL Montana proposes to continue sampling this reach of the Clark Fork River through 2014 (5 years of sampling).

The main objective for these annual sampling efforts is to establish baseline information on species composition and relative abundance within the reservoir and upstream of Thompson Falls Reservoir. This information will help track changes to the fish community annually and over a long period of time. This is especially important with the newly constructed full height fish ladder at Thompson Falls Hydroelectric Project that commenced operations in spring 2011. This is one monitoring tool that gives managers the ability to track potential system wide changes with fish passing into the Thompson Falls Reservoir from downstream.

Table 2-1: Summary of abbreviations for fish identification, species common name, and scientific name.

Fish Abbreviation	Common Name	Scientific Name
BL BH	Black bullhead	*Ameiurus melas*
BULL	Bull Trout	*Salvelinus confluentus*
LL	Brown trout	*Salmo trutta*
LMB	Largemouth bass	*Micropterus salmoides*
LN DC	Longnose dace	*Rhinichthys cataractae*
LN SU	Longnose sucker	*Catostomus catostomus*
LC SU	Largescale sucker	*Catostomus macrocheilus*
LT	Lake trout	*Salvelinus namaycush*
L WF	Lake Whitefish	*Coregonus clupeaformis*
MWF	Mountain whitefish	*Prosopium williamsoni*
NP	Northern pike	*Esox lucius*
N PMN	Northern pikeminnow	*Ptychocheilus oregonensis*
PEA	Peamouth	*Mylocheilus caurinus*
PUMP	Pumpkinseed	*Lepomis gibbosus*
RB	Rainbow trout	*Oncorhynchus mykiss*
RBxWCT	Rainbow x Westslope cutthroat hybrid	*Oncorhynchus clarkii lewisi x Oncorhynchus mykiss*
RS SH	Redside shiner	*Richardsonius balteatus*
SMB	Smallmouth bass	*Micropterus dolomieu*
WCT	Westslope cutthroat trout	*Oncorhynchus clarkii lewisi*
WE	Walleye	*Sander vitreus*
YP	Yellow perch	*Perca flavescens*

Figure 2-1: Baseline Fisheries Sampling Locations.

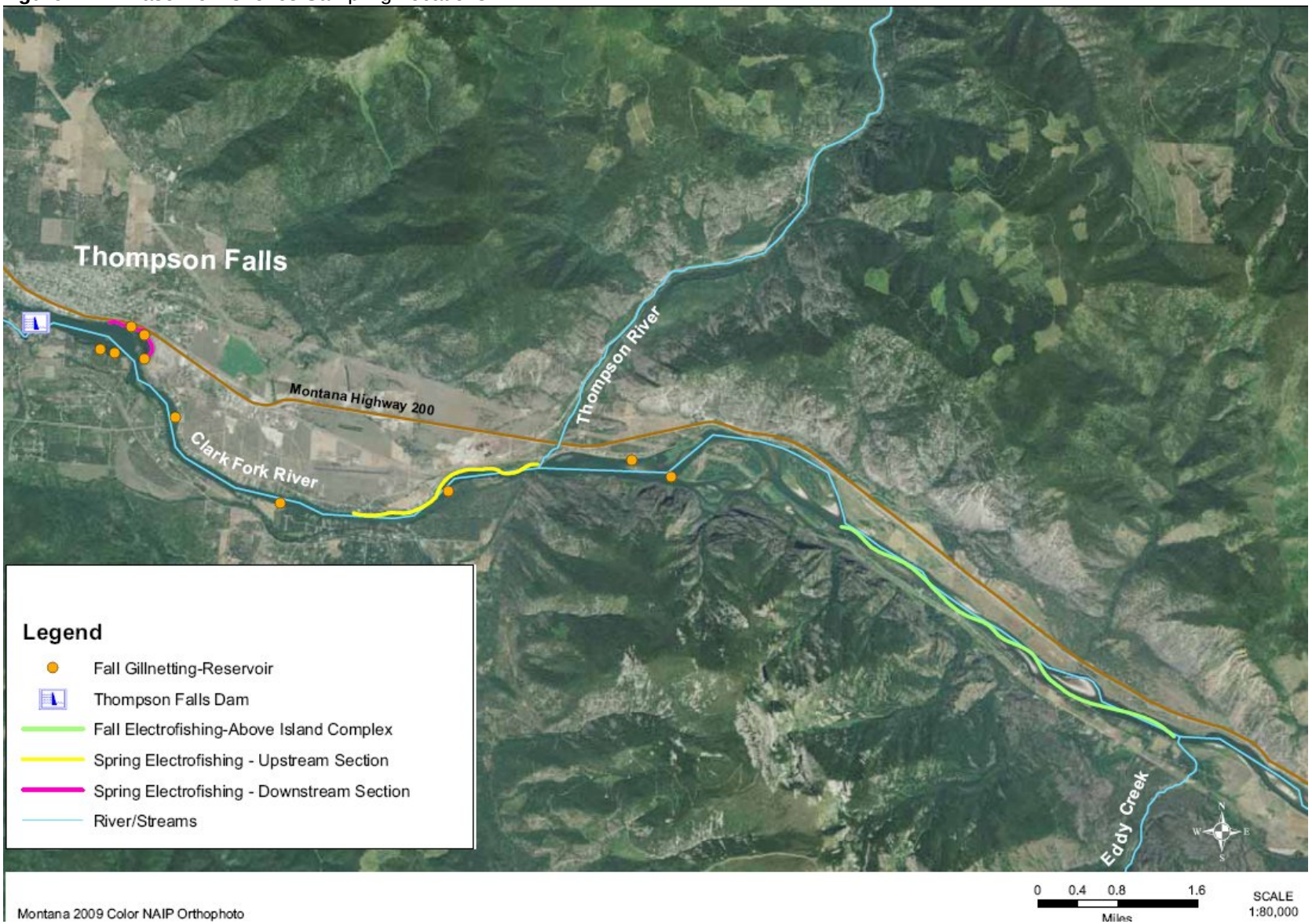
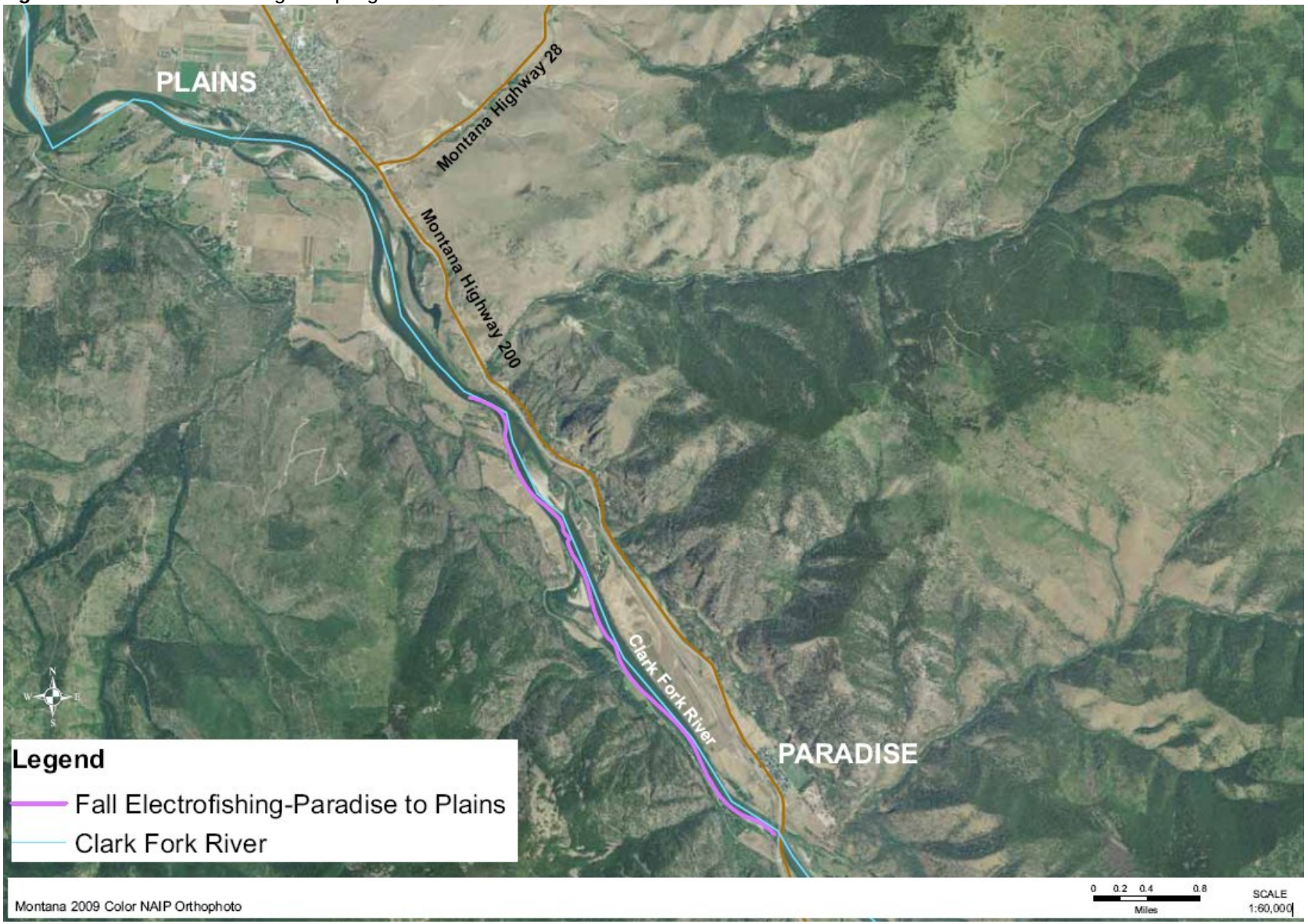


Figure 2-2: Fall Electrofishing Sampling Location between Paradise and Plains.



2.1 Fall Gillnetting

Fall gillnetting in Thompson Falls Reservoir has been performed in designated locations since 2004 (*see* Figure 2-1). Fall gillnetting occurs in October each year and 10 gillnets are set each year with the exception of the 2004 sampling year where only six nets were set (Table 2-2).

Table 2-2: Summary of gillnetting dates, number of nets set, total number of fish captured, and total number of species represented during gillnetting activities in Thompson Falls Reservoir from 2004 to 2011.

Year	# Gillnets	Date set	Date pulled	Total Fish Captured	Number of Species
2004	6	10/13	10/14	48	8
2005	10	10/13	10/14	79	7
2006	10	10/12	10/13	116	7
2007	10	10/11	10/12	122	9
2008	10	10/8	10/9	59	7
2009	10	10/19	10/20	55	6
2010	10	10/14	10/15	50	9
2011	10	10/5	10/6	33	9

The 2011 annual fall gillnet monitoring of Thompson Falls Reservoir began on October 5 by setting a 125-foot-long by 6-foot-wide variable mesh net at each of the 10 established locations in Thompson Falls Reservoir (*see* Figure 2-1). Nets were set for approximately 18 to 20 hours and pulled on October 6. The mean catch per net has varied widely by species and between years (Table 2-3, Figure 2-3). Lengths and weights were recorded for all fish captured via gillnetting in 2011 and the data are provided in Appendix A.

A total of 33 fish representing nine species were captured during the 2011 gillnetting efforts. This was the lowest total number of fish caught via gillnetting since monitoring began in 2004. There were no black bullheads captured in 2009, 2010, or 2011. Black bullheads were the predominant fish caught between 2004 and 2008.

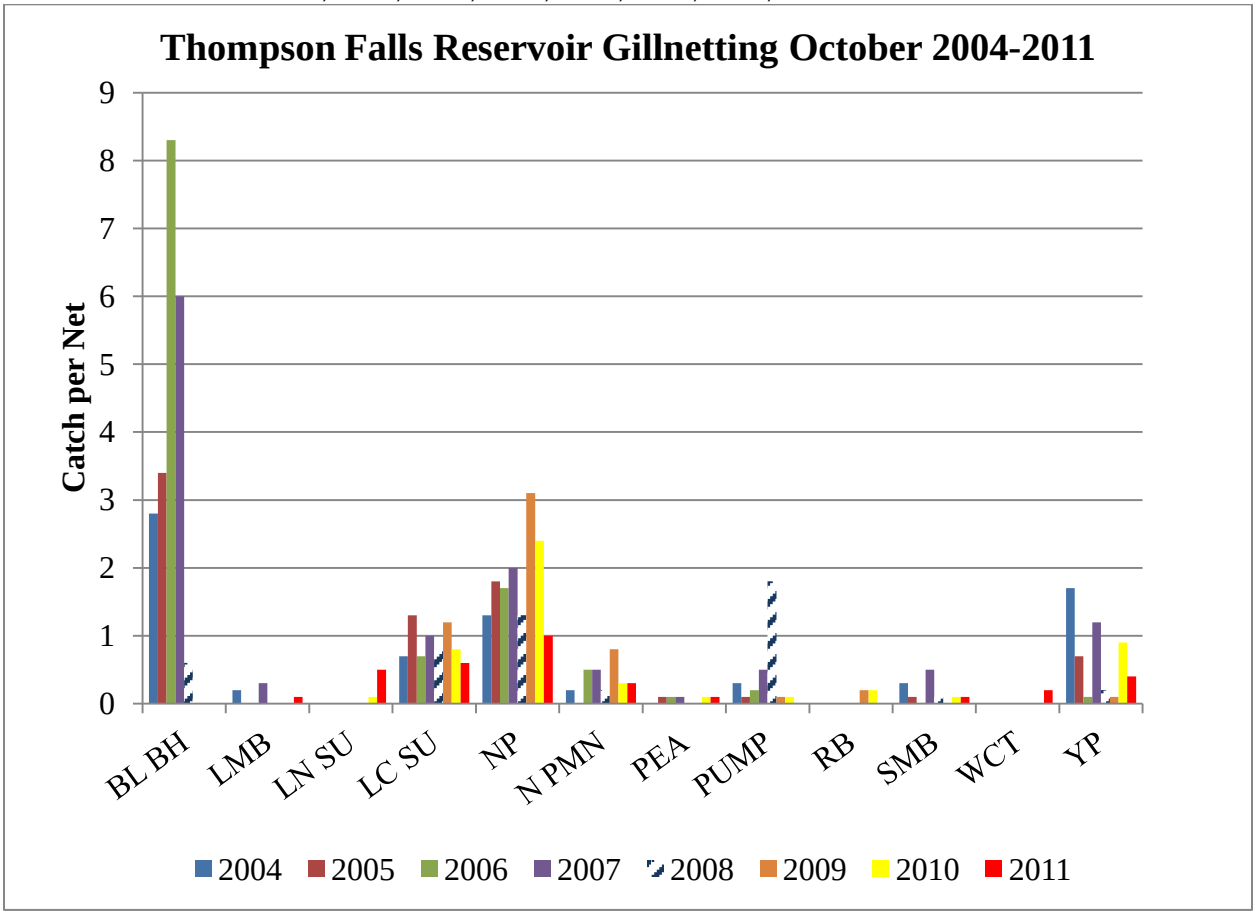
The low number of fish caught in the gillnets in 2011 compared to previous years may be a result of the Thompson Falls Reservoir drawdown of up to 13 feet below full pool in August. In the summer of 2011, PPL Montana drew down the reservoir in order to replace stanchions on the dam. The maintenance work resulted in the reservoir drawdown of about 10 feet by the end of July and an additional 3 feet (total 13 feet below full pool) between August 7 and 19. The drawdown of 10 to 13 feet resulted in a riverine environment in the reservoir area, which substantially reduced the lacustrine habitat typically available at full pool. Thompson Falls Reservoir returned to full pool August 22.

Table 2-3: Mean catch per net, by species, during annual October gillnetting series on Thompson Falls Reservoir from 2004 to 2011.

Species	2004	2005	2006	2007	2008	2009	2010	2011
BL BH	2.8	3.4	8.3	6	0.6	0	0	0
LMB	0.2	0	0	0.3	0	0	0	0.1
LN SU	0	0	0	0	0	0	0.1	0.5
LC SU	0.7	1.3	0.7	1	0.8	1.2	0.8	0.6
NP	1.3	1.8	1.7	2	1.3	3.1	2.4	1.0
N PMN	0.2	0	0.5	0.5	0.2	0.8	0.3	0.3
PEA	0.0	0.1	0.1	0.1	0	0	0.1	0.1
PUMP	0.3	0.1	0.2	0.5	1.8	0.1	0.1	0
RB	0	0	0	0	0	0.2	0.2	0
SMB	0.3	0.1	0	0.5	0.1	0	0.1	0.1
WCT	0	0	0	0	0	0	0	0.2
YP	1.7	0.7	0.1	1.2	0.2	0.1	0.9	0.4

In 2011 northern pike was the most abundant species with 10 individuals captured. Other species captured in 2011 included largescale sucker (n=6), longnose sucker (n=5), yellow perch (n=4), northern pikeminnow (n=3), westslope cutthroat trout (n=2), largemouth bass (n=1), peamouth (n=1), smallmouth bass (n=1) (*see* Figure 2-3). This was the first year that westslope cutthroat trout were collected in the gill netting. There were no black bullheads, pumpkinseeds, or rainbow trout collected in 2011. These species have been collected in the past. This was the first year where pumpkinseeds were absent from the sample.

Figure 2-3: Summary of species caught per net during gillnetting in the Thompson Falls Reservoir in October 2004, 2005, 2006, 2007, 2008, 2009, 2010, and 2011.



2.2 Spring Electrofishing

Spring electrofishing in Thompson Falls Reservoir consists of two locations, including the lower section (also referred to as the "pond") located immediately upstream of Thompson Falls Hydroelectric Project and the upper section located immediately downstream of the confluence with the Thompson River (*see* Figure 2-1). Spring electrofishing is conducted using boat mounted electrofishing equipment. The boat is navigated slowly along the shoreline after daylight hours. The downstream section is parallel with Highway 200 from Wild Goose Landing boat launch, upstream to a location approximately 750 feet above the pump house. The upstream section is on the right bank of the Clark Fork River from the confluence of the Thompson River to the Cherry Creek boat launch. The upstream site has riverine characteristics, with noticeable flowing water, average widths around 459 feet, little to no aquatic vegetation and some recreational docks. The downstream site has substantially lower water velocity, mean widths near 1,673 feet, abundant aquatic vegetation, and is off the main river channel.

In 2011 sampling occurred on April 13 and 14, which was similar to the sampling dates from previous years as shown in Table 2-4. The water temperatures in 2011 were the coldest recorded during the spring sampling efforts that began in 2007 (Table 2-4).

Table 2-4: Summary of water temperatures measured in Thompson Falls Reservoir during spring electrofishing between 2007 and 2011.

Date	Temperature, Lower Section	Date	Temperature, Upper Section
April 13, 2011	5.8°C	April 14, 2011	5.1°C
April 28, 2010	9°C	April 29, 2010	7.5°C
April 20, 2009	10°C	April 21, 2009	10.5°C
April 21, 2008	8°C	April 14, 2008	8.5°C
		April 17, 2008	9°C
March 26, 2007	6.5°C	March 27, 2007	6°C

Summaries of 2009, 2010, and 2011 catch per unit effort (CPUE, fish per hour) are provided in Tables 2-5 and 2-6 for the lower and upper sections, respectively. The CPUE (fish per hour), by species, for the spring electrofishing in 2009 through 2011 are displayed for the lower section and upper section in Figure 2-4 and Figure 2-5, respectively. Data for all fish collected and measurements taken in the lower and upper sections in 2011 are available in Appendix A.

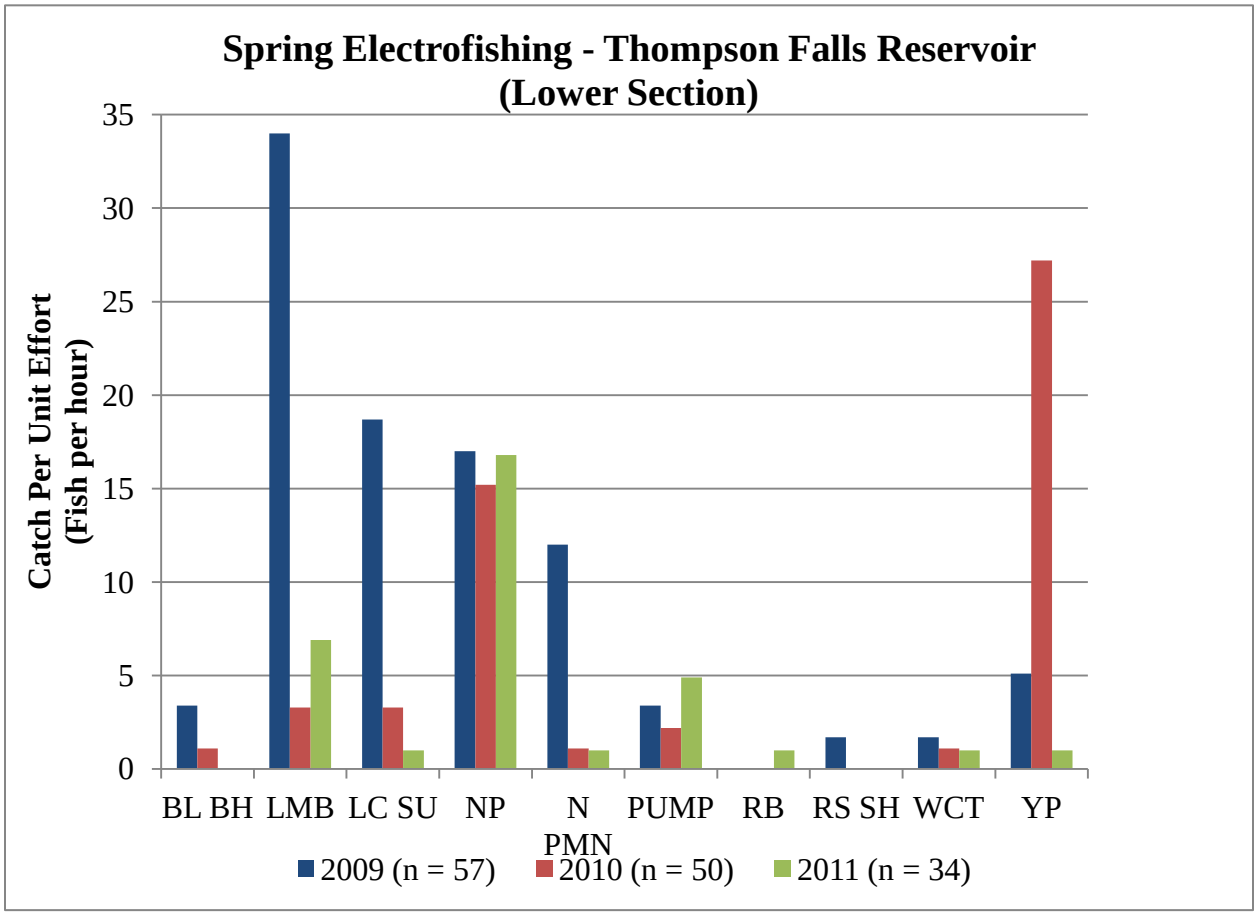
2.2.1 Lower Section

In 2011, spring electrofishing in the lower section captured a total of 34 fish representing eight species. The species included 17 northern pike, seven largemouth bass, five pumpkinseed, one largescale sucker, one northern pikeminnow, one rainbow trout, one westslope cutthroat trout, and one yellow perch (Table 2-5). Although the total number of fish captured in 2011 was lower than previous years, this was the first year a rainbow trout was captured in the lower section.

Table 2-5: Summary of 2009, 2010, and 2011 spring electrofishing CPUE (fish per hour) in Thompson Falls Reservoir lower section.

Species	Lower Section 2009		Lower Section 2010		Lower Section 2011	
	Number	CPUE	Number	CPUE	Number	CPUE
BL BH	2	3.4	1	1.1	0	0
LMB	20	34.0	3	3.3	7	6.9
LC SU	11	18.7	3	3.3	1	1.0
NP	10	17.0	14	15.2	17	16.8
N PMN	7	12.0	1	1.1	1	1.0
PUMP	2	3.4	2	2.2	5	4.9
RB	0	0	0	0	1	1.0
RS SH	1	1.7	0	0	0	0
WCT	1	1.7	1	1.1	1	1.0
YP	3	5.1	25	27.2	1	1.0
SubTotal Salmonids	1	1.7	1	1.1	2	2.0
TOTAL FISH	**57**	**100**	**50**	**54.3**	**34**	**33.7**

Figure 2-4: Summary of CPUE (fish per hour) during electrofishing in the Clark Fork River/Thompson Falls Reservoir (lower section) in the spring 2009, 2010, and 2011.



CPUE (fish per hour) in the lower section appeared to decline in 2011 for largescale suckers, northern pikeminnow, and yellow perch compared to previous years. CPUE (fish per hour) for northern pike appears to have remained relatively constant since 2009 (Figure 2-4). Overall, CPUE for all species combined declined in 2011, but the CPUE for salmonids has not fluctuated much.

2.2.2 Upper Section

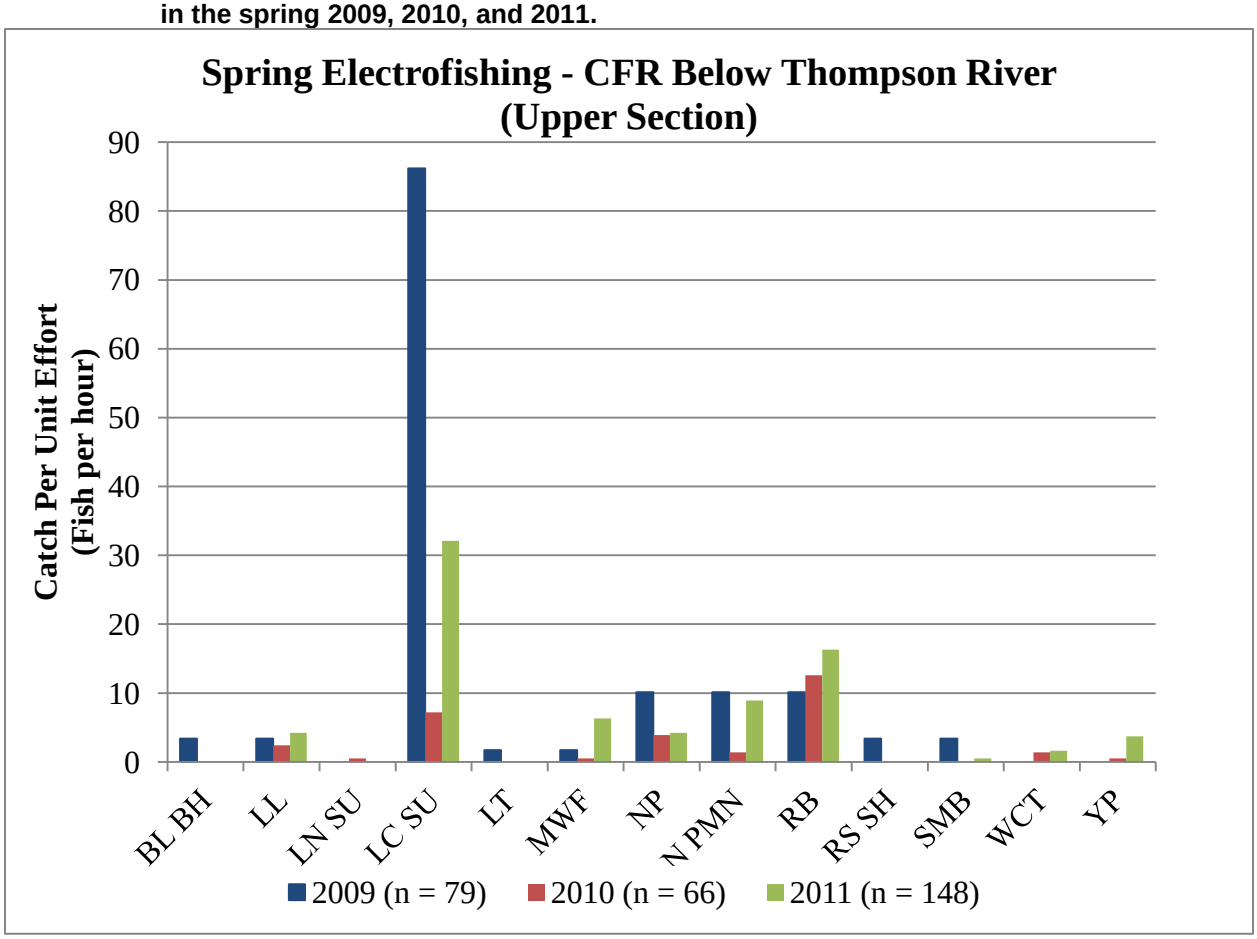
The spring 2011 sampling efforts in the upper section resulted in the highest number of total fish captured and trout captured since sampling efforts began in 2009 (Table 2-6). The 2011 sampling of the upper section resulted in 148 fish captured representing nine species. These species included 61 largescale sucker, 31 rainbow trout, 17 northern pikeminnow, 12 mountain whitefish, eight northern pike, eight brown trout, seven yellow perch, three westslope cutthroat trout, and one smallmouth bass (Table 2-6).

Table 2-6: Summary of 2009, 2010, and 2011 spring electrofishing CPUE (fish per hour) in the Clark Fork River downstream of the confluence of the Thompson River (upper section).

Species	Upper Section 2009		Upper Section 2010		Upper Section 2011	
	Number	CPUE	Number	CPUE	Number	CPUE
BL BH	2	3.4	0	0	0	0
LL	2	3.4	5	2.4	8	4.2
LN SU	0	0	1	0.5	0	0
LC SU	51	86.2	15	7.2	61	32.1
LT	1	1.7	0	0	0	0
MWF	1	1.7	1	0.5	12	6.3
NP	6	10.1	8	3.9	8	4.2
N PMN	6	10.1	3	1.4	17	8.9
RB	6	10.1	26	12.6	31	16.3
RS SH	2	3.4	0	0	0	0
SMB	2	3.4	0	0	1	0.5
WCT	0	0	3	1.4	3	1.6
YP	0	0	1	0.5	7	3.7
SubTotal Salmonids	**10**	**16.9**	**35**	**17.0**	**54**	**28.4**
TOTAL FISH	**79**	**133.9**	**63**	**30.5**	**148**	**78.4**

CPUE (fish per hour) also increased from 2010 to 2011 for brown trout, largescale suckers, mountain whitefish, northern pikeminnow, rainbow trout, and yellow perch, as well as for all species combined. The CPUE (fish per hour) for northern pike remained similar to the 2010 rate, but was about half of the 2009 rate (*see* Figure 2-5). The number of salmonids collected, and the CPUE for salmonids, in this section has increased in each of the 3 years of sampling.

Figure 2-5: Summary of catch per unit effort (fish per hour) during electrofishing in the Clark Fork River (CFR) downstream of the confluence with the Thompson River (upper section) in the spring 2009, 2010, and 2011.



2.2.3 Summary

Species diversity and presence of salmonids appears to be greater in the upper section versus lower section. Collectively between 2009 and 2011, there were 13 species recorded in the upper section versus 10 species observed in the lower section. In 2011, the presence of salmonids in the upper section was also much greater compared to the lower section. There were 54 salmonids (brown trout, mountain whitefish, rainbow trout, and westslope cutthroat trout) in the upper section compared to two salmonids (rainbow trout and westslope cutthroat trout) in the lower section (in 2011). The difference in species composition and abundance of salmonids is likely related to habitat conditions. The upper section is more of a riverine environment compared to the lower section.

2.3 Fall Electrofishing

2.3.1 Electrofishing Above the Island Complex

In 2011 electrofishing efforts in the Clark Fork River were completed from the confluence with Eddy Creek downstream to the Island Complex (Figure 2-1). Although the fall electrofishing

section (Eddy Creek to the Island Complex) is technically within the boundaries of the Thompson Falls Reservoir, it is characterized as riverine habitat rather than reservoir. The 2011 survey covered the same length of reach survey in 2010. In 2009, electrofishing efforts started at the confluence with Eddy Creek and extended further downstream to the confluence of the Thompson River. Approximately 2 miles of the 5-mile section were eliminated in 2010 due to poor habitat and few captures from the downstream end of the Island Complex to Thompson River in 2009.

In 2011, river left was electrofished the night of October 5 and river right was electrofished the night of October 6. The CPUE (fish per hour) is provided in Table 2-7. Data collected from fish sampled during electrofishing efforts in 2011, including length and weight measurements, are provided in Appendix A. The CPUE (fish per hour) data are displayed by species for 2010 and 2011 in Figure 2-6.

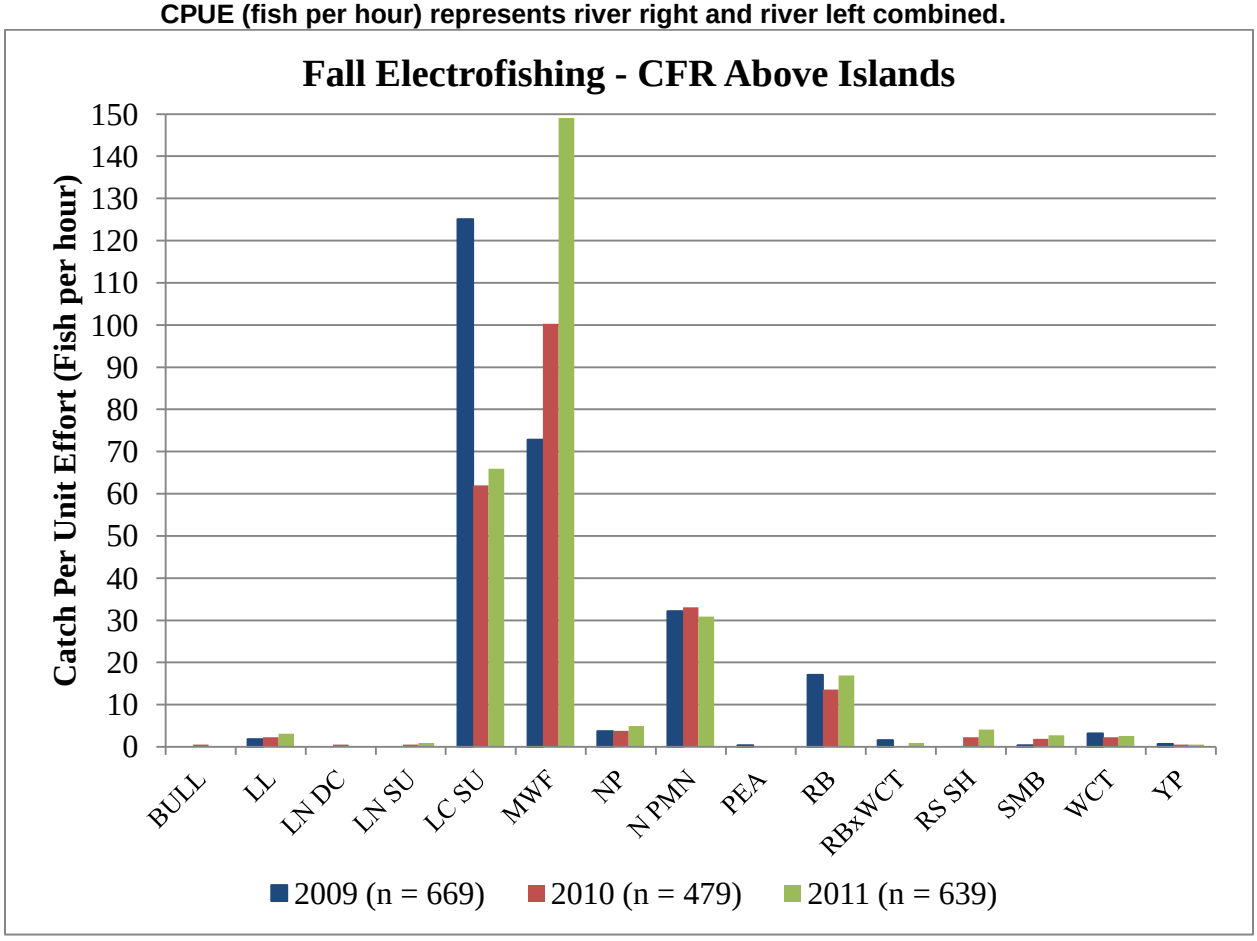
Table 2-7: Fall electrofishing CPUE (fish per hour) in the Clark Fork River Above the Island Complex in 2009, 2010, and 2011.

Species	2009		2010		2011	
	Number	CPUE	Number	CPUE	Number	CPUE
BULL	0	0	1	0.5	0	0
LL	5	1.8	5	2.3	7	3.1
LN DC	0	0	1	0.5	0	0
LN SU	0	0	1	0.5	2	0.9
LC SU	338	125.1	133	62	150	65.9
MWF	196	72.8	215	100.3	336	149.1
NP	11	3.7	8	3.8	11	4.9
N PMN	88	32.2	71	33.1	70	30.9
PEA	1	0.4	0	0	0	0
RB	44	17.1	29	13.6	39	16.9
RBxWCT	4	1.6	0	0	2	0.9
RS SH	0	0	5	2.3	9	4.1
SMB	1	0.4	4	1.9	6	2.7
WCT	9	3.2	5	2.3	6	2.6
YP	2	0.7	1	0.5	1	0.5
Subtotal Salmonids	258	96.5	255	119	390	172.6
TOTAL FISH	**699**	**259**	**479**	**223.6**	**639**	**282.5**

The 2011 electrofishing collected 639 fish representing 11 species and one hybrid, of which four species and the hybrid were salmonids (brown trout, mountain whitefish, rainbow x westslope cutthroat hybrid, and westslope cutthroat trout). Electrofishing efforts in 2010 and 2009 captured 479 fish representing 12 species and 699 fish representing 10 species and one hybrid, respectively. Since annual fall sampling started in 2009, only one bull trout has been captured. This bull trout was captured along the river left in 2010. In 2009, 2010, and 2011 mountain whitefish and largescale suckers were the predominant species captured followed by

northern pikeminnow and rainbow trout. While the overall CPUE for all species has not shown a trend over the 3 years of sampling, the CPUE for salmonids has been increasing each year, due to increases in mountain whitefish.

Figure 2-6: Summary of Thompson River fall electrofishing above islands in 2009, 2010, and 2011. CPUE (fish per hour) represents river right and river left combined.



2.3.2 Electrofishing from Paradise to Plains

In 2010, a new electrofishing sampling section between Paradise and Plains was added in order to acquire basic species composition in the Clark Fork River approximately 35 miles upstream of the Thompson Falls Hydroelectric Project. This reach was sampled again in 2011. Electrofishing began at the town of Paradise, approximately 1.5 miles downstream of the Clark Fork/Flathead River confluence, and ended at the USGS gage station #12389000 located near the town of Plains approximately 4 miles downstream (*see* Figure 2-2). The right bank was electrofished the night of October 20, 2011 (Table 2-9) and the left bank was electrofished the night of October 11, 2011 (Table 2-10). Measurements for each fish captured during the 2011 fall electrofishing are provided in Appendix A.

In 2011, a total of 1,088 fish representing 12 species and one hybird, including four species and one hybrid of salmonids, were captured during the fall sampling effort. The four salmonid

species and hybrid included rainbow trout, westslope cutthroat trout, brown trout, mountain whitefish, and rainbow x westslope cutthroat hybrids (Table 2-9). In 2010, 421 fish (river right and left combined) representing nine species, including the same four species of salmonids were captured (Table 2-9). Peamouth, longnose sucker, northern pike, and rainbow x westslope cutthroat hybrid were observed in 2011 but not in 2010.

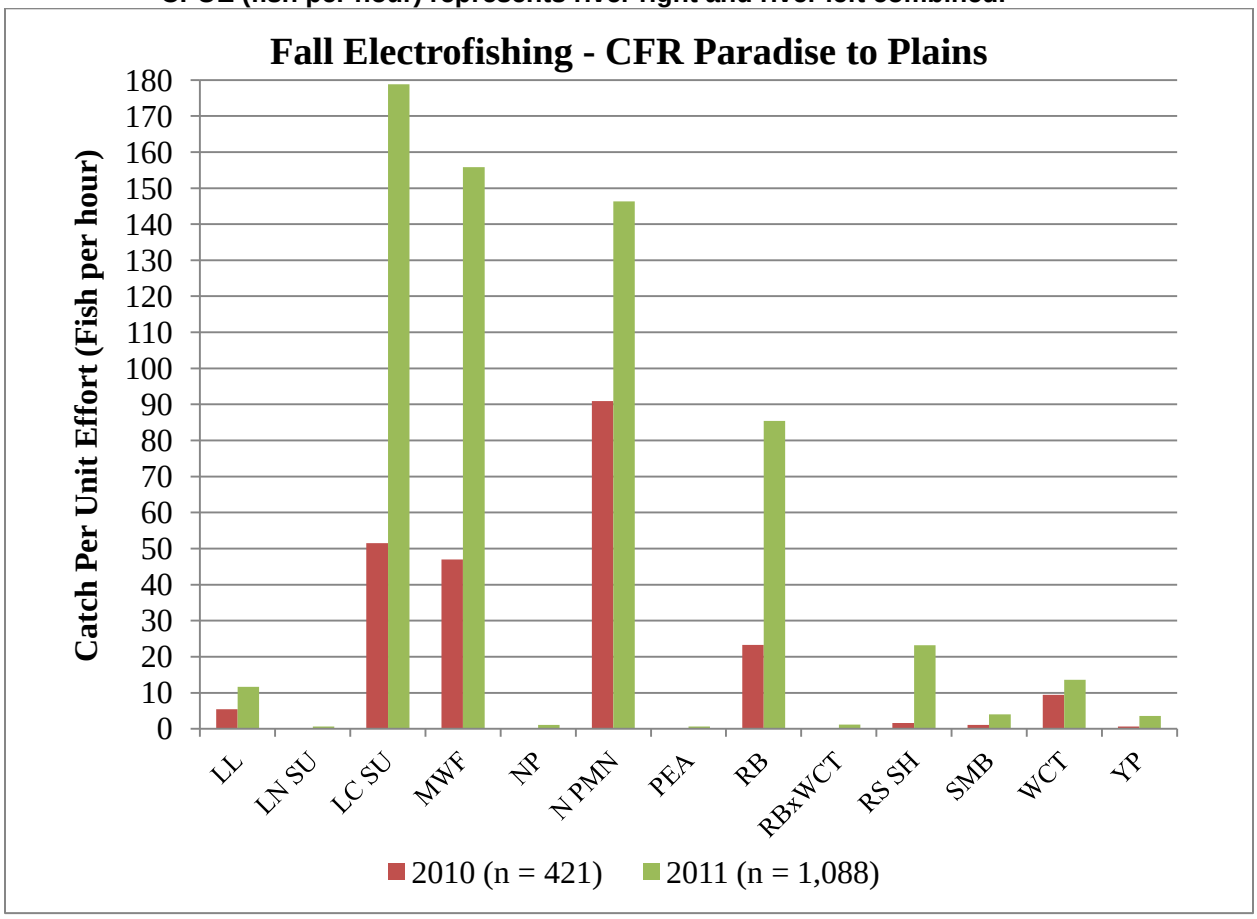
Table 2-8: Summary of CPUE (fish per hour) during 2010 and 2011 fall electrofishing in the Clark Fork River, including river left and river right, from Paradise to Plains.

Species	2010		2011	
	Number	CPUE	Number	CPUE
LL	10	5.4	21	11.6
LN SU	0	0	1	0.6
LC SU	94	51.5	306	178.8
MWF	85	47	274	155.8
NP	0	0	2	1.1
N PMN	166	90.9	251	146.3
PEA	0	0	1	0.6
RB	43	23.3	151	85.4
RBxWCT	0	0	2	1.2
RS SH	3	1.6	42	23.2
SMB	2	1.1	7	4
WCT	17	9.4	24	13.6
YP	1	0.6	6	3.6
Subtotal Salmonids	155	85.1	472	267.6
TOTAL FISH	**421**	**230.8**	**1088**	**625.8**

In 2011, the predominant species captured was largescale sucker (n=306) followed by mountain whitefish (n=274), northern pikeminnow (n=251), and rainbow trout (n=151). The total number of fish collected in 2011, and the CPUE, increased substantially in 2011 in comparison to the previous year.

The CPUE (fish per hour), by species for the fall electrofishing in 2010 and 2011 (right and left bank combined) are displayed in Figure 2-7. CPUE (fish per hour) show a dramatic increase from 2010 to 2011 for largescale suckers, mountain whitefish, northern pikeminnow, rainbow trout, and redside shiner. Increases in CPUE (fish per hour) were also documented in 2011 for brown trout, longnose suckers, northern pike, peamouth, rainbow x westslope cutthroat hybrids, smallmouth bass, westslope cutthroat trout, and yellow perch.

Figure 2-7: Thompson River fall electrofishing between Paradise and Plains in 2010 and 2011. CPUE (fish per hour) represents river right and river left combined.



2.4 Middle Clark Fork River Fisheries Data

FWP provided the following electrofishing summaries of fish captured and observed during fall surveys completed in two sections in the middle Clark Fork River. The Quinn's section was electrofished in 2010 and a summary of the data is provided in Section 2.4.1. The St. Regis section was electrofished in 2011 and a summary of the data is provided in Section 2.4.2.

2.4.1 Quinn's Section (2010)

The Quinn's section is 5.6 miles (9.0 km) in length and begins in the middle Clark Fork River approximately 5.6 miles upstream of the confluence with the Flathead River. The section extends downstream to the confluence with the Flathead River. The electrofishing surveys were completed on October 6, 7, and 13, 2010. The following table lists the population estimates for rainbow trout and westslope cutthroat trout.

Table 2-9: Fish population estimates with the 95% confidence interval (CI) for rainbow trout (RB) and westslope cutthroat trout (WCT) captured in the Quinn's section in 2010.

Species	Fish estimate per section	95% CI	Fish estimate per km
RB	367	(253, 552)	40
WCT	229	(155, 358)	25

Other species observed and/or recorded during the October 2010 electrofishing survey of the Quinn's section are provided below.

Table 2-10: Summary of other fish species observed or captured, including length and weight, during the fall electrofishing surveys in Quinn's section in 2010.

Species	Number of fish captured	Length (mm)	Weight (g)
LL	5	200-511	70-1,235
BULL	1	270	165
SMB	1	306	460
NP	1	570	1,250
RS SH	Species observed but not quantified		
N PMN	Species observed but not quantified		
LC SU	Species observed but not quantified		
MWF	Species observed but not quantified		
LN DC	Species observed but not quantified		

2.4.2 St. Regis Section (2011)

The St. Regis section is approximately 4.3 miles in length and begins in the middle Clark Fork River approximately 2.7 miles upstream of the confluence with the St. Regis River. The section extends to approximately 1.6 miles downstream from the confluence of the St. Regis River. The electrofishing surveys were completed in fall 2011. The following table lists the population estimates results for rainbow trout, westslope cutthroat trout, and brown trout.

Table 2-11: Fish population estimates with the 95% confidence interval (CI) for rainbow trout (RB) and westslope cutthroat trout (WCT) captured in the Quinn's section in 2010.

Species	Fish estimate per section	95% CI	Fish estimate per km
RB	1,280	(1023, 1618)	186
WCT	398	(306, 529)	57
LL	202	(143, 301)	29

Other species observed and/or recorded during the fall 2011 electrofishing survey of the St. Regis section are provided below in Table 2-13.

Table 2-12: Summary of other fish species observed or captured, including length and weight, during the fall electrofishing surveys in the St. Regis section in 2011.

Species	Number of fish captured	Length (mm)	Weight (g)
BULL	2	481 and 200	870 and 60
LT	1	452	540
RS SH	Species observed but not quantified		
N PMN	Species observed but not quantified		
LC SU	Species observed but not quantified		
MWF	Species observed but not quantified		
LN DC	Species observed but not quantified		

3.0 Upstream Fish Passage

3.1 2011 Upstream Fish Passage Facility Evaluation

FERC issued an Order on June 9, 2011 approving PPL Montana's 10-year *Fish Passage Facility Evaluation Plan Phase 2 Action Plan* (2011-2020) (Fish Passage Evaluation Plan). The upstream fish passage facility became operational in 2011 and PPL Montana implemented the first year of studies outlined in the Fish Passage Evaluation Plan.

3.2 Effectiveness of Fish Passage

The following sections summarize the results from the first year of ladder operations. The data were collected to evaluate the effectiveness of the fish ladder. In 2011 fish ladder results provided in this report include the following:

- Total number of days the ladder was in operation
- Clark Fork River hydrology
- Total number of fish and species ascending the ladder
- Total number of fish and species passed to Thompson Falls Reservoir
- Number of fish recaptures at the dam
- Number of fish which fallback after passing the dam
- Most active period(s) for fish and various species ascending the ladder
- Time it took for fish to ascend the ladder
- Results from the weir versus orifice study and attraction flow studies
- Bull trout genetic sampling and tributary assignment

3.2.1 2011 Ladder Operations

The Thompson Falls Upstream Fish Passage Facility (hereafter referred to as the fish ladder) was operational for fish passage for the first time following construction on March 17, 2011 and closed for the year (winterized) on October 17, 2011. During the 2011 season, the holding pool at the top of the ladder was typically checked twice a day (morning and afternoon/evening) for fish. The frequency of checks varied slightly from once a day to multiple times a day depending on fish activity and water temperature. Fortunately in 2011, high summer water temperatures were not a problem for adult salmonids as a result of the higher than average snowpack and resulting high streamflows in the summer and fall months.

Below is a table summarizing periods of time the ladder was in operation (Table 3-1). During late May and most of June, July, and August, the ladder was not in operation. High flows and associated debris accumulating in the lower pools of the fish ladder prevented operations in May and June. A combination of river flows and maintenance activities (replacement of stanchions) at

the Main Dam limited ladder operations in July and August. Following repairs of the stanchions, the ladder remained in operation between August 22 and October 17, 2011. On October 17, operations at the ladder ceased and the facility was winterized. During the winter, freezing conditions are a safety concern for ladder operations and for mechanical equipment. In addition, adult spawning migrations occur in the spring and fall in this region. In 2012, the ladder is scheduled to start operations on March 19, weather conditions permitting.

Table 3-1: Summary of when the Thompson Falls Upstream Fish Ladder Facility was in operation and the number of days the ladder was checked for fish in 2011.

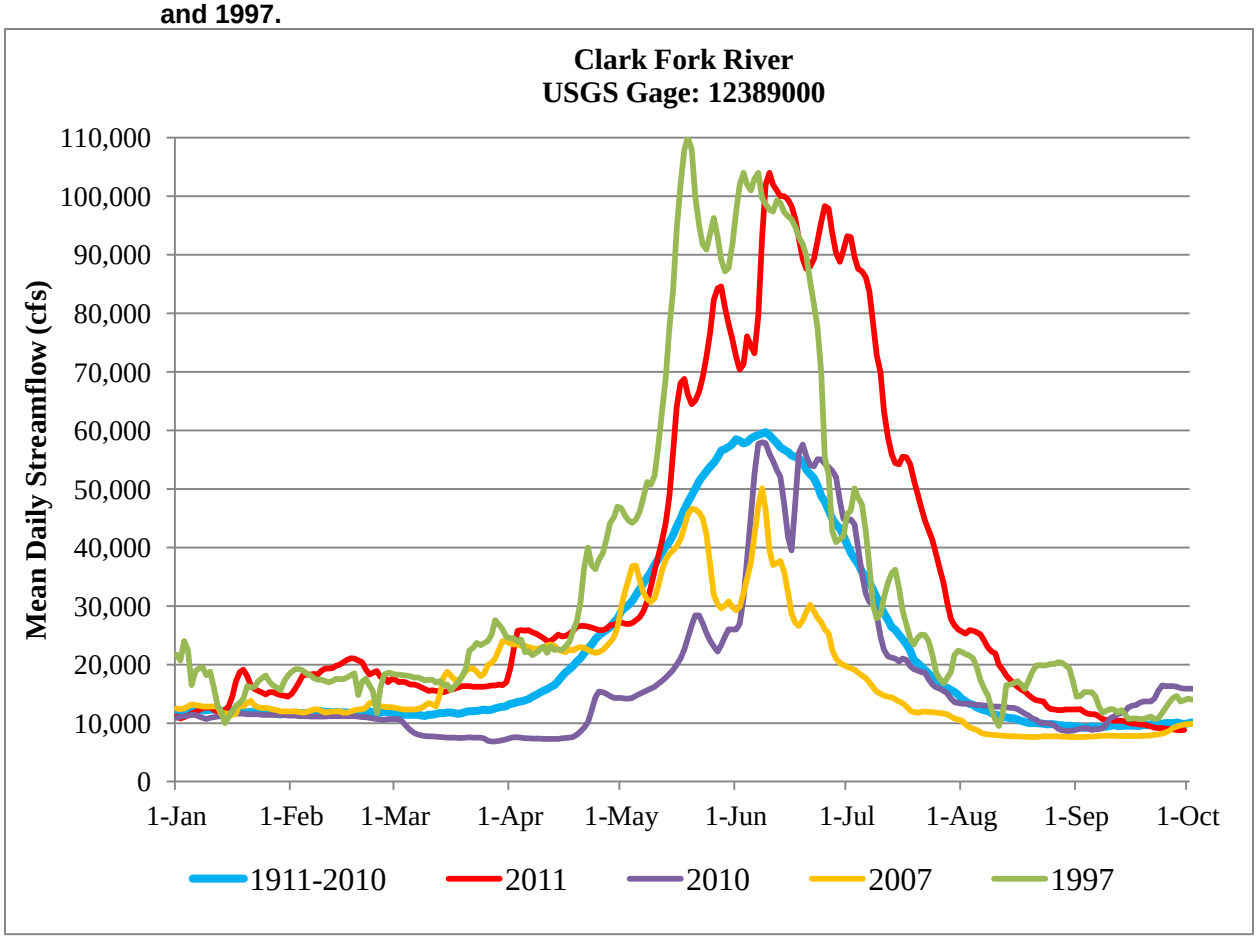
Date Open	Date Closed	# of Days Ladder In Operation	# of Days Ladder Checked for Fish
March 17, 2011	May 24, 2011	68	60
June 21, 2011	June 24, 2011	4	4
July 11, 2011	July 13, 2011	3	3
August 22, 2011	October 17, 2011	57	47
TOTAL		**132 days**	**114 days**

3.2.2 2011 Clark Fork River Conditions

On June 9, 2011, PPL Montana recorded the peak streamflow in the lower Clark Fork River at Thompson Falls Hydroelectric Project to be 117,387 cfs. In 2011, the peak streamflow in the lower Clark Fork River exceeded the flood stage set by the National Weather Service (16 feet) and historic spring streamflows measured by USGS (Figure 3-1). Prior to 2011, the peak streamflow in the lower Clark Fork River, as recorded by the USGS gage station near Plains, had only exceeded 100,000 cfs 14 times between 1911 and 2010. Peak flows measured between 1911 and 2010 occurred as early as May 11 and as late as July 2. Historically, the majority of peak streamflows occurred between late May and late June.

Below are several hydrographs representing various river years in the Clark Fork River near Plains (Figure 3-1). The hydrographs in Figure 3-1 represent the mean daily streamflow for period between 1911-2010, 1997 (the most recent high water year), 2007 (a low water year), 2010 (an average water year), and 2011. Figure 3-1 shows that the streamflows in 2011 were much higher than an average year and the peak occurred later in the year compared to a similar high water event in 1997.

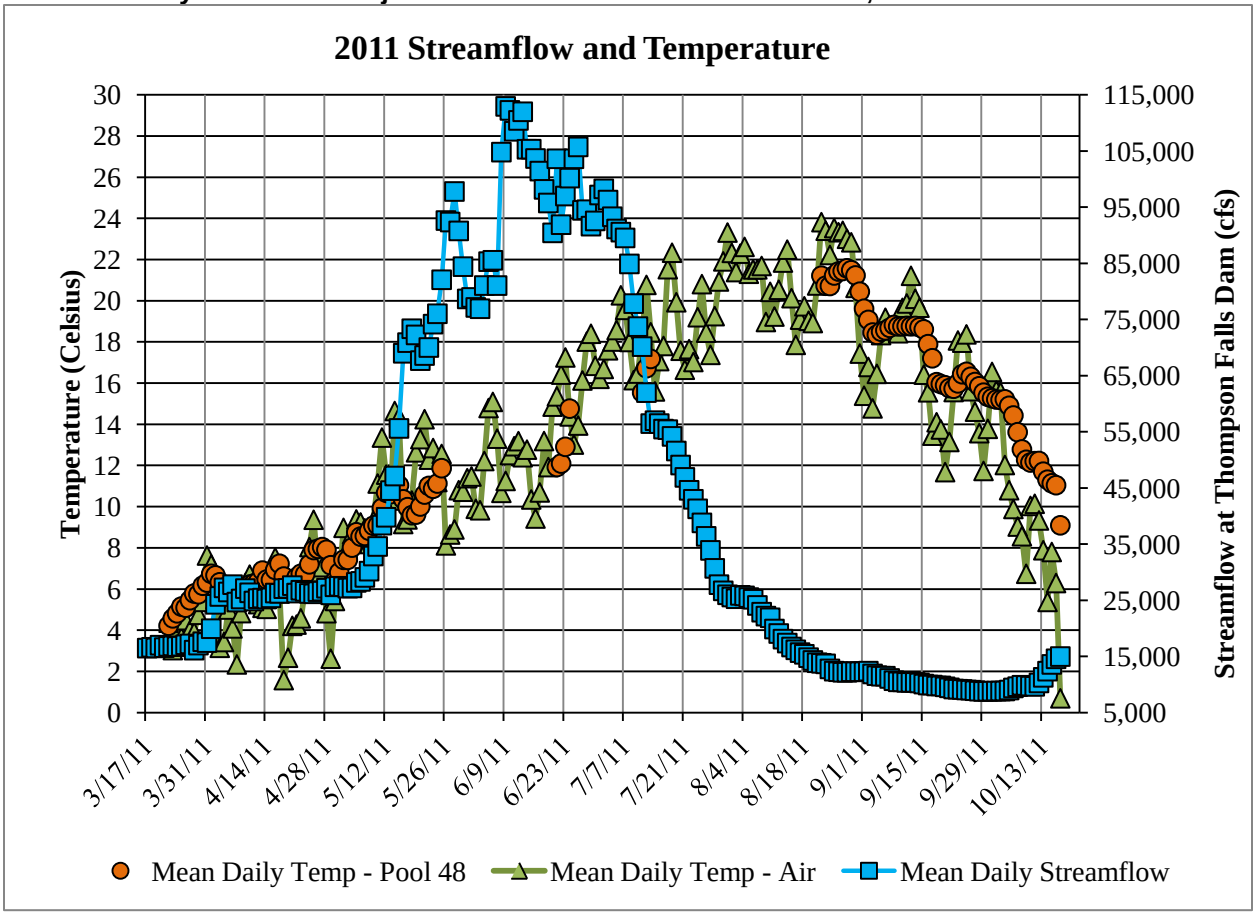
Figure 3-1: Hydrograph for the Clark Fork River near Plains, Montana from USGS gage 12389000. Hydrographs represent daily mean streamflows between 1911-2010, 2011, 2010, 2007, and 1997.



During ladder operations, PPL Montana maintained records of the mean daily streamflows at the dam, mean daily water temperature in the ladder, and mean daily air temperature at the ladder (Figure 3-2). Mean daily air temperatures did not exceed 24 °C (75.2 °F) and mean daily water temperatures did not exceed 22 °C (71.6 °F) during ladder operations. More details about when fish ascended the ladder and the corresponding streamflows are discussed in Section 3.2.5.

Continuous recording thermographs were installed in Pool # 5, Pool # 48, and at the top of the fish ladder to record water temperatures at the top and the bottom of the fish ladder, and air temperature during the ladder operating season.

Figure 3-2: Summary of the mean daily streamflow (cfs), mean water temperature at the ladder pool 48 (°C), and mean daily air temperature (°C) measured at Thompson Falls Hydroelectric Project between March 17 and October 17, 2011.



3.2.3 Summary of Fish and Species

During ladder operations, approximately 1,805 fish representing 10 species and one hybrid, including two bull trout, ascended the ladder (Table 3-2). FWP authorized the release of all species upstream into the Thompson Falls Reservoir with the exception of lake trout and walleye. The first fish to ascend the ladder was a rainbow trout on March 21 (water temperature 4.3 °C). On April 13, the first bull trout (365 mm and 364 g) was captured in the holding pool having ascended the entire ladder (water temperature 6.7 °C). The second bull trout (547 mm and 1,438 g) was captured ascending the ladder in one of the pools during a change in weir mode on April 26 (water temperature 7.8 °C). The change in weir mode (orifice to v-notch or v-notch to orifice) requires dewatering of the ladder. During the dewatering process, fish remaining in the pools are dipped netted, processed (measured, tagged, etc.) as if having been in the holding pool, and released upstream if an approved species for passage. Both bull trout were released with PIT tags in the Thompson Falls Reservoir. A genetic sample was taken from each bull trout and the results assigned both fish to Region 4 (Fishtrap Creek and Thompson River) as shown in Table 3-10 (*see* Section 3.2.10 for more details).

Of the 1,805 fish that ascended the ladder, a total of 1,722 fish were released upstream into the Thompson Falls Reservoir. The remaining 83 fish were recorded at the ladder workup station as mortalities. These mortalities included 73 northern pikeminnow, four smallmouth bass, two rainbow trout, one longnose sucker, one lake trout, and one largescale sucker. The majority of the mortalities were associated with a mechanical issue at the ladder, since corrected, that occurred concurrently with the largest movement of fish in late August. Fish movement and their timing of movement up the ladder are discussed in more detail in Section 3.2.5.

Table 3-2: Summary of the number of fish and species observed at the fish ladder and recaptured at the fish ladder.

Species	Total Number (# Mortalities)	Recaps
BULL	2	0
RB	164 (2)	22
RBxWCT	9	0
WCT	21	1
LL	28	0
MWF	17	0
LN SU	10 (2)	0
LC SU	418 (1)	4
N PMN	1,000 (73)	1
SMB	135 (4)	2
LT	1 (1)	0
Total	1,805 (83)	30
Total Passed Upstream	**1,722**	

Fish that ascended the ladder and released upstream were measured for total length and weight, as well as marked via fin clip, VIE tag, and/or PIT tag. A summary of length and weight measurements are provided in Table 3-3. The longest fish captured at the ladder was a lake trout, which was not released upstream, measuring 630 mm long and weighing 1,868 g. The heaviest fish captured at the ladder was a rainbow trout measuring 565 mm long and weighing 2,292 g. The smallest fish captured at the ladder was a northern pikeminnow measuring 82 mm long and weighing 2 g. In 2011, there was a total of 386 kilograms of fish biomass released upstream into the Thompson Falls Reservoir. Rainbow trout and northern pikeminnow represented approximately one-third each of the total biomass.

Table 3-3: Summary of the average and range of lengths (mm) and weights (g) for all species measured (n= represents number measured) at the fish ladder in 2011.

Fish Species	Sample (n) for Length	Avg Length (mm) (range)	Sample (n) for Weight	Avg Weight (g) (range)
BULL	2	456 (265-547)	2	901 (364-1,438)
RB	159	410 (195-565)	159	728 (68-2,292)
RBxWCT	9	362 (227-477)	9	537 (136-1,016)
WCT	21	371 (224-430)	21	526 (100-763)
LL	28	388 (171-600)	28	655 (40-2,068)
MWF	17	336 (282-417)	17	349 (186-592)
LN SU	10	349 (262-452)	10	460 (216-1,180)
LC SU	176	394 (128-500)	175	641 (64-1,134)
N PMN	262	337 (82-487)	259	344 (2-1,152)
SMB	131	239 (138-450)	125	177 (86-882)
LT	1	630	1	1868
TOTAL	**816**		**1,066**	

3.2.4 Fallback

A total of 225 fish were implanted with PIT tags at the ladder, including 216 individual salmonids (141 rainbow trout, 27 brown trout, 20 westslope cutthroat, 17 mountain whitefish, nine rainbow x westslope cutthroat hybrids, and two bull trout) and 9 individual non-salmonids (six largescale suckers, two northern pikeminnow, and one longnose suckers).

Of the 225 fish that were initially PIT tagged at the ladder, 10 individual fish were recaptured at the ladder at a later date (Table 3-4). One rainbow trout (*see* Fish #9 in Table 3-4), was initially captured and PIT tagged at the ladder on April 2 and was recaptured at the ladder three additional times (April 17, April 19, April 26) after being passed upstream each time. PPL Montana identified nine individual rainbow trout and one westslope cutthroat trout that were classified as "fallbacks" that returned to the ladder. Avista detected three additional fish (two rainbow trout and one westslope cutthroat trout) at their remote monitoring antennas in Graves Creek (between Noxon Dam and Thompson Falls Hydroelectric Project) in 2011 (*see* details in next section and in Table 3-5). The fish Avista detected in Graves Creek had initially been tagged at the Thompson Falls ladder and were "fallbacks" that either moved downstream through the turbines or spillway. The fallbacks that Avista identified never returned to the ladder in 2011. In all, there were a total of 12 individual fish classified as "fallbacks" in 2011 that had initially

been PIT tagged at the fish ladder. This is approximately 5.3 percent of fish captured and PIT tagged at the ladder in 2011.

These fallbacks indicate the fish moved downstream either through the Thompson Falls Hydroelectric Project turbines or over the spillway. The combined flow-thru capacity of the generating units at Thompson Falls Hydroelectric Project is approximately 23,000 cfs. When river inflows exceed this capacity or there is a generating load rejection, spill is initiated at the Main Dam spillway. Therefore, when streamflows are less than 23,000 cfs, it is assumed fish fallback through the turbines. When streamflows are above 23,000 cfs, fish can fallback via turbines or over the spillway. Between August 29 and October 5, streamflows ranged between approximately 9,000 cfs and 12,300 cfs indicating that rainbow trout #7 and #8 in Table 3-4 moved downstream through the turbines. For the remaining fish, it is undetermined as to whether the fish passed via the spillway or through the turbines because streamflows, at times, were greater than 23,000 between the initial capture and recapture dates (Tables 3-4 and 3-5).

Table 3-4: Summary of fallback; including initial date captured, fallback through turbines or spillway, recapture date, and the duration between the initial capture date and recapture; observed at the fish ladder. Fish #9 (in red) indicates the same individual fish was recaptured at the ladder three times.

Fish ID	Species	PIT TAG	Initial Capture Date	Fallback Turbines or Spillway	Recapture Date	Time Between Capture and Recapture (days)
1	RB	985121021888794	4/05/2011	Turbines or Spillway	9/13/2011	161
2	RB	985121021901768	4/10/2011	Turbines or Spillway	4/11/2011	1
3	RB	985121021906448	4/13/2011	Turbines or Spillway	4/19/2011	6
4	RB	985121021893490	4/15/2011	Turbines or Spillway	4/19/2011	4
5	RB	985121021891206	4/17/2011	Turbines or Spillway	4/19/2011	2
6	RB	985121021875407	4/28/2011	Turbines or Spillway	5/3/2011	5
7	RB	985121021922484	8/29/2011	Turbines	10/5/2011	37
8	RB	985121021909744	9/02/2001	Turbines	9/27/2011	25
9	**RB**	**985121021886151**	**4/02/2011**	**Turbines or Spillway**	**4/17/2011**	**15**
9	**RB**	**985121021886151**	**4/17/2011**	**Turbines or Spillway**	**4/19/2011**	**2**
9	**RB**	**985121021886151**	**4/19/2011**	**Turbines or Spillway**	**4/26/2011**	**7**
10	WCT	985121023470165	4/15/2011	Turbines or Spillway	4/19/2011	4

Avista Corp. has PIT tag monitoring equipment installed in Graves Creek, a tributary to Noxon Rapids Reservoir, downstream of Thompson Falls Hydroelectric Project. During Avista's monitoring efforts between April 7 and August 1, 2011, four fish (3 rainbow and 1 westslope cutthroat trout) that were originally PIT tagged by PPL Montana either at the ladder or downstream of the Thompson Falls Hydroelectric Project were detected in Graves Creek (Table 3-5). Two rainbow trout and one westslope cutthroat trout had been initially tagged at the Thompson Falls ladder and either fell back downstream through the turbines or over the spillway. The fourth fish, (rainbow trout) had been PIT tagged while electrofishing downstream of the Thompson Falls Hydroelectric Project and was never collected in the ladder. A summary of the fish, fish morphology, PIT tag identification number, dates of capture by PPL Montana and subsequent detection by Avista is provided in Table 3-5.

Table 3-5: Summary of PPL Montana PIT tagged trout detected downstream in Graves Creek by Avista between April 7 and August 1, 2011. Antenna (Ant) 1-3 located above trap site, 4-6 below trap.

Fish ID	Species	PIT TAG	Initial Capture Date	Initial Capture Location/ Method	Fallback Turbines or Spillway	Detected by Avista Date	Detection Location/Method	Detected by Avista Date	Detection Location/Method
1	RB	985121021869801	4/13/11	TFalls Ladder	Turbines or Spillway	5/11/11 4:43:47	Graves Creek Ant 6	5/11/11 7:47:54	Graves Creek Antenna 2
2	WCT	985121021897571	5/11/11	TFalls Ladder	Turbines or Spillway	6/10/11 9:18:28	Graves Creek, Ant 1	6/19/11 16:17:30	Graves Creek, Ant 4
3	RB	985121023472595	4/04/11	TFalls Ladder	Turbines or Spillway	5/06/11 7:18:37	Graves Creek, Ant 6	5/11/11 8:15:39 5/11/11 12:55:38	Graves Creek, Ant 4 Graves Creek, Ant 1
4	RB	985121023472992	3/28/11	Below TFalls Dam (EFish)	Not Applicable	5/06/11 13:10:49	Graves Creek Ant 6	5/10/11 2:31:52	Graves Creek Ant 3

3.2.5 Movement from Tailrace to the Ladder

PPL Montana electrofished downstream of the Thompson Falls Hydroelectric Project in March, May, June, and September of 2011, collecting 1,109 fish representing 15 species and one hybrid (Table 3-6). Approximately 206 of the 1,109 fish collected during these electrofishing efforts were PIT tagged, including three bull trout (Table 3-6). The PIT tagged fish represented seven species and one hybrid, including bull trout, largescale sucker, brown trout, lake whitefish, mountain whitefish, rainbow trout, rainbow x westslope cutthroat hybrid, and westslope cutthroat trout.

Table 3-6: Summary of fish species captured and PIT tagged during 2011 electrofishing efforts in March, May, June, and September 2011 downstream of the Thompson Falls Hydroelectric Project.

Species	Number Captured	Number PIT Tagged
BULL	3	3
LC SU	310	78
LL	17	9
LN SU	155	0
LWF	211	1
MWF	124	22
N PMN	11	0
NP	7	0
PEA	124	0
PUMP	1	0
RB	98	84
RBxWCT	2	1
SMB	35	0
WCT	9	8
WE	1	0
YP	1	0
TOTAL	1,109	206

Of the 206 fish PIT tagged below the Thompson Falls Hydroelectric Project, seven individual fish (all rainbow trout) were recaptured at the ladder (Table 3-7). The length of time between the initial capture via electrofishing and the recapture at the ladder varied between 13 and 120 days. All seven fish were released upstream.

Of the 1,109 fish captured during electrofishing efforts downstream of the Thompson Falls Dam, a total of 34 fish (31 largescale suckers, two longnose suckers, and one northern pikeminnow) were tagged with a vertical orange VIE tag. One largescale sucker that received a VIE tag when first captured via electrofishing downstream of Thompson Falls Hydroelectric Project was recaptured in the ladder in 2011 (Mabbott, 2011 personal communication). However, details about the timing of the recapture event are unavailable. Additionally, there were 128 fish (50

largescale suckers, 64 northern pikeminnow, 13 smallmouth bass, and one brown trout) initially captured at the ladder that also received a vertical orange VIE tag. None of these fish was recaptured at the ladder in 2011.

Table 3-7: Summary of the fish initially PIT tagged below the Thompson Falls Hydroelectric Project in 2011 and recaptured at the ladder in 2011.

Fish ID	Species	PIT TAG	Initial Capture Date Electrofishing	Recapture Date At Ladder	Days Between Capture and Recapture
1	RB	985121023459641	3/18/2011	4/13/2011	26
2	RB	985121021900650	3/18/2011	4/04/2011	17
3	RB	985121021899660	3/18/2011	3/31/2011	13
4	RB	985121021893349	3/18/2011	5/05/2011	48
5	RB	985121021893507	5/31/2011	9/14/2011	106
6	RB	985121021911768	6/07/2011	10/05/2011	120
7	RB	985121023457912	6/22/2011	8/24/2011	63

3.2.6 Length of Time to Ascend the Ladder

Three remote antennas (non-directional) were installed in the lower (pools 7 and 8) and upper (pool 45) pools of the ladder for detecting the presence of PIT tagged fish. PIT tag fish records from the remote antennas were used to calculate the length of time it took an individual fish to ascend the ladder between pools 7/8 and pool 45 (Table 3-8). Some of the fish that entered the ladder had been initially PIT tagged via electrofishing downstream of Thompson Falls Hydroelectric Project while others had been PIT tagged initially at the ladder, gone downstream through the turbines or spillway, and were returning once again to ascend the ladder.

Table 3-8: Time (hours) for fish to ascend the ladder in 2011.

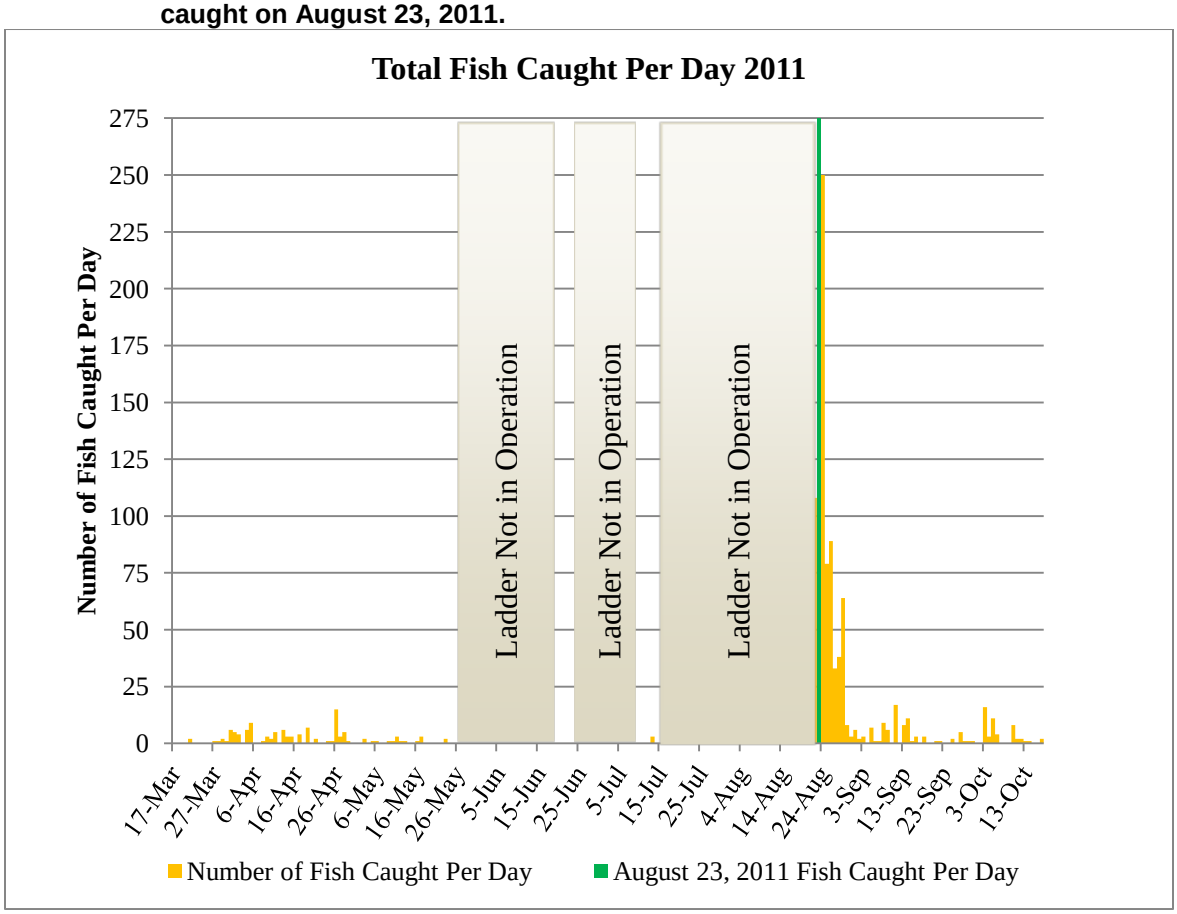
Species	Number of Species Ascending Ladder within Time Frame (hours) Defined						Range of time to ascend ladder
	0-1 hr	1-2 hrs	2-3 hrs	3-4 hrs	4-5 hrs	5+ hrs	
RB	2	4	1	2	2	4	51 min to 19 hrs 39 min
LC SU				1			3 hrs 37 min
LL						1	10 hrs 46 min
Total	**2**	**4**	**1**	**3**	**2**	**5**	**average time 5 hrs 1 min**

Information for 17 fish representing three species ascending the ladder is summarized in Table 3-8. Some fish ascended the ladder more than once due to fallback or escaping the holding pool. The time it took one fish to ascend the ladder varied between 51 minutes to 19 hours and 39 minutes. On average it took approximately 5 hours for a fish to ascend the ladder. On August 22, the ladder was opened at 15:00 and checked at 19:00 with a total of 108 fish (largescale suckers and northern pikeminnow) in the holding pool. These fish did not have PIT tags, but based on the operations of the ladder, it is clear that the fish ascended the ladder within a 4-hour period.

3.2.7 Timing of Fish Ascending the Ladder

The ladder was designed to collect fish up to a spill discharge of approximately 25,000 cfs, which equates to a project discharge (streamflow) of 48,000 cfs at full powerhouse capacity. During operations in 2011, the ladder was operating when streamflows increased to 76,037 cfs in May and between 91,900 and 103,632 cfs in June. The ladder was operating when streamflows exceeded the 48,000 cfs design limit, which occurred between May 15 and May 24, between June 21 and June 24, and between July 11 and 13. During these periods, a total of nine fish (three rainbow trout, three longnose suckers, and three northern pikeminnow) ascended the ladder (6 fish in May, 0 fish in June, and 3 fish in July). Plant operators were able to manipulate spill at the Main Dam to enhance fish attraction to the ladder. Based on the results from 2011, PPL Montana believes that the ladder operations reached its operating threshold when streamflows were between approximately 76,000 to 80,000 cfs.

Figure 3-3: Total number of fish captured per day at the fish ladder in 2011 (March 17 through October 17). The y-axis ends at 275 fish per day; however, a total of 874 fish were caught on August 23, 2011.



The total number of fish that ascended the ladder per day is summarized in Figure 3-3. On most days there were less than 20 fish in the holding pool at the top of the ladder. When the ladder reopened on August 22, after 40 days of closure there was a "wall" of fish waiting to ascend. The

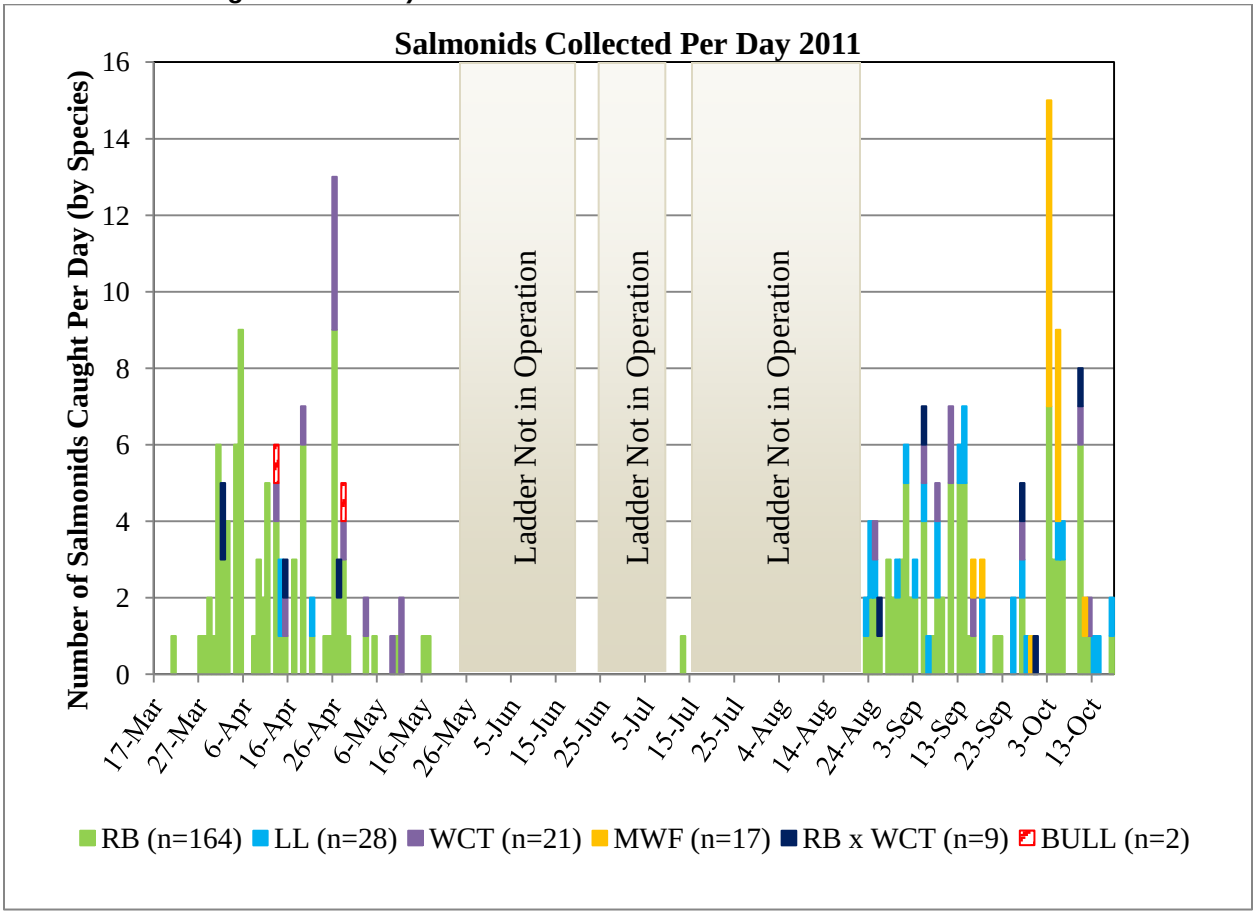
total number of fish captured per day and by species is outlined in Table 3-9 for the month of August.

Table 3-9: The total number of fish captured and by species at the ladder each day in August.

August 2011	Total Number of Fish at Ladder	RB	RB x WCT	WCT	LL	N PMN	LC SU	LN SU	SMB
22-Aug	108	-	-	-	-	53	55	-	-
23-Aug	874	1	-	-	1	566	287	-	19
24-Aug	250	2	-	-	2	191	22	-	33
25-Aug	79	2	-	1	1	32	22	2	19
26-Aug	89	1	1	-	-	49	11	3	24
27-Aug	33	-	-	-	-	28	-	-	5
28-Aug	38	3	-	-	-	16	2	1	16
29-Aug	64	2	-	-	-	51	-	3	8
30-Aug	8	2	-	-	1	4	-	-	1
31-Aug	3	3	-	-	-	-	-		-
Total	**1,546**	**16**	**1**	**1**	**5**	**990**	**399**	**9**	**125**

The following two figures show the number of salmonids (Figure 3-4) and non-salmonids (Figure 3-5) captured at the ladder per day in 2011. Salmonids include rainbow trout, rainbow x westslope cutthroat hybrid, westslope cutthroat trout, bull trout, and mountain whitefish. Non-salmonids include northern pikeminnow, largescale and longnose suckers, and smallmouth bass.

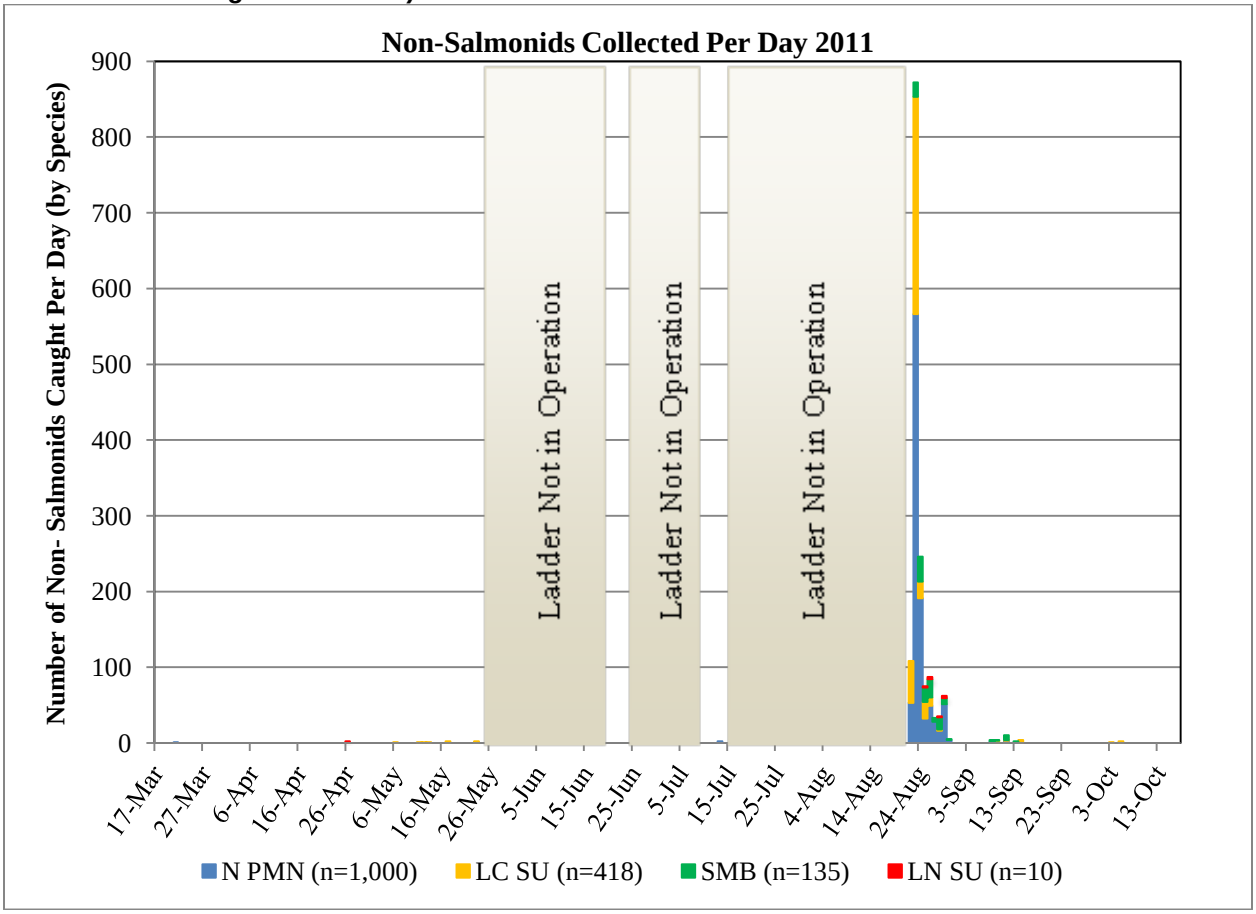
Figure 3-4: Total number of salmonids captured per day at the fish ladder in 2011 (March 17 through October 17).



Rainbow, rainbow x westslope cutthroat hybrid, and westslope cutthroat trout were captured at the ladder during spring, later summer, and fall operations. Bull trout were only observed at the ladder in the spring (April). Brown trout were most common in the late summer and fall. Mountain whitefish were only observed in September and October.

The predominant species (and non-salmonid) captured at the ladder was the northern pikeminnow. Other non-salmonids captured at the ladder included largescale and longnose suckers and smallmouth bass. Approximately 97 percent of the non-salmonids (1,523 of 1,563 total non-salmonids) ascended the ladder in August (Figure 3-5). The total number of fish captured in August (1,546 salmonids and non-salmonids, *see* Table 3-9) represents approximately 86 percent of all fish recorded at the ladder in 2011. Streamflows during this period ranged between 12,300 and 13,800 cfs.

Figure 3-5: Total number of non-salmonids captured per day at the fish ladder in 2011 (March 17 through October 17).

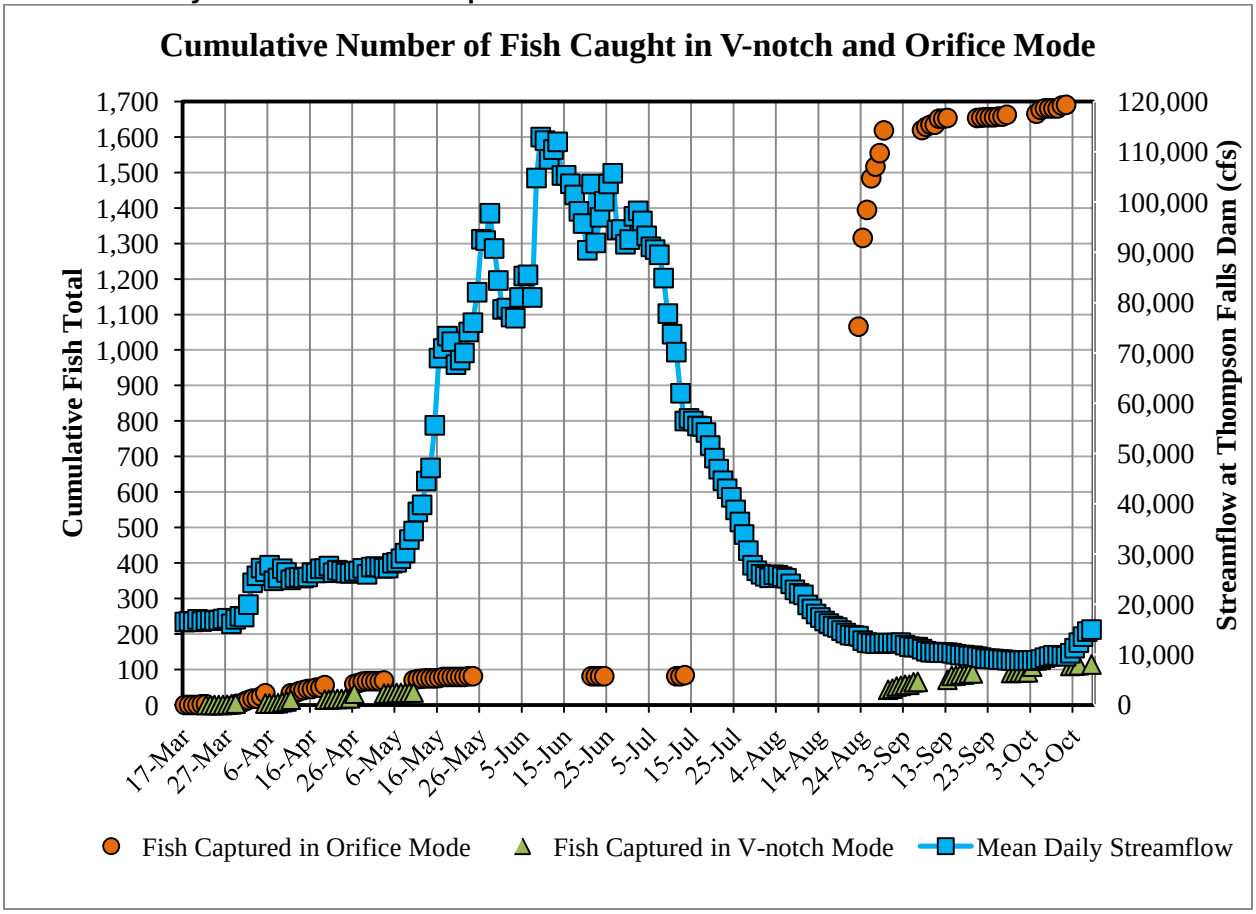


3.2.8 Weir Modes: V-notch vs. Orifice

In 2011, operators alternated the weir setting in the ladder between v-notch and orifice modes on a weekly basis. The cumulative number of fish captured at the ladder in v-notch and orifice modes, as well as the mean daily streamflow in the Clark Fork River is shown in Figure 3-6. The percentages of each species that ascended the ladder in orifice and v-notch modes are presented in Figure 3-7.

Approximately 94 percent of all fish captured at the ladder ascended the ladder during orifice mode. Coincidently, the ladder was in orifice mode between August 22 and 29 when approximately 85 percent (1,535) of all fish captured in 2011 ascended the ladder.

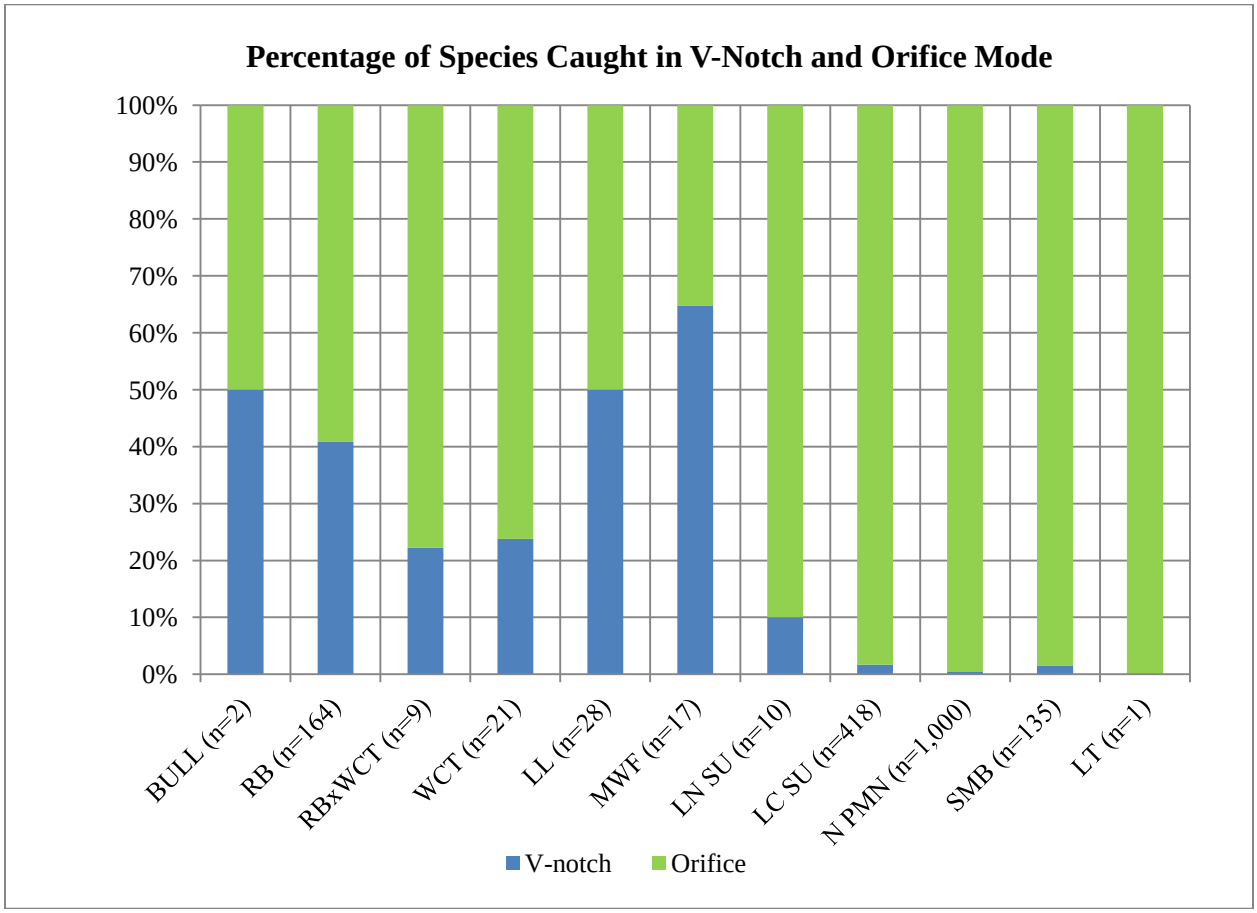
Figure 3-6: Cumulative number of fish captured at the fish ladder in v-notch and orifice mode in 2011. Mean daily streamflow in the Clark Fork River at Thompson Falls Hydroelectric Project is also provided. Cumulative fish totals provided for each weir mode represent days the ladder was in operation.



Based on the results shown in Figure 3-7, it appears that between 22 and 65 percent of the target salmonids (excludes lake trout) ascended the ladder when it was in v-notch mode and between 35 and 78 percent ascended the ladder when it was in orifice mode, depending on species. These data show no clear preference of weir modes for salmonids. When evaluating non-salmonids, there appears to be a more distinct preference for orifice mode. However, these data may be biased because the majority of the non-salmonids ascended the ladder in the first week it was opened in August (*see* Figure 3-6) when the ladder happened to be in orifice mode. The results may not show a preference for orifice mode, but rather a coincidence that the major migratory movement happened when the ladder was in orifice mode.

Therefore, the preference of v-notch versus orifice remains unclear until additional years of data can be collected and evaluated.

Figure 3-7: Percentage of species caught in the ladder during v-notch versus orifice mode during the 2011 season.



3.2.9 Attractant Flow

The auxiliary water system (AWS) routes attraction water from the forebay to augment the ladder pool-to-pool flow up to 6 cfs and provides the majority of total attraction flow at the ladder entrance and into the tailrace to attract fish. The AWS system can add up to 54 cfs of additional water to the ladder to attract fish into the ladder entrance, so that total discharge from Pool #1 of the ladder is 60 cfs. In 2011, the AWS system generally resulted in total flow from the ladder of approximately 50 cfs.

Additionally, another 20 cfs can be discharged directly into the tailrace in the form of a high-velocity jet (also referred to as the HVJ or attractant flow). Its purpose is to improve fish attraction to the ladder, as needed. The HVJ is designed to discharge 20 cfs through control valve CV-1. The jet discharges through a 14-inch diameter orifice, which produces a discharge jet velocity of approximately 19 feet per second into the tailrace. The HVJ is designed to operate during spill (occurs when streamflow exceeds 23,000 cfs. *See* Figure 3-8), but can also be operated during non-spill periods. Other attraction alternatives during non-spill include partially opening an adjacent spillway lift gate near to the ladder entrance. During 2011, the HVJ was

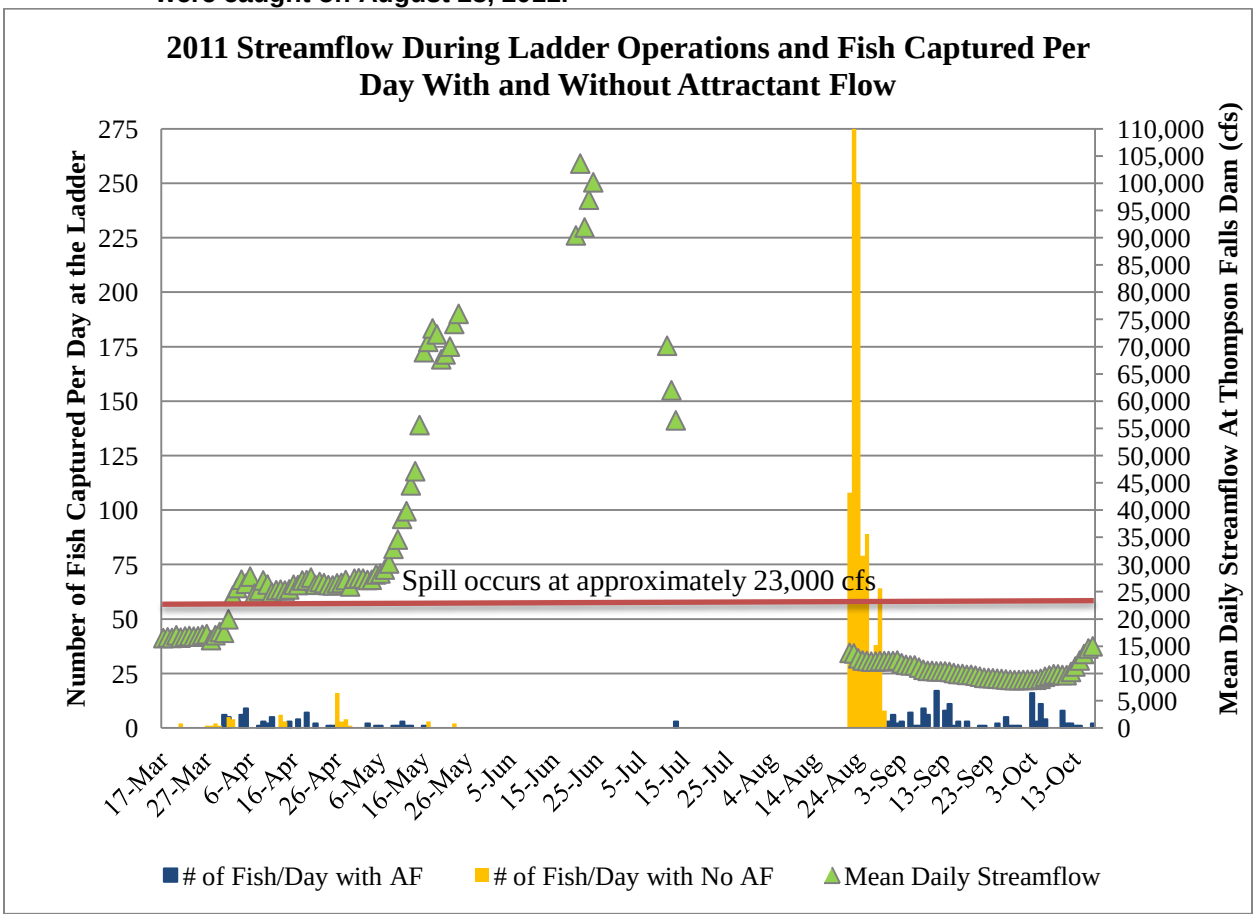
alternately turned on and off to test the efficacy of this water source as an attraction to migrating adult fish.

Data collected from the spring of 2011 (April 2 through July 14) show 59 fish were captured at the ladder when the attractant flow was present versus 42 fish captured at the ladder when the attractant flow was not present (Figure 3-8). The daily number of fish captured at the ladder varied between one and nine fish per day when the attractant flow was present versus one to 16 fish per day when the attractant flow was not present. When evaluating responses to the attractant flow by species, the majority of salmonids (with the exception of bull trout) ascended the ladder when attractant flow was in use (Figure 3-10).

A scenario we were unable to evaluate this year is that fish may be navigating the tailrace and finding the ladder entrance when the attraction flow is being released. They may then ascend the ladder after the attraction flow is turned off. Thus there may be a delayed effect that is not captured in the data.

For example, the first bull trout captured in the ladder holding pool was collected on April 13. While there was no attraction flow in use on that date, there had been attractant flow released from April 3 to 11, only a few days prior to the bull trout being captured at the ladder. A second bull trout was captured at the ladder on April 26, another date when the attraction flow was not in use. However, attractant flow (20 cfs) was present between April 15 and April 25. Because there are no data available regarding the movement of the two bull trout through the tailrace to the ladder, it remains unclear as to whether the attractant flow enhanced the bull trout's ability to locate the ladder entrance. Therefore, no definitive conclusions about the efficacy of the attraction flow provided by the HVJ can be made at this time.

Figure 3-8: Mean daily streamflows at Thompson Falls Hydroelectric Project when the ladder was in operation and the number of fish captured per day at the ladder with and without attractant flow (AF). The y-axis ends at 275 fish per day; however, a total of 874 fish were caught on August 23, 2011.



In 2011, approximately 97 percent of fish that climbed the ladder in August ascended when no attractant flow was present (Figure 3-8). Additionally, the majority of these fish were non-salmonids. Initial data collected in 2011 indicate that in general salmonids may respond to the attractant flow more than non-salmonids (Figures 3-9 and 3-10). However, additional years of data are needed before any conclusions can be made as to how fish respond to the attractant flow.

Figure 3-9: Percentage of each species and hybrid captured in the ladder with and without the presence of the attractant flow during the 2011 season.

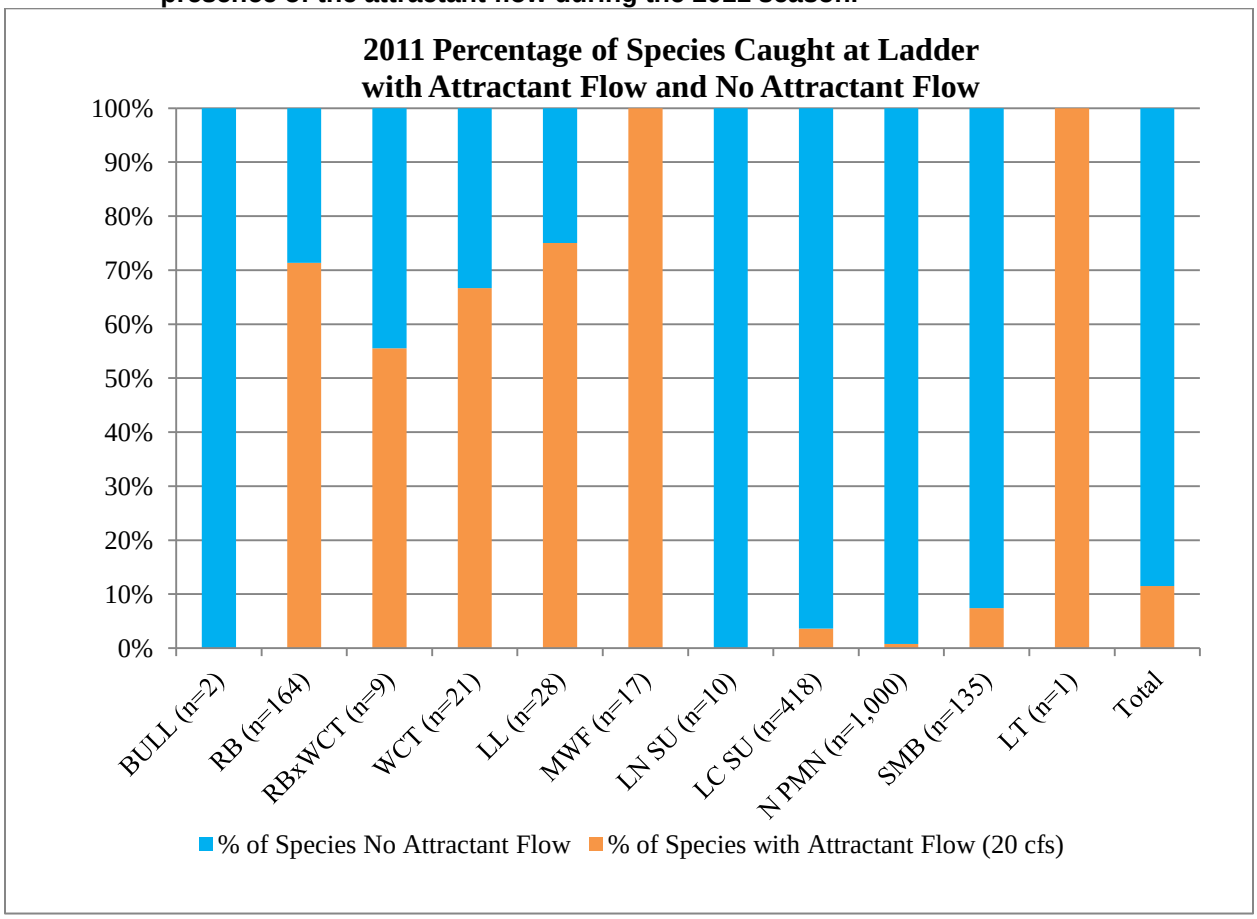
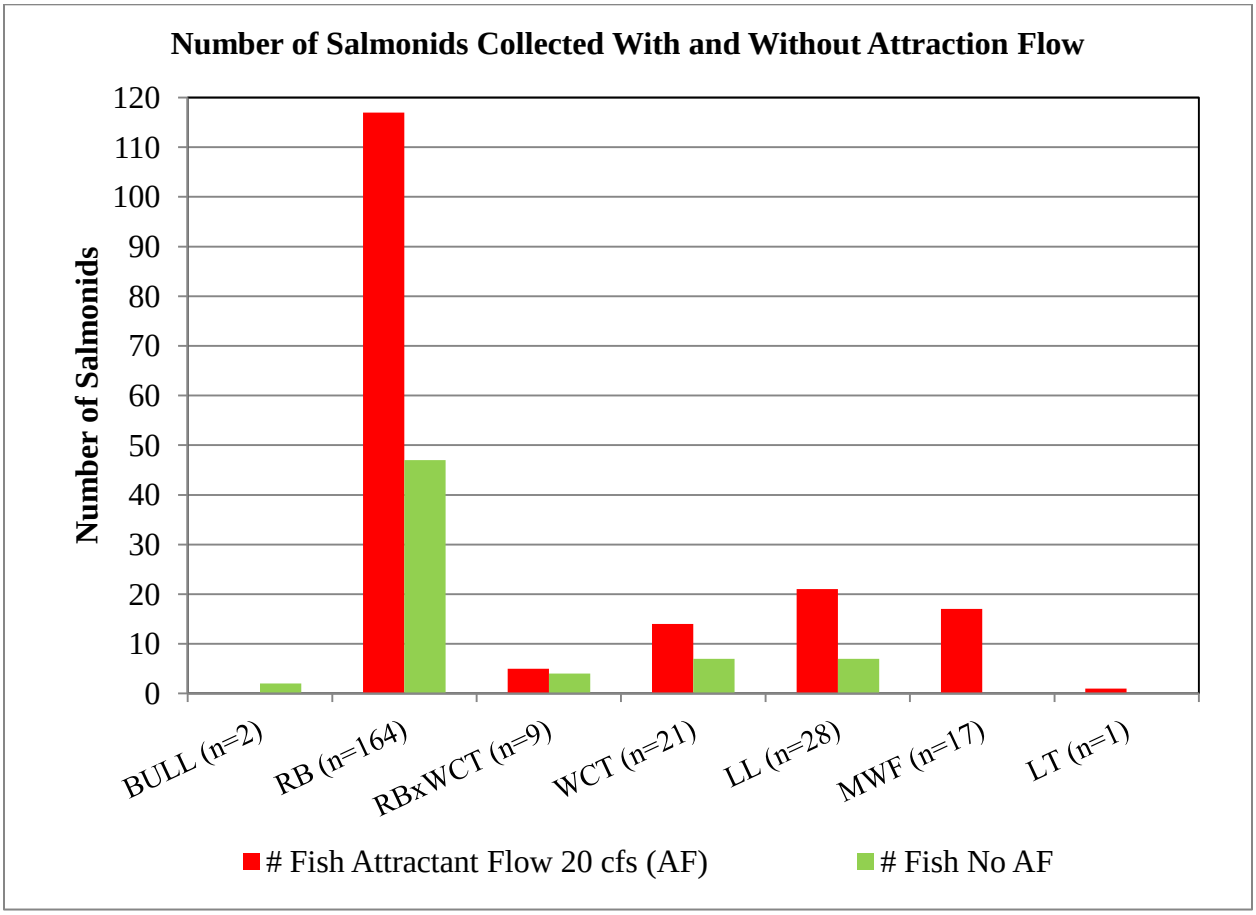


Figure 3-10: Number of salmonids caught in the ladder with and without the attractant flow during the 2011 season.



3.2.10 Bull Trout Genetics

In 2011, a total of five bull trout were collected in association to the Thompson Falls Project. Two of the bull trout were captured in the fish ladder in April and released in the Thompson Falls Reservoir. The other three bull trout were collected via electrofishing downstream of the Thompson Falls Hydroelectric Project on May 31, 2011 and released in the same location. Genetic samples were taken from each of the five bull trout and the results are provided in Table 3-10. All five bull trout have been genetically assigned to Region 4.

Table 3-10: Summary of bull trout genetics from bull trout captured at the Thompson Falls fish ladder and captured via electrofishing downstream of Thompson Falls Hydroelectric Project in 2011. Genetic samples were analyzed at Abernathy in 2011. Results were provided by Avista Corporation (2012).

Date Captured	Length (mm)	Weight (g)	PIT #	Method & Location	Most Likely Population of Origin	Second Most Likely Population of Origin	Confidence
4/26/2011	547	1438	985121023464730	TFalls Ladder	**Fishtrap Creek (R4)**	Monture Creek (R4)	500,000
4/13/2011	365	364	985121023302169	Tfalls Ladder	**Thompson River (R4)**	Upper Rock Creek (R4)	1,770
5/31/2011	482	966	985121021877906	Efish Below Tfalls	**Meadow Creek (R4)***	Fish Creek (R4)	1.34133
5/31/2011	180	50	985121021907887	Efish Below Tfalls	**Fishtrap Creek (R4)**	Upper Rock Creek (R4)	11,040,300
5/31/2011	247	130	985121021914545	Efish Below Tfalls	**Fishtrap Creek (R4)**	Cooper Gulch (R3)	10,424,600

*Note: Meadow Creek is a tributary to the Bitterroot River

4.0 Bull Trout Passage from Downstream Facilities

Avista Corporation (Avista) continued their trap and haul upstream fish passage program in 2011. Bull trout captured downstream of Cabinet Gorge Hydroelectric Project were genetically tested using rapid response genetic identification methodology (DeHaan et al. 2010). The rapid response genetic testing provides population assignment within 24 hours after receipt of fish tissue samples. The analysis estimates the natal stream of each bull trout. Bull trout are then either transported to their estimated region of origin, or released downstream of Cabinet Gorge Dam. Bull trout with a natal stream upstream of Thompson Falls Hydroelectric Project are referred to as "Region 4" fish.

Avista captured a total of 64 unique bull trout below Cabinet Gorge Hydroelectric Project (in 2011). In 2011 Avista transported 52 bull trout from downstream of Cabinet Gorge Hydroelectric Project to Cabinet Gorge Reservoir (n = 14), Noxon Rapids Reservoir (n = 33), or upstream of Thompson Falls Hydroelectric Project (n = 5). The five bull trout transported upstream of Thompson Falls Hydroelectric Project were PIT tagged but not radio tagged. One of the five bull trout was released in the South Fork of the Jocko River, while the other four bull trout were released in the Thompson River drainage.

Of the 64 unique bull trout captured below Cabinet Gorge Hydroelectric Project in 2011, 18 were genetically assigned to natal streams located in Region 4 (i.e. upstream of Thompson Falls Dam). Eleven of the 18 bull trout were released in Noxon Reservoir (Region 3) upstream of Vermilion Bay; with eight bull trout implanted with radio transmitters (and PIT tags) and three bull trout released with PIT tags and no radio transmitters. Although the 11 bull trout were genetically assigned to Region 4, these fish were released in Region 3 to monitor and evaluate movement to the Thompson Falls fish ladder. As previously mentioned, five bull trout were released upstream of Thompson Falls into Region 4. The remaining two bull trout captured below Cabinet Gorge Hydroelectric Project and genetically assigned to Region 4 had been previously captured as juveniles in Region 2 and 3 tributary streams. One bull trout had been initially captured in a trap in Graves Creek in 2007 and thus, was transported upstream and released in Grave Creek. The other bull trout was initially captured via electrofishing in East Fork Bull River in 2008 and thus was transported and released in the Bull River just downstream of the confluence with the East Fork Bull River.

Below is a table summarizing the 18 bull trout captured by Avista below Cabinet Gorge Hydroelectric Project in 2011, assigned to Region 4, and transported to either Regions 2, 3, or 4 (Table 4-1). A comprehensive summary of Avista's Upstream Fish Passage Program from 2001 to present is available in Moran (2012) and Bernal and Duffy (2012).

Table 4-1: Summary of the 18 bull trout captured below Cabinet Gorge Dam in 2011, assigned to Region 4, and released in either Regions 2, 3 or 4. (Source: Avista 2011).

Capture Date	Capture Method	PIT Tag Number	Length (mm)	Weight (g)	Release Site	Release Date & Time	Most Likely Pop. Of Origin	Second Most Likely Pop. Of Origin	Confidence	Radio Frequency & Code
4/19/2011	LCFR-ID Night EFish	985121021183536	586	2126	Released upstream from Vermilion Bay (Region 3)	4/22/2011; 13:15	Meadow Creek	Fishtrap Creek	3.98	148.480 Code 26
4/24/2011	LCFR-ID Night EFish	985121021159735	627	2835	Released upstream from Vermilion Bay (Region 3)	4/27/2011; 13:50	South Fork Jocko River	North Fork Jocko River	300,000	148.480 Code 29
5/17/2011	LCFR-ID Night EFish	985121021199621	530	1360	Released upstream from Vermilion Bay (Region 3)	5/25/2011; 12:52	Thompson River	Upper Rock Creek	48,193,900	148.500 Code 37
5/22/2011	LCFR-ID Night EFish	985121021152977	710	3856	Released upstream from Vermilion Bay (Region 3)	5/20/2011; 14:07	Fishtrap Creek	East Fork Bull River	5.54	148.500 Code 35
6/2/2011	LCFR-ID Night EFish	985121021203256	500	1049	Released upstream from Vermilion Bay (Region 3)	6/8/2011; 12:19	Fishtrap Creek	Upper Rock Creek	200,000	148.480 Code 38
6/5/2011	LCFR-ID Night EFish	985121001919071	585	1814	Released upstream from Vermilion Bay (Region 3)	6/8/2011; 12:21	Fishtrap Creek	East Fork Bull River	1,000,000	148.480 Code 36
6/19/2011	LCFR-ID Night EFish	985121021146823	570	1729	Released upstream from Vermilion Bay (Region 3)	6/23/2011; 8:23	Fishtrap Creek	Upper Rock Creek	14,000	148.480 Code 39
6/21/2011	LCFR-ID Night EFish	985121021183908	701	3685	Released upstream from Vermilion Bay (Region 3)	6/24/2011; 13:30	Fishtrap Creek	Upper Rock Creek	3,390	148.480 Code 40
6/21/2011	LCFR-ID Night EFish	985121021184737	462	907	Released upstream from Vermilion Bay (Region 3)	6/24/2011; 13:30	Fishtrap Creek	Cedar Creek	2.44	None

Capture Date	Capture Method	PIT Tag Number	Length (mm)	Weight (g)	Release Site	Release Date & Time	Most Likely Pop. Of Origin	Second Most Likely Pop. Of Origin	Confidence	Radio Frequency & Code
6/26/2011	LCFR-ID Night EFish	985121021186461	470	907.3	Released upstream from Vermilion Bay (Region 3)	6/29/2011; 12:48	Fishtrap Creek	East Fork Bull River	4,250	None
7/3/2011	LCFR-ID Night EFish	985120015892614	513	1191	Bull River old bridge site downstream of EFBR (Region 2)	7/5/2011	Upper Rock Creek	East Fork Bull river	1.09	None
7/5/2011	LCFR-ID Night EFish	985121021157243	669	1948	Released upstream from Vermilion Bay (Region 3)	7/8/2011	Fishtrap Creek	Prospect Creek	2.89	None
7/24/2011	LCFR-ID Night EFish	985120029222140	496	1190	Graves Creek just upstream of USFS bridge (Region 3)	7/25/2011; 13:51	Rattlesnake Creek	North Fork Jocko River	9.96	None
7/28/2011	LCFR-ID Night EFish	985121021156804	516	1021	One mile up Thompson River (Region 4)	8/3/2011; 13:35	Fishtrap Creek	Thompson River	55.196	None
8/30/2011	LCFR-ID Night EFish	985121025905128	650	2892	Fishtrap Creek, just up from mouth (Region 4)	9/2/2011; 14:53	Fishtrap Creek	Vermilion River	2.51	None
9/21/2011	Twin Creek Weir	985121001907073	613	2268	Just upstream of the mouth of Thompson River (Region 4)	9/22/2011; 16:14	Fishtrap Creek	Grouse Creek	1,050	None
9/22/2011	Twin Creek Weir	985121025914593	592	1701	Just upstream of the mouth of Thompson River (Region 4)	9/26/2011; 14:00	Fishtrap Creek	Rock Creek	10,000	None
9/22/2011	LCFR-ID Ladder	985121025758989	606	1871	South Fork Jocko River, upstream of last diversion (Region 4)	9/26/2011; 16:50	South Fork Jocko River	Graves Creek	1.38	None

4.1 Monitoring Movement of Radio Tagged Bull Trout

The following sections summarize the periods of detection and movement patterns of the 10 bull trout captured below Cabinet Gorge Hydroelectric Project and released in Regions 3 or 4 with radio transmitters (and PIT tags). Two of the 10 bull trout were initially captured in 2010 (bull trout 30 and 32); while the other eight bull trout were captured and tagged in 2011 (bull trout 26, 29, 35, 36, 37, 38, 39, and 40 as described in Table 4-1). More information on the two bull trout initially tagged in 2010 is available in last year's annual report (*see Sections 4.2.3 and 4.2.5 on Bull trout 30 and 32 in the 2010 Annual Report*).

Telemetry monitoring was completed by Avista and FWP. A brief summary of each bull trout, including date of initial capture, release location, last date of detection, last location of detection, information on whether the fish passed downstream through one of the hydroelectric facilities (i.e. Thompson Falls, Noxon Rapids, or Cabinet Gorge), and whether the bull trout was detected in the tailrace or Thompson Falls Project area, is provided in Table 4-2. More detailed monitoring records are provided in Appendix B. The monitoring data in Appendix B also include detections for bull trout 52, 100, and 169 that were genetically assigned to Region 3. For additional information on the movements of these three bull trout, refer to Bernall and Duffy (2012).

4.1.1 Radio Tagged Bull Trout Approaching Thompson Falls Dam

In 2011, eight bull trout genetically assigned to Region 4 were implanted with radio transmitters (and PIT tags) to monitor movement and released in Region 3 (Vermilion Bay). Because these bull trout are genetically assigned to Region 4, it is assumed that with the release location in Region 3 (Vermilion Bay), the fish will likely migrate upstream towards Thompson Falls Dam in an attempt to reach its natal stream. If upstream migration occurs, the goal is to monitor their movement in the Thompson Falls tailrace and near the fish ladder. In 2011, three of the bull trout (codes 26, 38, and 40) were detected immediately downstream of Thompson Falls Dam. The detection of each bull trout (26, 38, 40) is shown in Figure 4-1, 4-2, and 4-3, respectively.

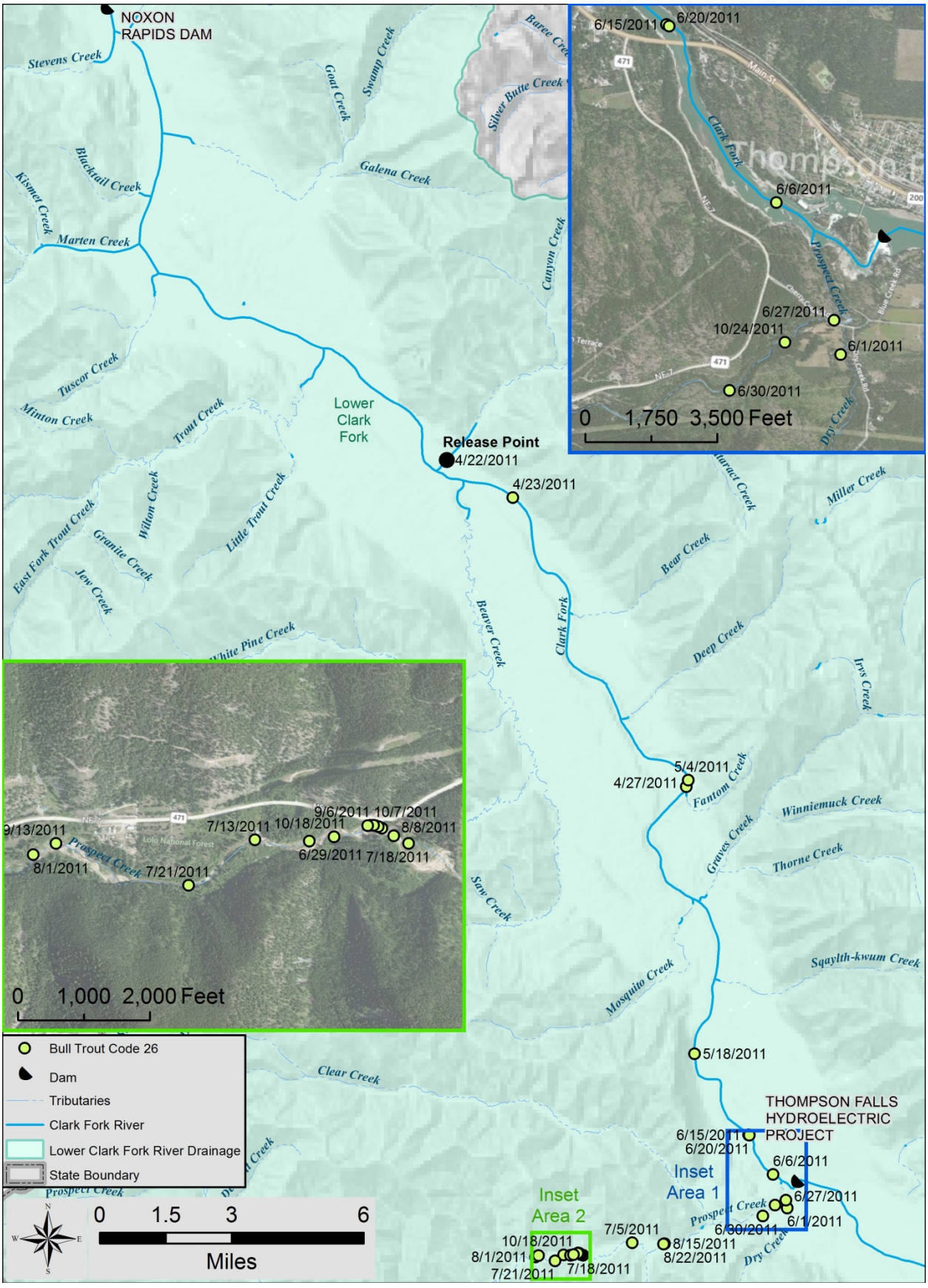
Bull trout 26 was released immediately upstream of Vermilion Bay on April 22, 2011. Bull trout 26 was detected below Thompson Falls Dam on June 1 and 6, 2011 and then moved downstream to the Highway 200 bridge crossing before finally migrating back upstream into Prospect Creek. The fish remained in Prospect Creek between June 27 and October 24, 2011 (the last detection recorded). The detections of bull trout 26 are depicted in Figure 4-1.

Table 4-2: Summary of radio telemetry monitoring of tagged bull trout captured below Cabinet Gorge Dam in 2011, assigned to Region 4, and released in Regions 3. (Source: Avista 2011).

Bull Trout Code	PIT Tag #	Initial Capture Date	Release Location	Last Date Detected	Last Location Detected	Pass Through Dam (If Yes, Which Facility)	Approach Thompson Falls Project Tailrace?
30	985121016700474	5/5/2010	Thompson River (R4)	8/1/2011 (tag retreived, no fish)	Thompson Falls Reservoir (north of pumphouse)	Fish Status Unknown (tag found upstream of Thompson Falls Dam)	No
32	985121021199577	4/29/2010	Thompson River (R4)	6/6/2011	Vermilion River Bridge	Yes, Thompson Falls Dam between May 6-11, 2010. Passed through turbines.	No
26	985121021183536	4/19/2011	Vermilion Bay (R3)	10/24/2011	Prospect Creek	No	Yes. Detected below dam near old powerhouse on 6/1/2011 and 6/6/2011. Then moved downstream before migrating into Prospect Creek 6/27/2011-10/24/2011.
29	985121021159735	4/24/2011	Vermilion Bay (R3)	11/18/2011	Clark Fork River, below train trestle (Marten Creek Road)	No	No
37	985121021199621	5/17/2011	Vermilion Bay (R3)	12/6/2011	Mouth of Rock Creek	Yes. Downstream of Noxon Rapids Dam on June 21, 2011.	No
35	985121021152977	5/22/2011	Vermilion Bay (R3)	10/26/2011	Detected at remote monitoring staion downstream of Cabinet Dam	Yes, two facilities. Downstream of Noxon Rapids Dam on June 25, 2011. Downstream of Cabinet Gorge Dam in late October 2011.	No

Bull Trout Code	PIT Tag #	Initial Capture Date	Release Location	Last Date Detected	Last Location Detected	Pass Through Dam (If Yes, Which Facility)	Approach Thompson Falls Project Tailrace?
38	985121021203256	6/2/2011	Vermilion Bay (R3)	12/5/2011	Clark Fork River, near town of Trout Creek	No	Yes. Detected below dam near old powerhouse, high bridge, and mouth of Prospect Creek between 6/9-7/21/2011. Not detected again until 10/7/2011 downstream near town of Trout Creek
36	985121001919071	6/5/2011	Vermilion Bay (R3)	12/19/2011	Graves Creek Mouth on 7/18/2011, then downstream approximately 8.5 miles 8/1-12/19/2011. Possible tag is out of water between 8/1-12/19/2011	No	No
39	985121021146823	6/19/2011	Vermilion Bay (R3)	8/30/2011	Marten Creek Bay Bridge	No	No
40	985121021183908	6/21/2011	Vermilion Bay (R3)	7/13/2011	High Bridge at Thompson Falls Dam (approximately 22 miles upstream of release site)	No	Yes. Fish only detected between 6/27/2011 and 7/13/2011. Located at Thompson Falls State Park on 6/27/2011, then below dam on 6/30/2011 and 7/5/2011, then at high bridge on 7/13/2011.

Figure 4-1: Radio telemetry monitoring results for bull trout 26 detected near Thompson Falls Dam in 2011.



Bull trout 38 was released immediately upstream of Vermilion Bay on June 8, 2011. Bull trout 38 was only a couple miles upstream from the release site on June 9 and then was detected near the old powerhouse (Thompson Falls Dam) on June 15 and then at the confluence of Prospect Creek on June 20. The bull trout remained in the vicinity below the main dam between June 30 and July 5, 2011 before moving downstream. On July 13 bull trout 38 was detected near the old powerhouse and then upstream in the confluence of Prospect Creek on July 21. Bull trout 38 was not detected again until October 7, 2011 in Marten Creek (over 20 miles downstream of Thompson Falls Dam). In November and December (last detection recorded on December 5, 2011), bull trout 38 was detected near the town of Trout Creek. The detections of bull trout 38 are depicted in Figure 4-2.

Bull trout 40 was released immediately upstream from Vermilion Bay on June 24, 2011. Bull trout 40 was only detected between June 24 and July 13, 2011. During this time, bull trout 40 was recorded near the Thompson Falls State Park on June 27, 2011 and then below the Thompson Falls Dam and near the High Bridge on June 30, July 5, and July 13. The detections of bull trout 40 are depicted in Figure 4-3.

The Thompson Falls fish ladder was in operation between March 17 and May 24, between June 21 and 24, between July 11 and 13, and between August 22 and October 17, 2011. Although three bull trout (26, 38, 40) were detected in the vicinity of Thompson Falls Dam, none of the bull trout radio tagged (*refer to* Table 4-1) and monitored in 2011 was detected in the fish ladder via the remote PIT antennas located in the ladder pools or captured in the holding pool. These fish were in the area of the fish ladder during a period when flows were uncharacteristically high and ladder operations were limited.

During Thompson Falls fish ladder operations in June and July, only three fish (two northern pikeminnow and one rainbow trout) were captured at the ladder (all on July 13 with streamflow of 57,000 cfs), thus overall ability of fish to reach the ladder or detect the entrance to the ladder appeared to be hampered, which was associated with higher than average streamflows during spring 2011. Streamflows during June ladder operations were between 88,000 and 100,194 cfs. Streamflows during July ladder operations ranged between 56,480 and 66,740 cfs. Additional years of operational and fish data collection will assist in further evaluating the efficiency of the ladder to attract fish and help determine if there is a limit of the ladder effectiveness as related to streamflow.

Figure 4-2: Radio telemetry monitoring results for bull trout 38 detected near Thompson Falls Dam in 2011.

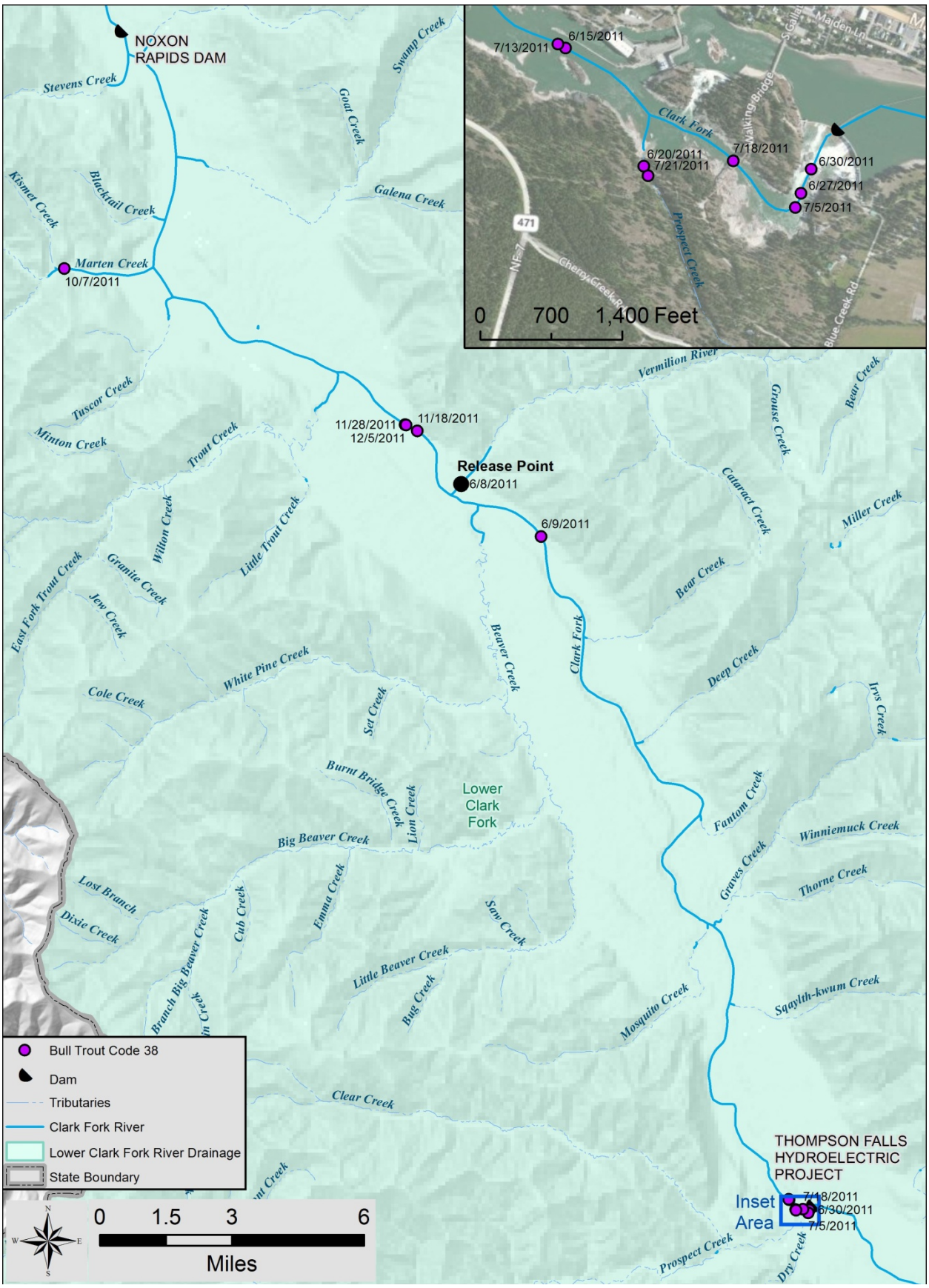
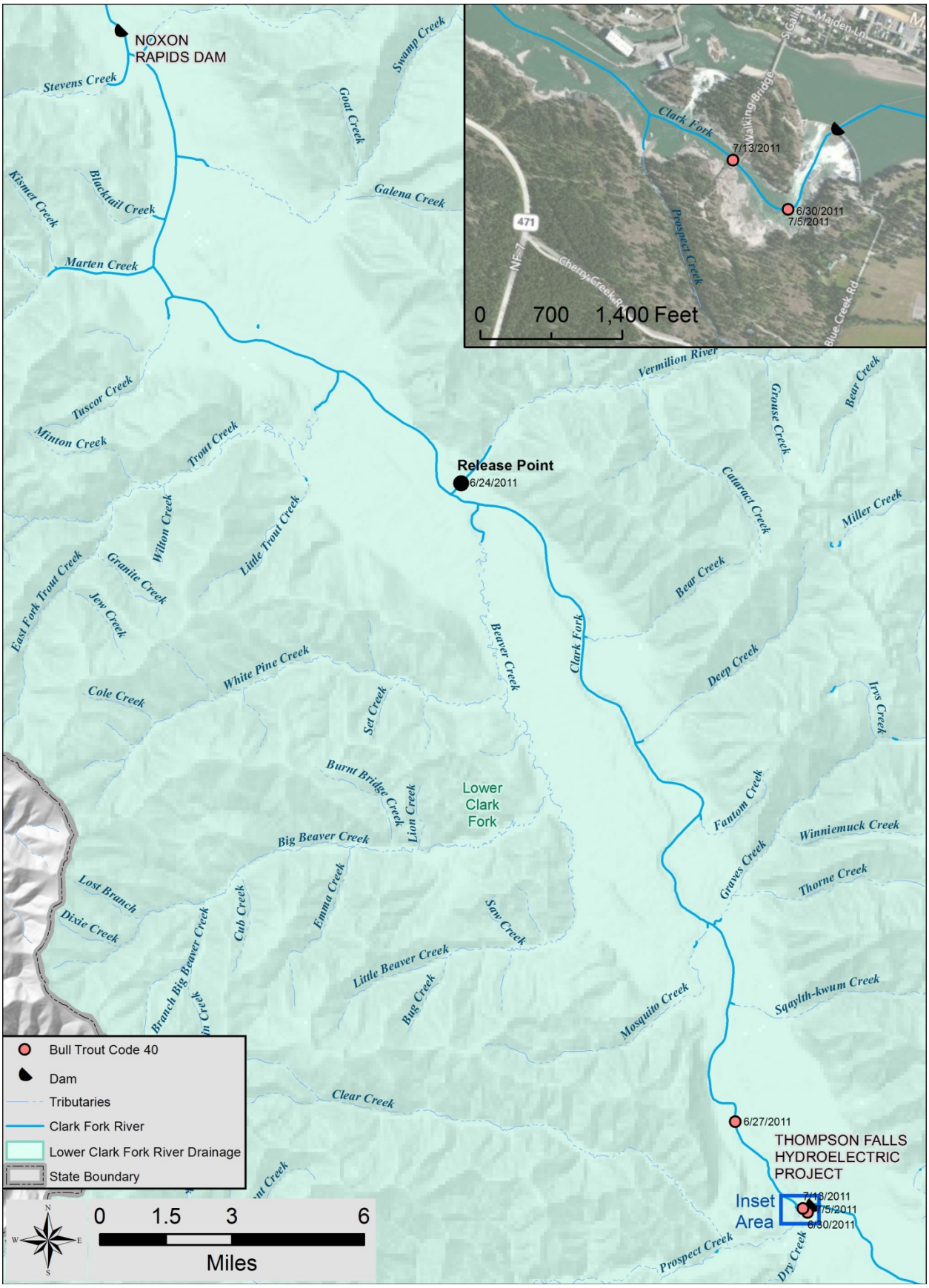


Figure 4-3: Radio telemetry monitoring results for bull trout 40 detected near Thompson Falls Dam in 2011.



4.1.2 Bull Trout 35

Bull trout 35 was captured on May 17, 2011 via night electrofishing in the lower Clark Fork River downstream of Cabinet Gorge Hydroelectric Project along the top end of the north bank section (Clark Fork River kilometer 242). Bull trout 35 was genetically assigned to Fishtrap Creek (Region 4) with a confidence level of 5.5. Tagging information for this fish is provided in Table 4-3. Below is a summary of this bull trout's movement monitored between May 20 and October 26, 2011.

Table 4-3: Summary of the radio and PIT tag for bull trout 35.

Surgery Information	
Species	Bull trout
Radio frequency	148.500 code 35 (500-35)
PIT tag number	985121021152977
Length	710 millimeters
Weight	3856 grams
Sex	Female
Surgery date	5/20/11
Genetics information	Fishtrap Creek (R4) / East Fork Bull River (R2) / Confidence = 5.53809

Bull trout 35 was tagged (radio and PIT), transported, and then released upstream 57 kilometers to Noxon Reservoir immediately upstream of Vermilion Bay (Clark Fork River kilometer 299) on May 20, 2011. Between May 24 and June 9, 2011, this bull trout was detected between Trout Creek boat ramp and Highway 200 bridge, which is approximately 4 kilometers downstream of the release site. On June 25, 2011, bull trout 35 moved downstream of Noxon Rapids Dam. Between June 24 and October 22, 2011, this bull trout was continuously detected approximately 27 kilometers downstream of the release site (Clark Fork River kilometer 272.4) near the Noxon Springs remote monitoring station with one exception when the fish entered Bull River Bay for a brief period on October 18, 2011. Between October 18 and 24, bull trout 25 moved downstream of Cabinet Gorge Dam. The remainder of the monitoring period (October 24 through October 26, 2011), this bull trout was detected downstream of Cabinet Gorge Dam at around Clark Fork River kilometer 242, approximately 57 kilometers downstream of the release site.

4.1.3 Bull Trout 37

Bull trout 37 was captured on May 22, 2011 via night electrofishing in the lower Clark Fork River downstream of Cabinet Gorge Hydroelectric Project along the top end of the north bank section (Clark Fork River kilometer 242). Bull trout 37 was genetically assigned to Thompson River (Region 4) with a confidence level of 48,193,900. Tagging information for this fish is provided in Table 4-4. Below is a summary of this bull trout's movement monitored between May 25 and December 6, 2011.

Table 4-4: Summary of the radio and PIT tag for bull trout 37.

Surgery Information	
Species	Bull trout
Radio frequency	148.500 code 37 (500-37)
PIT tag number	985121021199621
Length	530 millimeters
Weight	1360 grams
Sex	Female
Surgery date	5/25/11
Genetics information	Thompson River (R4) / Upper Rock Creek (R4) / Confidence = 48,193,900

Bull trout 37 was tagged (radio and PIT), transported, and then released upstream 57 kilometers to Noxon Reservoir immediately upstream of Vermilion Bay (Clark Fork River kilometer 299) on May 25, 2011. On June 15, 2011, bull trout 37 was detected approximately 13 kilometers downstream of the release site below the railroad trestle downstream of the North Shore boat ramp in the Noxon Reservoir (Clark Fork River kilometer 286). On June 21, 2011, bull trout 37 moved downstream of Noxon Rapids Dam. During the remaining monitoring period (June 21 through December 6, 2011), bull trout 37 was most often detected near Clark Fork River kilometer 271 and 272.4, approximately 27 kilometers downstream of the release site. Clark Fork River kilometer 271 is near the mouth of Rock Creek. This bull trout was also detected in Elk Creek Bay (Clark Fork River kilometer 252.2) on July 28 and 29 and in inner Bull River Bay between August 4 and August 19, 2011.

5.0 Thompson River Drainage (5-Year Reservoir Plan)

In 2010, PPL Montana developed and submitted the 5-Year Reservoir Monitoring Plan (2011-2015) to the FERC. The FERC issued an Order on February 9, 2011 approving the plan. PPL Montana started to implement the plan in 2011.

The overall goal of the plan is to gather information that will assist in developing recommendations to *maximize survival of outmigrant juvenile and adult bull trout through Thompson Falls Reservoir and Dam*. In order to address this goal, two objectives were identified including the:

1. Characterization of bull trout in the Thompson River drainage
2. Characterization of the affect that the Thompson Falls Reservoir has on bull trout emigrating from the Thompson River drainage and migrating downstream in the Clark Fork River.

The following sections describe the activities recently completed to address the objectives of the 5-Year Reservoir Monitoring Plan. A review of available historic data for the Thompson River drainage and identification of data gaps is discussed in Section 5.1. Fisheries data collected in 2010 for the West Fork Thompson River and collected in 2011 for Fishtrap Creek are summarized in Sections 5.2 and 5.3, respectively.

5.1 Historic Data Review and Information Gaps

To address the first objective in the 5-Year Reservoir Monitoring Plan, PPL Montana coordinated with the TAC, FWS, Plum Creek Timber Company, Avista, and USFS to review available historic data, available literature, identify data gaps and develop a plan for future data collection/studies/projects in the Thompson River drainage. Below is a description of the data review process and Thompson River Drainage database that was developed, as well as activities planned for 2012.

5.1.1 Thompson River Drainage Database

PPL Montana coordinated with several agencies and organizations to gather historic information (data and reports) on streams in the Thompson River drainage. Information (data and reports) were provided by Plum Creek Timber Company, Avista, USFS, MDEQ, FWS, and FWP. The data were compiled into a database and currently includes information from 1973 through 2011.

The purpose of creating the Thompson River database was to compile a recent record of the existing information available for the streams within the Thompson River drainage. This information includes habitat surveys, temperature data, fisheries information, and other study/survey information for the Thompson River and its tributaries. The objective of the database is to provide resource managers with a record of what information currently exists and

what type of studies have been completed in particular streams or stream reaches. A secondary objective of the database is to identify data gaps within the Thompson River drainage and to identify potential future studies/management objectives for resource managers (i.e., bull trout management). It is anticipated that the database will be updated periodically with information from future studies that are completed within the Thompson River drainage. The database was distributed to the TAC, FWS, USFS, Plum Creek Timber Company, and Avista. A subcommittee of this group will meet in 2012 to review and discuss future studies needed to fill the data gaps and identify potential on-the-ground projects to benefit the native salmonid fisheries, specifically bull trout habitat.

The Thompson River database was created by examining each electronic file that was provided by the agencies and organizations identified above. The files were examined and assigned a unique habitat data identification (ID) number, temperature data ID number, and/or fisheries data ID number, depending on the information that was specifically available in the file. A database was developed and delineated into three separate worksheets. The first worksheet (titled *Reports_List*) created summarizes the information contained in each file including: electronic file name; habitat, temperature, and fisheries data ID numbers; report author names; report year; title of the report/data; type of data contained in the file (e.g., geographic information systems, report, data, map, etc.); the tributary/stream name for the survey/location of report; the drainage in which the surveyed stream occurs (i.e., Thompson River, Fishtrap Creek, West Fork Thompson River, and/or Little Thompson River); originator of the report/data; agency/organization that published the report/data; and any comments regarding the specific files.

The second worksheet (titled *Habitat & Fisheries Summary*) summarizes the habitat, temperature, and fisheries information that were available in the files; specific data for each of the habitat, temperature, and fisheries parameters were recorded. The information within the Habitat & Fisheries Summary worksheet includes: stream name (drainage); tributary name (subject of the report/data); report/data year; and various study parameters that may include: habitat survey completed; Wolman pebble count, flow; water chemistry; redd counts; snorkel survey; electrofishing; weir study; fish density; genetics; bull trout presence; corresponding habitat, temperature, and fisheries ID numbers; corresponding electronic file names; maximum temperature; date of maximum temperature when recorded; additional temperature data; range of dates surveyed for temperature; specific comments regarding temperature; and general comments.

The third worksheet (titled *Available Data by Stream*) was created within the spreadsheet that summarizes the type of data available and the documented presence of bull trout for the streams within the Thompson River drainage. Table 5-1 (provided below) summarizes the temperature, habitat, and fish data available, by stream, within the Thompson River drainage.

Table 5-1: Summary of data available and bull trout presence in Thompson River drainage. Note: Stream Names in bold represent areas bull trout are known to be present. x = data available; y= bull trout documented.

Stream/Tributary Name	Temperature Data Available	Habitat Data Available	Fish Data Available	Bull Trout Present
Alder Creek	X	X	X	Y
Anne Creek	X	X	X	Y
Basin Draw		X	X	
Bay State Creek				
Bear Creek	X	X	X	
Beartrap Creek (Fork)	X	X	X	Y
Beatrice Creek	X	X	X	Y
Big Hole Creek	X			
Big Rock Creek	X	X	X	Y
Big Spruce Creek		X	X	Y
Boiling Springs Creek	X	X		
Calico Creek				
Chippy Creek	X	X	X	
Cliff Creek				
Cool Creek		X		
Corona Creek				
Daisy Creek				
Deerhorn Creek	X			
Fishtrap Creek	X	X	X	Y
Four Lakes Creek	X	X	X	Y
Goat Creek				
Honeymoon Creek	X		X	
Indian Creek	X			
Jungle Creek	X	X	X	Y
Lazier Creek	X	X	X	
Little Rock Creek				
Little Thompson River	X	X	X	Y
Mantrap Creek		X	X	
Marten Creek				
McGinnis Creek	X	X	X	
McGregor Creek	X	X	X	
Meadow Creek				
Mudd Creek				
Murr Creek	X	X	X	Y
Nancy Creek				
North Fork Little	X	X	X	

Stream/Tributary Name	Temperature Data Available	Habitat Data Available	Fish Data Available	Bull Trout Present
Thompson River				
Priscilla Gulch				
Radio Creek		X	X	
Semem Creek				
Shroder Creek	X		X	
Tepee Creek			X	
Thompson River	X	X	X	Y
Twin Lakes Creek	X			
West Fork Fishtrap Creek	X	X	X	Y
West Fork Thompson River	X	X	X	Y
Whitney Creek				
Young Creek		X	X	

The Thompson River database spreadsheet is set up with filters for each data parameter that allows a query to be completed for specific information (e.g., what streams have recorded occurrences of bull trout). Multiple filters can be utilized concurrently that allows a query for more specific information (e.g., maximum temperature recorded in Fishtrap Creek for a specific year). The queries are initiated by selecting the specific parameters within the spreadsheet by clicking on the down-arrow tab located in the title block row for each of the parameters.

5.2 West Fork Thompson River Drainage 2010 Fisheries Survey

The West Fork Thompson River drainage was surveyed by FWP in 2010 to obtain population estimates of fish species throughout the drainage. Electrofishing surveys were completed at seven locations within the West Fork Thompson River drainage, depicted on Figure 5-1. Five of the seven survey sites were located on the main stem of the West Fork Thompson River, and one site was located each on Four Lakes Creek and Anne Creek.

The average survey section length for the seven sites was 104 meters. Bull trout were captured at each of the survey locations, and bull trout densities were generally greater the further upstream the survey sites were located (Table 5-2). A total of 140 bull trout were captured, ranging in size from 70 to 251 mm. The majority of the bull trout were captured at Sites 1B, 2, Four Lakes, and Anne Creek (*see* Figure 5-1).

In addition to bull trout, other species and numbers captured at the West Fork Thompson River drainage survey sites included 205 westslope cutthroat trout, 11 rainbow trout, and five rainbow x westslope cutthroat hybrids. The 2010 West Fork Thompson River drainage raw data are provided in Appendix C.

Figure 5-1: Site locations where 2010 fisheries surveys were completed in the West Fork Thompson River.

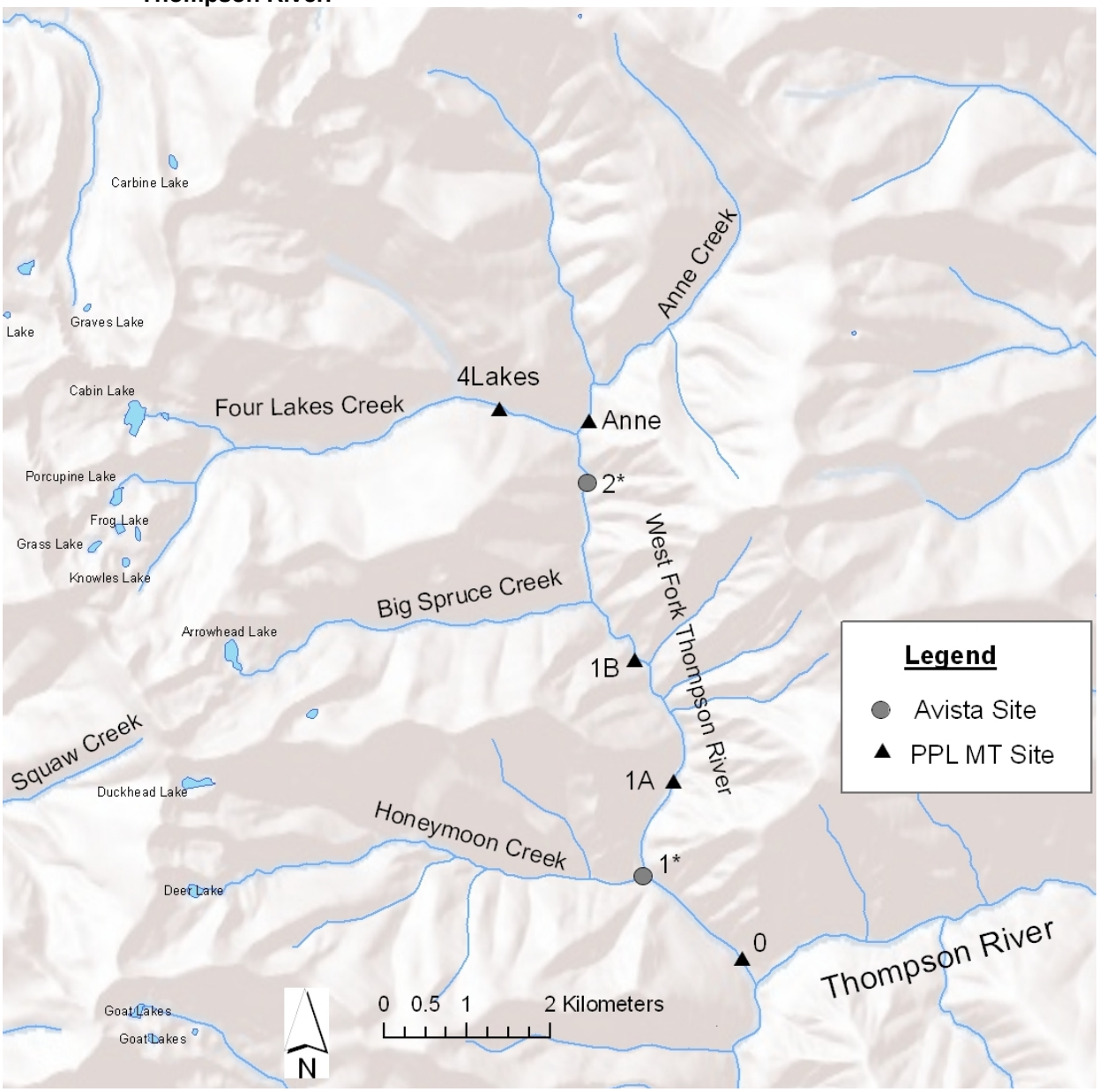


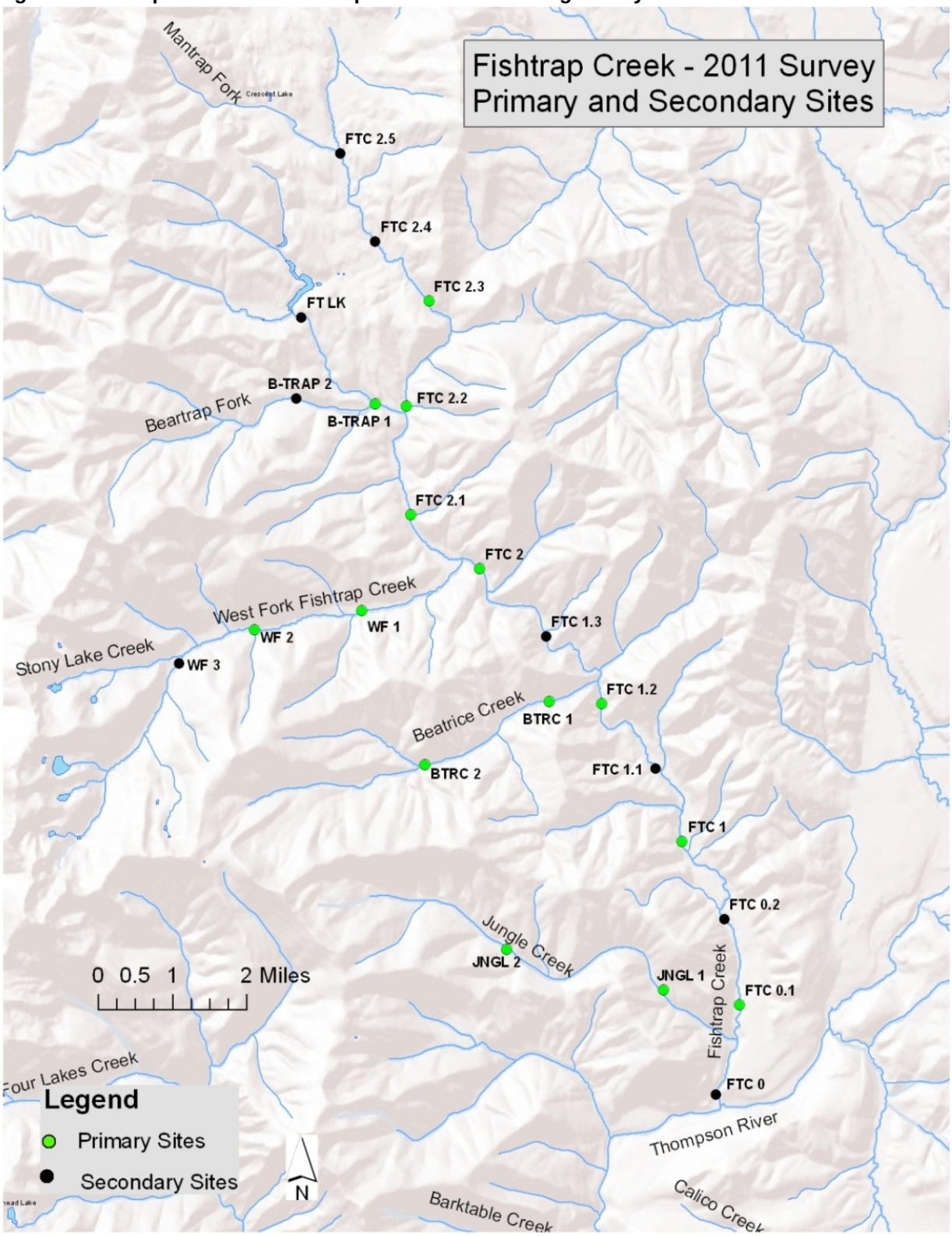
Table 5-2: Summary of density estimates for fisheries data collected during 2010 electrofishing in the West Fork Thompson River.

		Density Estimates (#/100 m) with 95% C.I.							
Site	**Section Length (m)**	**BULL**		**WCT**		**RB**		**RBxWCT**	
0	100	2.0	2.0 -2.0	10.0	9.0-13.0	10.0	10.0 -10.0	-	-
1	67	11.9	11.9 -11.9	59.7	59.7 -68.5	1.5	1.5 -1.5	4.5	4.5 -4.5
1A	122	9.0	9.0 - 9.0	44.3	36.9 -49.2	-	-	-	-
1B	100	22.0	22.0 -22.0	22.0	21.0 -35.0	-	-	-	-
2	120	36.7	36.7 -42.5	14.2	14.2 -14.2	-	-	1.7	1.7 -1.7
1.4, Four Lakes	118	24.6	24.6 -27.1	26.3	26.3 -26.3	-	-	-	-
Anne Creek	104	23.1	23.1 -30.8	29.8	29.8 -29.8	-	-	-	-

5.3 Fishtrap Creek Drainage 2011 Fisheries Survey

The Fishtrap Creek drainage was surveyed by Avista in 2011 to obtain population estimates of fish species throughout the drainage (Figure 5-2). Avista completed electrofishing surveys in Fishtrap Creek, Jungle Creek, Beatrice Creek, West Fork Fishtrap Creek, and Beartrap Creek. The results of the 2011 fish population surveys are provided in the following sections.

Figure 5-2: Map of the 2011 Fishtrap Creek electrofishing survey locations.



5.3.1 Fishtrap Creek

Electrofishing survey data were provided for eight sites located on Fishtrap Creek; data was not provided for the five survey locations referred to as FTC 0, FTC 0.1, FTC 0.2, FTC 1.3, and FTC 2.5 (*refer to* Figure 5-2). The average survey section length for the eight survey sites was 108.5 meters. Bull trout were captured at each of the survey locations except for FTC 2.4 (Table 5-3). A total of 60 bull trout were captured at the survey locations on Fishtrap Creek, ranging in size from 63 to 254 mm. Bull trout densities (per 100 meters) varied between 1.6 and 14 fish per 100 meters (Table 5-3). At Site 2 no bull trout density was available, but 14 individual bull trout were recorded during the electrofishing survey. Bull trout densities were greatest in reaches 1.2, 2.2 and 2.3.

In addition to bull trout, other species and numbers captured at the eight Fishtrap Creek survey sites included 352 westslope cutthroat trout, 16 mountain whitefish, two rainbow trout, and four rainbow x westslope cutthroat hybrids. The 2011 Fishtrap Creek drainage raw data are provided in Appendix D.

Table 5-3: Standardized density estimates for bull, rainbow, westslope cutthroat (WCT), rainbow x westslope cutthroat hybrid (RBxWCT), and mountain whitefish during electrofishing of Fishtrap Creek in 2011.

Location	Section Length (m)	Species	Estimate per 100 meters	95% C.I.	Estimate per 100 m^2	95% C.I.	g/100m^2
Site 1	128	BULL	1.6	1.6-1.6	0.16	0.16-0.16	8.79
		MWF	4.7	4.7-4.7	0.49	0.49-0.49	53.86
		WCT	26.6	25.0-29.9	2.77	2.60-3.12	67.79
		RBxWCT	1.6	1.6-1.6	0.16	0.16-0.16	2.03
Site 1.1	130	BULL	3.1	3.1-3.1	0.31	0.31-0.31	17.38
		MWF	2.3	2.3-3.4	0.23	0.23-0.34	33.99
		RB	0.8	0.8-0.8	0.08	0.08-0.08	4.92
		WCT	16.9	16.2-19.6	1.69	1.62-1.96	53.31
Site 1.2	100	BULL	14.0	13.0-17.1	1.49	1.38-1.82	44.38
		MWF	4.0	4.0-4.0	0.43	0.43-0.43	99.28
		WCT	50.0	47.0-55.4	5.32	5.00-5.90	298.40
		RBxWCT	2.0	2.0-2.0	0.21	0.21-0.21	6.70
Site 2	90	BULL	N/A	N/A	N/A	N/A	N/A
		MWF	3.3	3.0-4.8	0.48	0.48-0.69	112.08
		RB	1.1	1.1-1.1	0.16	0.16-0.16	33.49
		WCT	84.4	52.0-127.0	12.24	8.37-18.42	731.85
Site 2.1	107	BULL	4.7	4.7-4.7	0.81	0.81-0.81	13.86
		WCT	17.8	17.8-18.7	3.06	3.06-3.21	46.23
Site 2.2	103	BLT	11.7	11.7-13.1	3.76	3.76-4.21	136.05
		WCT	49.5	45.6-56.3	15.97	14.72-18.15	404.10
Site 2.3	100	BULL	11.0	10.0-14.9	2.20	2.00-2.99	61.38
		WCT	75.0	71.0-81.3	15.00	14.20-16.26	264.00
Site 2.4	110	WCT	52.7	50.0-57.7	12.55	11.90-13.74	222.21

5.3.2 Jungle Creek

Electrofishing surveys were completed at two sites located on Jungle Creek (*refer to* Figure 5-2). The average survey section length for the two sites was 108.5 meters. A total of nine bull trout were captured at both of the survey locations (three at Site 1 and six at Site 2), ranging in size from 137 to 239 mm. Although the Jungle Creek sample size is small, the data indicate that bull trout densities (Table 5-4) may be generally lower (three to six bull trout per 100 meters) than other surveyed stream reaches within the Fishtrap Creek drainage.

In addition to bull trout, 112 westslope cutthroat trout were captured at the two Jungle Creek sites. The 2011 Fishtrap Creek drainage raw data are provided in Appendix D.

Table 5-4: Total and estimated (fish≥75mm) number of bull (BULL), and westslope cutthroat trout (WCT), captured during electrofishing surveys of Jungle Creek in 2011.

Location	Section Length (m)	Species	Estimate per 100 meters	95% C.I.	Estimate per 100 m^2	95% C.I.	g/100m^2
Site 1	100	BULL	4.0	3.0-10.8	0.98	0.73-2.64	59.22
		WCT	49.0	48.0-51.3	11.95	11.71-12.51	510.32
Site 2	117	BULL	6.0	5.1-9.3	1.50	1.28-2.32	70.75
		WCT	46.2	45.3-48.1	11.54	11.32-12.02	544.62

5.3.3 Beatrice Creek

Electrofishing surveys were completed at two sites located on Beatrice Creek (*refer to* Figure 5-2). The average survey section length for the two sites was 106.5 meters. Bull trout were captured at both of the survey locations. A total of 96 bull trout were captured at both sites and ranged in size from 68 to 300 mm. Based on the results from the two sites, bull trout densities in Beatrice Creek were much greater at Site 1 (70 bull trout per 100 meters) than Site 2 (18 bull trout per 100 meters) (Table 5-5).

In addition to bull trout, 75 westslope cutthroat trout were also captured at the two Beatrice Creek survey sites. The 2011 Fishtrap Creek drainage raw data are provided in Appendix D.

Table 5-5: Standardized density estimates for bull (BULL) and westslope cutthroat trout (WCT)in Beatrice Creek in 2011.

Location	Section Length (m)	Species	Estimate per 100 meters	95% C.I.	Estimate per 100 m^2	95% C.I.	g/100m^2
Site 1	113	BULL	69.9	66.4-75.7	12.71	12.07-13.77	144.91
		WCT	37.2	37.2-38.3	6.76	6.76-6.96	308.83
Site 2	100	BULL	18.0	17.0-20.7	4.00	3.78-4.60	217.60
		WCT	31.0	31.0-31.0	6.89	6.89-6.89	286.58

5.3.4 West Fork Fishtrap Creek

Electrofishing surveys were completed at three sites located on West Fork Fishtrap Creek (*refer to* Figure 5-2). The average survey section length for the three sites was 94.7 meters. Bull trout were captured at all three of the survey locations. A total of 59 bull trout were captured at the survey locations, ranging in size from 81 to 300 mm. Based on the results from the three sites, bull trout density estimates were greatest, approximately 37 per 100 meters, in the middle of the surveyed stream reach, at Site 2, compared to Site 1 and Site 3 with density estimates of 16.5 and 10.1 per 100 meters, respectively (Table 5-6).

In addition to bull trout, 137 westslope cutthroat trout were captured at the three West Fork Fishtrap Creek survey sites with the greatest number (64 westslope cutthroat trout) captured at Site 2. The 2011 Fishtrap Creek drainage raw data are provided in Appendix D.

Table 5-6: Standardized density estimates for bull (BULL) and westslope cutthroat trout (WCT) in West Fork Fishtrap Creek in 2011.

Location	Section Length (m)	Species	Estimate per 100 meters	95% C.I.	Estimate per 100 m^2	95% C.I.	g/100m^2
Site 1	85	BULL	16.5	16.5-16.5	2.50	2.50-2.50	108.81
		WCT	30.6	27.1-34.1	4.63	4.46-5.16	234.51
Site 2	100	BULL	37.0	36.0-39.6	6.38	6.21-6.82	125.03
		WCT	38.0	37.0-40.1	6.55	6.38-6.91	305.31
Site 3	99	BULL	10.1	9.0-13.0	2.02	1.82-2.59	70.91
		WCT	35.4	34.0-37.5	7.07	6.87-7.50	199.39

5.3.5 Beartrap Creek

Electrofishing surveys were completed at two sites located on Beartrap Creek (*refer to* Figure 5-2). The average survey section length for the two sites was 98.5 meters. Bull trout were captured at only one of the survey locations; a total of 44 bull trout were captured at Site 1, and ranged in size from 97 to 135 mm. In addition to bull trout, 75 westslope cutthroat trout were also captured at Site 1. Fish densities in Site 1 were approximately 46 bull trout per 100 meters and 77 westslope cutthroat trout per 100 meters (Table 5-7). As was the case with bull trout, no other species were captured at Site 2. The 2011 Fishtrap Creek drainage raw data are provided in Appendix D.

Table 5-7: Standardized density estimates for bull (BULL) and westslope cutthroat trout (WCT) in Beartrap Creek in 2011.

Location	Section Length (m)	Species	Estimate per 100 meters	95% C.I.	g/m^2	Estimate per 100 m^2	95% C.I.	g/100m^2
Site 1	97	BULL	46.4	44.0-48.9	1.4	9.87	9.65-10.40	135.23
		WCT	77.3	74.8-79.8	2.1	16.45	16.23-16.98	208.93
Site 2	100	No fish	N/A	N/A	N/A	N/A	N/A	N/A

6.0 Total Dissolved Gas (TDG) Study

6.1 Methods

6.1.1 Total Dissolved Gas Monitoring

PPL Montana has monitored total dissolved gases (TDG) in the Clark Fork River in the Thompson Falls Hydroelectric Project area since 2003. All field work and data gathering is conducted by PPL Montana personnel.

Hydrolab Series 4 and 5 DataSondes fitted with Total Dissolved Gas (TDG) sensors are used to collect TDG data. DataSonde TDG sensors are calibrated by the manufacturer, Hydrolab, every two to three years. At the beginning of the year, TDG sensors are compared to each other for accuracy and brought to within 1 mmHg of each other if necessary. Sensor membranes are pressure tested by PPL Montana to approximately 1000 mmHg at the beginning of the spill season. Each membrane is used once during the spill season.

TDG is monitored during the high flow season, typically from April until July, with exact dates varying slightly every year. In 2011, TDG was monitored from April 8 to July 27 (slightly longer at the High Bridge and Birdland Bay Bridge). Deployment periods for the DataSonde units were three - four weeks. Biological and sediment fowling is not a problem at the water temperatures found at the project site over this length of time. All parameters including pH, specific conductivity, DO and turbidity are calibrated at the beginning of each 4-week deployment period. During calibrations, sensors are cleaned and batteries replaced. Time and date are checked. The stated accuracy of the TDG sensor is +/- 1.5 mm Hg over a range of 400 to 1400 mmHg.

Barometric pressure (BP) is measured by an Onset Computer Corp HOBO Microstation Barometric Pressure Smart Sensor with a stated error of +/- 1.5 mbar = 1.1 mmHg at 25^{o}C and a maximum error of +/- 2.5 mbar = 0.9 mm Hg over the temperature range -10^{o}C to +60^{o}C. The barometer is mounted approximately 6 feet above the floor of the Control Room in the old powerhouse. The elevation of the barometer is approximately 2381.2 msl.

Monitoring sites have varied in some years, but in 2011 the sites monitored were 1) above dam, 2) High Bridge, and 3) Birdland Bay Bridge, (Figure 6-1). The High Bridge monitoring site captures information on TDG at a location that is downstream of the Main Dam spillway and the falls, but is upstream of where the Dry Channel Dam spill enters the river. The Birdland Bay Bridge monitoring site captures information on the level of TDG entering Noxon Rapids Reservoir. All three sensors suffered failures during some periods during the 2011 monitoring season. However, the data recovery is sufficiently complete to draw conclusions on TDG in the Clark Fork River during 2011.

Figure 6-1: Monitoring locations for total dissolved gas at the Thompson Falls Hydroelectric Project site.

6.1.2 Impact of Operations on TDG

The Thompson Falls Fish Ladder was completed in March 2011. Therefore, 2011 was the first year of testing to determine the impact of the fish ladder on TDG. The Thompson Falls TAC agreed that attracting fish to the fish ladder would be the priority effort in 2011. For that reason, the Main Dam Spillway was operated in a manner estimated to be most beneficial for attracting fish to the fish ladder.

The impact of the spillway operation on TDG was evaluated through comparison with prior years with differing spillway operations.

6.1.3 Gas Bubble Trauma Monitoring

Electrofishing downstream of Thompson Falls Dam between the Main Dam and the Highway 200 Bridge was conducted during high flow time periods in 2011 (Table 6-1). This area was chosen for crew safety and because fish in this reach of river have the highest possibilities of showing symptoms of gas bubble trauma (GBT). Sampling occurred on 10 days when flows

were higher than 50,000 cfs, which is the discharge at which TDG begins to approach 115 percent of saturation at Birdland Bay Bridge.

Electrofishing was conducted with an 18.5 foot, aluminum hull Wooldridge boat with a gasoline generator and a Smith-Root VVP 15A rectifier using 120-160 volts with 4-6 amps. The waveform setting varied and was dependent on conductivity in the river system, which varies seasonally. Two booms were attached to the hull extending 4 feet past the bow with four dangling electrodes per boom. Shocking crews consisted of the boat driver and two netters. Captured fish were put in a 100 gallon holding tank before being measured (total length). All electrofishing was done during daylight hours. Most fish sampled were within 1 meter of the surface, where potential effects from TDG are greatest.

External examination of fishes (all species) included gills, lateral line, and fins. Fish were examined for bubbles, which can be very fine, or off coloring or fraying or unhealthy changes from normal morphology.

Table 6-1: Sampling dates for biological sampling for gas bubble trauma in 2011.

Date of sampling	Discharge[3] (cfs)	Water Temperature ºC	# Fish Examined
5/18/2011	73,733	8.3	48
5/23/2011	74,877	9.5	115
5/31/2011	81,563	8.6	90
6/1/2011	78,529	8.6	85
6/7/2011	89,994	10.2	116
6/8/2011	102,531	10.2	133
6/14/2011	104,382	10.5	128
6/15/2011	105,281	10.5	88
6/22/2011	92,000	11.0	49
6/23/2011	97,728	11.0	97

6.2 TDG Results

Peak discharge in the Clark Fork River in the project area in 2011 was approximately twice as much as the long-term average (Figure 6-2), reaching approximately 120,000 cfs in mid-June 2011. In addition, the high flow period lasted about twice as long as is typical; with river flow in excess of 60,000 cfs until mid-July 2011. Clark Fork River flows in the area of the Thompson River Hydroelectric Project were significantly higher in 2011 than in any other year since the TDG study began in 2003 (Figure 6-3).

[3] Discharge measured by PPL Montana at the Thompson Falls Hydroelectric Project at noon on the date specified.

Figure 6-2: Discharge in the Clark Fork River in 2011 compared to the long-term average. 2011 data were collected by continuous recorded by PPL Montana at the Thompson Falls Hydroelectric Project site. The long-term average is mean daily flow at the U.S. Geological Survey gage at Plains # 12389000, from 1911 – 2010.

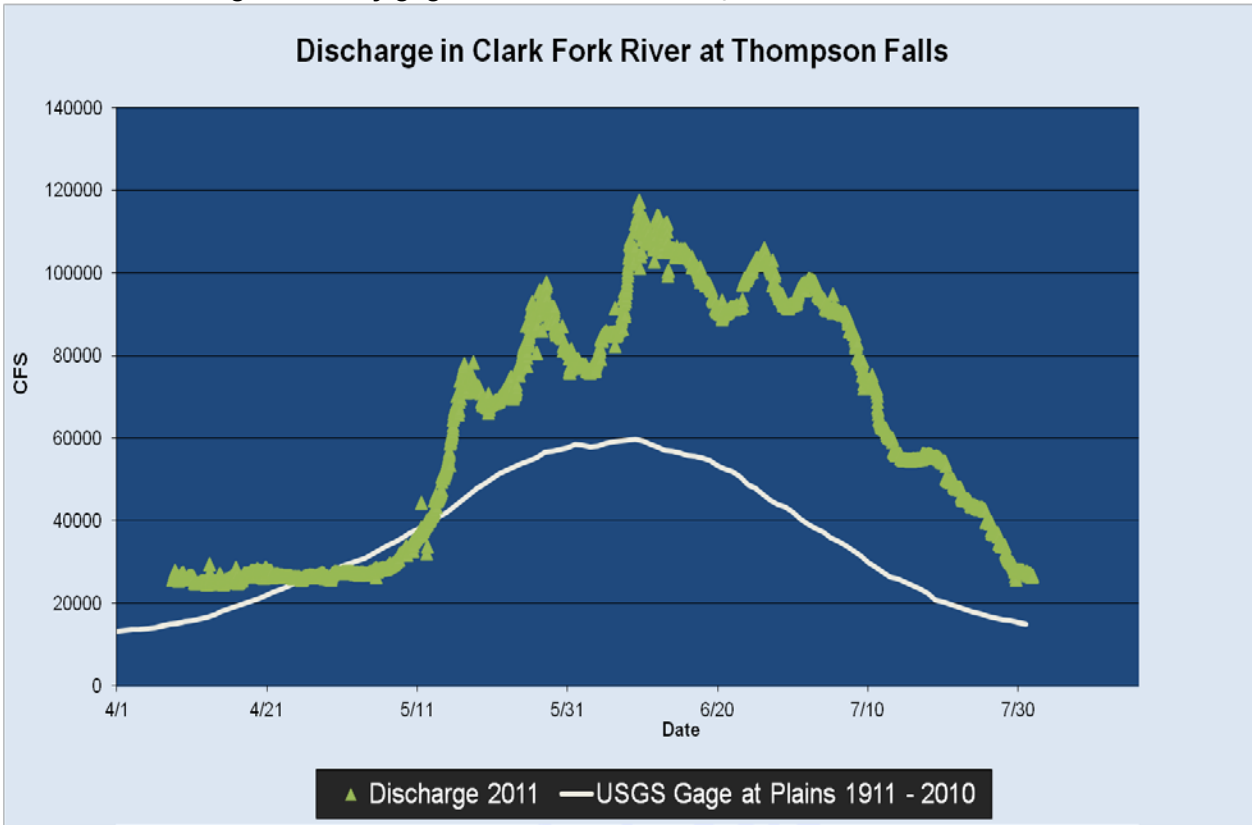
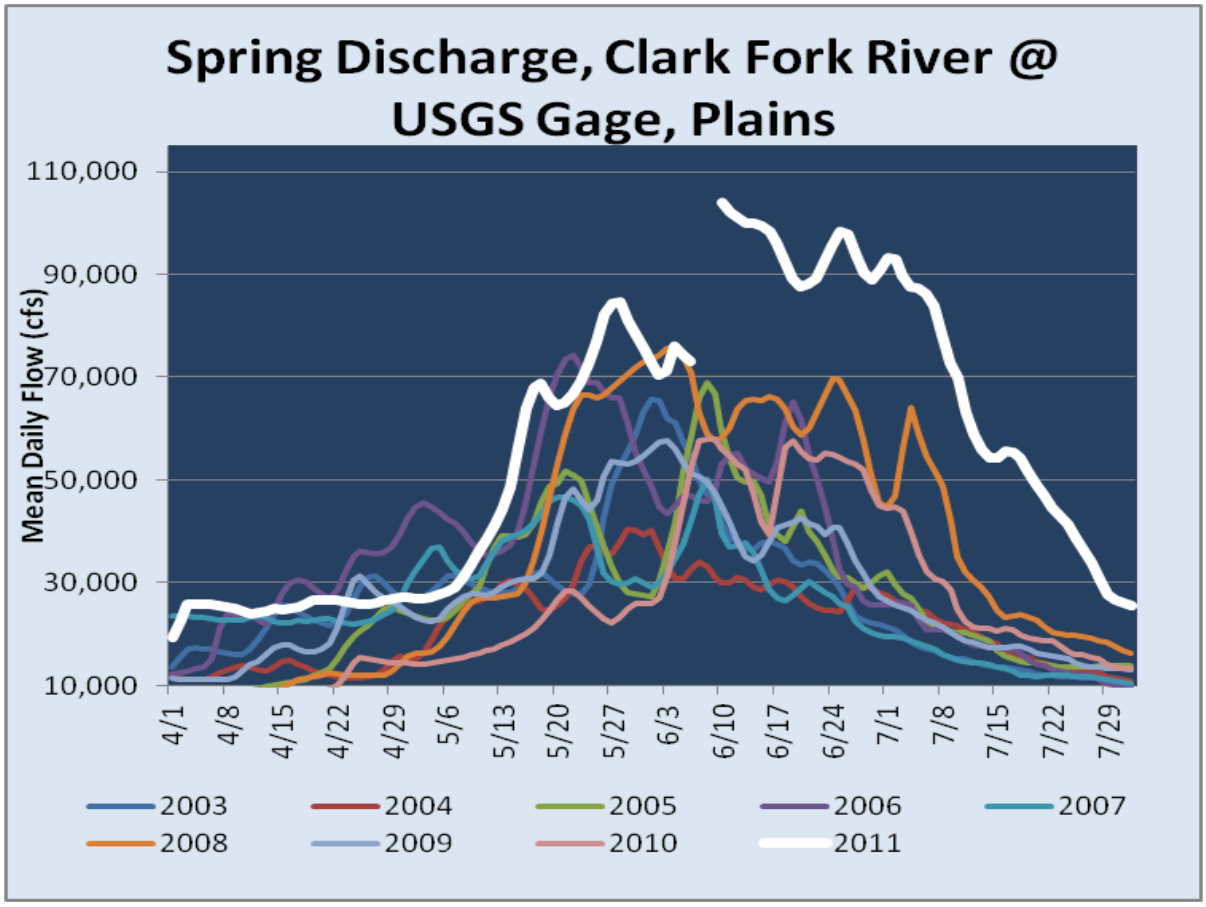


Figure 6-3: Mean daily discharge in the Clark Fork River from April 1 to July 31 in each of the years when TDG data has been collected at the Thompson Falls Hydroelectric Project site. Data collected at the U.S. Geological Survey gage station at Plains, Montana, Station # 12389000.

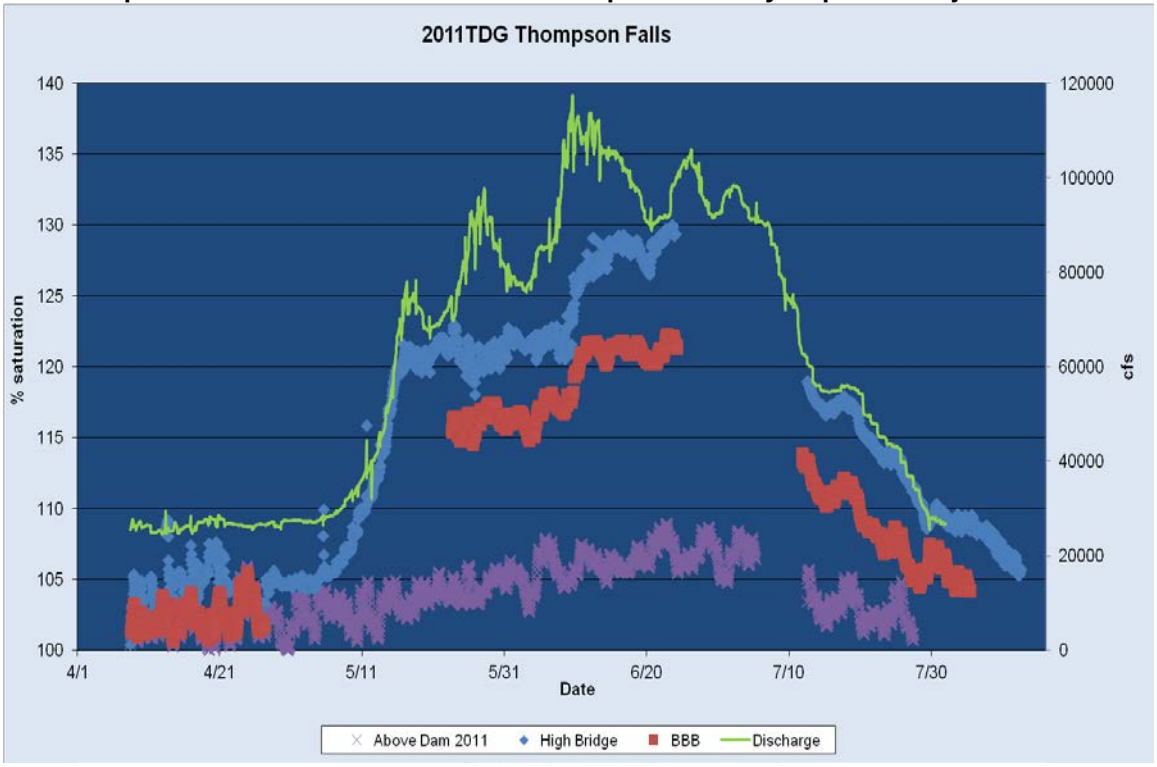


6.2.1 Measurements of TDG in the Project Area

Similar to past years, TDG in 2011 was lowest above the Project, highest at the first measurement site below the Project (at the High Bridge), and intermediate at the most downstream site at the Birdland Bay Bridge (Figure 6-3). TDG levels declined downstream of the High Bridge as a result of mixing with river flow coming through the powerhouse and, potentially, some degassing as the river moves downstream.

TDG upstream of the Thompson Falls Hydroelectric Project peaked at approximately 108 percent of saturation during 2011. TDG levels at the High Bridge approached 130 percent of saturation, and TDG at the Birdland Bay Bridge site was approximately 122 percent of saturation in 2011. These readings were higher than recorded in previous years at these locations, corresponding to the higher streamflows. These peaks in TDG occurred during peaks in discharge that were higher than had been recorded during previous years.

Figure 6-4: Total Dissolved Gas (% of saturation) and discharge (cfs) in the Clark Fork River upstream and downstream of the Thompson Falls Hydropower Project in 2011.



However, TDG at discharge less than 70,000 cfs was not higher in 2011 than in previous years. Tables 6-2 and 6-3 describe maximum and mean TDG over a range of discharge for each year of the study. Up to a total river discharge of 70,000 cfs, TDG at the Birdland Bay Bridge was comparable to previous years, and often lower than many previous years. Between 50,000 and 60,000 cfs, 2011 had the lowest maximum TDG and tied 2003 as being the years with the lowest mean TDG over this range of flow.

These data indicate that the unusually high TDG readings in 2011 occurred during the time period when the Clark Fork River was flowing in excess of 70,000 cfs.

Table 6-2: Maximum TDG recorded over a range of discharge at the Birdland Bay Bridge on the Clark Fork River, Montana. 2003-2011.

Total Flow	2003	2004	2005	2006	2007	2008	2009	2010	2011
>23,000, <30,000	111.5	109.6	107.6	106.7	105.6	113.1	109.5	106.0	107.6
>30,000, <40,000	112.6	109.2	112.7	111.1	108.3	114.8	108.9	111.3	108.3
>40,000, <50,000	111.1	108.9	113.3	115.0	112.8	115.3	112.9	113.8	109.0
>50,000, <60,000	113.9	N/A	114.4	116.7	N/A	119.5	114.6	113.2	112.4
>60,000, <70,000	114.0	N/A	115.1	117.0	N/A	118.2	113.1	N/A	116.4
>70,000, <80,000	114.1	N/A	114.0	117.0	N/A	116.6	N/A	N/A	116.9
>80,000, <90,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120.8
>90,000, <100,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	122.3
>100,000, <110,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	121.8
>110,000, <120,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	121.7

Table 6-3: Mean TDG recorded over a range of discharge at the Birdland Bay Bridge on the Clark Fork River, Montana. 2003-2011.

Total Flow	2003	2004	2005	2006	2007	2008	2009	2010	2011
>23,000, <30,000	102.1	103.5	103.6	103.6	102.5	102.2	102.6	102.0	102.9
>30,000, <40,000	104.7	105.0	107.1	106.7	105.2	105.6	105.2	106.6	105.8
>40,000, <50,000	109.5	107.5	110.4	110.6	109.0	110.6	109.2	110.9	108.1
>50,000, <60,000	111.0	N/A	112.7	114.3	N/A	114.9	113.0	111.6	111.0
>60,000, <70,000	112.9	N/A	114.1	115.7	N/A	116.0	113.1	N/A	113.5
>70,000, <80,000	113.2	N/A	114.0	115.7	N/A	115.9	N/A	N/A	116.0
>80,000, <90,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	116.8
>90,000, <100,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	119.7
>100,000, <110,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120.6
>110,000, <120,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	119.9

6.2.2 Spillway Panel Operations

Photos 6-1 and 6-2 show the Main Dam spillway, with the spill bays numbered. Each spill bay contains 6 spill panels. When opened, the panels release 235 cfs at full pool. In 2006, PPL Montana implemented a specialized spillway operation schedule in an effort to determine if fish can be attracted to the right bank of the Main Dam. This "fish" spillway schedule was implemented during spill operations in 2006, 2007, and 2008. Data collected on TDG during this period indicated that TDG levels may have been slightly higher during the years when the "fish" spill schedule was implemented than during previous years when the "non-fish" schedule was in place. A visual comparison of the "fish" *vs.* the "non-fish" operating schedule indicated that TDG levels were higher by approximately 2-3 percent under the "fish" operating schedule, when total flow is in excess of approximately 45,000 cfs.

A TDG Control Plan was prepared in 2010 which recommended a spillway opening schedule for the Main Dam Spillway that would be a "dual mode" plan. That is, it was a combination of the

"fish" and the "non-fish" spillway opening schedule. This schedule was developed in consultation with operators at the Thompson Falls Hydroelectric Project to enhance fish attraction to the Main Dam to promote adult upstream fish passage, while minimizing potential impacts to TDG.

2011 was the first year that TDG was measured with the fish ladder in operation. The "Dual Mode" operating schedule for the Main Dam Spillway was implemented, with minor modifications, in order to attract the greatest number of migrating adult fish as possible.

Some modifications to the schedule were made as an experiment to enhance hydraulic conditions for fish passage in the tailrace of the Main Dam Spillway. These experiments were conducted to determine which of the right bank bays should be opened first to attract migrating fish. The spillway opening schedule calls for Bays 4, 8, and 12 to be opened first, but this may not be the optimal pattern to attract fish to the fish ladder. These tests had little to no impact on TDG, as they were conducted during low flow periods.

Photo 6-1: The right and center of the Main Dam, with bays numbered.

Photo 6-2: The left bank of the Main Dam at the Thompson Falls Project, with the spillway bays numbered.

Figure 6-5: Operational Plan for the Main Dam Spillway applied in 2011.

Thompson Falls Main Dam Spillway -"Dual Mode" Spill Schedule

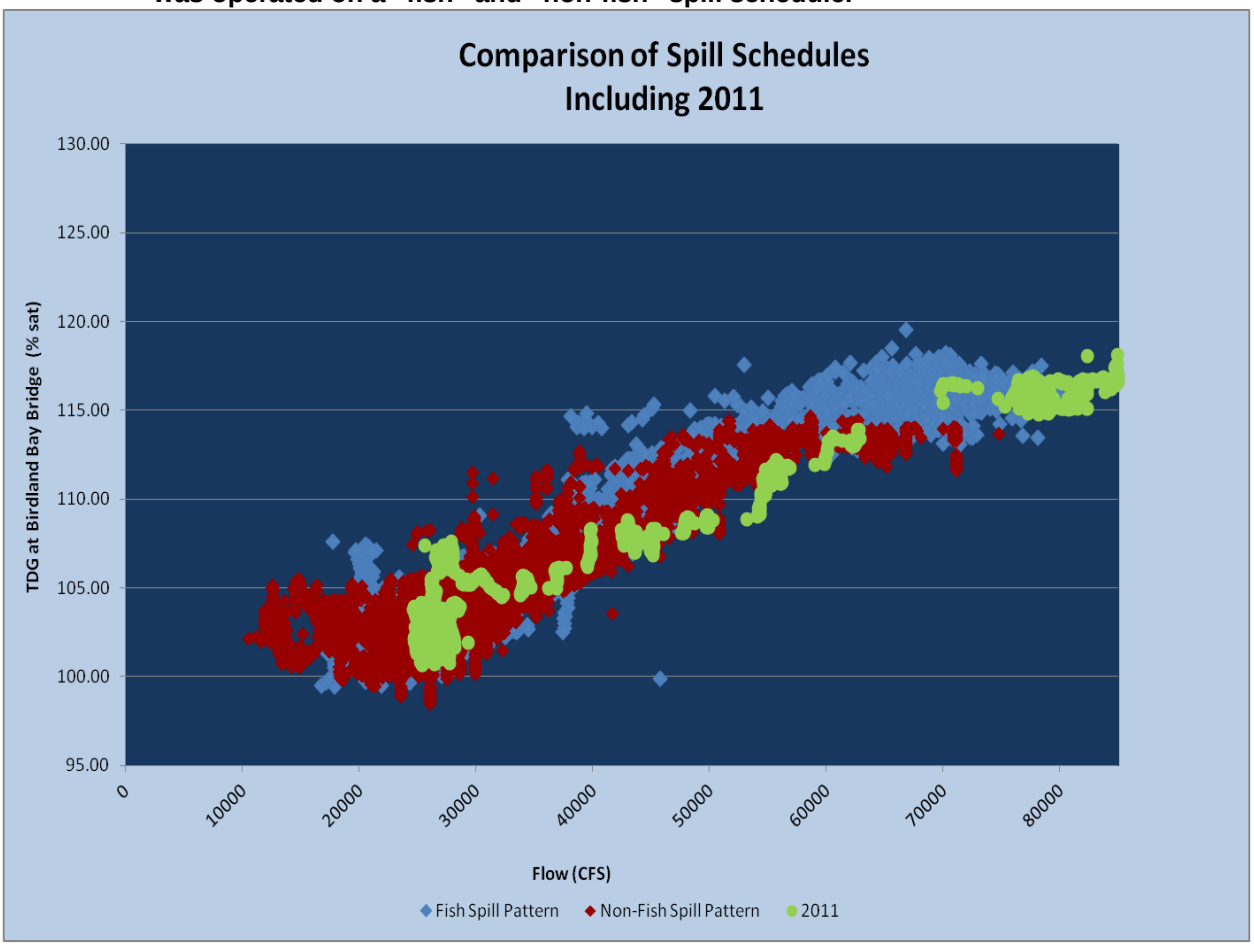
BAY NUMBER																																		Lift Gates	Total Flow (cfs)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
			1				1				1																								3	23,705
			1				1				1																	6	6	6	6	6	6	6	6	51	34,985
			1				1		6	6	1																	6	6	6	6	6	6	6	6	63	37,805
			1				1		6	6	1															6	6	6	6	6	6	6	6	6	6	75	40,625
			1				6	6	6	6	1															6	6	6	6	6	6	6	6	6	6	86	43,210
			1				6	6	6	6	1													6	6	6	6	6	6	6	6	6	6	6	6	98	46,030
			1		6	6	6	6	6	6	1													6	6	6	6	6	6	6	6	6	6	6	6	110	48,850
			1		6	6	6	6	6	6	1											6	6	6	6	6	6	6	6	6	6	6	6	6	6	122	51,670
			6	6	6	6	6	6	6	6	1											6	6	6	6	6	6	6	6	6	6	6	6	6	6	133	54,255
			6	6	6	6	6	6	6	6	1								6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	151	58,485
	6	6	6	6	6	6	6	6	6	6	1								6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	163	61,305
	6	6	6	6	6	6	6	6	6	6	1						6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	175	64,125
6	6	6	6	6	6	6	6	6	6	6	1						6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	181	65,535
DRY CHANNEL SPILLWAY (12 Bays)																																			
6	6	6	6	6	6	6	6	6	6	6	6																							72	82,455
Radial Gates (Bays 16 and 17)																																			
													Both - Full-Open - 11,000 cfs per bay																							104,455

Notes:

1. Numbers under each bay represent the six lift gates in each spill bay
2. Each bay should have all six lift gates opened, before opening lift gates from another bay
3. Closing sequence is opposite of the opening sequence
4. Bays 13 through 15 should never be opened
5. Bays 16 and 17 are radial gates, to be operated in a pre-set manner by operations for forebay elevation control, and load rejection purposes

As shown on Figure 6-5 and Tables 6-2 and 6-3, TDG levels in 2011 compared favorably to past years TDG levels, when compared on a TDG per cfs level, up to 70,000 cfs total discharge. TDG levels at the Birdland Bay Bridge were as low, or lower, than the "non-fish" spillway operating schedule over a wide range of discharge. Therefore, operation of the spillway with the fish ladder in place, in a fish attraction operating mode, did not have a detrimental impact on TDG in the Clark Fork River downstream of the Thompson Falls Hydroelectric Project.

Figure 6-6: Total Dissolved Gas measurements up to 85,000 cfs at the Birdland Bay Bridge at varying levels of discharge in 2011, and in prior years when the Main Dam Spillway was operated on a "fish" and "non-fish" spill schedule.



An unusual pattern was detected in the TDG measurements at the highest level of river discharge at both the Birdland Bay Bridge and the High Bridge in 2011 (Figures 6-6 and 6-7). Generally, TDG increases with increasing discharge up to a point (of approximately 70,000 cfs), but discharge in excess of that level does not generate increased TDG. In 2011, that pattern was observed, except that some TDG measurements (show within the white or yellow circle) were noticeably higher than others at the same level of discharge. The reason for this anomaly cannot be determined with certainty; however there appears to have been a change in TDG after peak discharge occurred on June 9, 2011.

Figure 6-7: TDG by discharge, measured at the High Bridge on the Clark Fork River in 2011.

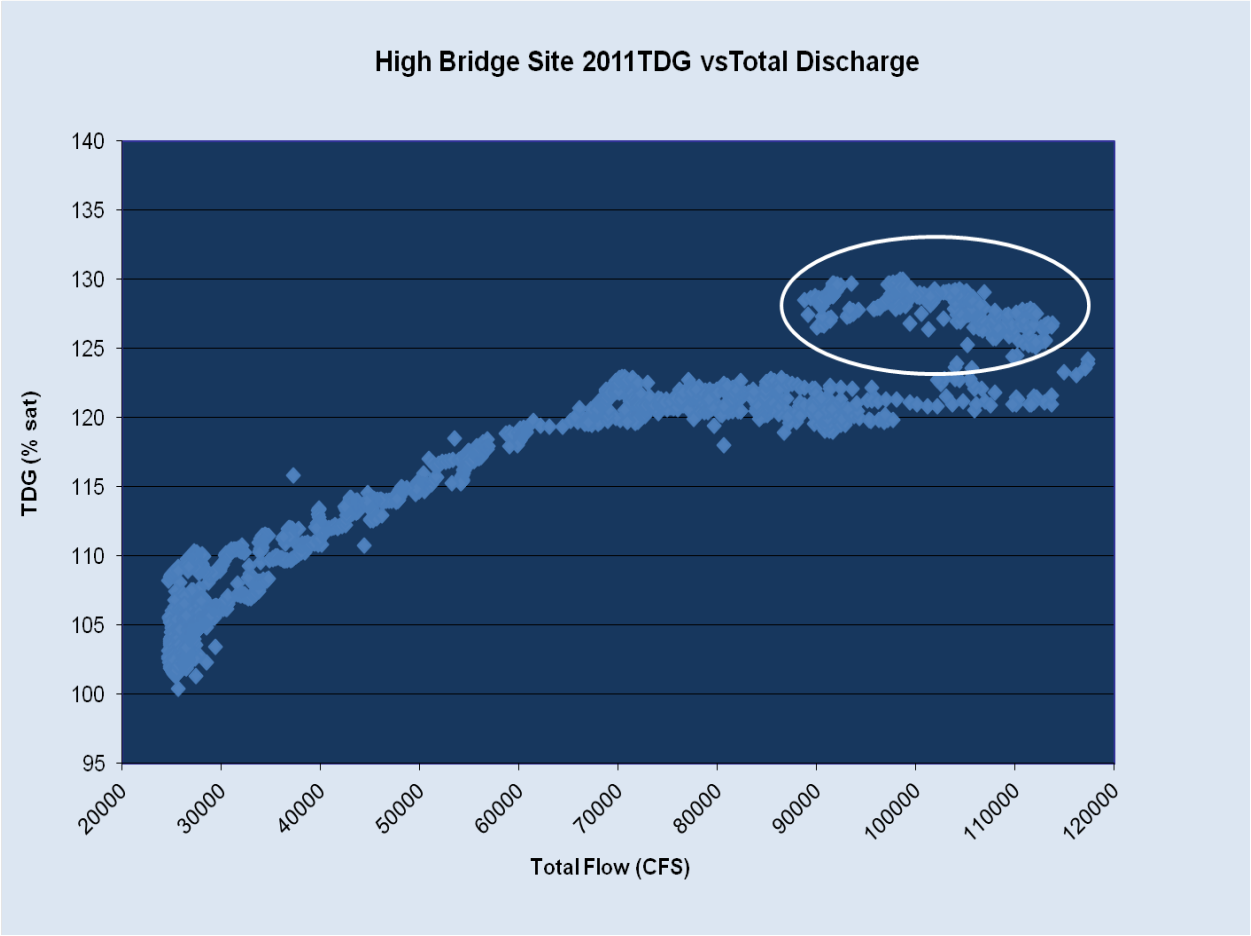
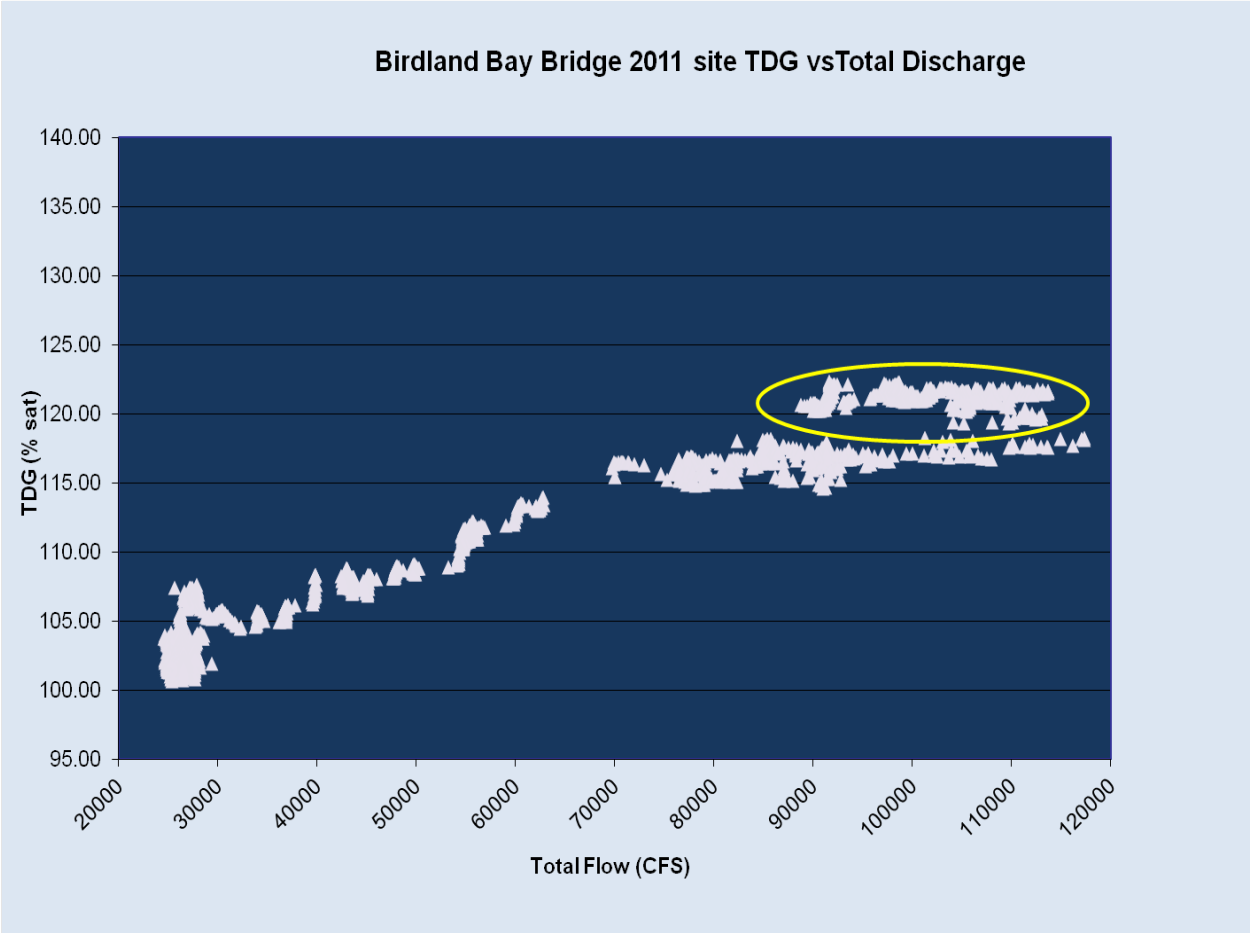


Figure 6-8: TDG by discharge, measured at the Birdland Bay Bridge on the Clark Fork River in 2011.



As shown in Table 6-4, the level of TDG was higher after June 9 than before June 9, even over the same range of discharge. On June 9, flow in the Clark Fork River at Thompson Falls Dam exceeded 110,000 cfs for the first time in the season. All spillway panels at both the Main Dam Spillway and the Dry Channel Spillway were open. Large amounts of debris were being carried by the high flows, including large debris such as whole trees. This debris was lodging on the spillway, causing hazardous conditions.

The spillways at the Thompson Falls Hydroelectric Project have removable panels that are 4-foot by 8-foot and can be lifted with a crane mounted on the spillway. These are used to pass routine amounts of spill during the runoff season. However, for exceptionally high discharges, the dam operators can trip the stanchions on the spillway and open an additional panel to pass high water. This is rarely done (roughly once every 10 years or less often), as it is generally unnecessary and requires drawing the reservoir down to crest in order to repair the stanchions and return the spillway to its typical operating configuration. However, as a result of extreme high flow and debris, the stanchions were tripped at several panels on the Main Dam and Dry Channel Spillways on June 9.

Table 6-4: Mean TDG Measured at the High Bridge over a range of flows, for the entire season, before June 9, and after June 9.

Total Flow	2011 all dates	Before June 9	After June 9
<23	N/A	0	N/A
>23 <30	104.8	104.4	109.4
>30 <40	109.9	108.8	111.4
>40 <50	113.7	112.9	114.0
>50 <60	117.1	117.0	117.1
>60<70	120.5	120.7	118.7
>70 <80	121.3	121.3	N/A
>80 <90	121.6	121.4	128.3
>90 <100	125.8	120.4	128.5
>100 <110	127.1	121.9	127.8
>110<120	125.2	N/A	125.2

It appears that the tripping of the stanchions may have created a larger plunge of water over the spillway and resulted in increased TDG in the river downstream of the project site.

Figure 6-9: The Main Dam Spillway at Thompson Falls Hydroelectric Project. Note that two spillway panels have been removed. When the stanchions are tripped, the panels underneath are removed to allow additional water and debris to pass over the spillway.

6.3 GBT Monitoring

Table 6-5 shows the results of the fish impact evaluation done in 2008, 2009, and 2011. No GBT sampling was done in 2010 due to the short duration of flows in excess of 50,000 cfs. In past years with lower river discharge and lower TDG, fish showing external symptoms of GBT were rare, with only one fish out of 496 fish examined (both 2008 and 2009 combined) showing external symptoms. In 2011, higher TDG resulted in a higher number of fish detected with external GBT symptoms. Of the 67 fish with symptoms, seven were noted to have bubbles and one rainbow trout was noted to have exophthalmia ('pop eye'). All the other external symptoms noted were minor.

Table 6-5: Number of fish evaluated for gas bubble trauma (GBT) and the number and types of fish observed to have symptoms of GBT.

Year	# of Fish	# of Species	# Fish with GBT Symptoms	Species with Symptoms
2008	220	16	1 (0.4%)	LWF
2009	276	14	0	
2011	949	15	67(7%)	RB, LWF, LSS, PUMP, NPM, LL

6.4 Recommendations

The high levels of TDG noted in 2011 were a result of exceptionally high discharge in 2011. In addition, the operational need to trip the stanchions on the spillways seemed to have created a spike in TDG measurements.

However, operating the Main Dam Spillway to enhance fish migration to and through the fish ladder did not have a detrimental impact on TDG. Therefore, it is recommended that the Main Dam Spillway be operated in the same manner as in 2011.

Experiments should continue to find the best configuration of panel openings to attract fish to the fish ladder.

In the event of exceptionally high flows, operators should avoid tripping the stanchions if possible. However, dam safety considerations will be paramount in extreme high flow conditions.

7.0 TAC Funded Projects in 2011

7.1 2011 TAC Funded Projects

Thompson Falls TAC funded one project in 2011 to support continued bull trout genetic testing of bull trout sampled in the Clark Fork River drainage. The genetic sampling and results would be used to further enhance and maintain the existing genetic database that is managed by Avista.

7.1.1 Bull Trout Genetic Sampling

In 2011, PPL Montana allocated approximately $5,582 to bull trout genetic analysis from samples collected in the Clark Fork River drainage to improve the genetic baseline database. Juvenile bull trout samples were taken in the Fishtrap Creek drainage in 2011 and sent to Abernathy Labs for analysis. Results from these samples will be available in spring 2012, and consequently will not be available until after the submittal of this report to the Commission. Therefore, results will be included in the 2012 Annual Report scheduled for submittal in April 2013.

8.0 Compliance with the Terms and Conditions of the Biological Opinion

The sections below provide the seven Terms and Conditions taken directly from FWS's Biological Opinion followed by a statement describing PPL Montana's actions of compliance.

8.1 Term and Condition TC1 – Upstream Passage:

8.1.1 Requirement

The Biological Opinion states that:

> a. During 2009 and 2010, PPL Montana will construct a fish passage facility (permanent fishway) to provide timely and efficient upstream passage at the right abutment of the main dam, as agreed to by the Service and through oversight of the TAC (as provided for in the interagency Thompson Falls MOU).
>
> b. During construction and cleanup, PPL Montana will follow permit procedures as required by the Service, the State of Montana, and U.S. Army Corps of Engineers so that minimal impacts to downstream aquatic resources occur during construction.
>
> c. PPL Montana will determine operational procedures for the passage facility and develop a written operation and procedure manual (SOP) by the end of 2010, with input from the TAC and approval by the Service, updated as needed.
>
> d. For the remaining term of the license (expiring December 31, 2025), PPL Montana will ensure that operation of the fish passage facility is adequately funded and conducted in compliance with the approved SOP; including activities such as biological studies, transport of bull trout (as needed), and assessment of ladder efficiency.
>
> e. During the Phase 2 evaluation period (2010 through 2020), PPL Montana will provide adequate funding for genetic testing to determine the likely natal tributary of origin of all adult bull trout which ascend the fishway and enter the sample loop, as well as those otherwise captured at the base of Thompson Falls Hydroelectric Project. In order to positively identify natal origin of bull trout at the project, PPL Montana will institute a permanent fish tagging system for all bull trout handled during

monitoring and for other fisheries investigation activities in the Project area.

f. During the Phase 2 evaluation period (2010 through 2020), PPL Montana will make a fish transport vehicle available, and provide staff to transport any adult bull trout that is captured at Thompson Falls Hydroelectric Project and determined by the SOP to require transport to upstream waters.

g. In consultation with the TAC, PPL Montana will prepare by January 1, 2011, for Service approval, an action plan for Phase 2 of the evaluation period (2010 through 2020) to evaluate efficiency of the upstream passage facility. The goal will be to assess how effective the ladder is at passing bull trout, the potential length of any delay, the amount of fallback, and the optimal operational procedures to achieve the highest efficiency. During this Phase 2 evaluation period (2010 through 2020) a routine feedback loop will be established and used, as agreed to by the Service, to fine tune operations and will be combined with a variety of experimental and evaluative studies. It may be necessary to conduct research on surrogate species (e.g., rainbow trout) at the discretion of the TAC, in order to facilitate certain of these evaluations. At a minimum, for the remaining term of the license (through 2025), PPL Montana will support a sampling method to annually estimate the total numbers of all species passing through the ladder and adequately characterize the timing of such movements.

h. During the entire Phase 2 evaluation period (2010-2020), the TAC, subject to approval of the Service and with PPL Montana support, will provide adequate oversight of scientific aspects, surveys, studies, and protocols associated with the fish passage aspects of the Project. At the end of the Phase 2 evaluation period (2010-2020), and upon completion and adequate distribution and consideration of a comprehensive ten-year report (due December 31, 2020), PPL Montana will convene a structured scientific review of the project, guided by the TAC. This scientific review will be completed by April 1, 2021 and will develop a set of recommendations to be submitted to the Service for evaluation, modification, and approval; including specific conclusions as to whether the fishway is functioning as intended and whether major operational or structural modifications of the fishway are needed. The review process will culminate, by December 31, 2021, in a revised operating plan for the fishway during the remainder of the existing term of the FERC license (2022 through 2025).

8.1.2 Compliance

PPL Montana has completed project activities in compliance with TC1 (a, b, c). PPL Montana obtained the necessary permits for construction of the ladder and completed construction of the Thompson Falls Upstream Fish Passage Facility by fall 2010 [TC 1 (a, b)]. The FERC-approved PPL Montana's *Thompson Falls Fish Ladder - Fishway Operations Manual 1.0* (SOP) in an Order issued on June 17, 2011.

PPL Montana will continue to stay in compliance with TC 1 (d) for the term of the License. PPL Montana will continue funding for the upstream fish passage facility and operate the facility in conformance with the approved SOP.

PPL Montana developed and submitted the FWS approved the *Fish Passage Evaluation Plan Phase 2 Action Plan (2011-2020)* to the FERC on October 14, 2010. The FERC issued an Order approving the plan on June 9, 2011. In 2011, PPL Montana implemented the Fish Passage Evaluation Plan, which complies with TC 1 (e, f, g, and h). PPL Montana will continue to implementation of the Fish Passage Evaluation Plan through 2020.

8.2 TC2 – Downstream Passage

8.2.1 Requirement

The Biological Opinion states that:

> PPL Montana will provide annual funding to the TAC, as approved by the Service and specified in the Thompson Falls MOU, to conduct offsite habitat restoration or acquisition in important upstream bull trout spawning and rearing tributaries. The purpose is to boost recruitment of juvenile bull trout. This funding is provided to partially mitigate for incidental take of bull trout caused by downstream passage through the turbines and spillways. The annual $100,000 contribution specified for the first term of the MOU (2009-2013) is subject to renegotiation during succeeding terms of the MOU to run from 2014-2020.

8.2.2 Compliance

In 2011 PPL Montana funded one project in support of maintaining and enhancing the bull trout genetic database for the lower Clark Fork River drainage. Details of the effort are provided in Section 9.5.1. At the annual Thompson Falls TAC meeting held on December 13, 2011, PPL Montana receive two proposals requesting funding for 2012. The TAC approved both projects and details of the proposals are provided in Section 9.5 of this report. PPL Montana will continue to collaborate and coordinate with agencies and other entities to support projects in compliance with TC2 (a).

8.3 TC3 – Gas Supersaturation

8.3.1 Requirement

The Biological Opinion states that:

> a. For the remainder of the license (through 2025), in consultation with the TAC and subject to Service approval, PPL Montana will develop and implement operational procedures to reduce or minimize the total dissolved gas production at Thompson Falls Dams during periods of spill. Future modifications to prescribed operations may be determined from ongoing evaluations, as necessary and determined appropriate by Montana Department of Environmental Quality.
>
> b. For the remainder of the license (through 2025), in consultation with the TAC and subject to Service approval, PPL Montana will continue to collaborate with MDEQ, Avista, FWP, and other entities toward reducing the overall systemic gas supersaturation levels in the Clark Fork River, occurring from a point downstream of Thompson Falls Dam to below Albeni Falls Dam.
>
> c. For the remainder of the license (through 2025), all bull trout detained through the sampling loop at the Thompson Falls Fish Ladder will routinely be examined for signs of gas bubble trauma; with results of such observations permanently recorded. Should GBT symptoms be discovered, then PPL Montana will consult the TAC on the need for immediate corrective actions and subsequently implement any new studies or potential operational changes (to the ladder or the dam) which may be required by the Service and DEQ, in order to mitigate GBT concerns.

8.3.2 Compliance

PPL Montana prepared a Total Dissolved Gas (TDG) Control Plan in collaboration with the TAC in October 2010, and submitted that plan to the Montana Department of Environmental Quality. The TDG Plan recommends continued monitoring of TDG at the Thompson Falls Hydroelectric Project, and also recommends a spillway operating plan for the Main Dam Spillway. In 2011, the TDG Plan was implemented, and the results are reported in this document.

PPL Montana will continue to collaborate with MDEQ, Avista, FWP, and other entities toward reducing the overall systemic gas supersaturation levels in the Clark Fork River.

In addition, PPL Montana monitors potential impacts of TDG of fish annually. The results of the 2011 gas bubble trauma studies are reported in this document. In 2011, no bull trout showed external symptoms of GBT, either in the fish ladder or in the river downstream of the Thompson Falls Hydroelectric Project.

8.4 TC4 – MOU and TAC:

8.4.1 Requirement

The Biological Opinion states that:

> a. Upon completion of construction of the Thompson Falls Fish Ladder (currently scheduled for 2010) and concurrent with initiation of the Phase 2 review period (mid-2010 through 2020) PPL Montana will review the Thompson Falls MOU and collaborate with the signatory agencies as to the need to revise and restructure the MOU. Any such revision should be developed around the 2010-2020 Phase 2 evaluation period and may include appropriate changes to the TAC and its operation. Subsequent revision may occur again in 2021, or as needed based on adaptive principles and subject to approval of the Service and PPL Montana.

8.4.2 Compliance

The current MOU expires on December 31, 2013. PPL Montana will coordinate with the TAC and FWS to revisit the terms of the MOU in 2012.

8.5 TC5 – Thompson Falls Reservoir

8.5.1 Requirement

The Biological Opinion states that:

> a. During the first five years of the Phase 2 evaluation (2010 through 2015) PPL Montana, with TAC involvement and Service approval, will conduct a prioritized 5-year evaluation of factors contributing to the potential loss or enhancement of migratory bull trout passage through Thompson Falls Reservoir. Goals and objectives for this assessment and scientifically-based methodology will be developed through the TAC and approved by the Service no later than the end of 2010 and will focus at a minimum on better understanding temperature and water current gradients through the reservoir; travel time, residence time, and pathways that juvenile and subadult bull trout select in moving through the reservoir; and an assessment of impacts of predatory nonnative fish species on juvenile and subadult bull trout residing in or passing through the reservoir. The initial findings will be summarized and supported with scientifically based conclusions, no later than the end of 2015, with a goal of adaptively improving survival of juvenile bull trout in Thompson Falls Reservoir as they pass downstream or reside in the system. A second, more comprehensive summary of conclusions and recommendations regarding

reservoir impacts will be submitted as part of the scientific review package by the end of 2020 (see TC1h).

b. Based on the interim Thompson Falls Reservoir Assessment (a., above), a timely evaluation of the site specific need for a nonnative species control program in Thompson Falls Reservoir will be conducted by PPL Montana, in collaboration with the TAC agencies (see TC7b., below), no later than the end of 2015, with final recommendations to be approved by the Service.

8.5.2 Compliance

In compliance with TC 5 (a), PPL Montana collaborated with TAC members and prepared the *5-Year Reservoir Monitoring Plan,* which was approved by FWS and submitted to FERC on June 17, 2010. FERC issued an Order approving the plan on February 9, 2011. PPL Montana will continue the implementation of the monitoring plan in 2012. Following the 5-year reservoir assessment (2011-2015), PPL Montana will complete an evaluation of the site specific need for a nonnative species control program in the Thompson Falls Reservoir in compliance with TC 5 (b). This evaluation will be completed by December 31, 2015.

8.6 TC6 – Systemwide Monitoring:

8.6.1 Requirement

The Biological Opinion states that:

a. For the remainder of the license (through 2025), PPL Montana will ensure that actions at the Thompson Falls Fish Ladder, including tagging, transport, and any tracking of fish movement, are adequately funded and fully coordinated with the Avista project and the management agencies FWP, CSKT, and the Service. This coordination will include routine communications through the TAC and may require participation in special meetings or discussions to ensure that there is a single seamless fish passage effort for the lower Clark Fork projects.

b. For the remainder of the license (through 2025) PPL Montana will contribute a proportional amount of funding to ensure that fish sampled at the Thompson Falls Fish Passage Facility are processed, analyzed, and integrated into annual updates of the systemwide Clark Fork River genetic database.

c. In consultation with the TAC and with approval of the Service, for the remainder of the license (through 2025), PPL Montana will fund the technology required to track transmittered fish that pass the project as they move through the system. This may include an integrated PIT-Tag scanner

at the fishway, mobile PIT-Tag scanning capabilities (wand(s) for use in the field), and radio implantation and tracking of bull trout that move through the sample loop in the ladder. Obligations for tracking transmittered fish by PPL Montana will include at a minimum the portions of the Lower Clark Fork Core Area upstream of Thompson Falls Dam (i.e., mainstem Clark Fork River from Thompson Falls Dam to the confluence of the Flathead River, including tributaries such as the Thompson River) Note: in the lower Flathead River, Jocko River, and other Flathead Reservation waters primary responsibility for tracking is assumed by the CSKT, but close coordination with the Tribes will be maintained by PPL Montana. Broader tracking needs upstream will be determined through cooperation with other entities in the basin (as in TC6a., above).

8.6.2 Compliance

PPL Montana will comply with these requirements by holding necessary TAC meetings (and sub-committee meetings) in 2012 to ensure compliance and to aggressively address the adaptive needs of the operations of the fish ladder. PPL Montana's proposal to continue bull trout genetic sampling efforts in the Clark Fork River drainage in 2012 as approved and funded by the TAC during the annual TAC meeting held on December 13, 2011. PPL Montana has completed the construction of the fish ladder, which includes three antennas installed on the weirs. These antennas detect PIT tags as fish move through the ladder. PPL Montana will also continue to collaborate and coordinate with local biologists in support of ongoing and future radio telemetry studies.

8.7 TC7 – Reporting

8.7.1 Requirement

The Biological Opinion states that:

a. Annually, by April 1 of each year for the remainder of the license (expires 2025), PPL Montana will prepare and submit to the Service for approval a report of the previous years activities, fish passage totals, and next year's proposed activities and other fisheries monitoring that may result in intentional as well as incidental take of bull trout. The report will quantify the number of bull trout proposed to be incidentally taken by each activity and summarize the cumulative extent of incidental take from all previous year activities.

b. By December 31, 2015, after the first five years of the Phase 2 evaluation period (as described per TC1g., above), PPL Montana will present to the TAC and the Service a comprehensive written assessment of

the first five years of fishway operation. This report is partially for the purpose of assessing the need for major mid-Phase 2 modifications to the facility and its operations as well as for consideration of the need for supporting additional bull trout passage or transport above the dam.

c. Annually, by April 1 of each year beginning in 2010 and for the remainder of the license (expires 2025), PPL Montana will archive electronic versions of all biological progress reports (described in TC 1 through TC 7 and dating back to 2005) generated through the Thompson Falls Project. PPL Montana will provide to TAC agencies at no cost, upon request, updated CDs or web-based access to those reports.

d. For the remainder of the license (expires 2025), upon locating dead, injured, or sick bull trout, or upon observing destruction of redds, notification must be made within 24 hours to the Service's Division of Law Enforcement Special Agent (Richard Branzell, P.O. Box 7488, Missoula, MT, 59807-7488; (406) 329-3000). Instructions for proper handling and disposition of such specimens will be issued by the Division of Law Enforcement. Dead, injured, or sick bull trout should also be reported to the Service's Kalispell Field Office (406-758-6882).

e. For the remainder of the license (expires 2025), during project implementation the FERC or applicant shall promptly notify the Service of any emergency or unanticipated situations arising that may be detrimental for bull trout relative to the proposed activity.

8.7.2 Compliance

PPL Montana complied with these requirements by preparing this annual report for the work completed in 2011. PPL Montana will continue to submit annual reports of the previous year's activities, fish passage totals, and next year's proposed activities and other fisheries monitoring. The annual reports will be approved by the TAC and submitted to FERC by April 1 of each year for the remainder of the License.

In 2011, PPL Montana collected a total of five bull trout, all of which were released live. Three bull trout were collected via electrofishing downstream of the Thompson Falls Hydroelectric Project on May 31, 2011. The three bull trout were released live after measurements of length and weight were recorded, a genetic sample was taken, and a PIT tag was implanted. The three bull trout measured 180 millimeters (mm) and 50 grams (g); 247 mm and 130 g; and 482 mm and 966 g, respectively. Genetic samples indicate these fish originated from natal streams in Region 4.

In 2011, two bull trout ascended the Thompson Falls fish ladder (the first bull trout ascended the entire ladder and the second bull trout was caught in a lower ladder pool during an operation

change in weir mode) and were released live upstream in the Thompson Falls Reservoir after measurements of length and weight were recorded, a genetic sample was taken, and a PIT tag implanted (*see* Section 3.2.3 for details). Lengths and weights of the bull trout were 365 mm and 364 g; and 547 mm and 1,438 g, respectively. Both fish were genetically assigned to Region 4. Additional details of the five bull trout collected in 2011 are provided in Table 8-1.

With the start of ladder operations in 2011, PPL Montana proposes to provide the following information in future annual reports. PPL Montana will summarize annual activities associated with the evaluation of the fish ladder and include a summary report in the annual report submitted to FERC by April 1 each year. The annual summary will include, as available, the following information:

- Total number of fish and species ascending the ladder
- Total number of fish and species passed to Thompson Falls Reservoir
- Most active period(s) for fish and various species ascending the ladder
- Results from the weir versus orifice study and attraction flow studies
- Total number of fallback
- Bull trout genetic sampling and tributary assignment

In addition PPL Montana will archive electronic versions of all biological progress reports (dating back to 2005) annually by April 1.

Sections b, d, and e will be addressed as these situations occur.

Table 8-1: Cumulative incidental "take" of bull trout for the Thompson Falls Project, since January 1, 2009. Note: EF = electrofishing.

Date	Method of Capture	Drainage	Location	Action	Length/Area of Sampling Section	Personnel	Length (mm)	Weight (g)	PIT tag	Genetic Assignment	Condition at time of release
5/1/2009	Gillnet	Clark Fork (Lower)	TFalls Reservoir	Long-term Population Monitoring	Reservoir Wide	Mabbott/PPLM	271	174	98512009494278	Fishtrap Ck	Alive
10/12/2010	EF	Clark Fork (Lower)	Clark Fork River, upstream of Island Complex	Long-term Population Monitoring	3 miles	Mabbott/PPLM	325	240	N/A	Awaiting lab results	Alive
4/13/2011	**TFalls Ladder**	**Clark Fork (Lower)**	**TFalls Ladder**	**Fish Passage Studies**		**PPLM/FWP**	**365**	**364**	**95121023302169**	**Thompson River (R4)**	**Alive**
4/26/2011	**TFalls Ladder**	**Clark Fork (Lower)**	**TFalls Ladder**	**Fish Passage Studies**		**PPLM/FWP**	**547**	**1438**	**985121023464730**	**Fishtrap Creek (R4)**	**Alive**
5/31/2011	**EF**	**Clark Fork (Lower)**	**Below TFalls Ladder**	**Fish Passage Studies**		**PPLM/FWP**	**482**	**966**	**985121021877906**	**Meadow Creek (R4)**	**Alive**
5/31/2011	**EF**	**Clark Fork (Lower)**	**Below TFalls Ladder**	**Fish Passage Studies**		**PPLM/FWP**	**180**	**50**	**985121021907887**	**Fishtrap Creek (R4)**	**Alive**
5/31/2011	**EF**	**Clark Fork (Lower)**	**Below TFalls Ladder**	**Fish Passage Studies**		**PPLM/FWP**	**247**	**130**	**985121021914545**	**Fishtrap Creek (R4)**	**Alive**

9.0 Proposed Activities for 2012

9.1 Baseline Fisheries Data Collection

In 2012, PPL Montana will continue to collect baseline fisheries data as presented in Section 2.0 of this report, unless otherwise directed by the TAC and FWS. Baseline fisheries data will include spring and fall electrofishing and fall gillnetting at the designated site shown in Figures 3-1 and 3-2. Data collected in 2012 will be summarized and presented in next year's annual report. Based on prior year's sampling in the Clark Fork River and Thompson Falls Reservoir it is conservatively estimated that incidental take of bull trout during 2012 baseline fisheries studies will be no more than five bull trout.

9.2 Upstream Adult Fish Passage Studies

In 2012, PPL Montana will continue to implement the 10-year (2011-2020) Fish Passage Evaluation Plan that was developed and submitted to FERC on October 18, 2010 and approved on June 9, 2011. PPL Montana will collect biological and operational data during ladder operations in 2012. PPL Montana will summarize the following information, as available, for next year's annual report:

- Total number of fish and species ascending the ladder.
- Total number of fish and species passed to Thompson Falls Reservoir.
- Most active period(s) for fish and various species ascending the ladder.
- Results from the weir versus orifice study and attraction flow studies.
- Number of bull trout which fallback after passing the dam.
- Bull trout genetic sampling and tributary assignment.

Several studies outlined in the Fish Passage Evaluation Plan will occur over multiple years. PPL Montana will provide a status report for the multi-year studies in next year's annual report and a comprehensive report following the completion of each study. A list of the studies and their respective schedule is provided in Table 9-1. The following text summarizes the study objectives and methods that are outlined in the Fish Passage Evaluation Plan.

Table 9-1: Summary of the objectives, studies, and reporting requirements for the Fish Passage Evaluation Plan 2011-2020. Annual activities are indicated by an "x." A dash (-) indicates no action will be taken for the year. TBD represents "to be determined." (Table was taken from the *Fish Passage Evaluation Plan*, 2010)

Objective	Study	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Effectiveness of the Ladder	**Annual Fish Passage**	x	**x**	x	x	x	x	x	x	x	x
	Annual Movement Patterns (timing)	x	**x**	x	x	x	x	x	x	x	x
	Bull Trout Genetic Testing	x	**x**	x	x	x	x	x	x	x	x
Operational Procedures for Effectiveness	**Weir Modes V-notch *vs.* Orifice**	x	**x**	Determine if additional study is needed	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	Attractant Flow & Radio Telemetry	x (no radio telemetry)	**x (no radio telemetry)**	x	Re-evaluation, Design 4-year Study Plan	x	x	x	TBD	TBD	TBD
Length of Delay	**Upstream Movement Patterns, Timing & Behavior (Delay)**	x	**x**	x	x	x	x	x	x	x	x
Fallback	**Fallback**	x	**x**	x	x	x	x	x	x	x	x
Reporting Requirements	**Annual Reporting (April 1 – FERC Submittal)**	x	**x**	x	x	x	x	x	x	x	x
	5-year Report (Dec 31, 2015 – TAC/FWS Submittal)	-	**-**	-	-	x	-	-	-	-	-
	10-year Report (Dec 31, 2020 – TAC/FWS Submittal)	-	**-**	-	-	-	-	-	-	-	x

Biological and operational data will be used to assess between 2011 and 2020 the following:

- Effectiveness of the ladder to pass fish upstream
- Effectiveness of operation procedures
- Fish movement patterns, timing, and behavior
- Fallback

Based on prior year's sampling in the Thompson Falls tailrace it is conservatively estimated that incidental take of bull trout during 2012 upstream adult fish passage studies will be no more than 10 bull trout.

9.2.1 Effectiveness of the Ladder and Operations

Effectiveness of the ladder will be evaluated based on annual fish passage. The biological data collected at the ladder's work station will be used to summarize overall upstream fish passage, including enumeration of fish using the facility; the species using the facility; range, average size, and weight of species using the facility; and the timing of movement and passage by each species.

The fish ladder was designed to operate with flows up to 48,000 cfs, but in 2011 was successful at capturing fish when total Clark Fork River discharge was approximately 75,000 cfs. In 2012, PPL Montana will continue to test the range of streamflow over which the fish ladder can collect migrating adult fish. The ladder will be operated during the spill season for as long as operationally practicable, and data collected on fish movements into the ladder through this range of flow.

Effectiveness of the operational procedures of the ladder to pass fish upstream will be evaluated based on two multi-year studies, including an evaluation of weir versus orifice and optimal attractant flow. The weir versus orifice study commenced in 2011 and will continue through 2012. As done in 2011, PPL Montana proposes to alternate from weir to orifice mode on a weekly basis in 2012, if feasible. Alternating modes on a weekly basis will remove potential seasonal biases in the passage data. Data collection will include the time needed for fish to ascend the ladder, as well as the standard biological and fish operational data. The data analysis will focus on comparing fish passage results for weir versus orifice. The analysis will evaluate the potential difference in overall number of fish passed, fish species, size of fish, and time required for fish to ascend the ladder. After the first two years of data collection, PPL Montana will analyze the data to identify potential design modifications for 2013.

The attractant flow study began in 2011 and is scheduled to continue through 2017. PPL Montana proposes to use the first 3 years of ladder operations (2011, 2012, 2013) to test variable attraction flows and learn operations. The flexibility to experiment with attractant flows in the first 3 years will help operators and biologists develop a more systematic approach and study design for implementation in 2014. For the duration of the study (2011-2017), PPL Montana will focus on the following questions to evaluate the affects of attractant flow on fish movement:

- Under what range of discharges do fish move upstream through the narrow (falls) section of river to the tailrace?
- How long does it take fish to migrate past the falls to the tailrace?
- How long does it take fish to locate the ladder entrance once they are in the tailrace?
- What combination of attraction flows is most effective for fish to find the ladder entrance at varying levels of spill?

9.2.2 Evaluation of Fish Movement Patterns, Timing, and Behavior

Fish movement patterns, timing, and behavior will be evaluated through biological data collected at the fish ladder and radio telemetry data, if available. Bull trout captured downstream of Avista's Cabinet Gorge and Noxon Rapids dams that are genetically tested and assigned to Region 4 (upstream of Thompson Falls Hydroelectric Project) will be PIT tagged (but will not be radio tagged) in 2012. PPL Montana will coordinate with Avista to have the Region 4 bull trout released in the Noxon Reservoir near Vermilion Bay (starting in 2011), when conditions permit. PPL Montana will use data collected to assess movement patterns and timing to the extent possible. The assessment will also evaluate the:

- Length of time for bull trout to migrate from Noxon Reservoir to Thompson Falls Main Dam tailrace.
- Length of time for bull trout to migrate from Thompson Falls Main Dam tailrace to ladder.
- Length of time for bull trout to ascend ladder (entrance to top).
- Upstream migration timing.
- Migration behavior and pattern once released upstream of Thompson Falls Dam.

9.2.3 Evaluation of Fallback

The potential fallback of bull trout after ascending the ladder and moving into the Thompson Falls Reservoir will be evaluated on an annual basis. Bull trout will be monitored for fallback via PIT tag and in some cases, radio telemetry. Other salmonids that are radio tagged for previously described studies will also be monitored for fallback after ascending the ladder and being passed into the Thompson Falls Reservoir. When feasible, non-salmonids that have ascended the ladder will receive a VIE tag behind the left eye. The VIE tag will be color-coded by year. The VIE tag will be used to evaluate fallback of non-salmonids.

9.3 Thompson River Drainage Studies (5-Year Reservoir Plan)

In 2012, PPL Montana will continue to implement the *5-Year Reservoir Monitoring Plan (2011-2015)* that was submitted to FERC in June 2010 and approved by FERC in an Order issued on February 9, 2011. The goal of the plan is to gather information that will assist in developing recommendations to *maximize survival of outmigrant juvenile and adult bull trout through Thompson Falls Reservoir and Dam*. Efforts to implement this plan will extend over the next 5-

years. Each year PPL Montana will prepare a status report for the annual report. Following the completion of the 5-year monitoring plan, PPL Montana will compile, analyze, and summarize data collected and submit a comprehensive report to FWS by December 31, 2015.

Reservoir monitoring efforts will focus on two key objectives:

1. Characterization of bull trout in the Thompson River drainage.
2. Characterization of the affect that Thompson Falls Reservoir has on bull trout emigrating from the Thompson River drainage (or elsewhere upstream, as these are not necessarily separable) and migrating downstream in the Clark Fork River.

The first objective will be to characterize the present bull trout population in the Thompson River drainage. PPL Montana will coordinate with the TAC and FWS to review available historic data, available literature, identify data gaps, and develop an annual work/study plan for data collection in the Thompson River drainage. After data gaps are identified, PPL Montana will coordinate with the TAC and FWS to develop annual work plans for data collection in the Thompson River drainage.

The second objective will be to characterize the influences that the Thompson Falls Reservoir may have on emigrating bull trout. Through continued consultation with the TAC and FWS, PPL Montana has generated a list of tasks to address the second objective that is outlined in the *5-Year Reservoir Monitoring Plan (2011-2015)*. Because the Thompson River bull trout local population is the one most likely to be negatively affected by the dam and reservoir (proximity), it is that population which will be emphasized and evaluated, but in the process of doing so PPL Montana anticipates learning more about potential migrants from and to other local populations further upstream in the Clark Fork River that may share the Thompson Falls Reservoir habitat. At this time, there is nothing to suggest that differential impacts would occur to other populations, but if PPL Montana and the TAC determine otherwise, adjustments can be made to future monitoring efforts.

Incidental take of bull trout associated with fish evaluations in the Thompson River drainage will be reported by FWP.

9.4 TDG Control Plan and GBT Monitoring

9.4.1 TDG Control Plan

PPL Montana prepared and submitted the *Total Dissolved Gas Control Plan* to MDEQ in 2010. In this plan PPL Montana proposes to continue to collaborate with MDEQ, Avista, FWP, and other entities with a long-term goal of reducing the overall systemic gas supersaturation levels in the Clark Fork River, occurring from a point downstream of Thompson Falls Hydroelectric Project to below Albeni Falls Dam. In the short term, PPL Montana proposes to continue experimentation with the spillway operating schedule with a goal of finding a feasible spillway operating plan, which minimizes TDG without impeding fish passage.

Future modifications to operation procedures will be developed through ongoing monitoring and experimentation as determine through consultation with the TAC and approval by MDEQ.

The following text outlining the operating plan in 2012 for monitoring TDG was taken from the 2010 *Total Dissolved Gas Control Plan.*

> PPL Montana's plan, pending operational practicalities, will be to work toward a dual mode of spill control. Between 23,000 cfs and 45,000 cfs, the priority will be fish attraction to ladder. The "fish" spill schedule will be implemented and refined for the fish ladder. A new mode - TDG abatement will be implemented at discharge in excess of 45,000 cfs. The best possible TDG abatement scheme will be determined through experimentation. However, initially PPL Montana will use the "non-fish" spillway operating plan.
>
> Specifically, the spillway panels will be opened in this order:
>
> 1. Remove three slide panels for fish attractant. The specific panels to be opened will be determined based on visual observations of the best hydraulic conditions to attract fish to the fish ladder entrance.
> 2. Pull out eight bays of slide panels, Bays: 29-36, on the far side of the Main Dam
> 3. Pull out two bays of slide panels, Bays: 10 and 11
> 4. Pull out two bays of slide panels, Bays: 27 and 28
> 5. Pull out two bays of slide panels, Bays: 8 and 9
> 6. Pull out two bays of slide panels, Bays: 25 and 26
> 7. Pull out two bays of slide panels, Bays: 6 and 7
> 8. Pull out two bays of slide panels, Bays: 23 and 24
> 9. Pull out two bays of slide panels, Bays: 4 and 5
> 10. Pull out three bays of slide panels, Bays: 20, 21, and 22
> 11. Pull out two bays of slide panels, Bays: 2 and 3
> 12. Pull out two bays of slide panels, Bays: 18 and 19
> 13. Pull out the last remaining bay of slide panels, Bay: 1
>
> Next, start to pull the Dry Channel Dam.
>
> As changing conditions like weather, runoff and operational/maintenance demands pose different concerns, changes in this schedule may occur.
>
> This schedule is based on the assumption that once a panel is opened, it will not be closed again unless discharge is declining.

The operational mode will switch back to fish attraction when flows recede to allow fish to use ladder.

During radio telemetry studies of fish behavior at the Main Dam, fish left the Main Dam tailrace when discharge exceeded 40,000 cfs. Therefore, PPL Montana does not anticipate that making TDG abatement a priority during the spring freshet, when discharge exceeds 45,000 cfs, will have a significant impact on the efficiency of the fish ladder. However, experiments will continue in coming years to confirm this.

PPL Montana will prepare a report summarizing results from the 2012 TDG monitoring and the proposed spillway operation plan for 2013 in next year's annual report.

9.4.2 GBT Monitoring

GBT monitoring in fish downstream of Thompson Falls Hydroelectric Project will also continue in 2012 assuming flows reach 50,000 cfs. When river flows downstream of Thompson Falls Hydroelectric Project reach or exceed 50,000 cfs, PPL Montana will sample fish and examine fish for signs of external GBT. In addition, fish collected in the fish ladder during high flows (when discharge exceeds 50,000 cfs) will be examined for external symptoms of GBT. The data collected in 2012 will be summarized and presented in the 2012 Annual Report.

9.5 TAC Proposals for 2012 Funding

During the annual Thompson Falls TAC meeting, two proposals were submitted requesting 2012 funding. The first proposal was submitted by PPL Montana for the continued funding of genetics analysis of bull trout samples in the Clark Fork River drainage. The second proposal was submitted by the Five Valley Land Trust requesting funds to assist in the purchase of property in the Fish Creek drainage, an important stream corridor to bull trout spawning grounds.

9.5.1 Bull Trout Genetic Monitoring

Project Title: Bull Trout Genetic Monitoring
Proposal Submitted by: Brent Mabbott, PPL Montana
Location of Proposed Project: Funding may be used with cost-share opportunities and with the TAC's approval. Funding boundaries are the Clark Fork River and tributaries, upstream of Thompson Falls Dam. Sampling areas may extend from Thompson Falls Dam upstream to Rattlesnake Creek (near Missoula), but excludes the Flathead River drainage.
Total Project Cost: Unknown
TAC Funds (Cost-Share) Requested: $10,000

I. Introduction

DNA data is needed to continue or update bull trout mapping in the Clark Fork River. This funding will be used to generate or update that bull trout DNA data where needed within the boundaries noted above.

II. Objectives

The objective of this project is to provide funding to enable or update genetic analysis for bull trout populations in the Clark Fork River drainage above Thompson Falls Dam.

III. Methods

Bull trout tissue samples will be collected from 30 to 50 fish for each donor population to determine whether they are genetically pure and to determine genetic mapping for each Clark Fork tributary.

IV. Schedule

Funding will be for approved TAC work in 2012.

V. Personnel

Principle investigators will be identified with each proposal for genetic funding.

VI. Budget

$10,000

FWP and Avista may be asked to cost share, to be determinate based on sampling location.

VII. Deliverables

A detailed analysis/summery report submitted to the TAC for its next annual report.

VIII. Cultural Resources

There will be no ground disturbing actions associated with this activity.

TAC VOTE: TAC voted to keep the $10,000 available for genetic sampling in 2012.

9.5.2 Five Valley Land Trust Proposal

Project Title: Main Stem Fish Creek Land Acquisition – Phase I

Proposal Submitted by: Five Valleys Land Trust (Applicant) – Pelah Hoyt;
Montana Fish, Wildlife & Parks – Ladd Knotek

Location of Proposed Project: Properties located on main stem of Fish Creek, just downstream of confluence of South and West Forks (*see* attached maps).

Legal: T14N, R24W, Section 31, NW1/4 (148 acre Hulme Property – Phase I)
T14N, R25W, Section 36, NE1/4 (80 acre Babcock Property – Phase II)

Total Project Cost: $230,600* – Phase I

* Does not include in-kind staff costs of Five Valleys and FWP
* *See* expanded budget sheet for itemized summary of costs in both phases

TAC Funds (Cost-Share) Requested: $115,300

I. Introduction. A brief statement of project to be implemented with pertinent background information.

Fish Creek is the most intact tributary watershed in the middle Clark Fork region and is considered the most valuable stronghold for bull trout and other native fish. The upper drainage is primarily comprised of public lands, most of which are roadless, proposed Wilderness managed by the U.S. Forest Service. Lower elevation tributaries and main stem tracts have traditionally been in mixed ownership, including private corporate timberlands (Plum Creek Timber Company), public lands (DNRC School Trust), and a limited number of small, private inholdings.

In 2010, Montana Fish, Wildlife & Parks (FWP) acquired ~ 28,000 acres of the lower Fish Creek drainage from The Nature Conservancy to form the Fish Creek Wildlife Management Area (WMA) and State Park. These lands represented a portion of the Montana Legacy Project, where The Nature Conservancy purchased all available Plum Creek Timber Company (PCT) holdings within the drainage to conserve fish & wildlife values.

At the time of purchase, several small PCT tracts (inholdings) along the main stem of Fish Creek were on the open market and were not included in the FWP lands acquisition. These properties were subsequently sold to private buyers. Two of these parcels (80 & 148 acres), which lie side-by-side on the lower main stem of Fish Creek, are now being advertised for sale. These parcels contain ~ 40 acres of riparian area and more than 4,000 feet of Fish Creek channel on a portion of the key migratory corridor and sub-adult rearing area for fluvial bull trout in Fish Creek. The properties currently contain no man-made structures or infrastructure.

The two properties proposed for acquisition have high development potential, particularly along riparian areas on the north side of Fish Creek. Land management activities on similar in-holdings within the WMA indicate that private ownership carries large risk of further subdivision, riparian and channel encroachment, illegal water withdrawal, and general habitat degradation. Less stringent subdivision regulations in Mineral County also make incorporation of natural resource protection and mitigation measures difficult.

The project would permanently protect a significant reach of the main stem of Fish Creek from habitat degradation and facilitate future enhancement activities. This stream system supports the largest fluvial bull trout population in the middle Clark Fork River drainage and typically contains more redds than the rest of the tributaries in this region combined. An intact migratory corridor and rearing area in the main stem is vital to this bull trout population.

II. Objectives. Acquire key inholding properties on Fish Creek within the Fish Creek WMA in order to protect them from subdivision and development in perpetuity. Properties would be converted to public ownership through incorporation into the WMA. Longer term objectives are to protect and improve habitat conditions for bull trout and other aquatic species using this corridor.

This application proposes purchase of the first of two adjacent properties totaling 228 acres. The first property is currently owned by the Hulme family and includes 148 acres of bare ground (*see* site map).

III. Methods. Description of how the objectives will be accomplished.
Five Valleys Land Trust (Five Valleys) would purchase the Fork-Hulme and Forks-Babcock inholdings on the main stem of Fish Creek and then donate the properties to FWP. The project would be divided into two phases with Phase I involving purchase of the 148-acre parcel owned by the Hulme family and Phase II involving the purchase of the adjacent 80-acre property owned by the Babcock family.

IV. Schedule. When the project work will begin and end. Include seasonal variations in work schedule.
Five Valleys would negotiate an option agreement with the owners of the Forks-Hulme property in the early months of 2012. Once all necessary due diligence and public review and approval are in place the property would be purchased by Five Valleys using bridge-funding. It would be transferred to FWP as soon as possible thereafter. The purchase by Five Valleys and transfer to FWP would take place in the spring or early summer of 2012. Five Valleys requests that funds be dispersed upon transfer of the property to FWP.

If Phase I of the land acquisition is completed successfully, the Phase II effort would begin in the fall of 2012.

V. Personnel. Who will do the work. Identify the project leader or principal investigator.
Pelah Hoyt, Five Valleys' Conservation Project Manager, will manage this project and transaction. Once the land is purchased by Five Valleys, it would be donated to FWP for inclusion in the Fish Creek WMA. The WMA is managed by Region 2 of FWP under the direction of Mike Thompson (Regional Wildlife Manager) and Mack Long (Regional Supervisor).

VI. Budget. The following table shows the budget for Phase I of the Main Stem Fish Creek Land Acquisition:

Main Stem Fish Creek Land Acquisition Phase I Budget		
Forks-Hulme (148 acres) Proposed Purchase Price	$220,000	
Transaction Costs	$10,600	
Total Costs	$230,600	
Proposed Funding Sources		
Thompson Falls TAC (requested)	$115,300	50%
Five Valleys Land Trust (secured)	$55,000	24%
MT Fish & Wildlife Conservation Trust (requested)	$25,000	11%
Private fundraising	$35,300	15%
Total Proposed Funds	$230,600	100%

Costs related to direct labor, overhead, travel, living and materials would be covered separately by Five Valleys, and are not included in this proposal.

VII. Deliverables. Describe work product (reports, habitat restoration, etc.) which will result from this project. How will "success" for this project be monitored or demonstrated?
The application proposes to purchase real estate in order to protect and enhance current natural resource values. Direct success of this project would be measured by the degree of disturbance and general natural integrity of the property through time as it is enhanced and allowed to naturally recover from light forestry activity. Enhancements would include tree planting and riparian protection, and potentially instream habitat enhancement (e.g., increased complexity through LWD addition).

Indirect indications of success would be continued expansion and resilience of the Fish Creek bull trout population. Bull trout are monitored through established redd count surveys and population estimate sections.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this proposal must be completed and documented to PPL Montana as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the PPL Montana representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted. Summarize below how you will complete requirements for Cultural Resource Management:
A cultural resource survey has not been completed on either of the properties proposed for purchase. However, surveys were completed in 2009 at a much larger scale on ~ 28,000 acres of surrounding lands acquired by FWP to form the Fish Creek WMA and State Park. Although no ground disturbing activities are currently proposed, a cultural resource survey would be completed by FWP at the time of sale.

TAC VOTE: TAC approved funding for Phase 1 ($115,300) of the proposed project. Funding for Phase 2 was not approved during the 2011 annual Thompson Falls TAC meeting.

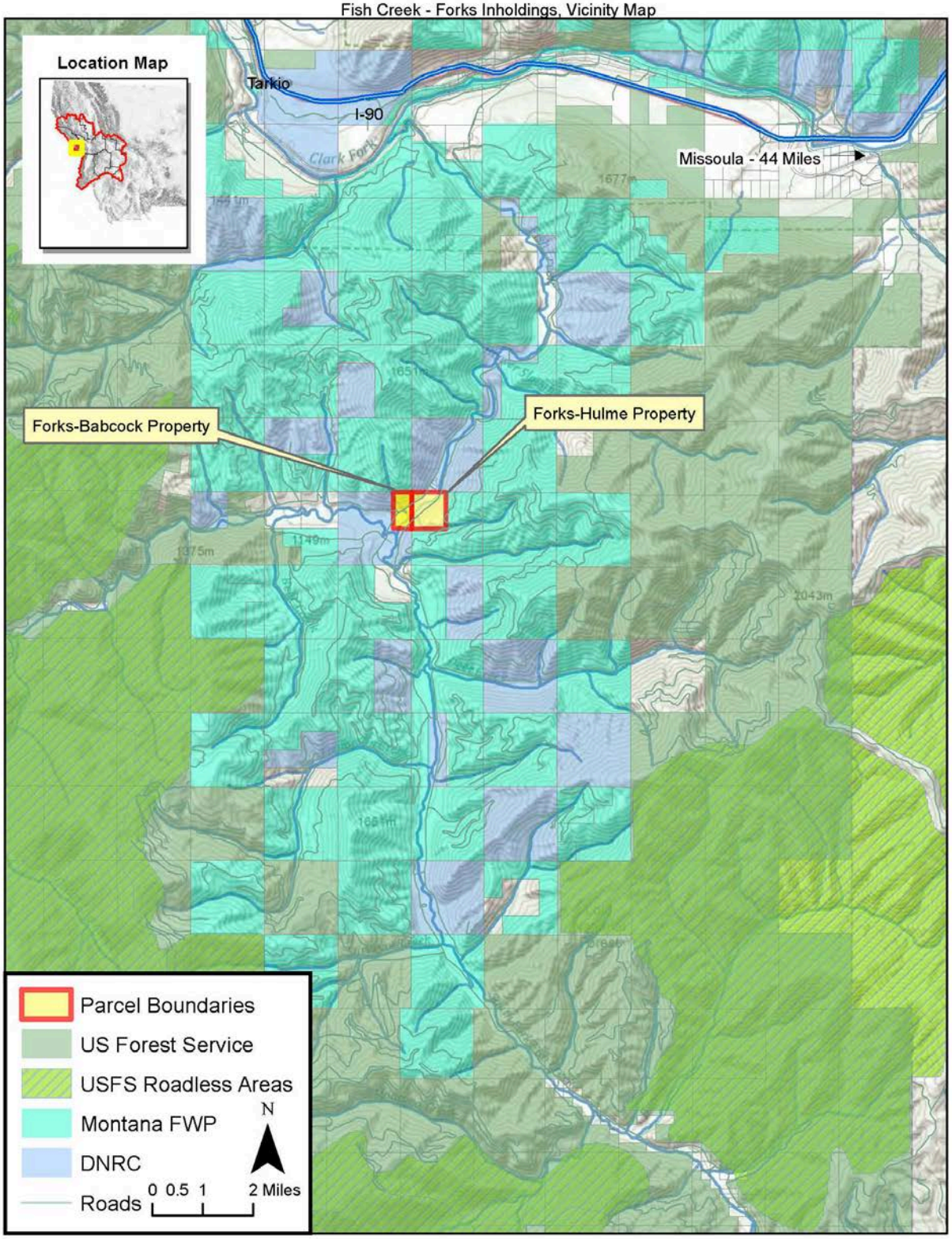
Detailed Transaction Costs and Phase II Budget

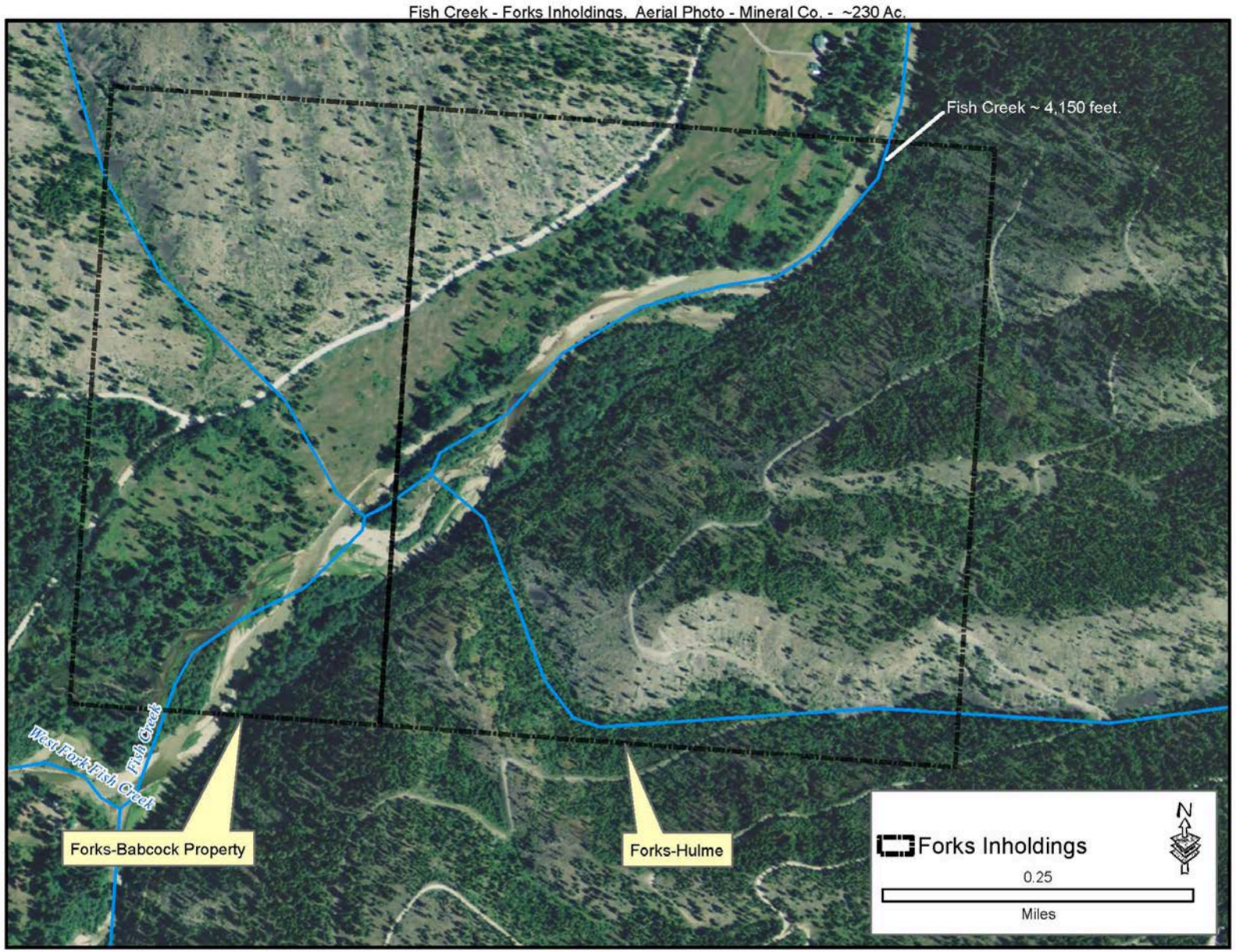
Main Stem Fish Creek Land Acquisition Transaction Costs:	Phase I	Phase II	Total Project
Appraisal	$3,900	$3,900	$7,800
Title Guarantee	$750	$750	$1,500
Mineral Research*	$300	$0	$300
Baseline Assessment*	$1,500	$0	$1,500
Phase 1 Environmental Assessment*	$3,000	$0	$3,000
Other (legal fees)	$750	$750	$1,500
Recording & Closing Fees	$400	$200	$600
Total Transaction Costs	$10,600	$5,600	**$16,200**

*****In order to reduce costs the mineral research, baseline assessment and Phase 1 Environmental Assessment would be conducted for both land acquisitions simultaneously.

Main Stem Fish Creek Land Acquisition Phase II Budget		
Forks-Babcock (80 acres) Proposed Purchase Price	$155,000	
Transaction Costs	$5,600	
Total Costs	$160,600	
Proposed Funding Sources		
Thompson Falls TAC (requested)	$80,300	50%
Five Valleys Land Trust (secured)	$30,000	19%
MT Fish & Wildlife Conservation Trust (requested)	$10,000	6%
Private fundraising	$40,300	25%
Total Fee Purchase Price	$160,600	100%

Fish Creek - Forks Inholdings, Vicinity Map




Fish Creek - Forks Inholdings, Aerial Photo - Mineral Co. - ~230 Ac.
Fish Creek ~ 4,150 feet.
West Fork Fish Creek
Fish Creek
Forks-Babcock Property
Forks-Hulme
Forks Inholdings
N
0.25
Miles

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Appendix A – 2011 Baseline Fish Data Collection

2011 Thompson Falls Reservoir Gillnetting
Date gillnets set: 10/5/2011
Date gillnets pulled: 10/6/2011

Table A-1. Data collected during 2011 fall gillnetting in the Thompson Falls Reservoir.

Net No.	Latitude (N)	Longitude (W)	H_20 Temp	Time Set	Depth Set	Time Pulled	L (mm)	Wt (g)	Sp	Comment
1a	N.47.58852	W.115.33651	13.5°C	14:20	0-18’	8:50	456	908	LC SU	
1a	N.47.58852	W.115.33651	13.5°C	14:20	0-18’	8:50	352	790	SMB	
1b	N.47.58814	W.115.33336	13.5°C	14:25	4-7.5'	9:00	304	264	WCT	
1b	N.47.58814	W.115.33336	13.5°C	14:25	6'	9:00	252	160	WCT	
1b	N.47.58814	W.115.33336	13.5°C	14:25	6'	9:00	492	788	NP	
1b	N.47.58814	W.115.33336	13.5°C	14:25	6'	9:00	595	1452	NP	
1b	N.47.58814	W.115.33336	13.5°C	14:25	6'	9:00	613	1632	NP	
1b	N.47.58814	W.115.33336	13.5°C	14:25	6'	9:00	532	1076	NP	
2a	N.47.57942	W.115.31928	13.5°C	15:00	6-25’	9:25				No Fish
4a	N.47.56812	W.115.29570	13.5°C	15:05	6-25’	9:35	368	490	N PMN	
4a	N.47.56812	W.115.29570	13.5°C	15:05	6-25’	9:35	359	546	N PMN	
6a	N.47.57809	W.115.22110	13.5°C	15:40	5-10'	10:05	150	40	YP	
6a	N.47.57809	W.115.22110	13.5°C	15:40	5-10'	10:05	222	62	NP	
6a	N.47.57809	W.115.22110	13.5°C	15:40	5-10'	10:05	500	1262	LC SU	
6a	N.47.57809	W.115.22110	13.5°C	15:40	5-10'	10:05	590	1576	NP	
6b	N.47.57753	W.115.22084	13.5°C	15:30	5-11'	9:56	356	444	N PMN	
6b	N.47.57753	W.115.22084	13.5°C	15:30	5-11'	9:56	188	54	PEA	
8a	N.47.57173	W.115.25995	13.5°C	15:20	6-17’	9:50				No Fish
9a	N.47.59103	W.115.32737	13.9°C	14:22	6-10’	10:15	572	1230	NP	
9a	N.47.59103	W.115.32737	13.9°C	14:22	6-10’	10:15	572	1516	NP	
9a	N.47.59103	W.115.32737	13.9°C	14:22	6-10’	10:15	547	1222	NP	
9a	N.47.59103	W.115.32737	13.9°C	14:22	6-10’	10:15	212	132	LMB	
9a	N.47.59103	W.115.32737	13.9°C	14:22	6-10’	10:15	181	76	YP	
9a	N.47.59103	W.115.32737	13.9°C	14:22	6-10’	10:15	165	50	YP	
9a	N.47.59103	W.115.32737	13.9°C	14:22	6-10’	10:15	171	54	YP	

Net No.	Latitude (N)	Longitude (W)	H_20 Temp	Time Set	Depth Set	Time Pulled	L (mm)	Wt (g)	Sp	Comment
9b	N.47.59210	W.115.33022	13.5°C	14:50	6-14’	9:20	487	1352	LC SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	457	954	LC SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	512	1518	LC SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	470	1102	LC SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	520	1670	LN SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	499	1302	LN SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	372	792	LN SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	217	106	LN SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	175	52	LN SU	
10	N.47.58753	W.115.32697	13.5°C	14:35	6-19’	9:07	618	1680	NP	

2011 Thompson Falls Reservoir Electrofishing, Lower Section
Sampling Location: N 47.58700, W 115.32805 Date 4/13/11
Sampling Time: Night, Duration (sec): 3,647
Weather: Air Temperature 45˚F, overcast, calm wind and light rain, Water Temp 5.8°C
Data Collectors: BM, JH, JS

Table B-2. Data collected during 2011 electrofishing efforts in Thompson Falls Reservoir.

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Recap?
1	LMB	434	1310		n
2	RB	320	392		n
3	NP	262	96		n
4	PUMP	150	78		n
5	NP	272	124		n
6	WCT	265	148		n
7	PUMP	146	78		n
8	PUMP	138	56		n
9	PUMP	135	62		n
10	LMB	360	760		n
11	YP	210	106		n
12	LMB	116	26		n
13	NP	268	124		n
14	N PMN	205	70		n
15	NP	263	98		n
16	NP	272	114		n
17	NP	266	112		n
18	NP	544	445	o floy 00306	y
19	NP	265	128		n
20	NP	509	822	o floy 00316&317	n
21	NP	505	792	o floy 00318	n
22	LMB	135	26		n
23	LMB	132	30		n
24	LMB	135	38		n
25	PUMP	130	52		n
26	LC SU	440	534		n
27	NP	218	64		n
28	NP	245	76		n
29	NP	240	94		n
30	NP	246	97		n
31	NP	252	110		n
32	NP	301	166		n
33	NP	526	988	o floy 00319	n
34	LMB	140	30		n

2010 Thompson Falls Reservoir Electrofishing, Upper Section
Sampling Time: Night, Date: 4/14/11
Weather: 36 °F, partly cloudy, calm wind and no precipitation, Water Temp. 5.1°C
Data Collectors: BM, CH, HC Duration (sec): 6,848

Table B-3. Data collected during 2011 electrofishing efforts in the upper section of the Thompson Falls Reservoir

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Recap?
1	N PMN	69	2		n
2	LC SU	152	30		n
3	NP	531	1028	o floy 00320	n
4	MWF	356	468		n
5	MWF	354	410		n
6	NP	449	576	o floy 00321	n
7	NP	516	940	o floy 00322	n
8	RB	430	840		n
9	RB	398	566		n
10	RB	326	780		n
11	RB	319	338		n
12	WCT	264	194		n
13	RB	226	108		n
14	RB	163	36		n
15	LL	167	48		n
16	RB	196	74		n
17	RB	129	20		n
18	LL	106	14		n
19	MWF	142	20		n
20	MWF	143	20		n
21	N PMN	129	16		n
22	LC SU	116	16		n
23	LC SU	127	18		n
24	MWF	106	4		n
25	MWF	207	76		n
26	MWF	180	40		n
27	MWF	142	22		n
28	WCT	349	390		n
29	RB	396	582		n
30	RB	404	710		n
31	RB	353	432		n
32	RB	422	770		n
33	RB	465	808		n
34	RB	377	532		n
35	RB	183	58		n
36	NP	559	1216	o floy 00323	n
37	NP	306	174	o floy 00324	n
38	LL	236	104		n
39	WCT	262	156		n

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Recap?
40	NP	593	1708	o floy 00525	n
41	NP	512	970	o floy 00524	n
42	RB	130	18		n
43	RB	169	42		n
44	YP	150	34		n
45	YP	130	22		n
46	YP	138	30		n
47	LC SU	133	24		n
48	LC SU	129	20		n
49	LC SU	126	20		n
50	LC SU	123	16		n
51	MWF	146	22		n
52	MWF	124	18		n
53	LC SU	155	36		n
54	LC SU	123	20		n
55	LC SU	117	18		n
56	LC SU	117	14		n
57	LC SU	122	16		n
58	N PMN	150	22		n
59	N PMN	143	22		n
60	N PMN	176	48		n
61	LC SU	146	26		n
62	LC SU	134	22		n
63	LL	104	8		n
64	MWF	147	18		n
65	LC SU	141	26		n
66	LC SU	140	24		n
67	LC SU	129	20		n
68	LC SU	151	32		n
69	LC SU	120	16		n
70	LC SU	123	16		n
71	RB	141	22		n
72	RB	188	56		n
73	LL	185	52		n
74	LL	173	42		n
75	SMB	106	16		n
76	YP	162	54		n
77	YP	160	56		n
78	YP	143	32		n
79	YP	196	92		n
80	LC SU	151	30		n
81	LC SU	152	26		n
82	LC SU	148	30		n
83	LC SU	126	18		n
84	LC SU	132	18		n
85	LC SU	110	12		n

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Recap?
86	LC SU	106	10		n
87	LC SU	153	30		n
88	LC SU	114	16		n
89	N PMN	147	20		n
90	N PMN	92	6		n
91	RB	171	46		n
92	LC SU	143	26		n
93	LC SU	113	10		n
94	LC SU	156	38		n
95	RB	117	14		n
96	MWF	136	18		n
97	N PMN	72	2		n
98	LC SU	116	12		n
99	N PMN	71	2		n
100	RB	107	12		n
101	LC SU	154	36		n
102	LC SU	112	14		n
103	LC SU	112	12		n
104	LC SU	139	22		n
105	LC SU	110	12		n
106	N PMN	82	2		n
107	LL	121	16		n
108	LC SU	590	1322		n
109	RB	368	600		n
110	RB	350	450		n
111	RB	180	52		n
112	RB	162	42		n
113	LC SU	71			n
114	RB	162	50		n
115	RB	160	40		n
116	RB	170	50		n
117	RB	166	46		n
118	RB	135	24		n
119	N PMN	430	762		n
120	LL	230	146		n
121	N PMN	140	22		n
122	N PMN	142	20		n
123	N PMN	360	408		n
124	N PMN	150	23		n
125	N PMN	150	22		n
126	LC SU	435	834		n
127	LC SU	123	16		n
128	LC SU	147	30		n
129	LC SU	130	18		n
130	LC SU	130	20		n
131	LC SU	153	26		n

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Recap?
132	LSS	175	54		n
133	LSS	125	20		n
134	LSS	143	40		n
135	LSS	141	28		n
136	N PMN	100	6		n
137	LSS	140	28		n
138	LSS	120	16		n
139	LSS	120	14		n
140	LSS	95	10		n
141	LSS	128	18		n
142	LSS	140	28		n
143	LSS	112	12		n
144	NP	577	1384	o floy 00522	n
145	LSS	112	12		n
146	LSS	120	16		n
147	LSS	132	20		n
148	LSS	125	16		n

2011 Clark Fork River Above Island Complex Electrofishing, River Left
Sampling Date 10/5/2011 Duration (sec) 8413
Water Temp. 13.3°C
Data Collectors: BM, JS, HC Latitude N.47.54326 Longitude W.115.10143

Table B-4. Data collection during 2011 electrofishing in the Clark Fork River above the Island Complex, river left.

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
1	LL	130	20		
2	LL	208	82	985121027388306	AD Clip
3	LL	240	136	985121027357726	AD Clip
4	LC SU	465	932		
5	LC SU	438	922		
6	LC SU	475	1162		
7	LC SU	425	776		
8	LC SU	540	1648		
9	LC SU	521	1528		
10	LC SU	470	952		
11	LC SU	475	122		
12	LC SU	471	1106		
13	LC SU	455	966		
14	LC SU	525	1334		
15	LC SU	495	1234		
16	LC SU	510	1366		
17	LC SU	528	1656		
18	LC SU	452	946		
19	LC SU	450	922		
20	LC SU	475	1144		
21	LC SU	505	1376		
22	LC SU	480	982		
23	LC SU	520	1372		
24	LC SU	515	1322		
25	LC SU	502	1062		
26	LC SU	530	1592		
27	LC SU	523	1444		
28	LC SU	500	1092		
29	LC SU	112	22		
30	LC SU	101	10		
31	LC SU	422	778		
32	LC SU	480	964		
33	LC SU	476	1050		
34	LC SU	530	1314		
35	LC SU	502	1208		
36	LC SU	445	930		
37	LC SU	455	398		
38	LC SU	465	1008		
39	LC SU	476	1124		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
40	LC SU	375	514		
41	LC SU	490	1196		
42	LC SU	450	1016		
43	LC SU	435	786		
44	LC SU	440	880		
45	LC SU	548	1884		
46	LC SU	550	1566		
47	LC SU	451	984		
48	LC SU	102	8		
49	LC SU	351	426		
50	LC SU	442	868		
51	LC SU	449	924		
52	LC SU	452	976		
53	LC SU	330	378		
54	LC SU	565	1936		
55	LC SU	538	1518		
56	LC SU	543	1430		
57	LC SU	485	1170		
58	LC SU	545	1736		
59	LC SU	463	956		
60	LC SU	535	1452		
61	LC SU	545	1420		
62	LC SU	565	1474		
63	LC SU	520	1356		
64	LC SU	560	1600		
65	LC SU	533	1444		
66	LC SU	472	1032		
67	LC SU	467	952		
68	LC SU	523	1244		
69	LC SU	470	1170		
70	LC SU	461	984		
71	LC SU	527	1298		
72	LC SU	387	560		
73	LC SU	455	1036		
74	LC SU	530	1282		
75	LC SU	532	1460		
76	LC SU	427	720		
77	LC SU	457	946		
78	LC SU	533	1502		
79	LC SU	463	1074		
80	LC SU	522	1318		
81	MWF	203	70		
82	MWF	341	302		
83	MWF	215	82		
84	MWF	335	354		
85	MWF	191	66		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
86	MWF	342	376		
87	MWF	190	50		
88	MWF	196	74		
89	MWF	191	56		
90	MWF	262	154		
91	MWF	268	154		
92	MWF	213	70		
93	MWF	340	304		
94	MWF	198	60		
95	MWF	176	52		
96	MWF	210	76		
97	MWF	187	50		
98	MWF	404	606		
99	MWF	125	14		
100	MWF	385	470		
101	MWF	370	496		
102	MWF	131	18		
103	MWF	192	56		
104	MWF	262	168		
105	MWF	192	56		
106	MWF	195	54		
107	MWF	130	18		
108	MWF	285	200		
109	MWF	355	396		
110	MWF	322	285		
111	MWF	201	70		
112	MWF	192	56		
113	MWF	252	122		
114	MWF	195	70		
115	MWF	255	100		
116	MWF	202	62		
117	MWF	362	340		
118	MWF	196	64		
119	MWF	112	6		
120	MWF	192	62		
121	MWF	210	72		
122	MWF	185	50		
123	MWF	172	58		
124	MWF	305	270		
125	MWF	375	366		
126	MWF	194	70		
127	MWF	192	56		
128	MWF	210	81		
129	MWF	171	40		
130	MWF	202	76		
131	MWF	305	236		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
132	MWF	225	90		
133	MWF	375	466		
134	MWF	195	56		
135	MWF	181	50		
136	MWF	200	66		
137	MWF	171	48		
138	MWF	115	10		
139	MWF	193	56		
140	MWF	197	58		
141	MWF	187	56		
142	MWF	325	336		
143	MWF	363	394		
144	MWF	201	60		
145	MWF	200	64		
146	MWF	280	180		
147	MWF	203	70		
148	MWF	183	44		
149	MWF	197	62		
150	MWF	187	44		
151	MWF	200	156		
152	MWF	192	58		
153	MWF	200	66		
154	MWF	125	12		
155	MWF	192	56		
156	MWF	207	68		
157	MWF	193	56		
158	MWF	219	76		
159	MWF	193	58		
160	MWF	310	216		
161	MWF	260	156		
162	MWF	184	48		
163	MWF	203	68		
164	MWF	187	50		
165	MWF	196	58		
166	MWF	192	50		
167	MWF	181	42		
168	MWF	121	12		
169	MWF	187	54		
170	MWF	208	66		
171	MWF	335	298		
172	MWF	189	54		
173	MWF	181	46		
174	MWF	187	48		
175	MWF	196	58		
176	MWF	201	70		
177	MWF	192	54		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
178	MWF	215	74		
179	MWF	184	52		
180	MWF	185	54		
181	MWF	200	58		
182	MWF	131	10		
183	MWF	183	46		
184	MWF	182	44		
185	MWF	173	42		
186	MWF	130	14		
187	MWF	117	8		
188	N PMN	410	562		
189	N PMN	123	18		
190	N PMN	360	388		
191	N PMN	135	20		
192	N PMN	375	478		
193	N PMN	336	324		
194	N PMN	226	282		
195	N PMN	335	330		
196	N PMN	365	444		
197	N PMN	371	370		
198	N PMN	360	392		
199	N PMN	335	316		
200	N PMN	370	476		
201	N PMN	365	446		
202	N PMN	410	576		
203	N PMN	350	400		
204	N PMN	122	14		
205	N PMN	338	288		
206	N PMN	135	20		
207	N PMN	435	700		
208	N PMN	373	458		
209	N PMN	333	286		
210	N PMN	133	18		
211	N PMN	127	10		
212	N PMN	180	46		
213	N PMN	347	390		
214	N PMN	382	446		
215	N PMN	297	220		
216	N PMN	303	276		
217	N PMN	518	1318		
218	N PMN	165	30		
219	NP	680	2314	Y-floy 16284	
220	NP	603	1616	Y-floy 16285	
221	NP	570	1390	Y-Floy 16286	
222	NP	550	1124	Y-floy 16283	
223	RB	238	144		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
224	RB	220	120		
225	RB	235	152		
226	RB	202	88		
227	RB	246	158		
228	RB	245	158		
229	RB	220	116		
230	RB	220	106		
231	RB	430	846	985121027366869	AD Clip
232	RB	248	156	985121021860541	AD Clip
233	RB	412	588	985121027363366	AD Clip
234	RB	212	106	985121027385298	AD Clip
235	RB	170	48		
236	RB	212	74	985121027369875	AD Clip
237	RB	331	342	985121027360438	AD Clip
238	RB	258	164	985121027366618	AD Clip
239	RB	375	564	985121027357383	AD Clip
240	RB	230	106	985121027361054	AD Clip
241	RB	326	322	985121027349617	AD Clip
242	RB	450	860	985121027388215	AD Clip
243	RB	355	442	985121027373632	AD Clip
244	RB	235	132	985121027357342	AD Clip
245	RB	347	390	985121027351899	AD Clip
246	RB	418	518	985121027357714	AD Clip
247	RB	211	90	985121027354783	AD Clip
248	RB	477	982	985121027370610	AD Clip
249	RB	397	632	985121027360240	AD Clip
250	RB	388	516	985121027376774	AD Clip
251	RB	228	134	985121027385529	AD Clip
252	WCT	281	232	985121027379015	AD Clip
253	WCT	240	162	985121027399698	AD Clip
254	WCT	385	606	985121027385481	AD Clip
255	WCT	366	512	985121027370123	AD Clip
256	RBxWCT	416	766		

2011 Clark Fork River Above the Island Complex Electrofishing, River Right
Sampling Date 10/6/2011 Duration (sec) 7988
Water Temp. 12.8°C
Data Collectors: BM, JS, HC Latitude N.47.54324 Longitude W.115.10070

Table B-5. Data collection during 2011 electrofishing in the Clark Fork River above the Island Complex, river right.

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
1	LL	218	86	985121021900583	AD Clip
2	LL	239	118	985121027393657	AD Clip
3	LL	236	142	985121021869953	AD Clip
4	LL	222	98		
5	LN SU	210	80		
6	LN SU	187	8		
7	LC SU	433	836		
8	LC SU	518	1368		
9	LC SU	375	466		
10	LC SU	320	326		
11	LC SU	342	394		
12	LC SU	525	1388		
13	LC SU	440	864		
14	LC SU	449	714		
15	LC SU	565	1570		
16	LC SU	486	1202		
17	LC SU	482	1100		
18	LC SU	322	332		
19	LC SU	508	1310		
20	LC SU	531	1562		
21	LC SU	435	792		
22	LC SU	382	586		
23	LC SU	415	720		
24	LC SU	468	994		
25	LC SU	140	20		
26	LC SU	111	10		
27	LC SU	402	676		
28	LC SU	482	1066		
29	LC SU	435	776		
30	LC SU	161	34		
31	LC SU	140	22		
32	LC SU	111	8		
33	LC SU	110	10		
34	LC SU	508	1168		
35	LC SU	395	642		
36	LC SU	541	1498		
37	LC SU	477	1086		
38	LC SU	532	1606		
39	LC SU	540	1462		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
40	LC SU	489	1180		
41	LC SU	429	1450		
42	LC SU	453	798		
43	LC SU	477	800		
44	LC SU	449	486		
45	LC SU	84			
46	LC SU	135	24		
47	LC SU	93			
48	LC SU	324	388		
49	LC SU	97	8		
50	LC SU	555	1810		
51	LC SU	386	600		
52	LC SU	474	1024		
53	LC SU	473	946		
54	LC SU	441	930		
55	LC SU	309	252		
56	LC SU	471	1150		
57	LC SU	93	8		
58	LC SU	572	1660		
59	LC SU	489	992		
60	LC SU	518	1344		
61	LC SU	454	914		
62	LC SU	427	782		
63	LC SU	350	454		
64	LC SU	437	802		
65	LC SU	443	850		
66	LC SU	440	880		
67	LC SU	516	1462		
68	LC SU	473	850		
69	LC SU	281	200		
70	LC SU	351	450		
71	LC SU	107	14		
72	LC SU	454	924		
73	LC SU	316	326		
74	LC SU	500	1212		
75	LC SU	275	202		
76	LC SU	95	6		
77	LC SU	267	194		
78	LC SU	507	1144		
79	LC SU	471	882		
80	MWF	282	190		
81	MWF	327	302		
82	MWF	270	164		
83	MWF	312	308		
84	MWF	121	16		
85	MWF	422	632		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
86	MWF	330	288		
87	MWF	251	128		
88	MWF	182	60		
89	MWF	352	348		
90	MWF	385	502		
91	MWF	268	162		
92	MWF	195	66		
93	MWF	287	200		
94	MWF	333	294		
95	MWF	257	152		
96	MWF	315	244		
97	MWF	196	58		
98	MWF	182	44		
99	MWF	325	266		
100	MWF	273	180		
101	MWF	308	276		
102	MWF	241	106		
103	MWF	195	58		
104	MWF	118	10		
105	MWF	131	14		
106	MWF	118	6		
107	MWF	330	316		
108	MWF	251	118		
109	MWF	253	124		
110	MWF	237	128		
111	MWF	335	308		
112	MWF	418	738		
113	MWF	310	278		
114	MWF	191	52		
115	MWF	349	366		
116	MWF	291	226		
117	MWF	337	322		
118	MWF	350	266		
119	MWF	116	6		
120	MWF	350	428		
121	MWF	205	58		
122	MWF	196	68		
123	MWF	335	280		
124	MWF	347	342		
125	MWF	308	232		
126	MWF	251	128		
127	MWF	278	182		
128	MWF	260	156		
129	MWF	272	174		
130	MWF	191	56		
131	MWF	202	66		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
132	MWF	201	62		
133	MWF	256	128		
134	MWF	233	114		
135	MWF	200	56		
136	MWF	240	106		
137	MWF	390	516		
138	MWF	187	58		
139	MWF	122	14		
140	MWF	337	334		
141	MWF	342	334		
142	MWF	320	286		
143	MWF	300	254		
144	MWF	196			
145	MWF	172			
146	MWF	124			
147	MWF	196	50		
148	MWF	389	538		
149	MWF	342	330		
150	MWF	354	382		
151	MWF	264	162		
152	MWF	367	448		
153	MWF	178	50		
154	MWF	210	62		
155	MWF	176	74		
156	MWF	377	426		
157	MWF	124	8		
158	MWF	127	8		
159	MWF	111	10		
160	MWF	199	70		
161	MWF	203	70		
162	MWF	113	16		
163	MWF	111	10		
164	MWF	132	10		
165	MWF	193	60		
166	MWF	209	72		
167	MWF	358	360		
168	MWF	184	50		
169	MWF	241	318		
170	MWF	319	290		
171	MWF	317	270		
172	MWF	193	54		
173	MWF	324	298		
174	MWF	191	58		
175	MWF	118	12		
176	MWF	205	66		
177	MWF	189	62		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
178	MWF	180	48		
179	MWF	259	148		
180	MWF	131	16		
181	MWF	404	466		
182	MWF	182	44		
183	MWF	261	116		
184	MWF	102	6		
185	MWF	103	6		
186	MWF	204	68		
187	MWF	183	48		
188	MWF	350	400		
189	MWF	181	48		
190	MWF	193	58		
191	MWF	202	60		
192	MWF	382	434		
193	MWF	256	138		
194	MWF	289	218		
195	MWF	224	80		
196	MWF	190	60		
197	MWF	209	68		
198	MWF	244	115		
199	MWF	249	120		
200	MWF	186	52		
201	MWF	191	50		
202	MWF	199	80		
203	MWF	132	20		
204	MWF	189	54		
205	MWF	199	52		
206	MWF	177	32		
207	MWF	127	10		
208	MWF	174	44		
209	MWF	124			
210	MWF	111			
211	MWF	122			
212	MWF	117			
213	MWF	121			
214	MWF	199	52		
215	MWF	184	48		
216	MWF	294	230		
217	MWF	434	652		
218	MWF	199	60		
219	MWF	114			
220	MWF	293	436		
221	MWF	359	350		
222	MWF	201	64		
223	MWF	181	50		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
224	MWF	257	138		
225	MWF	120	6		
226	MWF	201	66		
227	MWF	337	318		
228	MWF	391	450		
229	MWF	206	70		
230	MWF	116	16		
231	MWF	181	52		
232	MWF	202	64		
233	MWF	253	130		
234	MWF	377	502		
235	MWF	113	12		
236	MWF	93	8		
237	MWF	262	140		
238	MWF	197	64		
239	MWF	124	16		
240	MWF	133	24		
241	MWF	292	204		
242	MWF	181	58		
243	MWF	113	18		
244	MWF	187	58		
245	MWF	197	62		
246	MWF	125	10		
247	MWF	184	48		
248	MWF	115	5		
249	MWF	206	56		
250	MWF	341	316		
251	MWF	197	66		
252	MWF	534	1438		
253	MWF	197	58		
254	MWF	209	70		
255	MWF	246	122		
256	MWF	184	48		
257	MWF	201	60		
258	MWF	204	64		
259	MWF	199	68		
260	MWF	189	82		
261	MWF	206	76		
262	MWF	189	54		
263	MWF	212	76		
264	MWF	191	48		
265	MWF	270	140		
266	MWF	218	76		
267	MWF	368	420		
268	MWF	128	16		
269	MWF	133	16		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
270	MWF	129	20		
271	MWF	196	60		
272	MWF	127	14		
273	MWF	190	50		
274	MWF	349	372		
275	MWF	284	180		
276	MWF	114	12		
277	MWF	382	424		
278	MWF	307	216		
279	MWF	253	154		
280	MWF	110	12		
281	MWF	182	46		
282	MWF	190	58		
283	MWF	206	60		
284	MWF	197	54		
285	MWF	297	218		
286	MWF	219	76		
287	MWF	421	548		
288	MWF	117	14		
289	MWF	259	150		
290	MWF	365	352		
291	MWF	104			
292	MWF	199	62		
293	MWF	118	18		
294	MWF	212	84		
295	MWF	181	60		
296	MWF	170	46		
297	MWF	189	50		
298	MWF	354	362		
299	MWF	112	14		
300	MWF	207	64		
301	MWF	113	10		
302	MWF	196	60		
303	MWF	200	54		
304	MWF	302	250		
305	MWF	369	386		
306	MWF	175	42		
307	MWF	208	66		
308	MWF	188	50		
309	N PMN	355	360		
310	N PMN	460	880		
311	N PMN	408	616		
312	N PMN	414	660		
313	N PMN	345	318		
314	N PMN	182	32		
315	N PMN	360	388		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
316	N PMN	365	432		
317	N PMN	357	398		
318	N PMN	377	526		
319	N PMN	482	290		
320	N PMN	488	1344		
321	N PMN	310	254		
322	N PMN	550	1610		
323	N PMN	440	900		
324	N PMN	387	568		
325	N PMN	470	988		
326	N PMN	362	416		
327	N PMN	358	408		
328	N PMN	365	408		
329	N PMN	353	356		
330	N PMN	457	888		
331	N PMN	351	370		
332	N PMN	281	208		
333	N PMN	135	16		
334	N PMN	305	274		
335	N PMN	390	624		
336	N PMN	479	1372		
337	N PMN	398	530		
338	N PMN	482	1236		
339	N PMN	447	850		
340	N PMN	138	24		
341	N PMN	281	492		
342	N PMN	360	454		
343	N PMN	362	420		
344	N PMN	378	500		
345	N PMN	399	580		
346	N PMN	359	446		
347	N PMN	359	434		
348	NP	674	2618	Y-floy 16288	
349	NP	541	1194	Y-floy 16289	
350	NP	624	1674	Y-floy 16290	
351	NP	711	2688	Y-floy 16291	
352	NP	536	1144	Y-floy 16292	
353	NP	676	2090	Y-floy 16293	
354	NP	290	170	Y-floy 16294	
355	RB	313	274	985121027393686	AD Clip
356	RB	380	500	985121021907632	AD Clip
357	RB	388	634	985121027406162	AD Clip
358	RB	213	106	985121027379244	AD Clip
359	RB	306	306	985121027385478	AD Clip
360	RB	282	232	985121027369963	AD Clip
361	RB	417	502	985121027396765	AD Clip

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
362	RB	310	312	985121027385478	Recapture
363	RB	260	180	985121021881882	AD Clip
364	RB	208	88	985121023458663	AD Clip
365	RS SH	115	6		
366	RS SH	86	2		
367	RS SH	115	12		
368	RS SH	116	6		
369	RS SH	93			
370	RS SH	125	8		
371	RS SH	111	6		
372	RS SH	118	18		
373	RS SH	125	22		
374	SMB	200	94		
375	SMB	330	558	Y-floy 16287	
376	SMB	196	94		
377	SMB	186	84		
378	SMB	102	14		
379	SMB	138	58		
380	WCT	217	118	985121021885939	AD Clip
381	WCT	249	150	985121027360342	AD Clip
382	RBxWCT	321	330	985121021894178	AD Clip
383	YP	148	34		

2011 Clark Fork River Electrofishing from Paradise to Plains, River Right
Sampling Date 10/20/2011 Duration (sec) 6532
Water Temp. 8.9°C
Data Collectors: BM, JS, HC Latitude N.47.38315 Longitude W.114.79919

Table B-6. Data collection during 2011 electrofishing in the Clark Fork River from Paradise to Plains, river right.

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
1	RB	275	220		
2	RB	231	126		
3	RB	196	94		
4	RB	232	142		
5	RB	184	90		
6	RB	202	94		
7	WCT	220	106		
8	RB	213	94		
9	LL	185	64		
10	WCT	265	218		
11	RB	222	114		
12	RB	265	180		
13	LL	212	84		
14	RB	192	66		
15	RB	185	60		
16	LL	175	48		
17	YP	211	116		
18	N PMN	265	146		
19	N PMN	386	558		
20	N PMN	465	980		
21	N PMN	185	52		
22	LC SU	415	746		
23	LC SU	272	208		
24	LC SU	200	64		
25	LC SU	152	34		
26	LC SU	150	30		
27	LC SU	162	40		
28	LC SU	125	22		
29	LC SU	235	126		
30	LC SU	171	54		
31	LC SU	175	44		
32	LC SU	130	18		
33	SMB	342	624		
34	RS SH	105	12		
35	RS SH	95	8		
36	RS SH	100	10		
37	RS SH	112	16		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
38	RS SH	110	10		
39	RS SH	100	8		
40	RS SH	108	8		
41	RS SH	85	4		
42	RB	237	140		
43	RB	228	150		
44	RB	240	142		
45	RB	205	90		
46	RB	179	80		
47	RB	227	134		
48	RB	191	74		
49	RB	200	90		
50	RB	238	130		
51	RB	236	132		
52	RB	207	84		
53	RB	207	86		
54	RB	251	154		
55	RB	216	106		
56	RB	216	100		
57	RB	256	156		
58	LL	177	52		
59	RB	201	92		
60	RB	217	106		
61	RB	260	184		
62	WCT	222	110		
63	WCT	246	152		
64	N PMN	387	476		
65	N PMN	200	68		
66	N PMN	212	76		
67	N PMN	183	50		
68	N PMN	190	58		
69	N PMN	362	386		
70	N PMN	365	500		
71	N PMN	210	78		
72	N PMN	162	34		
73	N PMN	150	24		
74	N PMN	158	30		
75	N PMN	165	34		
76	N PMN	213	72		
77	N PMN	144	28		
78	MWF	321	334		
79	MWF	195	60		
80	MWF	148	24		
81	LC SU	231	132		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
82	LC SU	198	76		
83	LC SU	145	28		
84	MWF	105	8		
85	MWF	121	10		
86	MWF	110	10		
87	LC SU	125	18		
88	MWF	98	6		
89	LL	95	4		
90	RS SH	105	10		
91	RS SH	100	4		
92	RS SH	112	8		
93	RS SH	110	6		
94	RS SH	93	2		
95	RB	222	108		
96	RB	222	120		
97	RB	190	76		
98	RB	233	148		
99	RB	228	126		
100	RB	192	86		
101	RB	210	106		
102	WCT	210	98		
103	LL	177	50		
104	N PMN	550	1666		
105	LC SU	502	1256		
106	LC SU	380	612		
107	LC SU	550	1478		
108	N PMN	408	650		
109	N PMN	315	286		
110	N PMN	372	504		
111	N PMN	332	298		
112	N PMN	412	748		
113	N PMN	292	200		
114	N PMN	242	118		
115	N PMN	367	454		
116	RB	225	106		
117	WCT	240	144		
118	RB	213	104		
119	LC SU	287	250		
120	LC SU	267	226		
121	LC SU	250	156		
122	LC SU	244	138		
123	RB	205	98		
124	LC SU	222	98		
125	MWF	243	112		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
126	MWF	230	108		
127	MWF	217	78		
128	RB	200	82		
129	MWF	215	84		
130	N PMN	252	132		
131	N PMN	175	40		
132	N PMN	177	42		
133	N PMN	183	46		
134	N PMN	155	30		
135	N PMN	153	26		
136	N PMN	157	28		
137	N PMN	155	26		
138	N PMN	147	22		
139	LC SU	210	90		
140	RB	207	106		
141	LL	210	86		
142	LC SU	170	40		
143	LC SU	170	42		
144	LC SU	157	36		
145	MWF	143	20		
146	N PMN	125	14		
147	N PMN	152	24		
148	MWF	122	12		
149	N PMN	152	24		
150	N PMN	134	16		
151	MWF	137	14		
152	LC SU	148	24		
153	RS SH	115	8		
154	RS SH	113	12		
155	RS SH	120	14		
156	MWF	347	374		
157	MWF	462	820		
158	RB	197	88		
159	WCT	240	124		
160	RB	231	140		
161	RB	197	80		
162	WCT	221	118		
163	LL	187	68		
164	RB	235	134		
165	RB	230	122		
166	RB	212	112		
167	RB	232	132		
168	RB	196	82		
169	RBxWCT	372	510		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
170	RB	237	142		
171	LL	200	68		
172	RB	170	64		
173	RB	202	86		
174	RB	210	90		
175	RB	227	134		
176	N PMN	337	318		
177	N PMN	352	364		
178	N PMN	202	68		
179	N PMN	181	44		
180	N PMN	182	38		
181	N PMN	247	118		
182	N PMN	282	144		
183	MWF	280	170		
184	MWF	227	84		
185	MWF	222	70		
186	MWF	120	10		
187	N PMN	151	24		
188	N PMN	170	34		
189	N PMN	460	892		
190	N PMN	187	50		
191	N PMN	212	74		
192	N PMN	207	66		
193	RB	213	102		
194	WCT	231	146		
195	RB	200	84		
196	LC SU	470	876		
197	LC SU	265	206		
198	LC SU	242	142		
199	MWF	175	58		
200	MWF	207	82		
201	LC SU	232	138		
202	N PMN	188	60		
203	N PMN	125	16		
204	N PMN	147	26		
205	LC SU	170	42		
206	LC SU	232	148		
207	LC SU	191	60		
208	LC SU	180	52		
209	LC SU	175	54		
210	LC SU	207	90		
211	LC SU	177	54		
212	LC SU	163	42		
213	MWF	120	16		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
214	LC SU	167	50		
215	LC SU	154	32		
216	N PMN	155	26		
217	N PMN	185	36		
218	N PMN	183	42		
219	N PMN	177	38		
220	LC SU	167	44		
221	LC SU	149	28		
222	LC SU	195	76		
223	RS SH	115	12		
224	SMB	80	6		
225	SMB	53	2		
226	RS SH	123	14		
227	RS SH	123	12		
228	RS SH	112	12		
229	RS SH	90	6		
230	RS SH	140	24		
231	N PMN	140	16		
232	MWF	372	482		
233	RB	459	868		
234	WCT	250	134		
235	WCT	208	80		
236	WCT	225	102		
237	LL	217	88		
238	LL	212	102		
239	RB	240	160		
240	RB	250	162		
241	RB	227	132		
242	RB	230	120		
243	RB	246	150		
244	RB	215	102		
245	NP	310	170		
246	N PMN	352	376		
247	N PMN	310	238		
248	MWF	220	84		
249	RB	212	76		
250	RB	214	118		
251	LL	228	106		
252	LC SU	228	114		
253	LC SU	160	40		
254	LC SU	285	242		
255	LC SU	202	96		
256	LC SU	171	38		
257	LC SU	150	24		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
258	MWF	123	12		
259	RS SH	115	12		
260	RS SH	105	8		
261	RB	200	76		
262	LC SU	175	42		
263	LC SU	192	68		
264	LC SU	250	174		
265	LC SU	195	66		
266	LC SU	162	34		
267	MWF	120	10		
268	N PMN	142	22		
269	N PMN	180	40		
270	RS SH	93	4		
271	LC SU	210	94		
272	LC SU	157	28		
273	LC SU	196	62		
274	LC SU	250	138		
275	LC SU	208	76		
276	LC SU	152	26		
277	LC SU	71	44		
278	N PMN	134	16		
279	N PMN	182	46		
280	N PMN	157	26		
281	N PMN	210	64		
282	PEA	395	600		
283	LC SU	162	34		
284	LC SU	172	44		
285	LC SU	300	278		
286	LC SU	150	22		
287	LC SU	152	28		
288	N PMN	140	14		
289	N PMN	202	64		
290	N PMN	285	172		
291	N PMN	137	16		
292	N PMN	215	70		
293	LC SU	157	34		
294	LC SU	125	14		
295	LC SU	192	74		
296	LC SU	165	40		
297	LC SU	151	30		
298	LC SU	170	46		
299	LC SU	157	36		
300	RS SH	100	8		
301	RS SH	132	18		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
302	RS SH	132	20		
303	N PMN	185	46		
304	N PMN	180	44		
305	N PMN	171	36		
306	MWF	112	6		
307	MWF	125	16		
308	LC SU	147	28		
309	LC SU	225	112		
310	LC SU	225	104		
311	LC SU	141	28		
312	LC SU	172	50		
313	LC SU	146	30		
314	RS SH	113	12		
315	N PMN	252	126		
316	N PMN	163	32		
317	N PMN	140	18		
318	N PMN	142	22		
319	N PMN	144	20		
320	N PMN	127	18		
321	N PMN	148	22		
322	MWF	130	14		
323	LC SU	151	30		
324	LC SU	167	44		
325	LC SU	161	34		
326	LC SU	192	62		
327	RS SH	132	18		
328	RS SH	102	10		
329	N PMN	185	46		
330	N PMN	130	14		
331	LC SU	150	28		
332	LC SU	180	52		
333	LC SU	162	34		
334	LC SU	165	38		
335	N PMN	127	10		
336	MWF	110	10		
337	RS SH	138	20		
338	RS SH	110	6		
339	RS SH	105	2		
340	RS SH	120	10		
341	RS SH	100	4		
342	SMB	60	2		
343	RS SH	105	10		
344	RS SH	121	14		
345	RS SH	123	16		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
346	RS SH	87	6		
347	RS SH	113	12		
348	MWF	269	172		
349	MWF	320	298		
350	MWF	316	262		
351	MWF	343	414		
352	MWF	127	18		
353	MWF	113	12		
354	MWF	194	82		
355	MWF	233	96		
356	MWF	229	96		
357	MWF	137	18		
358	RB	238	136		
359	MWF	333	300		
360	LL	201	74		
361	RB	197	80		
362	MWF	111	8		
363	LC SU	350	426		
364	LC SU	553	1700		
365	RB	238	154		
366	LC SU	365	510		
367	RB	207	88		
368	RB	229	120		
369	MWF	121	14		
370	LC SU	434	804		
371	MWF	103	8		
372	LC SU	518	1356		
373	N PMN	444	790		
374	N PMN	406	622		
375	MWF	260	158		
376	MWF	278	162		
377	MWF	277	180		
378	MWF	245	120		
379	MWF	263	168		
380	MWF	224	96		
381	MWF	377	434		
382	MWF	223	114		
383	N PMN	377	498		
384	N PMN	436	844		
385	RB	252	152		
386	RB	250	164		
387	RB	234	112		
388	MWF	285	190		
389	MWF	257	164		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
390	LL	214	90		
391	MWF	145	24		
392	RB	247	136		
393	MWF	114	14		
394	MWF	244	116		
395	MWF	213	74		
396	MWF	121	14		
397	LC SU	543	1776		
398	N PMN	493	1246		
399	N PMN	446	882		
400	N PMN	378	530		
401	LC SU	540	1292		
402	RB	257	158		
403	LL	383	550		
404	RB	260	160		
405	RB	245	134		
406	MWF	278	152		
407	MWF	289	194		
408	MWF	368	422		
409	MWF	363	370		
410	MWF	211	74		
411	MWF	231	92		
412	MWF	226	90		
413	MWF	223	100		
414	WCT	240	134		
415	RB	231	136		
416	MWF	290	184		
417	RB	160	40		
418	LL	213	102		
419	MWF	208	70		
420	MWF	111	10		
421	LC SU	444	930		
422	RB	247	134		
423	LC SU	277	188		
424	RB	200	78		
425	RB	250	160		
426	MWF	151	22		
427	MWF	124	12		
428	N PMN	198	54		
429	LC SU	479	846		
430	LC SU	462	1024		
431	MWF	391	528		
432	MWF	219	94		
433	MWF	212	82		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
434	RB	191	84		
435	MWF	213	76		
436	MWF	304	222		
437	MWF	348	378		
438	RB	213	86		
439	MWF	248	150		
440	MWF	307	230		
441	MWF	196	62		
442	MWF	131	16		
443	MWF	192	70		
444	N PMN	438	870		
445	N PMN	394	604		
446	MWF	310	270		
447	MWF	120	10		
448	RB	193	76		
449	MWF	112	8		
450	LC SU	559	1606		
451	MWF	348	396		
452	MWF	229	96		
453	LL	110	12		
454	RB	218	96		
455	RB	244	136		
456	RB	146	20		
457	MWF	217	76		
458	MWF	380	426		
459	RB	276	226		
460	LC SU	310	316		
461	MWF	268	166		
462	MWF	407	578		
463	LC SU	303	256		
464	LC SU	432	828		
465	LC SU	445	886		
466	LC SU	485	1070		
467	LC SU	404	752		
468	LC SU	384	592		
469	N PMN	353	410		
470	MWF	3245	330		
471	MWF	141	20		
472	RB	207	96		
473	MWF	114	6		
474	MWF	112	6		
475	MWF	108	8		
476	MWF	436	678		
477	MWF	390	472		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
478	MWF	451	770		
479	MWF	196	70		
480	RB	321	300		
481	MWF	277	176		
482	LC SU	535	1462		
483	LC SU	528	1208		
484	N PMN	379	468		
485	N PMN	426	750		
486	WCT	222	100		
487	RB	241	136		
488	N PMN	428	718		
489	MWF	362	328		
490	N PMN	336	330		
491	WCT	376	528		
492	RB	224	120		
493	MWF	233	102		
494	RB	187	60		
495	MWF	221	88		
496	MWF	211	66		
497	MWF	192	54		
498	MWF	241	112		
499	MWF	129	16		
500	MWF	122	14		
501	MWF	127	14		
502	MWF	112	8		
503	MWF	220	90		
504	MWF	186	52		
505	MWF	111	10		
506	MWF	122	12		
507	RS SH	87	6		
508	MWF	118	12		
509	MWF	123	12		
510	MWF	237	102		
511	MWF	271	158		
512	MWF	297	202		
513	MWF	417	426		
514	MWF	380	456		
515	MWF	387	412		
516	MWF	275	170		
517	MWF	215	72		
518	MWF	224	98		
519	MWF	124	14		
520	MWF	355	400		
521	MWF	314	252		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
522	RB	223	128		
523	RB	232	120		
524	LC SU	297	318		
525	LC SU	484	1006		
526	MWF	138	20		
527	MWF	121	12		
528	RB	220	104		
529	MWF	111	10		
530	RB	220	114		
531	RB	235	120		
532	WCT	241	148		
533	MWF	114	12		
534	MWF	111	12		
535	RB	226	116		
536	MWF	132	16		
537	MWF	139	18		
538	MWF	142	22		
539	MWF	113	10		
540	MWF	121	12		
541	MWF	112	10		
542	MWF	110	10		
543	MWF	121	12		
544	MWF	214	86		
545	LC SU	553	1732		
546	MWF	134	16		
547	MWF	362	414		
548	RB	243	148		
549	N PMN	355	414		
550	WCT	262	200		
551	RB	240	140		
552	RB	276	216		
553	MWF	390	584		
554	N PMN	332	268		
555	MWF	130	16		
556	N PMN	194	54		
557	RB	204	88		
558	LC SU	376	482		
559	LC SU	442	824		
560	MWF	328	278		
561	RB	229	112		
562	MWF	291	176		
563	LC SU	460	1024		
564	LC SU	453	1004		
565	LC SU	472	994		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
566	MWF	225	100		
567	MWF	186	48		
568	MWF	122	14		
569	MWF	120	12		
570	MWF	112	10		
571	NP	489	834	Y floy 16295	
572	MWF	339	382		
573	MWF	199	62		
574	MWF	255	164		
575	MWF	330	284		
576	MWF	226	96		
577	RB	222	116		
578	MWF	192	58		
579	RB	247	132		
580	MWF	268	158		
581	LL	257	166		
582	N PMN	324	274		
583	RB	244	142		
584	N PMN	228	84		
585	MWF	424	536		
586	MWF	220	86		
587	MWF	132	18		
588	MWF	219	66		
589	MWF	296	210		
590	MWF	129	18		
591	RB	247	146		
592	MWF	353	410		
593	MWF	151	22		
594	MWF	127	16		
595	MWF	109	12		
596	MWF	111	12		
597	LC SU	573	1700		
598	MWF	206	64		
599	MWF	194	66		
600	MWF	194	52		
601	N PMN	390	532		
602	LC SU	452	912		
603	MWF	270	164		
604	LC SU	304	302		
605	N PMN	392	542		
606	MWF	208	72		
607	RB	214	94		
608	MWF	198	56		
609	N PMN	176	40		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
610	RB	249	144		
611	MWF	227	96		
612	MWF	310	234		
613	LL	222	90		
614	LL	214	86		
615	MWF	209	74		
616	LC SU	338	416		
617	LL	221	102		
618	MWF	118	14		
619	MWF	121	12		
620	MWF	113	10		
621	MWF	122	12		
622	MWF	224	86		
623	SMB	78	6		
624	MWF	104	8		
625	MWF	132	16		
626	MWF	120	12		
627	MWF	125	12		
628	LC SU	460	1012		
629	LC SU	543	1456		

2011 Clark Fork River Electrofishing from Paradise to Plains, River Left
Sampling Date 10/21/2011 Duration (sec) 5950
Water Temp. 11.5°C
Data Collectors: BM, JS, HC Latitude N.47.38305 Longitude W.114.80017

Table B-7. Data collection during 2011 electrofishing in the Clark Fork River from Paradise to Plains, river left.

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
1	N PMN	125	14		
2	RB	238	122		
3	N PMN	192	54		
4	SMB	181	90		
5	LC SU	427	918		
6	MWF	385	398		
7	MWF	262	154		
8	LC SU	205	90		
9	LC SU	290	270		
10	N PMN	498	1324		
11	LC SU	538	1492		
12	N PMN	147	20		
13	RB	245	140		
14	N PMN	136	12		
15	N PMN	187	38		
16	YP	165	60		
17	N PMN	514	1372		
18	N PMN	505	1216		
19	LC SU	495	1360		
20	LC SU	437	856		
21	RB	175	62		
22	LC SU	285	228		
23	N PMN	275	186		
24	LC SU	507	1318		
25	N PMN	227	76		
26	N PMN	135	18		
27	N PMN	202	60		
28	MWF	112	10		
29	LC SU	333	344		
30	LC SU	272	222		
31	LC SU	272	226		
32	N PMN	470	1016		
33	RB	182	68		
34	N PMN	530	424		
35	N PMN	227	90		
36	N PMN	3131	16		
37	YP	47	34		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
38	LC SU	157	38		
39	N PMN	182	48		
40	LC SU	212	88		
41	N PMN	192	60		
42	N PMN	155	26		
43	N PMN	128	18		
44	RB	222	114		
45	MWF	320	270		
46	WCT	215	102		
47	N PMN	135	16		
48	N PMN	320	282		
49	LC SU	280	220		
50	MWF	375	500		
51	N PMN	312	280		
52	WCT	283	106		
53	N PMN	256	134		
54	N PMN	312	262		
55	N PMN	288	198		
56	N PMN	325	266		
57	RB	212	94		
58	N PMN	420	654		
59	N PMN	182	48		
60	N PMN	158	36		
61	N PMN	191	52		
62	MWF	272	156		
63	N PMN	150	22		
64	N PMN	141	18		
65	N PMN	185	44		
66	N PMN	182	48		
67	N PMN	151	22		
68	N PMN	160	28		
69	N PMN	157	24		
70	N PMN	141	20		
71	N PMN	168	34		
72	N PMN	377	494		
73	N PMN	176	40		
74	N PMN	162	36		
75	N PMN	316	256		
76	LC SU	296	280		
77	LC SU	513	1054		
78	LC SU	532	1496		
79	LC SU	460	946		
80	LC SU	403	630		
81	LC SU	342	398		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
82	LC SU	214	102		
83	LC SU	321	350		
84	LC SU	273	216		
85	LC SU	212	104		
86	LC SU	231	118		
87	N PMN	408	622		
88	N PMN	197	66		
89	RB	212	104		
90	LC SU	262	210		
91	LC SU	282	220		
92	LN SU	170	52		
93	LC SU	237	134		
94	LC SU	230	118		
95	LC SU	234	140		
96	RB	223	116		
97	RB	175	54		
98	LC SU	232	132		
99	MWF	272	72		
100	YP	170	54		
101	RB	210	94		
102	LC SU	153	38		
103	LC SU	102	10		
104	MWF	126	12		
105	RB	436	668		
106	RBxWCT	402	542		
107	RB	227	114		
108	RB	255	174		
109	RB	240	142		
110	WCT	222	128		
111	RB	235	130		
112	RB	226	124		
113	LC SU	235	116		
114	N PMN	203	242		
115	N PMN	300	236		
116	N PMN	237	46		
117	N PMN	312	240		
118	N PMN	275	154		
119	N PMN	355	366		
120	RB	220	118		
121	RB	218	108		
122	MWF	202	74		
123	MWF	280	220		
124	RB	232	132		
125	MWF	275	178		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
126	N PMN	402	620		
127	N PMN	285	212		
128	N PMN	147	48		
129	N PMN	160	44		
130	N PMN	151	36		
131	N PMN	145	30		
132	LC SU	312	282		
133	LC SU	431	774		
134	LC SU	350	454		
135	LC SU	332	358		
136	LC SU	320	320		
137	LC SU	271	210		
138	LC SU	296	246		
139	LC SU	291	256		
140	LC SU	312	302		
141	LC SU	230	128		
142	LC SU	252	172		
143	LC SU	231	126		
144	MWF	288	232		
145	LC SU	231	148		
146	LC SU	282	234		
147	LC SU	233	130		
148	LC SU	196	82		
149	LC SU	235	122		
150	LC SU	121	16		
151	WCT	202	80		
152	N PMN	138	22		
153	N PMN	122	10		
154	LC SU	469	1046		
155	MWF	281	204		
156	MWF	193	64		
157	RB	223	122		
158	RB	225	126		
159	RB	231	130		
160	RB	202	104		
161	WCT	215	98		
162	RB	201	80		
163	N PMN	422	702		
164	N PMN	218	80		
165	N PMN	315	288		
166	N PMN	277	170		
167	N PMN	282	180		
168	N PMN	182	46		
169	N PMN	161	36		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
170	N PMN	165	40		
171	N PMN	302	274		
172	N PMN	180	52		
173	N PMN	210	80		
174	N PMN	130	26		
175	N PMN	157	28		
176	N PMN	441	874		
177	N PMN	310	270		
178	LC SU	275	200		
179	LC SU	344	400		
180	LC SU	311	314		
181	LC SU	273	178		
182	LC SU	263	178		
183	LC SU	247	142		
184	LC SU	165	40		
185	YP	165	50		
186	SMB	190	110		
187	MWF	269	184		
188	WCT	241	146		
189	N PMN	147	22		
190	N PMN	203	66		
191	N PMN	145	24		
192	N PMN	116	14		
193	N PMN	150	24		
194	N PMN	150	20		
195	N PMN	172	44		
196	N PMN	321	270		
197	N PMN	321	284		
198	N PMN	440	1048		
199	N PMN	330	284		
200	N PMN	200	54		
201	N PMN	200	54		
202	N PMN	146	20		
203	N PMN	163	26		
204	RB	188	68		
205	N PMN	175	42		
206	N PMN	206	62		
207	MWF	225	102		
208	MWF	363	288		
209	LC SU	500	1164		
210	LC SU	231	142		
211	LC SU	212	80		
212	LC SU	273	204		
213	LC SU	223	104		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
214	LC SU	230	126		
215	LC SU	240	138		
216	MWF	202	70		
217	N PMN	270	160		
218	LC SU	183	56		
219	LC SU	136	22		
220	LC SU	140	22		
221	YP	171	60		
222	LC SU	516	1352		
223	MWF	417	358		
224	MWF	382	398		
225	MWF	413	696		
226	MWF	353	336		
227	MWF	352	352		
228	MWF	205	74		
229	N PMN	331	308		
230	MWF	277	176		
231	MWF	131	20		
232	LC SU	371	540		
233	LC SU	541	1678		
234	LC SU	458	1078		
235	LC SU	466	1026		
236	LC SU	457	996		
237	RB	225	122		
238	LC SU	286	252		
239	LC SU	462	1042		
240	LC SU	300	314		
241	MWF	145	32		
242	MWF	128	32		
243	MWF	105	2		
244	N PMN	351	368		
245	N PMN	328	270		
246	LC SU	442	990		
247	LC SU	495	1238		
248	LC SU	383	630		
249	LC SU	524	1186		
250	LC SU	456	1022		
251	LC SU	432	884		
252	LC SU	472	1132		
253	MWF	305	266		
254	MWF	282	190		
255	MWF	200	82		
256	MWF	372	452		
257	MWF	366	386		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
258	MWF	415	464		
259	MWF	196	88		
260	MWF	276	202		
261	RB	182	82		
262	LC SU	215	126		
263	LC SU	223	124		
264	N PMN	382	538		
265	N PMN	355	410		
266	MWF	262	142		
267	MWF	241	118		
268	MWF	277	168		
269	MWF	280	192		
270	MWF	356	392		
271	MWF	350	310		
272	MWF	121	18		
273	MWF	201	70		
274	MWF	97	10		
275	LC SU	468	1082		
276	LC SU	452	864		
277	LC SU	487	1162		
278	LC SU	540	1678		
279	LC SU	381	560		
280	LC SU	466	1020		
281	LC SU	553	1530		
282	LC SU	577	1396		
283	LC SU	352	448		
284	LC SU	481	1150		
285	LC SU	160	36		
286	N PMN	316	310		
287	N PMN	500	1268		
288	N PMN	453	810		
289	N PMN	371	464		
290	N PMN	167	14		
291	N PMN	170	38		
292	MWF	130	16		
293	MWF	123	18		
294	MWF	112	14		
295	N PMN	413	358		
296	LC SU	450	1106		
297	WCT	390	612		
298	MWF	371	410		
299	MWF	222	80		
300	N PMN	312	270		
301	N PMN	320	324		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
302	N PMN	243	126		
303	N PMN	390	540		
304	N PMN	325	296		
305	LC SU	425	792		
306	LC SU	515	1574		
307	LC SU	470	1114		
308	LC SU	470	1170		
309	LC SU	450	1118		
310	LC SU	465	1130		
311	LC SU	272	198		
312	LC SU	235	138		
313	LC SU	208	116		
314	N PMN	207	84		
315	MWF	115	10		
316	MWF	285	196		
317	MWF	276	176		
318	RB	402	548		
319	N PMN	210	72		
320	N PMN	170	42		
321	N PMN	432	754		
322	N PMN	390	516		
323	N PMN	370	476		
324	LC SU	436	806		
325	LC SU	441	890		
326	LC SU	483	1146		
327	LC SU	457	808		
328	LC SU	442	946		
329	LC SU	550	1800		
330	LC SU	477	994		
331	LC SU	471	1004		
332	LC SU	537	1412		
333	LC SU	412	784		
334	LC SU	196	84		
335	LC SU	147	42		
336	N PMN	303	236		
337	MWF	325	292		
338	MWF	215	92		
339	MWF	98	6		
340	MWF	252	144		
341	MWF	312	290		
342	RB	227	104		
343	MWF	268	156		
344	MWF	225	82		
345	MWF	138	18		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
346	LC SU	480	1146		
347	LC SU	431	766		
348	LC SU	458	1002		
349	LC SU	522	1440		
350	LC SU	435	786		
351	LC SU	389	588		
352	LC SU	376	548		
353	LC SU	397	638		
354	LC SU	460	954		
355	LC SU	360	448		
356	LC SU	476	1104		
357	LC SU	447	984		
358	LC SU	351	444		
359	LC SU	367	508		
360	LC SU	401	674		
361	LC SU	290	270		
362	LC SU	304	276		
363	LC SU	306	336		
364	LC SU	365	488		
365	LC SU	362	470		
366	LC SU	362	216		
367	LC SU	194	100		
368	LC SU	196	142		
369	LC SU	175	80		
370	LC SU	192	96		
371	N PMN	181	64		
372	N PMN	196	82		
373	N PMN	390	560		
374	N PMN	287	210		
375	N PMN	351	422		
376	LC SU	422	774		
377	MWF	118	12		
378	MWF	282	176		
379	MWF	204	68		
380	MWF	322	276		
381	RB	250	162		
382	RB	201	74		
383	LC SU	533	1360		
384	LC SU	455	920		
385	LC SU	490	1158		
386	LC SU	445	996		
387	LC SU	492	1212		
388	LC SU	468	1184		
389	LC SU	480	1186		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
390	LC SU	395	576		
391	LC SU	555	1684		
392	LC SU	483	1202		
393	LC SU	351	486		
394	LC SU	460	970		
395	LC SU	212	116		
396	LC SU	181	64		
397	LC SU	476	1128		
398	N PMN	350	342		
399	N PMN	312	254		
400	N PMN	342	362		
401	N PMN	340	366		
402	N PMN	172	56		
403	N PMN	360	436		
404	N PMN	285	230		
405	MWF	135	14		
406	MWF	141	20		
407	LC SU	272	216		
408	LC SU	216	106		
409	LC SU	202	78		
410	LC SU	362	502		
411	LC SU	227	156		
412	RB	231	112		
413	N PMN	212	66		
414	N PMN	171	34		
415	N PMN	173	32		
416	N PMN	218	68		
417	MWF	355	432		
418	MWF	255	156		
419	RB	227	138		
420	MWF	206	82		
421	MWF	192	66		
422	MWF	220	100		
423	MWF	212	94		
424	MWF	310	284		
425	RB	262	242		
426	N PMN	170	64		
427	LC SU	408	696		
428	LC SU	560	1820		
429	LC SU	502	1178		
430	LC SU	462	1072		
431	LC SU	511	1488		
432	LC SU	451	980		
433	LC SU	460	1082		

Capture No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No./Floy ID	Comments
434	N PMN	352	420		
435	RB	178	60		
436	N PMN	180	46		
437	MWF	375	434		
438	MWF	180	48		
439	RB	231	152		
440	RB	215	98		
441	RB	493	1164		
442	N PMN	393	526		
443	N PMN	375	488		
444	N PMN	522	1448		
445	N PMN	460	958		
446	MWF	341	356		
447	MWF	277	212		
448	MWF	281	228		
449	MWF	123	14		
450	LC SU	502	1142		
451	LC SU	455	990		
452	LC SU	392	638		
453	LC SU	300	256		
454	LC SU	461	1040		
455	MWF	230	114		
456	N PMN	330	316		
457	LC SU	175	58		
458	LC SU	153	34		
459	LC SU	157	30		

Quinn's Section – Clark Fork River

Table B-8. Electrofishing data collected in the Fall 2011 from the St. Regis Section of the Clark Fork River. (Source: FWP 2011).

Date	RunNumber	TripType	MarkCode	Spec_Num	Length	Weight	SpecAbbr	Hook Scar
10/6/2010	1	1	0	1	269	180	RB	
10/6/2010	1	1	0	1	377	505	RB	
10/6/2010	1	1	0	1	281	200	RB	
10/6/2010	1	1	0	1	468	1080	RB	HS
10/6/2010	1	1	0	1	285	230	RB	
10/6/2010	1	1	0	1	440	810	RB	
10/6/2010	1	1	0	1	428	795	RB	
10/6/2010	1	1	0	1	355	460	RB	
10/6/2010	1	1	0	1	375	565	RB	
10/6/2010	1	1	0	1	317	305	RB	
10/6/2010	1	1	0	1	346	370	RB	
10/6/2010	1	1	0	1	435	755	RB	
10/6/2010	1	1	0	1	391	585	RB	
10/6/2010	1	1	0	1	350	470	RB	
10/6/2010	1	1	0	1	394	585	RB	
10/6/2010	1	1	0	1	332	370	RB	
10/6/2010	1	1	0	1	430	815	RB	HS
10/6/2010	1	1	0	1	461	990	RB	
10/6/2010	1	1	0	1	420	785	RB	
10/6/2010	1	1	0	1	415	705	RB	
10/6/2010	1	1	0	1	340	345	RB	
10/6/2010	1	1	0	1	192	70	RB	
10/6/2010	1	1	0	1	345	380	RB	
10/6/2010	1	1	0	1	336	355	RB	
10/6/2010	1	1	0	1	404	660	RB	
10/6/2010	1	1	0	1	380	525	RB	
10/6/2010	1	1	0	1	366	485	RB	
10/6/2010	1	1	0	1	315	300	RB	
10/6/2010	1	1	0	1	252	150	RB	
10/6/2010	1	1	0	1	368	430	RB	
10/6/2010	1	1	0	1	325	285	RB	
10/6/2010	1	1	0	1	472	970	RB	
10/6/2010	1	1	0	1	430	735	RB	
10/6/2010	1	1	0	1	428	605	RB	HS
10/6/2010	1	1	0	1	451	830	RB	
10/6/2010	1	1	0	1	455	765	RB	
10/6/2010	1	1	0	1	387	500	RB	
10/6/2010	1	1	0	1	412	590	RB	
10/6/2010	1	1	0	1	490	1140	RB	
10/6/2010	1	1	0	1	470	965	RB	
10/6/2010	1	1	0	1	396	550	RB	

Date	RunNumber	TripType	MarkCode	Spec_Num	Length	Weight	SpecAbbr	Hook Scar
10/6/2010	1	1	0	1	430	715	RB	HS
10/6/2010	1	1	0	1	285	190	RB	
10/6/2010	1	1	0	1	425	680	RB	
10/6/2010	1	1	0	1	343	335	RB	
10/6/2010	1	1	0	1	403	605	RB	
10/6/2010	1	1	0	1	475	1030	RB	
10/6/2010	1	1	0	1	420	695	RB	
10/6/2010	1	1	0	1	400	530	RB	
10/6/2010	1	1	0	1	345	370	RB	
10/6/2010	1	1	0	1	483	1065	RB	
10/6/2010	1	1	0	1	441	780	RB	
10/6/2010	1	1	0	1	423	715	RB	
10/6/2010	1	1	0	1	270	200	RB	
10/6/2010	1	1	0	1	325	370	RB	
10/6/2010	1	1	0	1	228	140	RB	
10/6/2010	1	1	0	12	355	460	WCT	
10/6/2010	1	1	0	12	360	455	WCT	
10/6/2010	1	1	0	12	365	485	WCT	
10/6/2010	1	1	0	12	326	345	WCT	HS
10/6/2010	1	1	0	12	232	110	WCT	
10/6/2010	1	1	0	12	393	605	WCT	HS
10/6/2010	1	1	0	12	415	720	WCT	
10/6/2010	1	1	0	12	353	475	WCT	
10/6/2010	1	1	0	12	485	1110	WCT	
10/6/2010	1	1	0	12	375	530	WCT	HS
10/6/2010	1	1	0	12	321	320	WCT	
10/6/2010	1	1	0	12	382	550	WCT	
10/6/2010	1	1	0	12	366	510	WCT	
10/6/2010	1	1	0	12	380	625	WCT	
10/6/2010	1	1	0	12	379	515	WCT	HS
10/6/2010	1	1	0	12	403	630	WCT	
10/6/2010	1	1	0	12	397	575	WCT	
10/6/2010	1	1	0	12	365	475	WCT	HS
10/6/2010	1	1	0	12	355	480	WCT	
10/6/2010	1	1	0	12	336	380	WCT	
10/6/2010	1	1	0	12	342	380	WCT	HS
10/6/2010	1	1	0	12	222	95	WCT	
10/6/2010	1	1	0	12	420	690	WCT	
10/6/2010	1	1	0	12	365	485	WCT	
10/6/2010	1	1	0	12	377	460	WCT	
10/6/2010	1	1	0	12	460	970	WCT	
10/6/2010	1	1	0	12	380	535	WCT	HS
10/6/2010	1	1	0	12	400	610	WCT	
10/6/2010	1	1	0	12	285	230	WCT	
10/6/2010	1	1	0	12	374	485	WCT	

Date	RunNumber	TripType	MarkCode	Spec_Num	Length	Weight	SpecAbbr	Hook Scar
10/6/2010	1	1	0	12	387	535	WCT	HS
10/6/2010	1	1	0	12	360	460	WCT	
10/6/2010	1	1	0	12	336	330	WCT	
10/6/2010	1	1	0	12	232	95	WCT	
10/6/2010	1	1	0	12	341	400	WCT	
10/6/2010	1	1	0	12	249	150	WCT	
10/6/2010	1	1	0	12	352	455	WCT	HS
10/6/2010	1	1	0	12	340	420	WCT	
10/6/2010	1	1	0	4	358	420	LL	
10/6/2010	1	1	0	4	511	1235	LL	
10/6/2010	1	1	0	23	570	1250	NP	
10/6/2010	1	1	0	17	306	460	SMB	
10/7/2010	2	1	0	1	405	640	RB	
10/7/2010	2	1	0	1	452	373	RB	
10/7/2010	2	1	0	1	373	460	RB	
10/7/2010	2	1	0	1	369	430	RB	
10/7/2010	2	1	0	1	387	540	RB	
10/7/2010	2	1	0	1	390	575	RB	
10/7/2010	2	1	0	1	352	395	RB	
10/7/2010	2	1	0	1	445	655	RB	
10/7/2010	2	1	0	1	430	740	RB	
10/7/2010	2	1	0	1	440	795	RB	
10/7/2010	2	1	0	1	428	705	RB	
10/7/2010	2	1	0	1	213	80	RB	
10/7/2010	2	1	0	1	438	820	RB	
10/7/2010	2	1	0	1	355	400	RB	
10/7/2010	2	1	0	1	370	480	RB	HS
10/7/2010	2	1	0	1	181	55	RB	
10/7/2010	2	1	0	1	377	470	RB	
10/7/2010	2	1	0	1	314	255	RB	
10/7/2010	2	1	0	1	430	745	RB	
10/7/2010	2	1	0	1	440	835	RB	
10/7/2010	2	1	0	1	390	505	RB	
10/7/2010	2	1	0	1	437	905	RB	
10/7/2010	2	1	0	1	411	605	RB	
10/7/2010	2	1	0	1	270	175	RB	
10/7/2010	2	1	0	1	250	140	RB	
10/7/2010	2	1	0	1	344	370	RB	
10/7/2010	2	1	0	1	220	90	RB	
10/7/2010	2	1	0	1	212	90	RB	
10/7/2010	2	1	0	12	324	310	WCT	
10/7/2010	2	1	0	12	379	570	WCT	
10/7/2010	2	1	0	12	409	610	WCT	
10/7/2010	2	1	0	12	342	430	WCT	
10/7/2010	2	1	0	12	410	750	WCT	

Date	RunNumber	TripType	MarkCode	Spec_Num	Length	Weight	SpecAbbr	Hook Scar
10/7/2010	2	1	0	12	372	535	WCT	HS
10/7/2010	2	1	0	12	375	550	WCT	
10/7/2010	2	1	0	12	386	595	WCT	HS
10/7/2010	2	1	0	12	340	380	WCT	
10/7/2010	2	1	0	12	362	430	WCT	HS
10/7/2010	2	1	0	12	353	440	WCT	
10/7/2010	2	1	0	12	342	365	WCT	HS
10/7/2010	2	1	0	12	376	515	WCT	
10/7/2010	2	1	0	12	352	450	WCT	
10/7/2010	2	1	0	12	373	480	WCT	
10/7/2010	2	1	0	12	368	445	WCT	HS
10/7/2010	2	1	0	12	395	550	WCT	HS
10/7/2010	2	1	0	12	321	320	WCT	
10/7/2010	2	1	0	12	377	480	WCT	
10/7/2010	2	1	0	12	366	450	WCT	
10/7/2010	2	1	0	12	357	450	WCT	
10/7/2010	2	1	0	12	286	235	WCT	
10/7/2010	2	1	0	12	366	490	WCT	
10/7/2010	2	1	0	12	410	645	WCT	
10/7/2010	2	1	0	12	380	490	WCT	
10/7/2010	2	1	0	12	240	120	WCT	
10/7/2010	2	1	0	12	338	365	WCT	
10/7/2010	2	1	0	12	345	360	WCT	
10/7/2010	2	1	0	4	434	950	LL	
10/7/2010	2	1	0	4	200	70	LL	
10/13/2010	3	2	0	1	432	755	RB	
10/13/2010	3	2	0	1	248	140	RB	
10/13/2010	3	2	1	1	413		RB	
10/13/2010	3	2	0	1	417	690	RB	HS
10/13/2010	3	2	0	1	435	745	RB	
10/13/2010	3	2	1	1	420		RB	
10/13/2010	3	2	0	1	400	615	RB	
10/13/2010	3	2	0	1	416	630	RB	HS
10/13/2010	3	2	0	1	430	790	RB	
10/13/2010	3	2	1	1	435		RB	
10/13/2010	3	2	0	1	425	735	RB	
10/13/2010	3	2	1	1	436		RB	
10/13/2010	3	2	1	1	365		RB	
10/13/2010	3	2	0	1	370	535	RB	
10/13/2010	3	2	1	1	212		RB	
10/13/2010	3	2	0	1	235	110	RB	
10/13/2010	3	2	0	1	402	655	RB	
10/13/2010	3	2	0	1	390	535	RB	
10/13/2010	3	2	0	1	253	155	RB	
10/13/2010	3	2	1	1	335		RB	

Date	RunNumber	TripType	MarkCode	Spec_Num	Length	Weight	SpecAbbr	Hook Scar
10/13/2010	3	2	1	1	385		RB	
10/13/2010	3	2	0	1	370	425	RB	
10/13/2010	3	2	0	1	236	125	RB	
10/13/2010	3	2	0	1	230	115	RB	
10/13/2010	3	2	0	1	450	860	RB	
10/13/2010	3	2	0	1	418	640	RB	HS
10/13/2010	3	2	0	1	401	470	RB	
10/13/2010	3	2	0	1	395	575	RB	
10/13/2010	3	2	1	1	364		RB	
10/13/2010	3	2	0	1	352	380	RB	
10/13/2010	3	2	0	1	405	675	RB	
10/13/2010	3	2	0	1	440	750	RB	
10/13/2010	3	2	1	1	469		RB	
10/13/2010	3	2	0	1	460	965	RB	
10/13/2010	3	2	0	1	395	630	RB	HS
10/13/2010	3	2	0	1	505	1135	RB	HS
10/13/2010	3	2	0	1	449	870	RB	
10/13/2010	3	2	1	1	438		RB	
10/13/2010	3	2	0	1	405	590	RB	
10/13/2010	3	2	0	1	498	1160	RB	
10/13/2010	3	2	0	1	447	870	RB	
10/13/2010	3	2	0	1	395	580	RB	
10/13/2010	3	2	0	1	331	370	RB	
10/13/2010	3	2	0	1	280	200	RB	
10/13/2010	3	2	0	1	264	160	RB	
10/13/2010	3	2	0	1	365	415	RB	
10/13/2010	3	2	0	1	276	180	RB	
10/13/2010	3	2	0	1	342	380	RB	
10/13/2010	3	2	0	1	288	210	RB	
10/13/2010	3	2	0	1	402	605	RB	
10/13/2010	3	2	0	1	470	860	RB	HS
10/13/2010	3	2	0	1	365	430	RB	
10/13/2010	3	2	0	1	406	705	RB	
10/13/2010	3	2	0	1	370	540	RB	
10/13/2010	3	2	0	1	204	85	RB	
10/13/2010	3	2	0	1	376	515	RB	
10/13/2010	3	2	0	1	435	785	RB	
10/13/2010	3	2	1	1	411		RB	
10/13/2010	3	2	0	1	280	220	RB	
10/13/2010	3	2	0	1	244	244	RB	
10/13/2010	3	2	0	1	438	925	RB	
10/13/2010	3	2	0	1	255	170	RB	
10/13/2010	3	2	0	1	438	910	RB	HS
10/13/2010	3	2	0	1	420	710	RB	
10/13/2010	3	2	0	1	490	1135	RB	

Date	RunNumber	TripType	MarkCode	Spec_Num	Length	Weight	SpecAbbr	Hook Scar
10/13/2010	3	2	1	1	480		RB	
10/13/2010	3	2	0	1	210	105	RB	
10/13/2010	3	2	0	1	390	550	RB	
10/13/2010	3	2	0	1	490	1150	RB	
10/13/2010	3	2	1	1	410		RB	
10/13/2010	3	2	1	1	279		RB	
10/13/2010	3	2	1	1	305		RB	
10/13/2010	3	2	0	1	195	65	RB	
10/13/2010	3	2	0	1	382	510	RB	
10/13/2010	3	2	0	1	415	635	RB	
10/13/2010	3	2	0	1	405	580	RB	
10/13/2010	3	2	1	1	210		RB	
10/13/2010	3	2	1	12	356		WCT	
10/13/2010	3	2	1	12	485		WCT	
10/13/2010	3	2	0	12	390	585	WCT	
10/13/2010	3	2	0	12	423	805	WCT	
10/13/2010	3	2	0	12	385	650	WCT	
10/13/2010	3	2	0	12	397	640	WCT	
10/13/2010	3	2	0	12	317	290	WCT	
10/13/2010	3	2	0	12	263	170	WCT	
10/13/2010	3	2	1	12	355		WCT	
10/13/2010	3	2	0	12	356	405	WCT	
10/13/2010	3	2	0	12	368	485	WCT	
10/13/2010	3	2	0	12	405	610	WCT	
10/13/2010	3	2	0	12	368	530	WCT	
10/13/2010	3	2	0	12	380	515	WCT	
10/13/2010	3	2	0	12	382	535	WCT	HS
10/13/2010	3	2	1	12	364		WCT	
10/13/2010	3	2	0	12	208	85	WCT	
10/13/2010	3	2	0	12	286	210	WCT	
10/13/2010	3	2	0	12	372	470	WCT	
10/13/2010	3	2	1	12	395		WCT	
10/13/2010	3	2	0	12	394	545	WCT	
10/13/2010	3	2	0	12	353	440	WCT	
10/13/2010	3	2	0	12	427	720	WCT	
10/13/2010	3	2	0	12	340	350	WCT	
10/13/2010	3	2	0	12	356	450	WCT	HS
10/13/2010	3	2	0	12	355	420	WCT	
10/13/2010	3	2	1	12	356		WCT	
10/13/2010	3	2	0	12	345	430	WCT	
10/13/2010	3	2	0	12	398	660	WCT	
10/13/2010	3	2	0	12	285	245	WCT	
10/13/2010	3	2	0	12	368	460	WCT	
10/13/2010	3	2	1	12	384		WCT	
10/13/2010	3	2	0	12	381	535	WCT	

Date	RunNumber	TripType	MarkCode	Spec_Num	Length	Weight	SpecAbbr	Hook Scar
10/13/2010	3	2	0	12	344	415	WCT	
10/13/2010	3	2	0	12	361	470	WCT	
10/13/2010	3	2	1	12	245		WCT	
10/13/2010	3	2	0	12	440	910	WCT	
10/13/2010	3	2	1	12	460		WCT	
10/13/2010	3	2	1	12	367		WCT	
10/13/2010	3	2	0	12	312	295	WCT	
10/13/2010	3	2	0	12	392	530	WCT	
10/13/2010	3	2	0	12	366	450	WCT	
10/13/2010	3	2	1	12	415		WCT	
10/13/2010	3	2	1	12	380		WCT	
10/13/2010	3	2	0	12	262	170	WCT	
10/13/2010	3	2	1	12	358		WCT	
10/13/2010	3	2	0	12	235	105	WCT	
10/13/2010	3	2	0	4	349	355	LL	
10/13/2010	3	2	0	5	270	165	BULL	

Electrofishing St. Regis Section – Clark Fork River

Table B-9. Electrofishing data collected in the Fall 2011 from the St. Regis Section of the Clark Fork River. (Source: FWP 2011).

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	BULL	481	870	0	0					Jet Boat Boom	M
2011	LL	175	55	0	0					Jet Boat Boom	M
2011	LL	193	65	0	0					Jet Boat Boom	M
2011	LL	220	100	0	0					Jet Boat Boom	M
2011	LL	227	105	0	0					Jet Boat Boom	M
2011	LL	243	140	0	0					Jet Boat Boom	M
2011	LL	251	160	0	0					Jet Boat Boom	M
2011	LL	255	170	0	0					Jet Boat Boom	M
2011	LL	265	185	0	0					Jet Boat Boom	M
2011	LL	268	210	0	0					Jet Boat Boom	M
2011	LL	274	195	0	0					Jet Boat Boom	M
2011	LL	314	330	0	0					Jet Boat Boom	M
2011	LL	318	295	0	0					Jet Boat Boom	M
2011	LL	340	340	0	0					Jet Boat Boom	M
2011	LL	353	380	0	0					Jet Boat Boom	M
2011	LL	356	400	0	0					Jet Boat Boom	M
2011	LL	360	470	0	0					Jet Boat Boom	M
2011	LL	361	415	0	0					Jet Boat Boom	M
2011	LL	363	505	0	0					Jet Boat Boom	M
2011	LL	381	525	0	0					Jet Boat Boom	M
2011	LL	388	625	0	0					Jet Boat Boom	M
2011	LL	390	485	0	0					Jet Boat Boom	M
2011	LL	395	580	0	0					Jet Boat Boom	M
2011	LL	396	525	0	0					Jet Boat Boom	M
2011	LL	403	610	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	LL	410	650	0	0					Jet Boat Boom	M
2011	LL	411	680	0	0					Jet Boat Boom	M
2011	LL	412	675	0	0					Jet Boat Boom	M
2011	LL	416	705	0	0					Jet Boat Boom	M
2011	LL	423	785	0	0					Jet Boat Boom	M
2011	LL	423	910	0	0					Jet Boat Boom	M
2011	LL	430	790	0	0					Jet Boat Boom	M
2011	LL	436	860	0	0					Jet Boat Boom	M
2011	LL	445	1075	0	0					Jet Boat Boom	M
2011	LL	445	830	0	0					Jet Boat Boom	M
2011	LL	445	985	0	0					Jet Boat Boom	M
2011	LL	450	855	0	0					Jet Boat Boom	M
2011	LL	473	1075	0	0					Jet Boat Boom	M
2011	LL	475	1080	0	0					Jet Boat Boom	M
2011	LL	480	1135	0	0					Jet Boat Boom	M
2011	LL	485	1125	0	0					Jet Boat Boom	M
2011	LL	489	1230	0	0					Jet Boat Boom	M
2011	LL	492	1070	0	0					Jet Boat Boom	M
2011	LL	493	1305	0	0					Jet Boat Boom	M
2011	LL	496	1345	0	0					Jet Boat Boom	M
2011	LL	501	1310	0	0					Jet Boat Boom	M
2011	LL	502	1390	0	0					Jet Boat Boom	M
2011	LL	506	1350	0	0					Jet Boat Boom	M
2011	LL	514	1515	0	0					Jet Boat Boom	M
2011	LL	520	1475	0	0					Jet Boat Boom	M
2011	LL	521	1485	0	0					Jet Boat Boom	M
2011	LL	533	1545	0	0					Jet Boat Boom	M
2011	LL	533	1545	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	LL	534	1365	0	0					Jet Boat Boom	M
2011	LL	535	1820	0	0					Jet Boat Boom	M
2011	LL	535	1735	0	0					Jet Boat Boom	M
2011	LL	545	1160	0	0					Jet Boat Boom	M
2011	LL	563	1980	0	0					Jet Boat Boom	M
2011	LL	582	1875	0	0					Jet Boat Boom	M
2011	LL	605	1955	0	0					Jet Boat Boom	M
2011	LT	452	540	0	1					Jet Boat Boom	M
2011	RB	188	65	0	0					Jet Boat Boom	M
2011	RB	190	60	0	0					Jet Boat Boom	M
2011	RB	192	75	0	0					Jet Boat Boom	M
2011	RB	192	70	0	0					Jet Boat Boom	M
2011	RB	195	80	0	0					Jet Boat Boom	M
2011	RB	200	75	0	0					Jet Boat Boom	M
2011	RB	202	75	0	0					Jet Boat Boom	M
2011	RB	206	85	0	0					Jet Boat Boom	M
2011	RB	206	95	0	0					Jet Boat Boom	M
2011	RB	207	95	0	0	hs				Jet Boat Boom	M
2011	RB	207	85	0	0					Jet Boat Boom	M
2011	RB	208	90	0	0					Jet Boat Boom	M
2011	RB	208	90	0	0					Jet Boat Boom	M
2011	RB	210	105	0	0		MC			Jet Boat Boom	M
2011	RB	210	85	0	0					Jet Boat Boom	M
2011	RB	210	95	0	0		MC			Jet Boat Boom	M
2011	RB	212	110	0	0					Jet Boat Boom	M
2011	RB	214	120	0	0					Jet Boat Boom	M
2011	RB	215	95	0	0					Jet Boat Boom	M
2011	RB	216	110	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	218	105	0	0					Jet Boat Boom	M
2011	RB	220	120	0	0					Jet Boat Boom	M
2011	RB	220	115	0	0					Jet Boat Boom	M
2011	RB	220	105	0	0					Jet Boat Boom	M
2011	RB	220	115	0	0					Jet Boat Boom	M
2011	RB	221	110	0	0					Jet Boat Boom	M
2011	RB	224	130	0	0					Jet Boat Boom	M
2011	RB	225	115	0	0		MC			Jet Boat Boom	M
2011	RB	225	110	0	0					Jet Boat Boom	M
2011	RB	227	130	0	0					Jet Boat Boom	M
2011	RB	228	110	0	0					Jet Boat Boom	M
2011	RB	228	135	0	0					Jet Boat Boom	M
2011	RB	228	125	0	0					Jet Boat Boom	M
2011	RB	230	110	0	0					Jet Boat Boom	M
2011	RB	230	120	0	0					Jet Boat Boom	M
2011	RB	230	120	0	0					Jet Boat Boom	M
2011	RB	230	110	0	0	hs				Jet Boat Boom	M
2011	RB	231	125	0	0					Jet Boat Boom	M
2011	RB	231	115	0	0		MC			Jet Boat Boom	M
2011	RB	231	120	0	0					Jet Boat Boom	M
2011	RB	234	135	0	0					Jet Boat Boom	M
2011	RB	234	125	0	0					Jet Boat Boom	M
2011	RB	236	130	0	0					Jet Boat Boom	M
2011	RB	236	125	0	0					Jet Boat Boom	M
2011	RB	237	125	0	0					Jet Boat Boom	M
2011	RB	238	125	0	0					Jet Boat Boom	M
2011	RB	238	140	0	0					Jet Boat Boom	M
2011	RB	238	125	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	238	140	0	0					Jet Boat Boom	M
2011	RB	238	135	0	0					Jet Boat Boom	M
2011	RB	239	140	0	0					Jet Boat Boom	M
2011	RB	239	140	0	0					Jet Boat Boom	M
2011	RB	239	130	0	0					Jet Boat Boom	M
2011	RB	240	155	0	0					Jet Boat Boom	M
2011	RB	240	140	0	0					Jet Boat Boom	M
2011	RB	241	145	0	0					Jet Boat Boom	M
2011	RB	243	145	0	0	hs				Jet Boat Boom	M
2011	RB	244	135	0	0					Jet Boat Boom	M
2011	RB	245	135	0	0					Jet Boat Boom	M
2011	RB	245	150	0	0					Jet Boat Boom	M
2011	RB	245	155	0	0					Jet Boat Boom	M
2011	RB	245	135	0	0					Jet Boat Boom	M
2011	RB	246	165	0	0					Jet Boat Boom	M
2011	RB	248	160	0	0					Jet Boat Boom	M
2011	RB	249	150	0	0					Jet Boat Boom	M
2011	RB	252	170	0	0					Jet Boat Boom	M
2011	RB	252	150	0	0					Jet Boat Boom	M
2011	RB	254	165	0	0					Jet Boat Boom	M
2011	RB	255	170	0	0					Jet Boat Boom	M
2011	RB	256	150	0	0					Jet Boat Boom	M
2011	RB	258	160	0	0					Jet Boat Boom	M
2011	RB	259	175	0	0					Jet Boat Boom	M
2011	RB	260	190	0	0					Jet Boat Boom	M
2011	RB	260	180	0	0	hs				Jet Boat Boom	M
2011	RB	261	180	0	0					Jet Boat Boom	M
2011	RB	262	175	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	265	190	0	0					Jet Boat Boom	M
2011	RB	265	160	0	0					Jet Boat Boom	M
2011	RB	265	180	0	0					Jet Boat Boom	M
2011	RB	266	185	0	0					Jet Boat Boom	M
2011	RB	266	200	0	0					Jet Boat Boom	M
2011	RB	267	195	0	0					Jet Boat Boom	M
2011	RB	267	185	0	0					Jet Boat Boom	M
2011	RB	267	205	0	0					Jet Boat Boom	M
2011	RB	268	185	0	0					Jet Boat Boom	M
2011	RB	270	180	0	0					Jet Boat Boom	M
2011	RB	270	215	0	0					Jet Boat Boom	M
2011	RB	270	185	0	0					Jet Boat Boom	M
2011	RB	271	200	0	0					Jet Boat Boom	M
2011	RB	271	245	0	0					Jet Boat Boom	M
2011	RB	274	195	0	0					Jet Boat Boom	M
2011	RB	275	215	0	0					Jet Boat Boom	M
2011	RB	280	245	0	0					Jet Boat Boom	M
2011	RB	281	230	0	0					Jet Boat Boom	M
2011	RB	285	225	0	0					Jet Boat Boom	M
2011	RB	285	220	0	0					Jet Boat Boom	M
2011	RB	286	210	0	0					Jet Boat Boom	M
2011	RB	287	240	0	0					Jet Boat Boom	M
2011	RB	288	235	0	0					Jet Boat Boom	M
2011	RB	290	205	0	0	hs				Jet Boat Boom	M
2011	RB	292	215	0	0					Jet Boat Boom	M
2011	RB	295	245	0	0					Jet Boat Boom	M
2011	RB	297	240	0	0					Jet Boat Boom	M
2011	RB	297	235	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	297	235	0	0					Jet Boat Boom	M
2011	RB	300	265	0	0					Jet Boat Boom	M
2011	RB	300	250	0	0					Jet Boat Boom	M
2011	RB	300	300	0	0					Jet Boat Boom	M
2011	RB	300	260	0	0					Jet Boat Boom	M
2011	RB	301	265	0	0		MC			Jet Boat Boom	M
2011	RB	302	220	0	0					Jet Boat Boom	M
2011	RB	303	270	0	0					Jet Boat Boom	M
2011	RB	304	270	0	0	hs				Jet Boat Boom	M
2011	RB	308	280	0	0					Jet Boat Boom	M
2011	RB	310	290	0	0					Jet Boat Boom	M
2011	RB	312	305	0	0					Jet Boat Boom	M
2011	RB	313	330	0	0					Jet Boat Boom	M
2011	RB	315	310	0	0					Jet Boat Boom	M
2011	RB	315	285	0	0					Jet Boat Boom	M
2011	RB	320	315	0	0					Jet Boat Boom	M
2011	RB	320	310	0	0					Jet Boat Boom	M
2011	RB	320	310	0	0					Jet Boat Boom	M
2011	RB	323	315	0	0					Jet Boat Boom	M
2011	RB	324	330	0	0					Jet Boat Boom	M
2011	RB	325	350	0	0					Jet Boat Boom	M
2011	RB	325	345	0	0					Jet Boat Boom	M
2011	RB	325	320	0	0	hs				Jet Boat Boom	M
2011	RB	325	315	0	0					Jet Boat Boom	M
2011	RB	327	325	0	0					Jet Boat Boom	M
2011	RB	327	310	0	0					Jet Boat Boom	M
2011	RB	327	325	0	0					Jet Boat Boom	M
2011	RB	329	345	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	330	325	0	0					Jet Boat Boom	M
2011	RB	330	360	0	0					Jet Boat Boom	M
2011	RB	330	320	0	0					Jet Boat Boom	M
2011	RB	330	360	0	0					Jet Boat Boom	M
2011	RB	333	290	0	0					Jet Boat Boom	M
2011	RB	335	350	0	0					Jet Boat Boom	M
2011	RB	339	375	0	0					Jet Boat Boom	M
2011	RB	340	355	0	0					Jet Boat Boom	M
2011	RB	340	385	0	0	hs				Jet Boat Boom	M
2011	RB	340	355	0	0					Jet Boat Boom	M
2011	RB	340	365	0	0					Jet Boat Boom	M
2011	RB	341	380	0	0					Jet Boat Boom	M
2011	RB	341	375	0	0	hs				Jet Boat Boom	M
2011	RB	342	390	0	0					Jet Boat Boom	M
2011	RB	342	325	0	0	hs				Jet Boat Boom	M
2011	RB	344	415	0	0					Jet Boat Boom	M
2011	RB	345	425	0	0	hs				Jet Boat Boom	M
2011	RB	346	370	0	0					Jet Boat Boom	M
2011	RB	347	395	0	0					Jet Boat Boom	M
2011	RB	348	395	0	0	hs				Jet Boat Boom	M
2011	RB	349	440	0	0					Jet Boat Boom	M
2011	RB	350	415	0	0	hs				Jet Boat Boom	M
2011	RB	350	405	0	0					Jet Boat Boom	M
2011	RB	352	405	0	0					Jet Boat Boom	M
2011	RB	352	435	0	0					Jet Boat Boom	M
2011	RB	360	420	0	0		MC			Jet Boat Boom	M
2011	RB	362	525	0	0					Jet Boat Boom	M
2011	RB	363	420	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	365	405	0	0					Jet Boat Boom	M
2011	RB	367	520	0	0					Jet Boat Boom	M
2011	RB	373	510	0	0					Jet Boat Boom	M
2011	RB	374	520	0	0					Jet Boat Boom	M
2011	RB	381	520	0	0	hs				Jet Boat Boom	M
2011	RB	389	540	0	0					Jet Boat Boom	M
2011	RB	402	570	0	0					Jet Boat Boom	M
2011	RB	404	650	0	0	hs				Jet Boat Boom	M
2011	RB	405	580	0	0					Jet Boat Boom	M
2011	RB	406	680	0	0					Jet Boat Boom	M
2011	RB	406	645	0	0					Jet Boat Boom	M
2011	RB	406	575	0	0					Jet Boat Boom	M
2011	RB	409	590	0	0					Jet Boat Boom	M
2011	RB	411	695	0	0					Jet Boat Boom	M
2011	RB	411	680	0	0					Jet Boat Boom	M
2011	RB	414	610	0	0	hs				Jet Boat Boom	M
2011	RB	417	660	0	0					Jet Boat Boom	M
2011	RB	420	555	0	0					Jet Boat Boom	M
2011	RB	420	660	0	0					Jet Boat Boom	M
2011	RB	420	750	0	0	hs				Jet Boat Boom	M
2011	RB	422	715	0	0					Jet Boat Boom	M
2011	RB	426	775	0	0					Jet Boat Boom	M
2011	RB	426	735	0	0					Jet Boat Boom	M
2011	RB	430	585	0	0					Jet Boat Boom	M
2011	RB	430	660	0	0		MC			Jet Boat Boom	M
2011	RB	430	690	0	0	hs				Jet Boat Boom	M
2011	RB	432	740	0	0					Jet Boat Boom	M
2011	RB	432	785	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	434	740	0	0					Jet Boat Boom	M
2011	RB	435	770	0	0					Jet Boat Boom	M
2011	RB	435	765	0	0					Jet Boat Boom	M
2011	RB	436	805	0	0					Jet Boat Boom	M
2011	RB	437	770	0	0					Jet Boat Boom	M
2011	RB	438	890	0	0					Jet Boat Boom	M
2011	RB	439	780	0	0					Jet Boat Boom	M
2011	RB	440	855	0	0					Jet Boat Boom	M
2011	RB	442	785	0	0					Jet Boat Boom	M
2011	RB	443	710	0	0					Jet Boat Boom	M
2011	RB	444	840	0	0					Jet Boat Boom	M
2011	RB	445	895	0	0					Jet Boat Boom	M
2011	RB	446	870	0	0					Jet Boat Boom	M
2011	RB	447	900	0	0					Jet Boat Boom	M
2011	RB	447	975	0	0					Jet Boat Boom	M
2011	RB	450	840	0	0					Jet Boat Boom	M
2011	RB	452	830	0	0					Jet Boat Boom	M
2011	RB	460	895	0	0					Jet Boat Boom	M
2011	RB	460	955	0	0	hs				Jet Boat Boom	M
2011	RB	461	1035	0	0					Jet Boat Boom	M
2011	RB	463	860	0	0	hs				Jet Boat Boom	M
2011	RB	464	955	0	0					Jet Boat Boom	M
2011	RB	466	840	0	0					Jet Boat Boom	M
2011	RB	468	1075	0	0					Jet Boat Boom	M
2011	RB	468	950	0	0					Jet Boat Boom	M
2011	RB	471	955	0	0					Jet Boat Boom	M
2011	RB	472	1045	0	0					Jet Boat Boom	M
2011	RB	486	1155	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	497	1035	0	0					Jet Boat Boom	M
2011	RB	498	1140	0	0					Jet Boat Boom	M
2011	RB	512	1375	0	0					Jet Boat Boom	M
2011	RB	525	1535	0	0					Jet Boat Boom	M
2011	WCT	193	70	0	0					Jet Boat Boom	M
2011	WCT	213	100	0	0					Jet Boat Boom	M
2011	WCT	224	115	0	0					Jet Boat Boom	M
2011	WCT	226	110	0	0					Jet Boat Boom	M
2011	WCT	231	130	0	0					Jet Boat Boom	M
2011	WCT	233	110	0	0					Jet Boat Boom	M
2011	WCT	235	115	0	0					Jet Boat Boom	M
2011	WCT	238	150	0	0					Jet Boat Boom	M
2011	WCT	240	130	0	0					Jet Boat Boom	M
2011	WCT	240	125	0	0					Jet Boat Boom	M
2011	WCT	242	140	0	0					Jet Boat Boom	M
2011	WCT	249	155	0	0	hs				Jet Boat Boom	M
2011	WCT	250	150	0	0					Jet Boat Boom	M
2011	WCT	251	160	0	0					Jet Boat Boom	M
2011	WCT	252	175	0	0					Jet Boat Boom	M
2011	WCT	256	185	0	0					Jet Boat Boom	M
2011	WCT	257	185	0	0	hs				Jet Boat Boom	M
2011	WCT	259	165	0	0	hs				Jet Boat Boom	M
2011	WCT	259	175	0	0	hs				Jet Boat Boom	M
2011	WCT	261	180	0	0					Jet Boat Boom	M
2011	WCT	264	190	0	0					Jet Boat Boom	M
2011	WCT	266	195	0	0					Jet Boat Boom	M
2011	WCT	266	205	0	0					Jet Boat Boom	M
2011	WCT	266	175	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	267	200	0	0					Jet Boat Boom	M
2011	WCT	270	190	0	0					Jet Boat Boom	M
2011	WCT	270	185	0	0					Jet Boat Boom	M
2011	WCT	272	210	0	0					Jet Boat Boom	M
2011	WCT	272	170	0	0					Jet Boat Boom	M
2011	WCT	274	210	0	0					Jet Boat Boom	M
2011	WCT	274	200	0	0					Jet Boat Boom	M
2011	WCT	275	210	0	0					Jet Boat Boom	M
2011	WCT	276	195	0	0					Jet Boat Boom	M
2011	WCT	278	225	0	0	hs				Jet Boat Boom	M
2011	WCT	278	225	0	0					Jet Boat Boom	M
2011	WCT	279	205	0	0					Jet Boat Boom	M
2011	WCT	280	210	0	0	hs				Jet Boat Boom	M
2011	WCT	280	205	0	0	hs				Jet Boat Boom	M
2011	WCT	280	215	0	0					Jet Boat Boom	M
2011	WCT	280	220	0	0					Jet Boat Boom	M
2011	WCT	280	215	0	0					Jet Boat Boom	M
2011	WCT	282	215	0	0					Jet Boat Boom	M
2011	WCT	285	205	0	0					Jet Boat Boom	M
2011	WCT	287	215	0	0					Jet Boat Boom	M
2011	WCT	288	235	0	0					Jet Boat Boom	M
2011	WCT	290	240	0	0					Jet Boat Boom	M
2011	WCT	291	220	0	0	hs				Jet Boat Boom	M
2011	WCT	293	250	0	0					Jet Boat Boom	M
2011	WCT	293	245	0	0					Jet Boat Boom	M
2011	WCT	293	240	0	0					Jet Boat Boom	M
2011	WCT	295	270	0	0					Jet Boat Boom	M
2011	WCT	295	240	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	296	255	0	0					Jet Boat Boom	M
2011	WCT	300	255	0	0					Jet Boat Boom	M
2011	WCT	303	235	0	0					Jet Boat Boom	M
2011	WCT	306	275	0	0	hs				Jet Boat Boom	M
2011	WCT	306	290	0	0					Jet Boat Boom	M
2011	WCT	307	270	0	0	hs				Jet Boat Boom	M
2011	WCT	310	260	0	0	hs				Jet Boat Boom	M
2011	WCT	325	350	0	0					Jet Boat Boom	M
2011	WCT	327	355	0	0					Jet Boat Boom	M
2011	WCT	330	330	0	0					Jet Boat Boom	M
2011	WCT	333	320	0	0					Jet Boat Boom	M
2011	WCT	335	340	0	0					Jet Boat Boom	M
2011	WCT	346	410	0	0	hs				Jet Boat Boom	M
2011	WCT	353	455	0	0					Jet Boat Boom	M
2011	WCT	354	420	0	0					Jet Boat Boom	M
2011	WCT	354	390	0	0					Jet Boat Boom	M
2011	WCT	357	485	0	0	hs				Jet Boat Boom	M
2011	WCT	357	480	0	0					Jet Boat Boom	M
2011	WCT	360	410	0	0					Jet Boat Boom	M
2011	WCT	374	545	0	0	hs				Jet Boat Boom	M
2011	WCT	375	515	0	0					Jet Boat Boom	M
2011	WCT	378	455	0	0					Jet Boat Boom	M
2011	WCT	378	490	0	0	hs				Jet Boat Boom	M
2011	WCT	379	440	0	0					Jet Boat Boom	M
2011	WCT	379	495	0	0					Jet Boat Boom	M
2011	WCT	382	465	0	0					Jet Boat Boom	M
2011	WCT	384	405	0	0					Jet Boat Boom	M
2011	WCT	385	625	0	0					Jet Boat Boom	M

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	385	510	0	0					Jet Boat Boom	M
2011	WCT	387	575	0	0					Jet Boat Boom	M
2011	WCT	387	490	0	0	hs				Jet Boat Boom	M
2011	WCT	388	625	0	0					Jet Boat Boom	M
2011	WCT	390	535	0	0					Jet Boat Boom	M
2011	WCT	391	550	0	0					Jet Boat Boom	M
2011	WCT	392	525	0	0	hs				Jet Boat Boom	M
2011	WCT	400	635	0	0					Jet Boat Boom	M
2011	WCT	404	625	0	0					Jet Boat Boom	M
2011	WCT	421	675	0	0	hs				Jet Boat Boom	M
2011	WCT	422	705	0	0					Jet Boat Boom	M
2011	WCT	423	745	0	0					Jet Boat Boom	M
2011	WCT	435	805	0	0	hs				Jet Boat Boom	M
2011	WCT	437	775	0	0	hs				Jet Boat Boom	M
2011	WCT	439	810	0	0					Jet Boat Boom	M
2011	BULL	200	60	0	0					Jet Boat Boom	R
2011	LL	192		1	0					Jet Boat Boom	R
2011	LL	207	90	0	0					Jet Boat Boom	R
2011	LL	210	85	0	0					Jet Boat Boom	R
2011	LL	211	95	0	0					Jet Boat Boom	R
2011	LL	215	85	0	0					Jet Boat Boom	R
2011	LL	215	95	0	0					Jet Boat Boom	R
2011	LL	221	105	0	0					Jet Boat Boom	R
2011	LL	226	115	0	0					Jet Boat Boom	R
2011	LL	227	105	0	0					Jet Boat Boom	R
2011	LL	227	120	0	0					Jet Boat Boom	R
2011	LL	229		1	0					Jet Boat Boom	R
2011	LL	243	135	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	LL	243		1	0					Jet Boat Boom	R
2011	LL	245	325	0	0					Jet Boat Boom	R
2011	LL	246	130	0	0					Jet Boat Boom	R
2011	LL	250	140	0	0					Jet Boat Boom	R
2011	LL	250		1	0					Jet Boat Boom	R
2011	LL	256	165	0	0					Jet Boat Boom	R
2011	LL	268		1	0					Jet Boat Boom	R
2011	LL	269	195	0	0					Jet Boat Boom	R
2011	LL	270		1	0					Jet Boat Boom	R
2011	LL	277	190	0	0					Jet Boat Boom	R
2011	LL	286	195	0	0					Jet Boat Boom	R
2011	LL	288		1	0					Jet Boat Boom	R
2011	LL	294	235	0	0					Jet Boat Boom	R
2011	LL	298	245	0	0					Jet Boat Boom	R
2011	LL	306	290	0	0					Jet Boat Boom	R
2011	LL	306	285	0	0					Jet Boat Boom	R
2011	LL	309	265	0	0					Jet Boat Boom	R
2011	LL	319		1	0					Jet Boat Boom	R
2011	LL	320	305	0	0					Jet Boat Boom	R
2011	LL	320		1	0					Jet Boat Boom	R
2011	LL	330	340	0	0					Jet Boat Boom	R
2011	LL	330	355	0	0					Jet Boat Boom	R
2011	LL	340	380	0	0					Jet Boat Boom	R
2011	LL	340	365	0	0					Jet Boat Boom	R
2011	LL	355		1	0					Jet Boat Boom	R
2011	LL	360		1	0					Jet Boat Boom	R
2011	LL	379	485	0	0					Jet Boat Boom	R
2011	LL	390	590	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	LL	393	595	0	0					Jet Boat Boom	R
2011	LL	406	650	0	0					Jet Boat Boom	R
2011	LL	406	690	0	0					Jet Boat Boom	R
2011	LL	410		1	0					Jet Boat Boom	R
2011	LL	412	675	0	0					Jet Boat Boom	R
2011	LL	423		1	0					Jet Boat Boom	R
2011	LL	425		1	0					Jet Boat Boom	R
2011	LL	433	785	0	0					Jet Boat Boom	R
2011	LL	438	865	0	0					Jet Boat Boom	R
2011	LL	438	820	0	0					Jet Boat Boom	R
2011	LL	445	705	0	0					Jet Boat Boom	R
2011	LL	462	870	0	0					Jet Boat Boom	R
2011	LL	474		1	0					Jet Boat Boom	R
2011	LL	477	1250	0	0					Jet Boat Boom	R
2011	LL	477	940	0	0					Jet Boat Boom	R
2011	LL	488		1	0					Jet Boat Boom	R
2011	LL	497	1310	0	0					Jet Boat Boom	R
2011	LL	509	1360	0	0					Jet Boat Boom	R
2011	LL	566		1	0					Jet Boat Boom	R
2011	LL	575	2420	0	0					Jet Boat Boom	R
2011	RB	178	50	0	0					Jet Boat Boom	R
2011	RB	180		1	0					Jet Boat Boom	R
2011	RB	180	50	0	0					Jet Boat Boom	R
2011	RB	182	65	0	0					Jet Boat Boom	R
2011	RB	183	55	0	0					Jet Boat Boom	R
2011	RB	185	60	0	0					Jet Boat Boom	R
2011	RB	188	60	0	0					Jet Boat Boom	R
2011	RB	188	55	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	190	60	0	0					Jet Boat Boom	R
2011	RB	190	60	0	0					Jet Boat Boom	R
2011	RB	191	75	0	0					Jet Boat Boom	R
2011	RB	191	70	0	0					Jet Boat Boom	R
2011	RB	193	70	0	0					Jet Boat Boom	R
2011	RB	196	70	0	0					Jet Boat Boom	R
2011	RB	196	70	0	0					Jet Boat Boom	R
2011	RB	196	75	0	0					Jet Boat Boom	R
2011	RB	197	85	0	0					Jet Boat Boom	R
2011	RB	197	65	0	0					Jet Boat Boom	R
2011	RB	197	85	0	0					Jet Boat Boom	R
2011	RB	198	85	0	0					Jet Boat Boom	R
2011	RB	198	75	0	0					Jet Boat Boom	R
2011	RB	199	75	0	0					Jet Boat Boom	R
2011	RB	200	70	0	0					Jet Boat Boom	R
2011	RB	200	80	0	0					Jet Boat Boom	R
2011	RB	201	75	0	0					Jet Boat Boom	R
2011	RB	201	75	0	0					Jet Boat Boom	R
2011	RB	201	75	0	0					Jet Boat Boom	R
2011	RB	204	95	0	0					Jet Boat Boom	R
2011	RB	204		1	0					Jet Boat Boom	R
2011	RB	205	80	0	0					Jet Boat Boom	R
2011	RB	205	75	0	0					Jet Boat Boom	R
2011	RB	205		1	0					Jet Boat Boom	R
2011	RB	205	90	0	0					Jet Boat Boom	R
2011	RB	205	75	0	0					Jet Boat Boom	R
2011	RB	205	85	0	0					Jet Boat Boom	R
2011	RB	205	90	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	206	85	0	0					Jet Boat Boom	R
2011	RB	206	75	0	0					Jet Boat Boom	R
2011	RB	206	80	0	0					Jet Boat Boom	R
2011	RB	206	80	0	0					Jet Boat Boom	R
2011	RB	207	85	0	0					Jet Boat Boom	R
2011	RB	207	100	0	0					Jet Boat Boom	R
2011	RB	207	80	0	0					Jet Boat Boom	R
2011	RB	209		1	0					Jet Boat Boom	R
2011	RB	209	90	0	0					Jet Boat Boom	R
2011	RB	209	85	0	0					Jet Boat Boom	R
2011	RB	211	100	0	0					Jet Boat Boom	R
2011	RB	211	90	0	0					Jet Boat Boom	R
2011	RB	211	105	0	0					Jet Boat Boom	R
2011	RB	212	90	0	0					Jet Boat Boom	R
2011	RB	212	100	0	0					Jet Boat Boom	R
2011	RB	212	90	0	0					Jet Boat Boom	R
2011	RB	213	105	0	0					Jet Boat Boom	R
2011	RB	213	95	0	0					Jet Boat Boom	R
2011	RB	213	85	0	0					Jet Boat Boom	R
2011	RB	214	90	0	0					Jet Boat Boom	R
2011	RB	215	100	0	0					Jet Boat Boom	R
2011	RB	215	100	0	0					Jet Boat Boom	R
2011	RB	215		1	0					Jet Boat Boom	R
2011	RB	215	95	0	0					Jet Boat Boom	R
2011	RB	216	100	0	0					Jet Boat Boom	R
2011	RB	216	85	0	0					Jet Boat Boom	R
2011	RB	217	85	0	0					Jet Boat Boom	R
2011	RB	217	100	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	217	85	0	0	hs				Jet Boat Boom	R
2011	RB	218	110	0	0					Jet Boat Boom	R
2011	RB	218	110	0	0					Jet Boat Boom	R
2011	RB	218	115	0	0					Jet Boat Boom	R
2011	RB	219	100	0	0					Jet Boat Boom	R
2011	RB	219	115	0	0					Jet Boat Boom	R
2011	RB	220	100	0	0					Jet Boat Boom	R
2011	RB	220	100	0	0					Jet Boat Boom	R
2011	RB	220	105	0	0					Jet Boat Boom	R
2011	RB	220	90	0	0					Jet Boat Boom	R
2011	RB	220	115	0	0					Jet Boat Boom	R
2011	RB	221	95	0	0					Jet Boat Boom	R
2011	RB	222		1	0					Jet Boat Boom	R
2011	RB	223	110	0	0					Jet Boat Boom	R
2011	RB	223	110	0	0					Jet Boat Boom	R
2011	RB	223		1	0					Jet Boat Boom	R
2011	RB	225	125	0	0					Jet Boat Boom	R
2011	RB	225	105	0	0					Jet Boat Boom	R
2011	RB	225	110	0	0					Jet Boat Boom	R
2011	RB	226	115	0	0					Jet Boat Boom	R
2011	RB	226		1	0					Jet Boat Boom	R
2011	RB	226	120	0	0					Jet Boat Boom	R
2011	RB	226	110	0	0					Jet Boat Boom	R
2011	RB	227	115	0	0		MC			Jet Boat Boom	R
2011	RB	227	105	0	0					Jet Boat Boom	R
2011	RB	228	130	0	0					Jet Boat Boom	R
2011	RB	229	135	0	0					Jet Boat Boom	R
2011	RB	229	115	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	230	115	0	0					Jet Boat Boom	R
2011	RB	230	110	0	0					Jet Boat Boom	R
2011	RB	230	115	0	0	hs				Jet Boat Boom	R
2011	RB	231	125	0	0					Jet Boat Boom	R
2011	RB	231		1	0					Jet Boat Boom	R
2011	RB	232	105	0	0					Jet Boat Boom	R
2011	RB	232	125	0	0					Jet Boat Boom	R
2011	RB	232	110	0	0		MC			Jet Boat Boom	R
2011	RB	233	120	0	0					Jet Boat Boom	R
2011	RB	233	120	0	0					Jet Boat Boom	R
2011	RB	233	130	0	0					Jet Boat Boom	R
2011	RB	233	125	0	0					Jet Boat Boom	R
2011	RB	234	130	0	0					Jet Boat Boom	R
2011	RB	234	130	0	0					Jet Boat Boom	R
2011	RB	235	125	0	0					Jet Boat Boom	R
2011	RB	235	140	0	0					Jet Boat Boom	R
2011	RB	235	135	0	0					Jet Boat Boom	R
2011	RB	235	135	0	0					Jet Boat Boom	R
2011	RB	236	130	0	0					Jet Boat Boom	R
2011	RB	236	130	0	0					Jet Boat Boom	R
2011	RB	236	125	0	0					Jet Boat Boom	R
2011	RB	237		1	0					Jet Boat Boom	R
2011	RB	237	125	0	0					Jet Boat Boom	R
2011	RB	237	125	0	0					Jet Boat Boom	R
2011	RB	237	130	0	0					Jet Boat Boom	R
2011	RB	238	150	0	0					Jet Boat Boom	R
2011	RB	238	130	0	0					Jet Boat Boom	R
2011	RB	238		1	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	238	140	0	0					Jet Boat Boom	R
2011	RB	239	130	0	0					Jet Boat Boom	R
2011	RB	240	120	0	0					Jet Boat Boom	R
2011	RB	242		1	0					Jet Boat Boom	R
2011	RB	242		1	0					Jet Boat Boom	R
2011	RB	242	140	0	0					Jet Boat Boom	R
2011	RB	243	135	0	0					Jet Boat Boom	R
2011	RB	243	145	0	0					Jet Boat Boom	R
2011	RB	244	145	0	0					Jet Boat Boom	R
2011	RB	245		1	0					Jet Boat Boom	R
2011	RB	245	140	0	0					Jet Boat Boom	R
2011	RB	245		1	0					Jet Boat Boom	R
2011	RB	247	140	0	0					Jet Boat Boom	R
2011	RB	247	157	0	0					Jet Boat Boom	R
2011	RB	247	150	0	0					Jet Boat Boom	R
2011	RB	249	195	0	0					Jet Boat Boom	R
2011	RB	250		1	0					Jet Boat Boom	R
2011	RB	250	140	0	0					Jet Boat Boom	R
2011	RB	250	165	0	0					Jet Boat Boom	R
2011	RB	250	140	0	0					Jet Boat Boom	R
2011	RB	251	160	0	0					Jet Boat Boom	R
2011	RB	253	145	0	0					Jet Boat Boom	R
2011	RB	253	160	0	0					Jet Boat Boom	R
2011	RB	253	135	0	0	hs				Jet Boat Boom	R
2011	RB	254	155	0	0					Jet Boat Boom	R
2011	RB	255	145	0	0	hs				Jet Boat Boom	R
2011	RB	255	145	0	0					Jet Boat Boom	R
2011	RB	255	160	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	255	170	0	0					Jet Boat Boom	R
2011	RB	256	165	0	0					Jet Boat Boom	R
2011	RB	257	170	0	0					Jet Boat Boom	R
2011	RB	257	175	0	0					Jet Boat Boom	R
2011	RB	258		1	0					Jet Boat Boom	R
2011	RB	260	160	0	0					Jet Boat Boom	R
2011	RB	260	160	0	0					Jet Boat Boom	R
2011	RB	260		1	0					Jet Boat Boom	R
2011	RB	260		1	0					Jet Boat Boom	R
2011	RB	260	170	0	0					Jet Boat Boom	R
2011	RB	260		1	0					Jet Boat Boom	R
2011	RB	261		1	0					Jet Boat Boom	R
2011	RB	261	170	0	0					Jet Boat Boom	R
2011	RB	264	160	0	0					Jet Boat Boom	R
2011	RB	264	155	0	0					Jet Boat Boom	R
2011	RB	265	175	0	0					Jet Boat Boom	R
2011	RB	265	200	0	0					Jet Boat Boom	R
2011	RB	268		1	0					Jet Boat Boom	R
2011	RB	268	190	0	0					Jet Boat Boom	R
2011	RB	268	190	0	0					Jet Boat Boom	R
2011	RB	269	190	0	0					Jet Boat Boom	R
2011	RB	269	170	0	0					Jet Boat Boom	R
2011	RB	269	175	0	0					Jet Boat Boom	R
2011	RB	270	200	0	0					Jet Boat Boom	R
2011	RB	271	205	0	0					Jet Boat Boom	R
2011	RB	273	190	0	0					Jet Boat Boom	R
2011	RB	274	190	0	0					Jet Boat Boom	R
2011	RB	275	235	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	275	190	0	0	hs				Jet Boat Boom	R
2011	RB	276	220	0	0					Jet Boat Boom	R
2011	RB	276	525	0	0					Jet Boat Boom	R
2011	RB	277	200	0	0					Jet Boat Boom	R
2011	RB	277	200	0	0					Jet Boat Boom	R
2011	RB	278	200	0	0					Jet Boat Boom	R
2011	RB	278	200	0	0					Jet Boat Boom	R
2011	RB	278	210	0	0					Jet Boat Boom	R
2011	RB	279	205	0	0					Jet Boat Boom	R
2011	RB	280	205	0	0					Jet Boat Boom	R
2011	RB	280	205	0	0					Jet Boat Boom	R
2011	RB	282	205	0	0					Jet Boat Boom	R
2011	RB	283	195	0	0					Jet Boat Boom	R
2011	RB	284	230	0	0					Jet Boat Boom	R
2011	RB	285	220	0	0					Jet Boat Boom	R
2011	RB	287	205	0	0					Jet Boat Boom	R
2011	RB	287	190	0	0					Jet Boat Boom	R
2011	RB	288	230	0	0					Jet Boat Boom	R
2011	RB	290	215	0	0		MC			Jet Boat Boom	R
2011	RB	290	250	0	0					Jet Boat Boom	R
2011	RB	290	245	0	0	hs				Jet Boat Boom	R
2011	RB	290	215	0	0					Jet Boat Boom	R
2011	RB	290	225	0	0					Jet Boat Boom	R
2011	RB	292	240	0	0					Jet Boat Boom	R
2011	RB	292	240	0	0					Jet Boat Boom	R
2011	RB	292	250	0	0					Jet Boat Boom	R
2011	RB	293	230	0	0					Jet Boat Boom	R
2011	RB	297	265	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	298		1	0					Jet Boat Boom	R
2011	RB	300		1	0					Jet Boat Boom	R
2011	RB	300		1	0					Jet Boat Boom	R
2011	RB	300		1	0					Jet Boat Boom	R
2011	RB	300		1	0					Jet Boat Boom	R
2011	RB	301	275	0	0					Jet Boat Boom	R
2011	RB	302		1	0					Jet Boat Boom	R
2011	RB	303	245	0	0					Jet Boat Boom	R
2011	RB	303	240	0	0					Jet Boat Boom	R
2011	RB	306	255	0	0					Jet Boat Boom	R
2011	RB	306	240	0	0					Jet Boat Boom	R
2011	RB	307	250	0	0					Jet Boat Boom	R
2011	RB	307	270	0	0					Jet Boat Boom	R
2011	RB	309	280	0	0					Jet Boat Boom	R
2011	RB	312	300	0	0					Jet Boat Boom	R
2011	RB	313	265	0	0					Jet Boat Boom	R
2011	RB	315	330	0	0					Jet Boat Boom	R
2011	RB	315		1	0					Jet Boat Boom	R
2011	RB	315	310	0	0					Jet Boat Boom	R
2011	RB	315		1	0					Jet Boat Boom	R
2011	RB	316	250	0	0					Jet Boat Boom	R
2011	RB	317	255	0	0					Jet Boat Boom	R
2011	RB	317	310	0	0					Jet Boat Boom	R
2011	RB	318	310	0	0					Jet Boat Boom	R
2011	RB	319	265	0	0					Jet Boat Boom	R
2011	RB	320		1	0					Jet Boat Boom	R
2011	RB	321	300	0	0					Jet Boat Boom	R
2011	RB	322	315	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	323		1	0					Jet Boat Boom	R
2011	RB	323		1	0					Jet Boat Boom	R
2011	RB	325		1	0					Jet Boat Boom	R
2011	RB	326	300	0	0					Jet Boat Boom	R
2011	RB	328		1	0					Jet Boat Boom	R
2011	RB	328	340	0	0					Jet Boat Boom	R
2011	RB	330	360	0	0					Jet Boat Boom	R
2011	RB	330	355	0	0	hs				Jet Boat Boom	R
2011	RB	335	370	0	0					Jet Boat Boom	R
2011	RB	336		1	0					Jet Boat Boom	R
2011	RB	336	340	0	0					Jet Boat Boom	R
2011	RB	336	360	0	0		MC			Jet Boat Boom	R
2011	RB	337	360	0	0					Jet Boat Boom	R
2011	RB	337	340	0	0					Jet Boat Boom	R
2011	RB	337	340	0	0					Jet Boat Boom	R
2011	RB	337	355	0	0					Jet Boat Boom	R
2011	RB	337	325	0	0					Jet Boat Boom	R
2011	RB	339	395	0	0					Jet Boat Boom	R
2011	RB	340		1	0					Jet Boat Boom	R
2011	RB	340		1	0					Jet Boat Boom	R
2011	RB	342		1	0					Jet Boat Boom	R
2011	RB	344		1	0					Jet Boat Boom	R
2011	RB	345	385	0	0					Jet Boat Boom	R
2011	RB	347	450	0	0					Jet Boat Boom	R
2011	RB	348	380	0	0		MC			Jet Boat Boom	R
2011	RB	348	395	0	0					Jet Boat Boom	R
2011	RB	349	375	0	0					Jet Boat Boom	R
2011	RB	349	385	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	350	400	0	0					Jet Boat Boom	R
2011	RB	350		1	0					Jet Boat Boom	R
2011	RB	358		1	0					Jet Boat Boom	R
2011	RB	360	465	0	0					Jet Boat Boom	R
2011	RB	365	475	0	0					Jet Boat Boom	R
2011	RB	365	470	0	0					Jet Boat Boom	R
2011	RB	366	465	0	0					Jet Boat Boom	R
2011	RB	373	565	0	0					Jet Boat Boom	R
2011	RB	375	555	0	0	hs				Jet Boat Boom	R
2011	RB	381	560	0	0					Jet Boat Boom	R
2011	RB	385	585	0	0					Jet Boat Boom	R
2011	RB	386	570	0	0					Jet Boat Boom	R
2011	RB	387	540	0	0					Jet Boat Boom	R
2011	RB	388	600	0	0					Jet Boat Boom	R
2011	RB	388	555	0	0					Jet Boat Boom	R
2011	RB	388	590	0	0					Jet Boat Boom	R
2011	RB	388	540	0	0					Jet Boat Boom	R
2011	RB	396	500	0	0		MC			Jet Boat Boom	R
2011	RB	397	540	0	0		MC			Jet Boat Boom	R
2011	RB	397	440	0	0	hs				Jet Boat Boom	R
2011	RB	398		1	0					Jet Boat Boom	R
2011	RB	399	550	0	0					Jet Boat Boom	R
2011	RB	399	525	0	0		MC			Jet Boat Boom	R
2011	RB	400	600	0	0					Jet Boat Boom	R
2011	RB	400		1	0					Jet Boat Boom	R
2011	RB	400		1	0					Jet Boat Boom	R
2011	RB	400	610	0	0					Jet Boat Boom	R
2011	RB	401		1	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	403	660	0	0					Jet Boat Boom	R
2011	RB	405	655	0	0					Jet Boat Boom	R
2011	RB	405	585	0	0	hs				Jet Boat Boom	R
2011	RB	406	570	0	0					Jet Boat Boom	R
2011	RB	407	555	0	0					Jet Boat Boom	R
2011	RB	409	570	0	0					Jet Boat Boom	R
2011	RB	410	640	0	0					Jet Boat Boom	R
2011	RB	412	705	0	0					Jet Boat Boom	R
2011	RB	413		1	0					Jet Boat Boom	R
2011	RB	413	735	0	0					Jet Boat Boom	R
2011	RB	415		1	0					Jet Boat Boom	R
2011	RB	415	710	0	0					Jet Boat Boom	R
2011	RB	420	675	0	0					Jet Boat Boom	R
2011	RB	421		1	0					Jet Boat Boom	R
2011	RB	421	640	0	0					Jet Boat Boom	R
2011	RB	422	675	0	0					Jet Boat Boom	R
2011	RB	423	750	0	0	hs				Jet Boat Boom	R
2011	RB	423	615	0	0					Jet Boat Boom	R
2011	RB	426		1	0					Jet Boat Boom	R
2011	RB	426	695	0	0					Jet Boat Boom	R
2011	RB	428	690	0	0					Jet Boat Boom	R
2011	RB	429	750	0	0					Jet Boat Boom	R
2011	RB	429	685	0	0					Jet Boat Boom	R
2011	RB	430	660	0	0					Jet Boat Boom	R
2011	RB	431		1	0					Jet Boat Boom	R
2011	RB	434	825	0	0					Jet Boat Boom	R
2011	RB	435	775	0	0					Jet Boat Boom	R
2011	RB	436		1	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	RB	440		1	0					Jet Boat Boom	R
2011	RB	440	745	0	0					Jet Boat Boom	R
2011	RB	440	750	0	0					Jet Boat Boom	R
2011	RB	441	770	0	0					Jet Boat Boom	R
2011	RB	442	710	0	0					Jet Boat Boom	R
2011	RB	443	625	0	0	hs				Jet Boat Boom	R
2011	RB	445		1	0					Jet Boat Boom	R
2011	RB	449	785	0	0					Jet Boat Boom	R
2011	RB	451	800	0	0					Jet Boat Boom	R
2011	RB	452		1	0					Jet Boat Boom	R
2011	RB	453	775	0	0					Jet Boat Boom	R
2011	RB	453	770	0	0					Jet Boat Boom	R
2011	RB	457	850	0	0					Jet Boat Boom	R
2011	RB	463		1	0					Jet Boat Boom	R
2011	RB	465	1195	0	0					Jet Boat Boom	R
2011	RB	471		1	0					Jet Boat Boom	R
2011	RB	474	1015	0	0					Jet Boat Boom	R
2011	RB	481	945	0	0					Jet Boat Boom	R
2011	RB	481	1100	0	0					Jet Boat Boom	R
2011	RB	482	1150	0	0					Jet Boat Boom	R
2011	RB	495	1050	0	0					Jet Boat Boom	R
2011	RB	502	1030	0	0	hs				Jet Boat Boom	R
2011	RB	506		1	0					Jet Boat Boom	R
2011	RB	512	1320	0	0					Jet Boat Boom	R
2011	RB	512	1085	0	0					Jet Boat Boom	R
2011	WCT	199	65	0	0					Jet Boat Boom	R
2011	WCT	205	80	0	0					Jet Boat Boom	R
2011	WCT	207	75	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	220	100	0	0					Jet Boat Boom	R
2011	WCT	224	110	0	0					Jet Boat Boom	R
2011	WCT	225	110	0	0					Jet Boat Boom	R
2011	WCT	225	105	0	0	hs				Jet Boat Boom	R
2011	WCT	226	105	0	0					Jet Boat Boom	R
2011	WCT	227	105	0	0					Jet Boat Boom	R
2011	WCT	228	115	0	0					Jet Boat Boom	R
2011	WCT	232	120	0	0	hs				Jet Boat Boom	R
2011	WCT	232	130	0	0					Jet Boat Boom	R
2011	WCT	233	120	0	0					Jet Boat Boom	R
2011	WCT	235	105	0	0					Jet Boat Boom	R
2011	WCT	237	115	0	0					Jet Boat Boom	R
2011	WCT	237	120	0	0					Jet Boat Boom	R
2011	WCT	242	130	0	0					Jet Boat Boom	R
2011	WCT	245	140	0	0					Jet Boat Boom	R
2011	WCT	245	125	0	0					Jet Boat Boom	R
2011	WCT	245	130	0	0					Jet Boat Boom	R
2011	WCT	245	135	0	0					Jet Boat Boom	R
2011	WCT	246	155	0	0					Jet Boat Boom	R
2011	WCT	248	145	0	0					Jet Boat Boom	R
2011	WCT	248	155	0	0					Jet Boat Boom	R
2011	WCT	249		1	0					Jet Boat Boom	R
2011	WCT	249	145	0	0					Jet Boat Boom	R
2011	WCT	250	145	0	0					Jet Boat Boom	R
2011	WCT	250	150	0	0					Jet Boat Boom	R
2011	WCT	250	140	0	0	hs				Jet Boat Boom	R
2011	WCT	252	150	0	0					Jet Boat Boom	R
2011	WCT	253	160	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	253	155	0	0					Jet Boat Boom	R
2011	WCT	254	155	0	0					Jet Boat Boom	R
2011	WCT	255	140	0	0					Jet Boat Boom	R
2011	WCT	255	155	0	0					Jet Boat Boom	R
2011	WCT	255	165	0	0					Jet Boat Boom	R
2011	WCT	256		1	0					Jet Boat Boom	R
2011	WCT	257	160	0	0					Jet Boat Boom	R
2011	WCT	259	150	0	0					Jet Boat Boom	R
2011	WCT	260		1	0					Jet Boat Boom	R
2011	WCT	260	175	0	0					Jet Boat Boom	R
2011	WCT	260		1	0					Jet Boat Boom	R
2011	WCT	261		1	0					Jet Boat Boom	R
2011	WCT	261	170	0	0					Jet Boat Boom	R
2011	WCT	261	165	0	0					Jet Boat Boom	R
2011	WCT	262	155	0	0					Jet Boat Boom	R
2011	WCT	263	170	0	0					Jet Boat Boom	R
2011	WCT	263	170	0	0					Jet Boat Boom	R
2011	WCT	264	160	0	0					Jet Boat Boom	R
2011	WCT	264	170	0	0					Jet Boat Boom	R
2011	WCT	264	175	0	0					Jet Boat Boom	R
2011	WCT	265	175	0	0					Jet Boat Boom	R
2011	WCT	266	170	0	0					Jet Boat Boom	R
2011	WCT	269	170	0	0					Jet Boat Boom	R
2011	WCT	270		1	0					Jet Boat Boom	R
2011	WCT	270	185	0	0					Jet Boat Boom	R
2011	WCT	270		1	0					Jet Boat Boom	R
2011	WCT	270		1	0					Jet Boat Boom	R
2011	WCT	271	195	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	271		1	0					Jet Boat Boom	R
2011	WCT	272	205	0	0	hs				Jet Boat Boom	R
2011	WCT	272	190	0	0					Jet Boat Boom	R
2011	WCT	272	195	0	0					Jet Boat Boom	R
2011	WCT	273	190	0	0					Jet Boat Boom	R
2011	WCT	273	200	0	0					Jet Boat Boom	R
2011	WCT	275	180	0	0					Jet Boat Boom	R
2011	WCT	275	190	0	0					Jet Boat Boom	R
2011	WCT	275	200	0	0	hs				Jet Boat Boom	R
2011	WCT	275	200	0	0					Jet Boat Boom	R
2011	WCT	275		1	0					Jet Boat Boom	R
2011	WCT	277		1	0					Jet Boat Boom	R
2011	WCT	277	195	0	0					Jet Boat Boom	R
2011	WCT	277		1	0					Jet Boat Boom	R
2011	WCT	280	205	0	0					Jet Boat Boom	R
2011	WCT	280	200	0	0					Jet Boat Boom	R
2011	WCT	280		1	0					Jet Boat Boom	R
2011	WCT	281	210	0	0					Jet Boat Boom	R
2011	WCT	282		1	0					Jet Boat Boom	R
2011	WCT	282	205	0	0					Jet Boat Boom	R
2011	WCT	282	215	0	0					Jet Boat Boom	R
2011	WCT	283	205	0	0					Jet Boat Boom	R
2011	WCT	283	230	0	0					Jet Boat Boom	R
2011	WCT	286		1	0					Jet Boat Boom	R
2011	WCT	286	225	0	0					Jet Boat Boom	R
2011	WCT	286	225	0	0					Jet Boat Boom	R
2011	WCT	287	225	0	0					Jet Boat Boom	R
2011	WCT	288	210	0	0	hs				Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	288	235	0	0					Jet Boat Boom	R
2011	WCT	290		1	0					Jet Boat Boom	R
2011	WCT	290	240	0	0	hs				Jet Boat Boom	R
2011	WCT	290	225	0	0					Jet Boat Boom	R
2011	WCT	290	210	0	0					Jet Boat Boom	R
2011	WCT	293		1	0					Jet Boat Boom	R
2011	WCT	295		1	0					Jet Boat Boom	R
2011	WCT	295	235	0	0					Jet Boat Boom	R
2011	WCT	295	255	0	0					Jet Boat Boom	R
2011	WCT	296	220	0	0					Jet Boat Boom	R
2011	WCT	297		1	0					Jet Boat Boom	R
2011	WCT	297	245	0	0					Jet Boat Boom	R
2011	WCT	298		1	0					Jet Boat Boom	R
2011	WCT	299	245	0	0					Jet Boat Boom	R
2011	WCT	301	250	0	0					Jet Boat Boom	R
2011	WCT	302	265	0	0					Jet Boat Boom	R
2011	WCT	305		1	0					Jet Boat Boom	R
2011	WCT	310	285	0	0					Jet Boat Boom	R
2011	WCT	311	325	0	0					Jet Boat Boom	R
2011	WCT	313	275	0	0					Jet Boat Boom	R
2011	WCT	313	285	0	0					Jet Boat Boom	R
2011	WCT	321	335	0	0					Jet Boat Boom	R
2011	WCT	323		1	0					Jet Boat Boom	R
2011	WCT	325	300	0	0	hs				Jet Boat Boom	R
2011	WCT	325		1	0					Jet Boat Boom	R
2011	WCT	326	315	0	0					Jet Boat Boom	R
2011	WCT	326	310	0	0					Jet Boat Boom	R
2011	WCT	327	305	0	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	328	315	0	0					Jet Boat Boom	R
2011	WCT	330	365	0	0					Jet Boat Boom	R
2011	WCT	330	260	0	0					Jet Boat Boom	R
2011	WCT	333	330	0	0					Jet Boat Boom	R
2011	WCT	336		1	0					Jet Boat Boom	R
2011	WCT	337	390	0	0					Jet Boat Boom	R
2011	WCT	338	385	0	0					Jet Boat Boom	R
2011	WCT	342	330	0	0					Jet Boat Boom	R
2011	WCT	348		1	0					Jet Boat Boom	R
2011	WCT	350	430	0	0					Jet Boat Boom	R
2011	WCT	351	410	0	0					Jet Boat Boom	R
2011	WCT	353		1	0					Jet Boat Boom	R
2011	WCT	354	425	0	0	hs				Jet Boat Boom	R
2011	WCT	355		1	0					Jet Boat Boom	R
2011	WCT	356	370	0	0					Jet Boat Boom	R
2011	WCT	358	490	0	0					Jet Boat Boom	R
2011	WCT	366	460	0	0					Jet Boat Boom	R
2011	WCT	370	465	0	0					Jet Boat Boom	R
2011	WCT	370	530	0	0					Jet Boat Boom	R
2011	WCT	370	495	0	0					Jet Boat Boom	R
2011	WCT	370	440	0	0					Jet Boat Boom	R
2011	WCT	372	450	0	0					Jet Boat Boom	R
2011	WCT	377		1	0					Jet Boat Boom	R
2011	WCT	379		1	0					Jet Boat Boom	R
2011	WCT	383	570	0	0					Jet Boat Boom	R
2011	WCT	385		1	0					Jet Boat Boom	R
2011	WCT	386		1	0					Jet Boat Boom	R
2011	WCT	387		1	0					Jet Boat Boom	R

Year	Species	Length	Weight	M/C	Mort	Hook Scar	Disease	Tag	Genetics	Equipment	Trip Type
2011	WCT	388		1	0					Jet Boat Boom	R
2011	WCT	388	575	0	0					Jet Boat Boom	R
2011	WCT	390		1	0					Jet Boat Boom	R
2011	WCT	390		1	0					Jet Boat Boom	R
2011	WCT	391		1	0					Jet Boat Boom	R
2011	WCT	392	570	0	0					Jet Boat Boom	R
2011	WCT	397	545	0	0					Jet Boat Boom	R
2011	WCT	400	560	0	0					Jet Boat Boom	R
2011	WCT	402	615	0	0					Jet Boat Boom	R
2011	WCT	407	585	0	0					Jet Boat Boom	R
2011	WCT	421		1	0					Jet Boat Boom	R
2011	WCT	422	715	0	0					Jet Boat Boom	R
2011	WCT	431	715	0	0					Jet Boat Boom	R
2011	WCT	452	895	0	0					Jet Boat Boom	R

Appendix B – 2011 Bull Trout Radio Telemetry Data

Table B-1. Radio tagged bull trout (codes 26, 27, 28, 29, 30, 31, 32, 35, 36, 37, 38, 39 , 40) that have been genetically assigned to Region 4 (Avista's Upstream Fish Passage Program) and monitored by FWP in 2010 and 2011 and radio tagged bull trout (codes 52, 100, 169) that have genetically assigned to Region 3 (Avista's Upstream Fish Passage Program and monitoring by FWP in 2010 and 2011.

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
4/23/11	148.480	26	Clark Fork	80	158	Blue Slide	19	47.81035	115.51326	.25 mile above county boat ramp
4/27/11	148.480	26	Clark Fork	90	102	Blue Slide	8.7	47.71889	115.41046	Finley Flats
5/4/11	148.480	26	Clark Fork	90	102	Blue Slide	8.8	47.72109	115.40988	Finley Flats
5/18/11	148.480	26	Clark Fork	90	171	HWY 200	47	47.63108	115.40715	Flatiron boat launch
6/1/11	148.480	26	Clark Fork	80	203	na	na	47.58288	115.35508	Blue Cr, below PPL dam
6/6/11	148.480	26	Clark Fork	80	168	na	na	47.59453	115.36217	old powerhouse
6/9/11	148.480	26	Clark Fork	90	109	HWY 200	49	47.60474	115.77743	HWY bridge at Rimrock
6/15/11	148.480	26	Clark Fork	80	166	HWY 200	49	47.60469	115.37735	HWY bridge at Rimrock
6/20/11	148.480	26	Clark Fork	90	186	HWY 200	49	47.60461	115.37731	HWY bridge at Rimrock
6/27/11	148.480	26	Prospect Creek	80	228	Cherry Cr Rd	0.7	47.58516	115.35588	Dry Cr mouth
6/30/11	148.480	26	Prospect Creek	80	121	Prospect Cr Rd	2	47.58179	115.36704	
7/5/11	148.480	26	Prospect Creek	80	187	Prospect Cr Rd	5.1	47.56788	115.42886	
7/13/11	148.480	26	Prospect Creek	80	157	Prospect Cr Rd	6.8	47.56331	115.46192	
7/18/11	148.480	26	Prospect Creek	80	170	Prospect Cr Rd	6.3	47.56360	115.45207	

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
7/21/11	148.480	26	Prospect Creek	80	144	Prospect Cr Rd	7	47.56248	115.46701	below Sourdough
8/1/11	148.480	26	Prospect Creek	75	139	Prospect Cr Rd	7.5	47.56199	115.47596	above Sourdough
8/8/11	148.480	26	Prospect Creek	80	165	Prospect Cr Rd	6.4	47.56313	115.45293	
8/15/11	148.480	26	Prospect Creek	70	196	Prospect Cr Rd	4.4	47.56853	115.41390	Avista weir site
8/22/11	148.480	26	Prospect Creek	70	184	Prospect Cr Rd	4.4	47.56847	115.41393	
8/30/11	148.480	26	Prospect Creek	80	140	Prospect Cr Rd	6.4	47.56248	115.45430	
9/6/11	148.480	26	Prospect Creek	80	180	Prospect Cr Rd	6.4	47.56306	115.45452	
9/9/11	148.480	26	Prospect Creek	90	194	Prospect Cr Rd	6.4	47.56340	115.45436	
9/13/11	148.480	26	Prospect Creek	70	131	Prospect Cr Rd	7.3	47.56224	115.47384	just above Sourdough
9/19/11	148.480	26	Prospect Creek	80	185	Prospect Cr Rd	6.4	47.56307	115.45436	
9/29/11	148.480	26	Prospect Creek	90	164	Prospect Cr Rd	6.6	47.56353	115.45865	
10/7/11	148.480	26	Prospect Creek	80	201	Prospect Cr Rd	6.4	47.56304	115.45448	
10/17/11	148.480	26	Prospect Creek	80	202	Prospect Cr Rd	6.4	47.56306	115.45456	
10/18/11	148.480	26	Prospect Creek	30	232	Prospect Cr Rd	6.4	47.56264	115.45694	visual confirmation with Yagi pool above weir
10/24/11	148.480	26	Prospect Creek	80	71	Prospect Cr Rd	1.6	47.58585	115.36336	
6/30/10	148.480	27	Thompson R	70	225	ACM	0.6	47.58711	115.23331	at bridge, released 6/30/10 1400hrs

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
7/1/10	148.480	27	Thompson R	80	217	ACM	0.7	47.58714	115.23407	100m above ACM bridge
7/2/10	148.480	27	Thompson R	60	124	ACM	0.6	47.58727	115.23339	ACM bridge
7/6/10	148.480	27	Thompson R	80	213	ACM	0.6	47.58774	115.23288	ACM bridge
7/8/10	148.480	27	Thompson R	70	231	ACM	0.7	47.58876	115.23284	125m above bridge
7/9/10	148.480	27	Thompson R	80	204	ACM	0.6	47.58887	115.23284	above ACM bridge
7/12/10	148.480	27	Thompson R	80	184	ACM	0.6	47.58745	115.23296	ACM bridge
7/14/10	148.480	27	Thompson R	80	189	ACM	0.6	47.58947	115.23331	ACM bridge
7/19/10	148.480	27	Thompson R	60	199	Thompson R	0.7	47.58868	115.23276	100m above ACM bridge
7/21/10	148.480	27	Thompson R	80	210	Thompson R	0.8	47.59105	115.23138	
7/22/10	148.480	27	Clark Fork	60	204	frontage	na	47.57677	115.24043	just below TR mouth
7/24/10	148.480	27	Thompson R	80	88	ACM	0	na	na	at ACM/HWY 200 intersection
7/28/10	148.480	27	Thompson R	80	200	na	na	47.57677	115.24043	mouth of Thompson R
7/30/10	148.480	27	Thompson R	90	90	ACM	0	na	na	below HWY 200 bridge
8/3/10	148.480	27	Thompson R	90	125	ACM	0	na	na	below HWY 200 bridge
8/6/10	148.480	27	Clark Fork	60	125	na	na	47.57732	115.24095	TR mouth
8/10/10	148.480	27	Clark Fork	60	186	na	na	47.57735	115.24092	TR mouth

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
8/11/10	148.480	27	Clark Fork	80	68	na	na	47.57676	115.24757	TR mouth
8/16/10	148.480	27	Clark Fork	30	200	boat	na	47.57641	115.24079	TR mouth
8/23/10	148.480	27	Clark Fork	60	149	na	na	47.57710	115.24148	TR mouth
9/27/10	148.480	27	Clark Fork	60	211	na	na	47.59018	115.35304	below PPL dam
9/28/10	148.480	27	Clark Fork	80	163	na	na	47.59041	115.35838	Prospect mouth
10/8/10	148.480	27	Clark Fork	80	144	na	na	47.59466	115.36194	old powerhouse
5/20/10	148.480	28	Clark Fork			na	na			picked up at Hilltop remote, went through turbine
5/24/10	148.480	28	Clark Fork	80	178	na	na	47.59448	115.36222	old powerhouse
5/26/10	148.480	28	Clark Fork	80	153	na	na	47.59467	115.36245	old powerhouse
5/28/10	148.480	28	Clark Fork	80	171	na	na	47.59448	115.36205	old powerhouse
6/1/10	148.480	28	Clark Fork	80	139	na	na	47.59468	115.36197	old powerhouse
6/2/10	148.480	28	Clark Fork	80	109	n	na	47.59466	115.36195	old powerhouse
5/4/11	148.480	29	Clark Fork	90	169	Blue Slide	21.9	47.84022	115.57545	across from Trout Creek town
6/23/11	148.480	29	Clark Fork	95	69	Marten Cr Rd/FS2229	4.5	47.85930	115.66754	below train trestle
7/5/11	148.480	29	Clark Fork	98	63	Marten Cr Rd/FS2229	4.8	47.86090	115.67132	below train trestle
7/18/11	148.480	29	Clark Fork	95	66	Marten Cr Rd/FS2229	4.7	47.86035	115.67057	below train trestle

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
7/21/11	148.480	29	Clark Fork	98	76	Marten Cr Rd/FS2229	4.3	47.85836	115.66293	below train trestle
8/1/11	148.480	29	Clark Fork	98	58	Marten Cr Rd/FS2229	4.5	47.85932	115.66753	below train trestle
9/19/11	148.480	29	Clark Fork	98	75	Marten Cr Rd/FS2229	4	47.85817	115.65722	below train trestle
10/7/11	148.480	29	Clark Fork	95	79	Marten Cr Rd/FS2229	7	47.87545	115.72206	
10/26/11	148.480	29	Clark Fork	98	80	Marten Cr Rd/FS2229	4	47.85815	115.65738	below train trestle
11/18/11	148.480	29	Clark Fork	99	79	Marten Cr Rd/FS2229	4	47.85538	115.65742	below train trestle
11/28/11	148.480	29	Clark Fork	99	75	Marten Cr Rd/FS2229	4.1	47.85813	115.65991	below train trestle
12/19/11	148.480	29	Clark Fork	95	86	Marten Cr Rd/FS2229	4.7	na	na	
5/13/10	148.480	30	Thompson R	90	110	boat	na	47.57638	115.24066	between railroad & hwy bridge, transport 5/12/10 to .6 miles up TR
5/14/10	148.480	30	Thompson R	80	89	TR (ACM)	0.1	47.58134	115.23888	above hwy bridge
5/15/10	148.480	30	Thompson R	80	101	TR (ACM)	0.1	47.58134	115.23888	above hwy bridge
5/17/10	148.480	30	Thompson R	80	153	HWY 200	56	47.57962	115.24050	hwy bridge
5/18/10	148.480	30	Thompson R	80	109	HWY 200	56	47.57962	115.24050	hwy bridge
5/19/10	148.480	30	Thompson R	30	115	foot	na	47.57785	115.23987	above train trestle at mouth
5/20/10	148.480	30	Thompson R	30	119	foot	na	47.57785	115.23987	above train trestle at mouth
5/21/10	148.480	30	Thompson R	50	112	TR access	na	47.57777	115.24044	above train trestle at mouth

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
5/21/10	148.480	30	Thompson R	50	112	TR access	na	47.57777	115.24044	above train trestle at mouth
5/24/10	148.480	30	Thompson R	80	188	TR access	na	47.57778	115.24063	above train trestle at mouth
5/25/10	148.480	30	Thompson R	50	201	boat	na	47.57777	115.23952	above train trestle at mouth
5/26/10	148.480	30	Thompson R	80	195	TR access	na	47.57783	115.24061	above train trestle at mouth
5/28/10	148.480	30	Clark Fork	80	104	dump road	na	47.57689	115.24777	at dump
6/1/10	148.480	30	Clark Fork	90	91	Northshore	lot 47	na	na	
6/2/10	148.480	30	Clark Fork	90	85	Northshore	lot 43	47.57096	115.26435	
6/3/10	148.480	30	Clark Fork	50	145	boat	na	47.57052	115.26275	.5 mile above Cherry Cr river right
6/4/10	148.480	30	Clark Fork	60	162	boat	na	47.56900	115.30045	100m upstream of powerlines mid channel
6/7/10	148.480	30	Clark Fork	60	200	boat	na	47.57039	115.30750	400m below powerline left bank
6/10/10	148.480	30	Clark Fork	60	205	boat	na	47.58167	115.32096	100m below pipeline right bank
6/14/10	148.480	30	Clark Fork	90	123	Steamboat E	na	47.57082	115.30300	Salish Shores boat launch
6/14/10	148.480	30	Clark Fork	60	64	boat	na	47.57570	115.25463	across from TRL 600m below TR mouth
6/14/10	148.480	30	Clark Fork	70	215	boat	na	47.59568	115.24463	300m below TR mouth
6/14/10	148.480	30	Clark Fork	70	na	boat	na	na	na	340m below TR mouth
6/14/10	148.480	30	Clark Fork	70	204	boat	na	47.57575	115.24452	in TR plume

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
6/15/10	148.480	30	Clark Fork	70	na	boat	na	47.57535	115.24452	in TR plume
6/15/10	148.480	30	Clark Fork	70	226	boat	na	47.57584	115.24458	220m below TR mouth
6/15/10	148.480	30	Clark Fork	60	229	boat	na	47.57596	115.24430	200m below TR mouth river right H2O 11.7
6/15/10	148.480	30	Clark Fork	60	225	boat	na	47.57584	115.24456	250m below TR mouth
6/16/10	148.480	30	Clark Fork	50	157	frontage	na	47.57722	115.24132	50m below TR mouth river right
6/17/10	148.480	30	Clark Fork	60	199	frontage	na	47.57615	115.24440	200m below TR mouth
6/21/10	148.480	30	Clark Fork	60	203	frontage	na	47.57664	115.24330	200m below TR mouth river right
6/22/10	148.480	30	Clark Fork	60	209	frontage	na	47.57668	115.24368	200m below TR mouth river right
6/24/10	148.480	30	Clark Fork	60	223	frontage	na	47.57560	115.24568	300m below TR mouth
6/28/10	148.480	30	Clark Fork	60	202	frontage	na	47.57736	115.24047	150m below TR mouth river right
6/30/10	148.480	30	Thompson R	60	232	frontage	na	47.57769	115.24010	100m up TR
7/1/10	148.480	30	Clark Fork	80	175	frontage	na	47.57741	115.74099	TR mouth
7/2/10	148.480	30	Clark Fork	80	161	frontage	na	47.57743	115.24098	TR mouth
7/6/10	148.480	30	Thompson R	80	61	ACM	na	47.58092	115.23995	200m above HWY 200 bridge
7/12/10	148.480	30	Clark Fork	80	98	N.Shore	house #77	47.56872	115.27041	Cherry Cr mouth
7/14/10	148.480	30	Clark Fork	80	106	N.Shore	house #79	47.56492	115.26970	Cherry Cr mouth

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
7/19/10	148.480	30	Clark Fork	60	196	frontage	na	47.57747	115.24103	TR mouth
7/22/10	148.480	30	Clark Fork	60	202	frontage	na	47.57677	115.24043	just below TR mouth
7/24/10	148.480	30	Thompson R	80	na	ACM	0	na	na	at ACM/HWY 200 intersection
7/28/10	148.480	30	Thompson R	80	182	na	na	47.57677	115.24043	mouth of Thompson R
7/30/10	148.480	30	Thompson R	90	na	ACM	0	na	na	below HWY 200 bridge
8/3/10	148.480	30	Thompson R	90	82	ACM	0	na	na	below HWY 200 bridge
8/6/10	148.480	30	Clark Fork	60	169	na	na	47.57732	115.24095	TR mouth
8/10/10	148.480	30	Clark Fork	60	174	na	na	47.57735	115.24092	TR mouth
8/11/10	148.480	30	Clark Fork	80	82	na	na	47.57676	115.24757	TR mouth
8/16/10	148.480	30	Clark Fork	30	204	boat	na	47.57641	115.24079	TR mouth
8/23/10	148.480	30	Clark Fork	60	155	na	na	47.57710	115.24148	TR mouth
8/30/10	148.480	30	Clark Fork	60	172	na	na	47.57706	115.24155	TR mouth
9/7/10	148.480	30	Clark Fork	80	164	na	na	47.57733	115.24349	TR mouth
9/14/10	148.480	30	Clark Fork	90	76	HWY 200 bridge		47.57966	115.24068	TR mouth
9/20/10	148.480	30	Clark Fork	90	74	HWY 200 bridge		47.57962	115.24045	TR mouth
9/28/10	148.480	30	Clark Fork	50	231	boat	na	47.57633	115.24090	TR mouth

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
10/5/10	148.480	30	Clark Fork	80	91	na	na	na	na	TR mouth
10/8/10	148.480	30	Clark Fork	80	84	na	na	47.57681	115.24747	TR mouth
10/18/10	148.480	30	Clark Fork	80	57	na	na	47.57723	115.24135	above TR mouth
10/26/10	148.480	30	Clark Fork	95	92	HWY 200	56	47.57946	115.22974	above TR mouth
12/17/10	148.480	30	Clark Fork	80	165	HWY 200	63.5	na	na	Eddy Creek mouth
1/5/11	148.480	30	Clark Fork	90	97	HWY 200	68	47.52525	115.00317	just below Weeksville Cr
1/7/11	148.480	30	Clark Fork	90	78	HWY 200	67.1	47.52605	115.02541	Swamp Cr mouth
1/10/11	148.480	30	Clark Fork	90	87	HWY 200	66	47.53266	115.04972	below Swamp Cr, Lawyers nursery
1/14/11	148.480	30	Clark Fork	90	104	HWY 200	65	47.53600	115.06677	2 miles below Swamp Cr mouth
1/21/11	148.480	30	Clark Fork	90	116	HWY 200	63.5	47.54658	115.09991	Eddy Creek mouth
1/25/11	148.480	30	Clark Fork	90	115	HWY 200	57.8	47.58399	115.20629	islands, at rock quarry
1/28/11	148.480	30	Clark Fork	90	121	HWY 200	57.8	47.58399	115.20629	islands, at rock quarry
2/1/11	148.480	30	Clark Fork	90	49-96	HWY 200	57.8	47.58399	115.20629	islands, at rock quarry
2/3/11	148.480	30	Clark Fork	95	66	HWY 200	58.3	47.58236	115.18996	islands, much ice
2/7/11	148.480	30	Clark Fork	95	104	HWY 200	58.3	47.58236	115.18996	islands, no ice
2/15/11	148.480	30	Clark Fork	95	82	HWY 200	57.1	47.58251	115.21376	.5 miles above TR mouth

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
2/22/11	148.480	30	Clark Fork	95	76	HWY 200	57.1	47.58251	115.21376	.5 miles above TR mouth
2/25/11	148.480	30	Clark Fork	95	66	HWY 200	56.8	47.57979	115.22678	.25 miles above TR
3/2/11	148.480	30	Clark Fork	95	143	HWY 200	62.2	47.55301	115.12120	Munson Cr mouth
3/7/11	148.480	30	Clark Fork	85	127	HWY 200	58.8	47.58176	115.18587	Islands
3/11/11	148.480	30	Clark Fork	85	180	HWY 200	58.8	47.58194	115.18613	Islands
3/14/11	148.480	30	Clark Fork	85	171	HWY 200	58.8	47.58187	115.18624	Islands
3/23/11	148.480	30	Clark Fork	80	154	HWY 200	52	47.59008	115.32586	TF reservoir
3/30/11	148.480	30	Clark Fork	90	na	HWY 200	51.5	47.59262	115.33307	TF reservoir
4/6/11	148.480	30	Clark Fork	90	128	HWY 200	51.75	47.59200	115.32855	TF reservoir
4/12/11	148.480	30	Clark Fork	80	203	HWY 200	52	47.58882	115.32504	NE corner TF res, with Yagui
4/27/11	148.480	30	Clark Fork	80	93	HWY 200	52	47.58981	115.32486	TF reservoir, north of pumphouse
5/4/11	148.480	30	Clark Fork	80	155	HWY 200	52	47.58935	115.32488	TF reservoir, north of pumphouse
5/9/11	148.480	30	Clark Fork	80	178	HWY 200	52	47.58921	115.32478	TF reservoir, north of pumphouse
5/18/11	148.480	30	Clark Fork	80	182	HWY 200	52	47.58942	115.22485	TF reservoir, north of pumphouse
5/26/11	148.480	30	Clark Fork	80	170	HWY 200	52	47.58941	115.32485	TF reservoir, north of pumphouse
6/1/11	148.480	30	Clark Fork	80	192	HWY 200	52	47.58934	115.32488	TF reservoir, north of pumphouse

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
6/6/11	148.480	30	Clark Fork	70	151	HWY 200	52	47.58934	115.32486	TF reservoir, north of pumphouse
6/9/11	148.480	30	Clark Fork	80	185	HWY 200	52	47.58959	115.32488	TF reservoir, north of pumphouse
6/15/11	148.480	30	Clark Fork	80	190	HWY 200	52	47.58935	115.32481	TF reservoir, north of pumphouse
6/20/11	148.480	30	Clark Fork	80	188	HWY 200	52	47.58929	115.32484	TF reservoir, north of pumphouse
6/23/11	148.480	30	Clark Fork	80	195	HWY 200	52	na	na	TF reservoir, north of pumphouse
6/27/11	148.480	30	Clark Fork	80	187	HWY 200	52	47.58941	115.32484	TF reservoir, north of pumphouse
6/30/11	148.480	30	Clark Fork	80	198	HWY 200	52	47.58935	115.32486	TF reservoir, north of pumphouse
7/5/11	148.480	30	Clark Fork	80	171	HWY 200	52	47.58934	115.32484	TF reservoir, north of pumphouse
7/13/11	148.480	30	Clark Fork	80	188	HWY 200	52	47.58937	115.32485	TF resrvoir, north of pumphouse
7/18/11	148.480	30	Clark Fork	80	189	HWY 200	52	47.58946	115.32487	TF reservoir, north of pumphouse
7/21/11	148.480	30	Clark Fork	80	189	HWY 200	52	47.58946	115.32487	TF reservoir, north of pumphouse
8/1/11	148.480	30	Clark Fork	80	200	HWY 200	52	47.58923	115.32473	TF reservoir, north of pumphouse, retrieve tag no fish
5/20/10	148.480	31	Clark Fork	80	156	dump road	na	47.57690	115.24738	at dump
5/20/10	148.480	31	Clark Fork	80	169	dump road	na	47.57680	115.24769	at dump
5/21/10	148.480	31	Clark Fork	80	169	dump road	na	47.57690	115.24738	at dump
5/24/10	148.480	31	Clark Fork	80	134	Steamboat E	lot 116	47.56860	115.28275	

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
5/25/10	148.480	31	Clark Fork	50	204	boat	na	47.56897	115.22995	TF res above powerlines
5/26/10	148.480	31	Clark Fork	90	112	Steamboat E	na	47.57091	115.30348	at Salish Shores boat launch
5/28/10	148.480	31	Clark Fork	80	124	SteamboatW	lot 11	47.57368	115.31189	
6/1/10	148.480	31	Clark Fork	80	94	SteamboatW	lot 15	47.57376	115.31223	
6/2/10	148.480	31	Clark Fork	80	159	Northshore	boat launch	47.56879	115.26843	
6/3/10	148.480	31	Clark Fork	50	211	boat	na	47.56653	115.27349	.25 mile below Cherry Cr river left
6/4/10	148.480	31	Clark Fork	60	204	boat	na	47.56641	115.27055	20m below Cherry Cr river left H2O 10.4
6/7/10	148.480	31	Clark Fork	60	166	boat	na	47.56860	115.29816	200m above powerline left bank
6/10/10	148.480	31	Clark Fork	60	229	boat	na	47.56646	115.27111	100m below Cherry Cr left bank
6/14/10	148.480	31	Clark Fork	90	182	dump road	na	47.57651	115.25039	at dump
6/14/10	148.480	31	Clark Fork	30	159	boat	na	47.57652	115.24231	150m below TR mouth river right
6/14/10	148.480	31	Clark Fork	70	215	boat	na	47.57636	115.24227	100m below TR mouth river right
6/14/10	148.480	31	Clark Fork	70	na	boat	na	47.57636	115.24227	100m below TR mouth river right
6/14/10	148.480	31	Clark Fork	70	199	boat	na	47.57668	115.24180	100m below TR mouth river right
6/15/10	148.480	31	Clark Fork	70	na	boat	na	47.57668	115.24180	100m below TR mouth river right
6/15/10	148.480	31	Clark Fork	70	231	boat	na	47.57658	115.24159	80m below TR mouth

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
6/15/10	148.480	31	Clark Fork	60	232	boat	na	47.57642	115.24187	80m below TR mouth river right H2O 11.7
6/15/10	148.480	31	Clark Fork	60	226	boat	na	47.57655	115.24126	50m below TR mouth river right H2O 11.8
6/16/10	148.480	31	Clark Fork	50	181	frontage	na	47.57722	115.24132	50m below TR mouth river right
6/17/10	148.480	31	Clark Fork	60	207	frontage	na	47.57746	115.24125	50m below TR mouth
6/21/10	148.480	31	Clark Fork	60	226	frontage	na	47.57686	115.24211	100m below TR mouth river right
6/22/10	148.480	31	Clark Fork	60	229	frontage	na	47.57668	115.24221	125m below TR mouth river right
6/24/10	148.480	31	Clark Fork	60	217	frontage	na	47.57690	115.24236	125m below TR mouth river right
6/28/10	148.480	31	Thompson R	60	232	frontage	na	47.57739	115.24020	50m up TR
6/30/10	148.480	31	Thompson R	70	168	ACM	1.5	47.59686	115.22365	
7/1/10	148.480	31	Thompson R	80	189	ACM	3.2	47.61016	115.19520	
7/2/10	148.480	31	Thompson R	60	230	ACM	5	47.63056	115.17496	big hole below Clark Memorial campground
7/6/10	148.480	31	Thompson R	80	170	ACM	5.4	47.63896	115.17175	
7/8/10	148.480	31	Thompson R	80	161	Thompson R	9.4	47.66320	115.12171	
7/12/10	148.480	31	Fishtrap Cr	80	186	FS 516	0.4	47.71761	115.05696	
7/14/10	148.480	31	Thompson R	90	84	Thompson R	15	47.71402	115.05495	.25 mile above Fishtrap mouth
7/15/10	148.480	31	Thompson R	95	88	ACM	17	47.72984	115.02974	just below 17 mile bridge, intermitent chirps

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
7/16/10	148.480	31	Thompson R	35	205	Thompson R	12	47.68984	115.09123	
7/19/10	148.480	31	Thompson R	80	171	Thompson R	12.3	47.68997	115.09199	
7/21/10	148.480	31	Thompson R	80	156	Thompson R	14.8	47.70715	115.07501	
7/22/10	148.480	31	Thompson R	80	184	Thompson R	14.3	47.71072	115.07312	
7/24/10	148.480	31	Thompson R	80	231	ACM	14.3	47.71036	115.06833	
7/27/10	148.480	31	Fishtrap Cr	60	162	FS 516	0.5	47.71915	115.05937	
7/28/10	148.480	31	Fishtrap Cr	80	211	FS 516	0.5	47.71915	115.05937	
7/30/10	148.480	31	Fishtrap Cr	80	181	FS 516	0.6	47.71858	115.05603	
8/3/10	148.480	31	Fishtrap Cr	80	202	FS 516	0.5	47.71775	115.05689	
8/6/10	148.480	31	Fishtrap Cr	80	206	FS 516	0.5	47.71766	115.05696	
8/10/10	148.480	31	Fishtrap Cr	80	200	FS 516	0.5	47.71775	115.05700	
8/11/10	148.480	31	Fishtrap Cr	80	203	FS 516	0.5	47.71770	115.05692	
8/17/10	148.480	31	Fishtrap Cr	20	223	foot	0.5	47.72103	115.05741	
8/23/10	148.480	31	Fishtrap Cr	80	203	FS 516	0.5	47.71684	115.05796	
8/30/10	148.480	31	Fishtrap Cr	80	198	FS 516	0.5	47.71781	115.05682	
8/31/10	148.480	31	Fishtrap Cr	80	190	FS 516	0.5	47.71790	115.05675	

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
9/7/10	148.480	31	Fishtrap Cr	80	172	FS 516	1.1	47.72603	115.05190	
9/14/10	148.480	31	Fishtrap Cr	80	202	FS 516	0.5	47.71856	115.05613	
9/20/10	148.480	31	Fishtrap Cr	80	162	FS 516	1.2	47.72653	115.05162	
9/24/10	148.480	31	Fishtrap Cr	80	191	FS 516	0.5	47.71776	115.05686	
9/28/10	148.480	31	Thompson R	80	232	ACM	10	47.67128	115.10405	
10/12/10	148.480	31	Vermillion R	na	na	na	na	na	na	Avista remote 2 miles up Verm
5/6/10	148.480	32	Clark Fork	90	na	Steamboat W		47.57461	115.31461	4-5 miles below TR, transport 5/5/10 to .6 miles up TR
5/11/10	148.480	32	Clark Fork	na	na	na	na	na	na	found by Avista AT Finley Flats
6/2/10	148.480	32	Clark Fork	80	172	na	na	47.59466	115.36195	old powerhouse
6/3/10	148.480	32	Clark Fork	60	160	na	na	47.59444	115.36251	downstream end of wingwall Old Powerhouse
6/4/10	148.480	32	Clark Fork	60	150	na	na	47.59435	115.36212	downstream end of wingwall Old Powerhouse
10/8/10	148.480	32	Clark Fork	80	62	na	na	47.59466	115.36194	old powerhouse
5/9/11	148.480	32	Clark Fork	90	133	Blue Slide	19.7	47.82500	115.54186	Vermillion Bay bridge
5/18/11	148.480	32	Clark Fork	90	148	HWY 200	47	47.62577	115.40539	Flatiron boat launch
5/26/11	148.480	32	Clark Fork	80	115	na	na	47.58463	115.36180	old powerhouse
6/1/11	148.480	32	Clark Fork	80	71	Prospect Cr Rd	0.8	47.59667	115.37305	

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
6/6/11	148.480	32	Clark Fork	80	142	Blue Slide	19.2	47.82497	115.54188	Vermillion R bridge
7/13/11	148.480	32	Clark Fork	na	na	n	na	na	na	passed thru Noxon dam 6/14/11, passed through Cabinet dam 7/2/11
5/26/11	148.500	35	Clark Fork	80	99	HWY 200	28	47.85045	115.60793	east side TC hwy bridge
6/1/11	148.500	35	Clark Fork	85	137	HWY 200	28	47.84834	115.60611	above Trout Creek hwy bridge
6/6/11	148.500	35	Clark Fork	90	68	HWY 200	28	47.84845	115.60615	above Trout Creek hwy bridge
6/9/11	148.500	35	Clark Fork	90	150	Blue Slide	22.9	47.85197	115.58818	across from Trout Creek town
7/6/11	148.500	35	Clark Fork	na	na	Noxon springs remote	na	na	na	passed through Noxon dam 6/14/11
6/9/11	148.500	36	Clark Fork	90	209	Blue Slide	19.6	47.82531	115.54284	Vermillion R bridge
6/20/11	148.500	36	Clark Fork	80	200	na	na	47.59465	115.36198	old powerhouse
6/23/11	148.500	36	Clark Fork	80	141	na	na	47.59456	115.36198	old powerhouse
6/27/11	148.500	36	Clark Fork	90	125	na	na	47.59465	115.36205	old powerhouse
6/30/11	148.500	36	Clark Fork	90	192	Marten Cr Rd/FS2229	8.9	47.87998	115.74889	Marten Cr bridge
7/5/11	148.500	36	Clark Fork	80	121	Blue Slide	5.5	47.67488	115.39932	above Graves Cr mouth
7/13/11	148.500	36	Clark Fork	80	131	na	na	47.59455	115.36212	old powerhouse
7/18/11	148.500	36	Clark Fork	85	146	Blue Slide	6	47.68304	115.40565	Graves Cr mouth
8/1/11	148.500	36	Clark Fork	85	60	Blue Slide	15.6	47.79532	115.48496	before Kirby Cr Rd

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
8/8/11	148.500	36	Clark Fork	90	66	Blue Slide	15.6	47.79336	115.48514	
8/15/11	148.500	36	Clark Fork	90	136	Blue Slide	16.6	47.79976	115.49946	
8/22/11	148.500	36	Clark Fork	90	127	Blue Slide	16.5	47.80021	115.49977	
8/30/11	148.500	36	Clark Fork	85	82	Blue Slide	16.5	47.80110	115.50048	
9/6/11	148.500	36	Clark Fork	85	79	Blue Slide	16.5	47.79985	115.49949	
9/9/11	148.500	36	Clark Fork	90	104	Blue Slide	16.5	47.80053	115.49971	
9/19/11	148.500	36	Clark Fork	90	152	Blue Slide	16.5	47.80012	115.49971	
9/26/11	148.500	36	Clark Fork	80	107	Blue Slide	16.5	47.80022	115.50019	
9/29/11	148.500	36	Clark Fork	98	120	Blue Slide	16.4	47.80068	115.50023	
10/7/11	148.500	36	Clark Fork	90	145	Blue Slide	16.5	47.80084	115.49969	
10/17/11	148.500	36	Clark Fork	80	136	Blue Slide	16.5	47.80083	115.49984	
10/26/11	148.500	36	Clark Fork	90	148	Blue Slide	16.4	47.79979	115.49936	
11/8/11	148.500	36	Clark Fork	90	139	Blue Slide	17	47.79940	115.49920	
11/18/11	148.500	36	Clark Fork	90	71	Blue Slide	16.6	47.80000	115.49942	
11/28/11	148.500	36	Clark Fork	90	143	Blue Slide	16.5	47.79872	115.49825	
12/5/11	148.500	36	Clark Fork	90	77	Blue Slide	16.5	47.79938	115.49926	

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
12/12/11	148.500	36	Clark Fork	90	124	Blue Slide	16.5	47.78876	115.49837	same location
12/19/11	148.500	36	Clark Fork	90	112	Blue Slide	14.8	47.78136	115.47814	1.7 miles below usual spot
12/19/11	148.500	36	Clark Fork	90	88	Blue Slide	16.5	47.79876	115.49837	same location, heard for over 2 miles, tag out of water?
6/15/11	148.500	37	Clark Fork	90	72	Marten Cr Rd/FS2229	4	47.85820	115.65731	below train trestle
7/6/11	148.500	37	Clark Fork	na	na	Noxon springs remote	na	na	na	passed through Noxon dam 6/20/11
9/9/11	148.500	37	Clark Fork	80	176	Marten Cr Rd/FS2229	18.8	47.97247	115.74386	below Noxon dam
10/26/11	148.500	37	Clark Fork	80	156	Marten Cr Rd/FS2229	18.5	47.96813	115.74125	below Noxon dam across from Avista field office
6/9/11	148.500	38	Clark Fork	90	175	Blue Slide	16.8	47.80554	115.50564	Pine Cove campground
6/15/11	148.500	38	Clark Fork	80	161	na	na	47.59460	115.36200	old powerhouse
6/20/11	148.500	38	Clark Fork	80	231	na	na	47.59031	115.35842	Prospect mouth
6/23/11	148.500	38	Clark Fork	80	155	na	na	47.58846	115.25563	Blue Cr, below PPL dam
6/27/11	148.500	38	Clark Fork	80	215	na	na	47.59004	115.35294	Blue Cr, below PPL dam
6/30/11	148.500	38	Clark Fork	80	133	na	na	47.59005	115.35095	Blue Cr, below PPL dam
7/5/11	148.500	38	Clark Fork	80	111	na	na	47.58793	115.35507	Blue Cr, below PPL dam
7/13/11	148.500	38	Clark Fork	80	147	na	na	47.59455	115.36212	old powerhouse
7/18/11	148.500	38	Clark Fork	80	185	na	na	47.58949	115.35635	high bridge

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
7/21/11	148.500	38	Clark Fork	70	202	na	na	47.59016	115.35844	Prospect mouth
10/7/11	148.500	38	Clark Fork	90	173	Marten Cr Rd/FS2229	9	47.88029	115.74965	
11/18/11	148.500	38	Clark Fork	90	202	Blue Slide	21.2	47.83701	115.57075	
11/28/11	148.500	38	Clark Fork	90	109	Blue Slide	21.5	47.84014	115.57564	across from Trout Creek town
12/5/11	148.500	38	Clark Fork	90	151	Blue Slide	21.5	47.84022	115.57541	across from Trout Creek town
6/23/11	148.500	39	Clark Fork	85	232	Blue Slide	17.8	47.81383	115.52431	county boat launch above Vermillion
6/27/11	148.500	39	Clark Fork	90	105	Blue Slide	21.6	47.83027	115.55736	across from Trout Creek town
6/30/11	148.500	39	Clark Fork	80	102	Blue Slide	20.7	47.82779	115.55743	across from Trout Creek town
7/5/11	148.500	39	Clark Fork	80	92	Blue Slide	20.8	47.82781	115.55758	across from Trout Creek town
7/13/11	148.500	39	Clark Fork	80	88	HWY 200	33	47.80303	115.54355	Beaver Cr bay
7/18/11	148.500	39	Clark Fork	80	152	Blue Slide	19.9	47.82520	115.54369	Vermillion bay bridge
7/21/11	148.500	39	Clark Fork	80	104	Blue Slide	19.9	47.82515	115.54230	Vermillion bay bridge
8/1/11	148.500	39	Clark Fork	80	121	Blue Slide	19.2	47.82506	115.54195	Vermillion bay bridge
8/8/11	148.500	39	Clark Fork	80	168	Blue Slide	19.9	47.82575	115.54365	Vermillion bay bridge
8/15/11	148.500	39	Clark Fork	80	187	Blue Slide	20.1	47.82528	115.54269	Vermillion bay bridge
8/22/11	148.500	39	Clark Fork	80	122	Blue Slide	19.3	47.82504	115.54186	Vermillion bay bridge

Date	Radio Frequency	Code	Stream	Gain	Signal strength	Road	Mile Post	Latitude	Longitude	Notes (i.e., about location)
8/30/11	148.500	39	Clark Fork	80	165	Marten Cr Rd/FS2229	9	47.88008	115.74913	Marten Cr bay bridge
6/27/11	148.500	40	Clark Fork	80	178	Blue Slide	1	47.61758	115.38925	TF state park
6/30/11	148.500	40	Clark Fork	80	230	na	na	47.58793	115.35507	Blue Cr, below PPL dam
7/5/11	148.500	40	Clark Fork	80	167	na	na	47.58793	115.35507	Blue Cr, below PPL dam
7/13/11	148.500	40	Clark Fork	90	180	na	na	47.58956	115.35628	at high bridge in tailrace
3/23/11	148.640	52	Clark Fork	80	148	HWY 200	49	47.60471	115.37732	HWY bridge at Rimrock, AVISTA fish
3/30/11	148.640	52	Clark Fork	90	168	HWY 200	49	47.60475	115.37243	HWY bridge at Rimrock, AVISTA fish
4/6/11	148.640	100	Clark Fork	80	157	na	na	47.59469	115.36216	old powerhouse AVISTA fish
4/12/11	148.640	100	Clark Fork	80	173	na	na	47.49475	115.36199	old powerhouse, AVISTA fish
4/27/11	148.640	100	Clark Fork	90	154	HWY 200	49	47.60463	115.37627	HWY bridge at Rimrock, AVISTA fish
5/9/11	148.640	169	Clark Fork	95	67	Blue Slide	19.7	47.82500	115.54186	Vermillion Bay bridge
6/27/11	148.480	?	Clark Fork	95	42	Marten Cr Rd/FS2229	4	47.85823	115.65745	below train trestle

Bull Trout Code 35 and 37 Radio Telemetry 2011 (Source: Avista Corporation)

Bull Trout Code: 35

Surgery Information	
Species	Bull trout
Radio frequency	148.500 code 35 (500-35)
PIT tag number	985121021152977
Length	710 millimeters
Weight	3856 grams
Sex	Female
Surgery date	5/20/11
Genetics information	Fishtrap Creek (R4) / East Fork Bull River (R2) / Conf. = 5.53809

2011

- **5-17-11** Fish was captured while night electrofishing in the lower Clark Fork River downstream of Cabinet Gorge Dam in the top end of the North bank section (Clark Fork River Rkm 242). This fish was held at the Cabinet Gorge Fish Hatchery until genetics testing was completed.
- **5-20-11** Radio tagged and transported the fish upstream to Noxon Reservoir (truck water temperature = 10 °C) and released at the county boat ramp upstream from Vermilion Bay (Clark Fork River Rkm 299) (surface water temperature = 9 °C).
- **5-24 to 6-9-11** Fish located between Trout Creek boat ramp and highway 200 bridge on river left side (Clark Fork River Rkm 295). **5 detections**
- **6-15 (10:36) to 6-15-11 (10:44)** Fish was detected on remote monitoring stations located at the Noxon Rapids Dam and the Noxon Spring site (Clark Fork River Rkm 272.4 & 272.9). **8 detections**
- **6-24 (17:19) to 6-28 (17:35)** Fish detected on remote monitoring stations located at the Cabinet Gorge Dam and the Noxon Springs site (Clark Fork River Rkm 272.4 & 272.9). **1855 detections**
- **6-28 (18:29) to 6-29-11 (15:54)** Detected fish on remote monitoring stations located at the Cabinet Gorge Dam and the Noxon Springs site (Clark Fork River Rkm 272.4 & 272.9). **425 detections**
- **7-31-11 (06:17)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **8-6-11 (07:13)** Detected fish on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **8-12-11 (11:58)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **8-21-11 (00:04)** Detected fish on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-7-11 (23:28)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-15-11 (00:02)** Detected fish on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**

- **9-29-11 (18:10)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **10-18-11** Fish was located in inner Bull River Bay (Bull River Rkm 0.8). **1 detection**
- **10-21-11 (20:07)** Detected fish on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **10-21-11 (22:47)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **10-22-11 (01:41)** Detected fish on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **10-22-11 (03:45)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **10-22-11 (04:08)** Detected fish on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **10-22-11 (05:27)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **10-22-11 (07:52)** Detected fish on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **10-22 (08:37) to 10-22 (09:54)** Detected fish on remote monitoring stations located at the Cabinet Gorge Dam and the Noxon Springs site (Clark Fork River Rkm 272.4 & 272.9). **29 detections**
- **10-24 (10:45) to 10-24-11 (14:06)** Detected fish on remote monitoring stations located at Cabinet Gorge Dam (Clark Fork River Rkm 242). **80 detections**
- **10-24 (14:13) to 10-24 (15:47)** Fish detected on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **28 detections**
- **10-24 (17:11) to 10-24-11 (22:48)** Fish detected on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **57 detections**
- **10-25-11 (00:14)** Fish detected on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **2 detections**
- **10-25-11 (02:07)** Fish detected on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **2 detections**
- **10-25 (03:37) to 10-25-11 (04:56)** Detected fish on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **5 detections**
- **10-25 (07:30) to 10-25-11 (09:40)** Fish detected on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **23 detections**
- **10-25-11 (10:49)** Detected fish on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **1 detection**
- **10-25-11 (11:39)** Fish detected on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **2 detections**

- **10-25 (17:40) to 10-25-11 (18:19)** Detected fish on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **6 detections**
- **10-25 (19:17) to 10-25-11 (19:33)** Fish detected on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **6 detections**
- **10-25-11 (22:38)** Detected fish on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **2 detections**
- **10-26 (00:36) to 10-26-11 (00:49)** Fish detected on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **3 detections**
- **10-26 (06:01) to 10-26-11 (06:20)** Detected fish on meathole/tunnels remote monitoring station located at the Cabinet Gorge Dam (Clark Fork River Rkm 242). **4 detections**

Total Detections = 2,558

Bull Trout Code 37

Surgery Information	
Species	Bull trout
Radio frequency	148.500 code 37 (500-37)
PIT tag number	985121021199621
Length	530 millimeters
Weight	1360 grams
Sex	Female
Surgery date	5/25/11
Genetics information	Thompson River (R4) / Upper Rock Creek (R4) / Conf. = 48,193,900

2011

- **5-22-11** Fish was captured while night electrofishing in the lower Clark Fork River downstream of Cabinet Gorge Dam in the top end of the North bank section (Clark Fork River Rkm 242). This fish was held at the Cabinet Gorge Fish Hatchery until genetics testing was completed.
- **5-25-11** Radio tagged and transported the fish upstream to Noxon Reservoir (truck water temperature = 10 °C) and released at the county boat ramp upstream from Vermilion Bay (Clark Fork River Rkm 299) (surface water temperature = 10 °C).
- **6-15-11** Located fish in Noxon Reservoir below railroad trestle downstream from the North Shore boat ramp (Clark Fork River Rkm 286). **1 detection**
- **6-21 (16:20) to 6-21-11 (17:17)** Fish detected on remote monitoring stations located at the Noxon Rapids Dam and the Noxon Springs site (Clark Fork River Rkm 272.4 & 272.9). **11 detections**
- **6-21 (18:57) to 6-21-11 (20:34)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **4 detections**
- **7-2-11 (20:15)** Fish detected on remote monitoring stations located at the Noxon Rapids Dam (Clark Fork River Rkm 272.9). **1 detection**
- **7-14 to 7-18-11** Located fish above the Noxon bridge out from the mouth of Pilgrim Creek (Clark Fork River Rkm 268.4). **2 detections**
- **7-19 (19:31) to 7-20-11 (04:21)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **43 detections**
- **7-20 (06:18) to 7-20-11 (06:26)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2 detections**
- **7-20-11 (07:25)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **7-20-11** Detected fish around the mouth of Rock Creek (Clark Fork River Rkm 271). **1 detection**
- **7-20 (11:47) to 7-20-11 (22:59)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **44 detections**

- **7-21 (00:24) to 7-22-11 (03:56)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **168 detections**
- **7-22 (07:19) to 7-24-11 (09:09)** Fish detected on remote monitoring stations located at the Noxon Rapids Dam and the Noxon Springs site (Clark Fork River Rkm 272.4 & 272.9). **838 detections**
- **7-24 (11:56) to 7-24-11 (12:04)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2 detections**
- **7-24 (17:29) to 7-24-11 (18:49)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **4 detections**
- **7-24 (20:10) to 7-24-11 (23:58)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **13 detections**
- **7-28 to 7-29-11** Fish located in Elk Creek Bay (Clark Fork River Rkm 252.2). **2 detections**
- **8-10-11 (13:52)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **8-4 to 8-19-11** Fish detected in inner Bull River Bay (Bull River Rkm 0.8). **2 detections**
- **8-22 (13:11) to 8-22-11 (16:04)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **18 detections**
- **8-22-11 (17:44)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **8-22 (20:43) to 8-23-11 (12:19)** Fish detected on remote monitoring stations located at the Noxon Rapids Dam and the Noxon Springs site (Clark Fork River Rkm 272.4 & 272.9). **240 detections**
- **8-23 (13:40) to 8-23-11 (14:42)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **5 detections**
- **8-23 (16:21) to 8-23-11 (16:31)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2 detections**
- **8-23 (21:29) to 8-24-11 (12:35)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **79 detections**
- **8-24 (18:24) to 8-24-11 (19:11)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **3 detections**
- **8-24 (20:08) to 8-24-11 (23:30)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **9 detections**
- **8-25 (01:47) to 8-25-11 (13:01)** Fish detected on remote monitoring stations located at the Noxon Rapids Dam and the Noxon Springs site (Clark Fork River Rkm 272.4 & 272.9). **99 detections**
- **8-25 (23:09) to 8-26-11 (00:37)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **7 detections**
- **8-26-11 (01:40)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **8-26 (02:17) to 8-26-11 (03:38)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **4 detections**
- **8-26 (05:01) to 8-26-11 (11:08)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **73 detections**
- **8-26-11 (23:40)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **8-25 to 8-26-11** Located fish between Noxon Springs and the mouth of Rock Creek (Clark Fork River Rkm 271.6) **2 detections**

- **8-27 (03:35) to 8-28-11 (18:56)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **300 detections**
- **8-28 (23:30) to 8-29-11 (06:11)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **59 detections**
- **8-29 (08:32) to 8-29-11 (08:51)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **5 detections**
- **8-29 (10:16) to 8-29-11 (11:16)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **6 detections**
- **8-29 (12:16) to 8-29-11 (15:00)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **16 detections**
- **8-29 (18:19) to 8-29-11 (18:26)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2 detections**
- **8-30 (00:45) to 8-30-11 (01:07)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **6 detections**
- **8-30 (02:24) to 8-30-11 (02:43)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **4 detections**
- **8-30 (07:02) to 8-31-11 (03:08)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). 1**47 detections**
- **8-31 (05:56) to 8-31-11 (07:48)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **9 detections**
- **8-31 (09:40) to 8-31-11 (22:58)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **159 detections**
- **9-1-11 (01:21)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-1 (02:55) to 9-1-11 (09:05)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **69 detections**
- **9-1 (10:09) to 9-1-11 (14:04)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **33 detections**
- **9-1 (15:01) to 9-1-11 (17:34)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **10 detections**
- **9-1 (19:37) to 9-3-11 (05:08)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **310 detections**
- **9-3 (07:08) to 9-3-11 (07:51)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **3 detections**
- **9-3 (09:07) to 9-3-11 (09:13)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-3 (10:18) to 9-3-11 (10:24)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-3 (12:02) to 9-3-11 (16:06)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **21 detections**
- **9-3 (19:03) to 9-4-11 (06:14)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **92 detections**
- **9-4 (08:17) to 9-4-11 (08:45)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **4 detections**

- **9-4 (10:11) to 9-4-11 (10:57)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **11 detections**
- **9-4 (12:21) to 9-4-11 (12:34)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2 detections**
- **9-4 (15:23) to 9-4-11 (15:31)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2 detections**
- **9-4-11 (17:03)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-4 (18:53) to 9-5-11 (05:35)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **84 detections**
- **9-5 (09:52) to 9-5-11 (12:27)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **21 detections**
- **9-5 (14:54) to 9-5-11 (15:55)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **6 detections**
- **9-6 (00:22) to 9-6-11 (02:36)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **7 detections**
- **9-6 (06:28) to 9-6-11 (09:37)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **11 detections**
- **9-6 (19:20) to 9-7-11 (03:11)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **72 detections**
- **9-7-11 (04:52)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-7 (11:00) to 9-7-11 (15:55)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **46 detections**
- **9-7 (19:58) to 9-8-11 (01:40)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **31 detections**
- **9-8 (03:01) to 9-8-11 (03:34)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **4 detections**
- **9-8 (05:52) to 9-8-11 (06:10)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **4 detections**
- **9-8 (07:18) to 9-8-11 (09:54)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **27 detections**
- **9-8 (11:08) to 9-8-11 (11:26)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **3 detections**
- **9-8-11 (15:38)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-8 (23:23) to 9-9-11 (01:22)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **5 detections**
- **9-9 (03:28) to 9-9-11 (12:11)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **81 detections**
- **9-9 (13:41) to 9-9-11 (15:21)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **14 detections**
- **9-9 (20:08) to 9-10-11 (02:39)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **43 detections**

- **9-10 (06:50) to 9-10-11 (10:51)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **42 detections**
- **9-10-11 (14:18)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1 detection**
- **9-10 (19:26) to 9-10-11 (21:58)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **13 detections**
- **9-11 (00:09) to 9-11-11 (00:30)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **4 detections**
- **9-11 (02:02) to 9-11-11 (15:40)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **159 detections**
- **9-11 (19:34) to 9-11-11 (19:50)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2 detections**
- **9-11 (23:11) to 9-12-11 (00:25)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2 detections**
- **9-12 (02:00) to 9-12-11 (15:11)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **166 detections**
- **9-12 (20:56) to 9-13-11 (01:13)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **31 detections**
- **9-13 (02:31) to 9-13-11 (02:47)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **3 detections**
- **9-13 (06:58) to 9-14-11 (00:25)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **132 detections**
- **9-14 (01:54) to 9-14-11 (03:04)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **7 detections**
- **9-14 (04:05) to 9-14-11 (10:48)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **80 detections**
- **9-14 (23:28) to 9-15-11 (04:36)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **40 detections**
- **9-15 (06:46) to 9-15-11 (16:48)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **103 detections**
- **9-15 (18:09) to 9-15-11 (18:25)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **3 detections**
- **9-15 (19:31) to 9-17-11 (02:53)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **284 detections**
- **9-17 (04:20) to 9-17-11 (11:10)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **78 detections**
- **9-17 (12:31) to 9-17-11 (16:53)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **35 detections**
- **9-17 (18:36) to 9-23-11 (16:22)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1554 detections**
- **9-23 (21:02) to 9-24-11 (04:25)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **51 detections**
- **9-24 (06:22) to 9-24-11 (16:03)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **117 detections**

- **9-24 (19:01) to 9-25-11 (04:49)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **101 detections**
- **9-25 (05:45) to 9-30-11 (17:15)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1379 detections**
- **9-30 (18:10) to 10-7-11 (04:19)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **1664 detections**
- **10-7 (05:28) to 10-7-11 (21:52)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **179 detections**
- **10-7 (22:51) to 10-8-11 (05:20)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **63 detections**
- **10-8 (06:30) to 10-9-11 (16:40)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **357 detections**
- **10-9 (17:42) to 10-20-11 (04:49)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **2878 detections**
- **10-20 (06:12) to 11-10-11 (10:58)** Fish detected on remote monitoring station located at the Noxon Springs site (Clark Fork River Rkm 272.4). **5909 detections**
- **8-29 to 12-6-11** Fish located around the mouth of Rock Creek (Clark Fork River Rkm 271). **7 detections**

Total Detections = 18,755

Appendix C – 2010 West Fork Thompson River Data

2010 West Fork Thompson River Electrofishing Site 0, .3 Mile
Sampling Date 7/21/2010 Duration (sec) 3412
Water Temp. 8.9°C
Data Source: FWP Latitude N.47.64524 Longitude W.115.17950

Table C-1. Data collection during 2010 electrofishing in the West Fork Thompson River Site 0, .3 Mile.

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Comments
1	BULL	182	44	985121021916148	Genetic Vial# 001-A1
2	BULL	243	114	985121021865702	Genetic Vial# 001-A2
3	WCT	78	5		
4	WCT	312	270		
5	WCT	209	91		
6	RB	160	42		
7	RB	142	25		
8	WCT	170	43		
9	WCT	142	26		
10	RB	104	10		
11	RB	93	7		
12	RB	84	7		
13	RB	180	56		
14	WCT	172	46		
15	WCT	139	23		
16	RB	85	6		
17	RB	121	15		
18	RB	86	6		
19	RB	99	9		
20	WCT	79	4		
21	WCT	239	133		2nd Run, 1055 seconds

Table C-2. Population Estimate Data collection during 2010 electrofishing in the West Fork Thompson River Site 0, .3 Mile.

Pass	BULL	WCT	RB	All
1	2	8	10	20
2	0	1	0	1
Population Estimate	**2**	**10**	**10**	**22**
95% conf. Interval	2-2	9-13	10-10	21-25
S.E.	0	1.451	0	1.143
p-bar	1	0.875	1	0.95

2010 West Fork Thompson River Electrofishing Site 1, Lower 1.2 Mile
Sampling Date 7/26/2010
Water Temp. 9°C
Data Source: FWP Latitude N.47.66081 Longitude W.115.19319

Table C-3. Data collection during 2010 electrofishing in the West Fork Thompson River Site 1, Lower 1.2 Mile.

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run #	Duration (seconds)
1	WCT	147	32		2	1832
2	WCT	109	14		2	1832
3	WCT	183	60		2	1832
4	WCT	92	8		2	1832
5	WCT	170	50		2	1832
6	WCT	150	32		2	1832
7	WCT	131	18		2	1832
8	WCT	72	4		2	1832
9	BULL	166	39	985121011606898	2	1832
10	BULL	108	9	985121012767557	2	1832
11	WCT	121	18		1	3393
12	WCT	114	17		1	3393
13	WCT	172	52		1	3393
14	WCT	155	33		1	3393
15	RB	106	15		1	3393
16	WCT	209	91		1	3393
17	WCT	100	10		1	3393
18	WCT	75	4		1	3393
19	WCT	101	11		1	3393
20	WCT	92	7		1	3393
21	WCT	75	3		1	3393
22	WCT	60	1		1	3393
23	BULL	111	13	985121012724928	1	3393
24	WCT	122	16		1	3393
25	WCT	166	26		1	3393
26	WCT	96	8		1	3393
27	WCT	77	4		1	3393
28	WCT	136	23		1	3393
29	WCT	150	33		1	3393
30	WCT	88	7		1	3393
31	WCT	166	44		1	3393
32	WCT	79	5		1	3393
33	BULL	100	8	985121011609376	1	3393
34	BULL	109	11	985121012757098	1	3393
35	BULL	178	49	985121012723322	1	3393
36	BULL	252	142	985121012728271	1	3393
37	WCT	135	24		1	3393

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run #	Duration (seconds)
38	WCT	87	7		1	3393
39	RBxWCT	87	7		1	3393
40	WCT	134	24		1	3393
41	WCT	166	47		1	3393
42	WCT	126	19		1	3393
43	RBxWCT	108	12		1	3393
44	WCT	229	118		1	3393
45	WCT	223	111		1	3393
46	WCT	96	9		1	3393
47	RBxWCT	252	169		1	3393
48	WCT	140	27		1	3393
49	WCT	75	4		1	3393
50	WCT	73	3		1	3393
51	WCT	62	2		1	3393
52	WCT	79	4	985121012758055	1	3393
53	BULL	227	106		1	3393
54	WCT	187	73		3	3393
55	WCT	75	4		3	1287
56	WCT	71	3		3	1287
57	WCT	67	2		3	1287
58	WCT	245	141		3	1287

Table C-4. Population Estimate Data collection during 2010 electrofishing in the West Fork Thompson River Site 1, Lower 1.2 Mile.

Pass	BULL	WCT	RB	RBxWCT
1	6	30	1	3
2	2	7	0	0
3	0	3	0	0
Population Estimate	**8**	**40**	**1**	**3**
95% C.I.	8-8	40-46	1-1	3-3
S.E.	0.29	0.956	0	0
p-bar	0.8	0.752	1	1

2010 West Fork Thompson River Electrofishing Site 2, Upper 4.3 Mile
Sampling Date 7/27/2010
Water Temp. 8.5°C
Data Source: FWP Latitude N.47.70292 Longitude W.115.20674

Table C-5. Data collection during 2010 electrofishing in the West Fork Thompson River Site 2, Upper 4.3 Mile.

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Duration (seconds)	Genetic Vial #	Comments
1	WCT	192	74		2	2620		
2	WCT	181	66		2	2620		
3	WCT	186	75		2	2620		
4	WCT	160	44		2	2620		
5	WCT	181	62		2	2620		
6	BULL	236	107	985121012723685	2	2620	1325-038	Recap.
7	BULL	161	33	985121012732282	2	2620	1325-039	
8	BULL	169	40	985121012646347	2	2620	1325-040	Recap.
9	BULL	123	14	985121011608307	2	2620	1325-041	
10	BULL	124	16	985121011604850	2	2620	1325-042	
11	BULL	150	26	985121011605446	2	2620	1325-043	
12	BULL	152	30	985121012732007	2	2620	1325-044	
13	WCT	112	14		1	5719		
14	WCT	101	9		1	5719		
15	WCT	98	10		1	5719		
16	WCT	135	23		1	5719		
17	WCT	252	167		1	5719		
18	WCT	169	48		1	5719		
19	WCT	242	123		1	5719		
20	WCT	194	77		1	5719		
21	BULL	182	49	985121012613682	1	5719	1325-045	
22	BULL	202	70	985121011605558	1	5719	1325-046	
23	BULL	188	58	985121012761997	1	5719	1325-047	
24	BULL	156	30	985121012613953	1	5719	1325-048	
25	BULL	162	33	985121012612192	1	5719	1325-049	
26	BULL	287	193	985121012742276	1	5719	1325-050	
27	BULL	127	14	No Pit Tag	1	5719	1325-051	
28	RBxWCT	180	52		1	5719		
29	WCT	160	102		1	5719		
30	WCT	135	23		1	5719		
31	RBxWCT	179	54		1	5719		
32	WCT	160	44		1	5719		
33	BULL	211	81	985121012724322	1	5719	1325-052	
34	BULL	202	66	985121012733645	1	5719	1325-053	
35	BULL	116	13	985121012723452	1	5719	1325-054	
36	BULL	217	102	985121011604319	1	5719	1325-055	
37	BULL	122	15	985121012733470	1	5719	1325-056	

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Duration (seconds)	Genetic Vial #	Comments
38	BULL	189	60	985121011605232	1	5719	1325-057	Recap.
39	BULL	111	13	985121011608723	1	5719	1325-058	
40	BULL	119	13	985121011605906	1	5719	1325-059	
41	BULL	170	41	985121012614347	1	5719	1325-060	
42	BULL	122	15	985121012733938	1	5719	1325-061	
43	BULL	112	12	985121012642319	1	5719	1325-062	
44	BULL	230	101	985121012732240	1	5719	1325-063	
45	BULL	82	4	985121012613981	1	5719	1325-064	
46	BULL	79	3	985121012742372	1	5719	1325-065	
47	BULL	122	16	985121012759258	1	5719	1325-066	
48	BULL	113	12	985121012614325	1	5719	1325-067	
49	BULL	181	47	985121012731665	1	5719	1325-068	
50	BULL	190	53	985121012621145	1	5719	1325-069	
51	BULL	121	15	985121012613745	1	5719	1325-070	
52	BULL	145	24	985121011605801	1	5719	1325-071	
53	BULL	128	18	985121012728702	1	5719	1325-072	
54	BULL	130	17	985121011607315	1	5719	1325-073	
55	BULL	93	7	985121012758730	1	5719	1325-074	
56	BULL	148	25	985121011606923	1	5719	1325-075	
57	BULL	151	28	985121012721590	1	5719	1325-076	
58	BULL	127	16	985121011608851	1	5719	1325-077	
59	WCT	161	44		3	2490		
60	BULL	130	18	985121012758495	3	2490	1325-078	
61	BULL	88	5	985121012731625	3	2490	1325-079	
62	BULL	86	5	985121012757042	3	2490	1325-080	
63	BULL	222	86	985121012760251	3	2490	1325-081	

Table C-6. Population Estimate Data collection during 2010 electrofishing in the West Fork Thompson River Site 2, Upper 4.3 Mile.

Pass	BULL	WCT	RBxWCT
1	33	11	2
2	7	5	0
3	4	1	0
Population Estimate	**44**	**17**	**2**
95% C.I.	44 - 51	17 - 17	2-2
S.E.	1.141	0.852	0
p-bar	0.735	0.708	1

2010 West Fork Thompson River Electrofishing Site 1A, 1.9 Mile
Sampling Date 7/27/2010
Water Temp. 10.2°C
Data Source: FWP Latitude N.47.67132 Longitude W.115.18939

Table C-7. Data collection during 2010 electrofishing in the West Fork Thompson River Site 1A, 1.9 Mile.

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Duration (seconds)	Genetic Vial #
1	WCT	111	13		3	1786	
2	WCT	93	7		3	1786	
3	WCT	83	5		3	1786	
4	WCT	137	23		2	2585	
5	WCT	122	17		2	2585	
6	WCT	97	9		2	2585	
7	WCT	116	14		2	2585	
8	WCT	76	4		2	2585	
9	WCT	124	17		2	2585	
10	WCT	66	2		2	2585	
11	WCT	147	32		2	2585	
12	WCT	156	34		2	2585	
13	WCT	81	5		2	2585	
14	WCT	78	4		2	2585	
15	BULL	226	91	985121021922268	2	2585	001-A3
16	BULL	197	59	985121021872257	2	2585	001-A4
17	BULL	111	10	985121021899865	2	2585	001-A5
18	WCT	223	99		1	3658	
19	WCT	222	111		1	3658	
20	WCT	192	65		1	3658	
21	WCT	195	64		1	3658	
22	WCT	172	48		1	3658	
23	WCT	191	66		1	3658	
24	WCT	184	58		1	3658	
25	WCT	151	32		1	3658	
26	WCT	180	57		1	3658	
27	WCT	195	66		1	3658	
28	WCT	167	44		1	3658	
29	WCT	204	76		1	3658	
30	WCT	168	43		1	3658	
31	WCT	124	19		1	3658	
32	WCT	197	66		1	3658	
33	WCT	159	38		1	3658	
34	WCT	116	14		1	3658	
35	WCT	115	14		1	3658	
36	WCT	88	6		1	3658	
37	WCT	122	17		1	3658	

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Duration (seconds)	Genetic Vial #
38	WCT	123	16		1	3658	
39	BULL	251	148	985121021918242	1	3658	001-B1
40	BULL	126	19	985121021882111	1	3658	001-B2
41	BULL	198	60	985121021909920	1	3658	001-B3
42	WCT	251	165		1	3658	
43	WCT	230	113		1	3658	
44	WCT	190	65		1	3658	
45	WCT	222	96		1	3658	
46	WCT	231	115		1	3658	
47	WCT	156	35		1	3658	
48	WCT	139	25		1	3658	
49	WCT	76	4		1	3658	
50	WCT	152	36		1	3658	
51	WCT	111	13		1	3658	
52	WCT	100	9		1	3658	
53	WCT	113	14		1	3658	
54	WCT	86	6		1	3658	
55	WCT	102	11		1	3658	
56	WCT	69	3		1	3658	
57	WCT	82	5		1	3658	
58	WCT	94	7		1	3658	
59	WCT	97	9		1	3658	
60	WCT	85	5		1	3658	
61	WCT	93	7		1	3658	
62	WCT	72	3		1	3658	
63	WCT	76	4		1	3658	
64	WCT	73	3		1	3658	
65	BULL	243	121	985121021918312	1	3658	001-B4
66	BULL	171	37	985121021914086	1	3658	001-B5
67	BULL	112	12	985121021922458	1	3658	001-C1
68	BULL	117	13	985121021922402	1	3658	001-C2
69	BULL	115	12	985121021918419	1	3658	001-C3

Table C-8. Population Estimate Data collection during 2010 electrofishing in the West Fork Thompson River Site 1A, 1.9 Mile.

Pass	BULL	WCT
1	8	41
2	3	10
3	0	3
Popluation Estimate	**11**	**54**
95% C.I.	11 to 11	45-60
S.E.	0.384	0.993
p-bar	0.786	0.767

2010 West Fork Thompson River Electrofishing Site 1B, 3 Mile
Sampling Date 7/28/2010
Water Temp. 9°C
Data Source: FWP Latitude N.47.68422 Longitude W.115.19704

Table C-9. Data collection during 2010 electrofishing in the West Fork Thompson River Site 1B, 3 Mile.

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Duration (seconds)	Genetic Vial #
1	WCT	59	1		2	2070	
2	WCT	75	3		2	2070	
3	WCT	230	110		2	2070	
4	WCT	78	4		2	2070	
5	WCT	70	3		2	2070	
6	WCT	61	1		2	2070	
7	WCT	172	50		2	2070	
8	WCT	125	18		2	2070	
9	WCT	238	136		2	2070	
10	WCT	65	2		2	2070	
11	WCT	200	71		2	2070	
12	WCT	141	29		2	2070	
13	WCT	227	115		2	2070	
14	WCT	75	4		2	2070	
15	WCT	61	1		2	2070	
16	BULL	187	48	985121012624406	2	2070	1325-082
17	BULL	130	18	985121012764084	2	2070	1325-083
18	BULL	107	10	985121011605437	2	2070	1325-084
19	BULL	95	7	985121012614445	2	2070	1325-085
20	BULL	98	7	985121011609476	2	2070	1325-086
21	BULL	102	9	985121012642168	2	2070	1325-087
22	WCT	147	30		1	3164	
23	WCT	128	18		1	3164	
24	WCT	121	18		1	3164	
25	WCT	70	3		1	3164	
26	WCT	82	5		1	3164	
27	WCT	124	18		1	3164	
28	WCT	164	43		1	3164	
29	WCT	193	73		1	3164	
30	WCT	124	14		1	3164	
31	BULL	191	64	985121012742487	1	3164	1325-088
32	BULL	132	18	985121012732050	1	3164	1325-089
33	BULL	142	24	985121011609259	1	3164	1325-090
34	BULL	100	8	985121012761715	1	3164	1325-092
35	BULL	94	7	985121011604434	1	3164	1325-093
36	BULL	107	11	985121012722680	1	3164	1325-094
37	BULL	98	8	985121012729816	1	3164	1325-095

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Duration (seconds)	Genetic Vial #
38	BULL	144	25	985121012767122	1	3164	1325-096
39	BULL	217	94	985121012611784	1	3164	1325-097
40	BULL	184	48	985121011605503	1	3164	1325-098
41	BULL	101	9	985121012721264	1	3164	1325-099
42	BULL	162	34	985121011605005	1	3164	1325-100
43	WCT	78	4		1	3164	
44	WCT	65	2		1	3164	
45	BULL	168	39	985121011605159	1	3164	1742-001
46	BULL	81	5	985121012732550	1	3164	1742-002
47	BULL	95	7	985121011604593	1	3164	1742-003
48	BULL	100	9	985121012761439	1	3164	1742-004
49	WCT	55	1		3	1693	
50	WCT	160	40		3	1693	
51	WCT	70	3		3	1693	
52	WCT	68	3		3	1693	
53	WCT	70	3		3	1693	

Table C-10. Population Estimate Data collection during 2010 electrofishing in the West Fork Thompson River Site 1B, 3 Mile.

Pass	BULL	WCT
1	16	9
2	6	10
3	0	1
Population Estimate	**22**	**22**
95% C.I.	22 to 22	21-35
S.E.	0.544	2.608
p-bar	0.786	0.546

2010 West Fork Thompson River Electrofishing Site 1.4L, Four Lakes Creek
Sampling Date 7/28/2010
Water Temp. 10.6°C
Data Source: FWP

Table C-11. Data collection during 2010 electrofishing in the West Fork Thompson River Site 1.4L, Four Lakes Creek.

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Duration (seconds)	Genetic Vial #
1	WCT	58	1		2	3538	
2	BULL	175	44	985121023457245	2	3538	001-C4
3	BULL	158	33	985121021876612	2	3538	001-C5
4	BULL	158	31	985121021914025	2	3538	001-D1
5	BULL	163	34	985121021870141	1	5561	001-D2
6	BULL	151	28	985121021877936	1	5561	001-D3
7	BULL	159	32	98512102188104	1	5561	001-D4
8	WCT	270	167		1	5561	
9	WCT	205	91		1	5561	
10	WCT	187	69		1	5561	
11	WCT	99	9		1	5561	
12	WCT	183	60		1	5561	
13	WCT	168	45		1	5561	
14	WCT	201	70		1	5561	
15	WCT	200	77		1	5561	
16	WCT	189	63		1	5561	
17	WCT	143	29		1	5561	
18	WCT	138	26		1	5561	
19	WCT	88	7		1	5561	
20	BULL	122	15	985121021914047	1	5561	001-E1
21	BULL	167	39	985121021911737	1	5561	001-D5
22	BULL	150	26	985121021912031	1	5561	001-E2
23	BULL	159	39	985121021892816	1	5561	001-E3
24	BULL	147	24	985121021882220	1	5561	001-E4
25	BULL	130	17	985121021877957	1	5561	001-E5
26	BULL	167	36	985121021900740	1	5561	001-F1
27	BULL	200	63	985121021911912	1	5561	001-F2
28	WCT	237	123		1	5561	
29	WCT	197	83		1	5561	
30	WCT	168	49		1	5561	
31	WCT	138	25		1	5561	
32	WCT	141	26		1	5561	
33	WCT	180	62		1	5561	
34	WCT	159	45		1	5561	
35	WCT	144	30		1	5561	
36	BULL	149	27	985121023446232	1	5561	001-F3
37	BULL	186	57	985121021918653	1	5561	001-F4

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Duration (seconds)	Genetic Vial #
38	BULL	176	41	985121021922203	1	5561	001-F5
39	BULL	136	20	985121021870116	1	5561	001-G1
40	BULL	192	59	985121021909727	1	5561	001-G2
41	BULL	158	31	985121023465042	1	5561	001-G3
42	WCT	157	42		1	5561	
43	BULL	187	58	985121021892080	1	5561	001-G4
44	WCT	189	67		1	5561	
45	WCT	197	84		1	5561	
46	WCT	154	37		1	5561	
47	WCT	193	74		1	5561	
48	WCT	152	36		1	5561	
49	WCT	175	47		1	5561	
50	WCT	152	36		1	5561	
51	WCT	212	86		1	5561	
52	WCT	202	68		1	5561	
53	WCT	124	17		1	5561	
54	BULL	164	35	985121021899234	1	5561	001-G5
55	BULL	166	38	985121021872648	1	5561	001-H1
56	BULL	132	18	985121021875767	1	5561	001-H2
57	BULL	157	33	985121021909678	1	5561	001-H3
58	BULL	163	35	985121021916109	1	5561	001-H4
59	BULL	153	29	985121021916215	1	5561	001-H5
60	BULL	150	29	985121021899230	1	5561	001-I1

Table C-12. Population Estimate Data collection during 2010 electrofishing in the West Fork Thompson River Site 1.4L, Four Lakes Creek.

Pass	BULL	WCT	All
1	25	31	56
2	3	0	3
Population Estimate	**29**	**31**	**60**
95% C.I.	28-32	31-31	3
S.E.	1.312	0	1.126
p-bar	0.88	1	0.946

2010 West Fork Thompson River Electrofishing Anne Creek
Sampling Date 7/29/2010
Data Source: FWP Latitude N.47.70968 Longitude W.115.20719
Note: No Duration Provided in Data File.

Table C-13. Data collection during 2010 electrofishing in the West Fork Thompson River, Anne Creek.

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Genetic Vial #
1	WCT	137	25		1	
2	WCT	189	59		1	
3	WCT	183	54		1	
4	WCT	168	43		1	
5	WCT	177	55		1	
6	WCT	138	25		1	
7	WCT	113	13		1	
8	WCT	142	28		1	
9	BULL	121	13	985121021909310	1	002-A1
10	BULL	115	12	985121021918337	1	002-A2
11	BULL	127	14	985121021882093	1	002-A3
12	BULL	112	10	985121021888062	1	002-A4
13	BULL	85	4	985121021909503	1	002-A5
14	BULL	85	5	985121021916174	1	002-B1
15	BULL	78	4	985121021903670	1	002-B2
16	WCT	183	57		1	
17	WCT	230	109		1	
18	WCT	204	70		1	
19	WCT	187	64		1	
20	WCT	173	46		1	
21	WCT	248	117		1	
22	WCT	139	23		1	
23	WCT	125	17		1	
24	WCT	125	19		1	
25	BULL	83	3	985121021886139	1	002-B3
26	BULL	190	50	985121021918448	1	002-B4
27	WCT	221	104		1	
28	WCT	229	110		1	
29	WCT	205	69		1	
30	WCT	184	65		1	
31	WCT	152	33		1	
32	WCT	154	33		1	
33	WCT	167	48		1	
34	WCT	129	21		1	
35	WCT	133	22		1	
36	WCT	98	8		1	
37	BULL	83	4	985121021916046	1	002-B5

Record No.	Species Abbr	Length (mm)	Weight (g)	PIT Tag No.	Run No.	Genetic Vial #
38	BULL	114	12	985121021883006	1	002-C1
39	BULL	123	13	985121021878795	1	002-C2
40	BULL	124	13	985121021920634	1	002-C3
41	BULL	128	15	985121021918504	1	002-C4
42	WCT	206	80		2	
43	WCT	171	42		2	
44	WCT	106	9		2	
45	BULL	80	4	985121021918662	2	002-C5
46	BULL	104	8	985121021918294	2	002-D1
47	BULL	124	15	985121021885663	2	002-D2
48	BULL	217	96	985121021892741	2	002-D3
49	WCT	62	1		2	
50	BULL	70	2		2	002-D4
51	BULL	89	5	985121023369734	2	002-D5
52	BULL	115	10	985121021911735	2	002-E1
53	BULL	129	14	985121021911506	2	002-E2
54	BULL	131	17	985121021915898	3	002-E3
55	WCT	158	34		3	
56	BULL	70	2		3	
57	BULL	81	3		3	

Table C-14. Population Estimate Data collection during 2010 electrofishing in the West Fork Thompson River, Anne Creek.

Pass	BULL	WCT
1	14	27
2	7	3
3	2	1
Population Estimate	**24**	**31**
95% C.I.	24-32	31-31
S.E.	1.496	0.309
p-bar	0.647	0.861

Appendix D – 2011 Fishtrap Creek Data

2011 Fishtrap Creek Electrofishing Section 2.4, Fishtrap Creek
Sampling Date 7/29/2011
Water Temp. 9°C
Section length: 110 m; Average Section width: 4.2 m
Data Collectors: TT, RD, EF Latitude N.47.87699 Longitude W.115.17696
Electrofishing settings: Hz = 40; mS = 2; Volts = 200; Conductivity = 356
Duration 1st Pass = 4,399 ; Duration 2nd Pass = 2,844
Tailed frogs: Absent; Sculpin: Absent
Note: no fish were PIT tagged or sampled for genetics in this reach.

Table D-1. Data collection during 2011 electrofishing in Fishtrap Creek, Section 2.4.

Species	Length	Weight	Pass #
WCT	77	4	1
WCT	79	4	1
WCT	82	5	1
WCT	86	5	1
WCT	87	6	1
WCT	90	7	1
WCT	91	6	1
WCT	93	8	1
WCT	96	8	1
WCT	98	8	1
WCT	98	10	1
WCT	98	8	1
WCT	100	10	1
WCT	101	9	1
WCT	103	9	1
WCT	104	11	1
WCT	104	13	1
WCT	105	12	1
WCT	106	10	1
WCT	106	10	1
WCT	110	12	1
WCT	119	16	1
WCT	119	15	1
WCT	120	16	1
WCT	128	20	1
WCT	129	18	1
WCT	129	20	1
WCT	130	19	1
WCT	133	20	1
WCT	134	22	1
WCT	135	22	1

Species	Length	Weight	Pass #
WCT	137	23	1
WCT	138	25	1
WCT	138	24	1
WCT	144	28	1
WCT	145	30	1
WCT	146	29	1
WCT	147	28	1
WCT	155	34	1
WCT	156	32	1
WCT	158	36	1
WCT	162	37	1
WCT	162	39	1
WCT	177	50	1
WCT	177	51	1
WCT	78	4	2
WCT	85	4	2
WCT	88	6	2
WCT	89	7	2
WCT	98	8	2
WCT	116	14	2
WCT	126	18	2
WCT	132	21	2
WCT	135	20	2
WCT	166	43	2

2011 Fishtrap Creek Electrofishing Section 2.3, Fishtrap Creek
Sampling Date 7/26/2011
Water Temp. 12°C
Section length: 100 m; Average Section width: 5.0 m
Data Collectors: TT, RD, EF Latitude N.47.85820 Longitude W.115.15334
Electrofishing settings: Hz = 40; mS = 2; Volts = 200; Conductivity = 361
Duration 1st Pass = 4,747 ; Duration 2nd Pass = 3,007 ; Duration 3rd Pass = 1,821
Tailed frogs: Absent; Sculpin: Common

Table D-2. Data collection during 2011 electrofishing in Fishtrap Creek, Section 2.3.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
BULL	123	15	1	1743-73		985121026919071
BULL	133	18	1	1743-74		985121026889047
BULL	141	22	1	1743-71	34	985121026936511
BULL	178	43	1	1743-72	35	985121026923609
WCT	77	4	1			
WCT	78	4	1			
WCT	85	6	1			
WCT	87	6	1			
WCT	87	6	1			
WCT	87	6	1			
WCT	88	6	1			
WCT	89	7	1			
WCT	89	8	1			
WCT	90	7	1			
WCT	92	7	1			
WCT	93	8	1			
WCT	93	7	1			
WCT	94	7	1			
WCT	95	7	1			
WCT	95	8	1			
WCT	95	7	1			
WCT	97	8	1			
WCT	98	8	1			
WCT	99	8	1			
WCT	99	9	1			
WCT	100	9	1			
WCT	105	10	1			
WCT	106	10	1			
WCT	107	11	1			
WCT	110	11	1			
WCT	111	13	1			
WCT	112	13	1			
WCT	113	12	1			
WCT	118	13	1			
WCT	120	14	1			
WCT	125	18	1			

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
WCT	127	17	1			
WCT	130	19	1			
WCT	132	20	1			
WCT	132	19	1			
WCT	137	22	1			
WCT	141	23	1			
WCT	148	28	1			
WCT	151	32	1			
WCT	155	30	1			
WCT	170	46	1			
WCT	196	64	1			
WCT	197	75	1			
WCT	201	75	1			
WCT	201	67	1			
BULL	122	15	2	1743-69		985121026866311
BULL	136	19	2	1743-67		985121026938274
BULL	141	24	2	1743-66	32	985121026957752
BULL	146	24	2	1743-68	33	985121026926769
BULL	157	31	2	1743-65	31	985121026916678
WCT	82	5	2			
WCT	82	5	2			
WCT	89	6	2			
WCT	89	6	2			
WCT	89	6	2			
WCT	90	6	2			
WCT	95	8	2			
WCT	97	7	2			
WCT	106	11	2			
WCT	110	13	2			
WCT	125	17	2			
WCT	128	19	2			
WCT	141	21	2			
WCT	146	29	2			
WCT	147	25	2			
WCT	169	45	2			
WCT	176	44	2			
BULL	202	68	3			985121026930715
WCT	77	4	3			
WCT	89	6	3			
WCT	100	9	3			
WCT	122	16	3			
WCT	136	21	3			
WCT	140	24	3			
WCT	149	26	3			
WCT	180	57	3			

2011 Fishtrap Creek Electrofishing Section 2.1, Fishtrap Creek (just above Shale Creek)
Sampling Date 7/15/2011
Water Temp. 10°C
Section length: 107 m; Average Section width: 5.8 m
Data Collectors: TT, RD, EF Latitude N.47.82444 Longitude W.115.16068
Electrofishing settings: Hz = 40; mS = 1.8; Volts = 400; Conductivity = 244
Duration 1st Pass = 3,525 ; Duration 2nd Pass = 1,392 ; Duration 3rd Pass = 993
Tailed frogs: Absent; Sculpin: Absent

Table D-3. Data collection during 2011 electrofishing in Fishtrap Creek, Section 2.1.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
BULL	112	12	1	1743-60		985121026916392
BULL	117	13	1	1743-56		985121026857633
BULL	123	16	1	1743-55		985121012767933
BULL	128	17	1	1743-59		985121026806592
BULL	147	28	1	1743-61	30	985121026842882
WCT	75	4	1			
WCT	78	4	1			
WCT	82	5	1			
WCT	82	5	1			
WCT	85	5	1			
WCT	86	6	1			
WCT	92	7	1			
WCT	92	7	1			
WCT	95	8	1			
WCT	95	8	1			
WCT	97	10	1			
WCT	122	17	1			
WCT	148	27	1			
WCT	233	121	1			
WCT	88	7	2			
WCT	101	9	2			
WCT	102	11	2			
WCT	110	12	2			
WCT	118	14	2			
No Fish			3			

2011 Fishtrap Creek Electrofishing Section 2.2, Fishtrap Creek
Sampling Date 7/13/2011
Water Temp. 13°C
Section length: 107 m; Average Section width: 3.1 m
Data Collectors: TT, RD, EF Latitude N.47.84532 Longitude W.115.16411
Electrofishing settings: Hz = 40; mS = 1.8; Volts = 200; Conductivity = 338
Duration 1st Pass = 2,357 ; Duration 2nd Pass = 1,435 ; Duration 3rd Pass = 904
Tailed frogs: Absent; Sculpin: Absent

Table D-4. Data collection during 2011 electrofishing in Fishtrap Creek, Section 2.2.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
BULL	123	16	1	1743-39	7	985121012725810
BULL	127	14	1		11	985121012612349
BULL	133	19	1		10	985121012731955
BULL	143	27	1	1743-38	6	985121012730363
BULL	150	26	1		9	985121012760547
BULL	161	34	1	1743-40	8	985121011606845
BULL	175	43	1	1743-36	4	985121012642303
BULL	190	52	1	1743-37	5	985121012721269
WCT	70	4	1			
WCT	76	5	1			
WCT	90	6	1			
WCT	93	7	1			
WCT	95	7	1			
WCT	95	7	1			
WCT	95	8	1			
WCT	97	7	1			
WCT	100	9	1			
WCT	107	13	1			
WCT	118	12	1			
WCT	126	17	1			
WCT	133	20	1			
WCT	141	26	1			
WCT	146	30	1			
WCT	148	27	1			
WCT	149	29	1			
WCT	149	30	1			
WCT	151	32	1			
WCT	151	31	1			
WCT	151	34	1			
WCT	152	33	1			
WCT	152	29	1			
WCT	155	35	1			
WCT	160	36	1			
WCT	161	41	1			
WCT	166	42	1			
WCT	168	43	1			

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
WCT	168	39	1			
WCT	172	45	1			
WCT	210	92	1			
BULL	136	20	2	1743-34	3	985121012765606
BULL	161	33	2	1743-33	2	985121011606725
BULL	254	129	2	1743-32	1	985121011607619
WCT	96	8	2			
WCT	102	11	2			
WCT	108	11	2			
WCT	115	14	2			
WCT	135	23	2			
WCT	138	25	2			
WCT	163	42	2			
WCT	168	47	2			
WCT	171	51	2			
BULL	136	21	3			985121012764777
WCT	81	5	3			
WCT	99	9	3			
WCT	101	9	3			
WCT	120	19	3			
WCT	139	22	3			
WCT	140	24	3			
WCT	142	26	3			
WCT	170	50	3			

2011 Fishtrap Creek Electrofishing Section 1.1, Fishtrap Creek (Plum Creek LWD site)
Sampling Date 8/9/2011
Water Temp. 8°C
Section length: 130 m; Average Section width: 10.0 m
Data Collectors: TT, RD, EF, JS, HC, TB Latitude N.47.77366 Longitude W.115.07689
Electrofishing settings: Hz = 40; mS = 2; Volts = 400; Conductivity = 177
Duration 1st Pass = 3,219 ; Duration 2nd Pass = 2,290 ; Duration 3rd Pass = 1,626
Tailed frogs: Few; Sculpin: Absent

Table D-5. Data collection during 2011 electrofishing in Fishtrap Creek, Section 1.1.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	Pit Tag No.
BULL	137	22	1	1743-99		985121026882858
BULL	177	44	1	1743-100	58	985121026900568
BULL	193	60	1	1968-3	60	985121026866359
BULL	232	100	1	1968-2	59	985121026857622
MWF	250	165	1			
RB	190	64	1			
WCT	86	5	1			
WCT	88	6	1			
WCT	91	6	1			
WCT	93	8	1			
WCT	99	9	1			
WCT	102	10	1			
WCT	118	15	1			
WCT	148	33	1			
WCT	151	31	1			
WCT	175	57	1			
WCT	229	123	1			
WCT	246	162	1			
MWF	227	108	2			
MWF	253	169	2			
WCT	93	8	2			
WCT	95	9	2			
WCT	104	11	2			
WCT	116	15	2			
WCT	152	37	2			
WCT	170	51	2			
WCT	173	50	2			
WCT	95	7	3			
WCT	101	9	3			

2011 Fishtrap Creek Electrofishing Section 1-4 mile, Fishtrap Creek
Sampling Date 8/10/2011
Water Temp. 10°C
Section length: 128 m; Average Section width: 9.6 m
Data Collectors: TT, RD, EF, JS, HC, TB Latitude N.47.76407 Longitude W.115.07514
Electrofishing settings: Hz = 40; mS = 2; Volts = 400; Conductivity = 179
Duration 1st Pass = 2,870 ; Duration 2nd Pass = 1,962
Tailed frogs: Absent; Sculpin: Absent

Table D-6. Data collection during 2011 electrofishing in Fishtrap Creek, Section 1-4 mile.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
BULL	163	40	1			985121026927066
BULL	198	68	1		61	985121026943338
MWF	130	21	1			
MWF	145	25	1			
MWF	235	121	1			
MWF	247	159	1			
MWF	258	162	1			
MWF	266	174	1			
WCT	72	3	1			
WCT	82	6	1			
WCT	91	11	1			
WCT	94	8	1			
WCT	95	8	1			
WCT	95	8	1			
WCT	96	8	1			
WCT	96	11	1			
WCT	96	9	1			
WCT	104	11	1			
WCT	105	11	1			
WCT	109	15	1			
WCT	109	13	1			
WCT	110	13	1			
WCT	111	14	1			
WCT	111	15	1			
WCT	116	16	1			
WCT	118	16	1			
WCT	119	17	1			
WCT	120	18	1			
WCT	125	22	1			
WCT	127	21	1			
WCT	131	22	1			
WCT	135	26	1			
WCT	175	57	1			
WCT	181	60	1			
WCT	216	103	1			
WCT	256	185	1			

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
RBxWCT	102	11	1			
RBxWCT	108	14	1			
WCT	84	6	2			
WCT	96	7	2			
WCT	102	12	2			
WCT	106	13	2			
WCT	126	22	2			

2011 Fishtrap Creek Electrofishing Section 1.2, Fishtrap Creek (At Beatrice Creek Bridge)
Sampling Date 8/29/2011
Water Temp. 9°C
Section length: 100 m; Average Section width: 9.4 m
Data Collectors: TT, RD, HC Latitude N.47.78917 Longitude W.115.10139
Electrofishing settings: Hz = 50; mS = 2; Volts = 400; Conductivity = 73
Duration 1st Pass = 4,691 ; Duration 2nd Pass = 2,602
Tailed frogs: Few; Sculpin: One

Table D-7. Data collection during 2011 electrofishing in Fishtrap Creek, Section 1.2.

Species	Length	Weight	Pass #	Scale Sample	PIT Tag No.
BULL	126	18	1		985121026832152
BULL	127	17	1		985121026837007
BULL	140	22	1		985121026895619
BULL	140	22	1		985121026868965
BULL	151	30	1		985121026920996
BULL	153	30	1		985121026896000
BULL	155	32	1		985121026919955
BULL	157	31	1		985121026855444
BULL	160	35	1		
BULL	174	42	1		985121026912111
BULL	180	47	1	74	985121026855417
MWF	231	138	1		
MWF	242	166	1		
MWF	288	245	1		
MWF	332	384	1		
WCT	62	1	1		
WCT	65	3	1		
WCT	66	2	1		
WCT	66	2	1		
WCT	66	3	1		
WCT	71	3	1		
WCT	87	6	1		
WCT	89	7	1		
WCT	90	8	1		
WCT	95	7	1		
WCT	95	8	1		
WCT	99	9	1		
WCT	101	9	1		
WCT (mortality)	106	12	1		
WCT	106	10	1		
WCT	107	11	1		
WCT	109	12	1		
WCT	110	12	1		
WCT	111	12	1		
WCT	113	15	1		
WCT	121	16	1		

Species	Length	Weight	Pass #	Scale Sample	PIT Tag No.
WCT	150	33	1		
WCT	160	41	1		
WCT	160	40	1		
WCT	161	38	1		
WCT	166	47	1		
WCT	167	49	1		
WCT	171	48	1		
WCT	172	49	1		
WCT	175	53	1		
WCT	177	52	1		
WCT	179	56	1		
WCT	180	60	1		
WCT	182	65	1		
WCT	195	69	1		
WCT	200	82	1		
WCT	202	85	1		
WCT	205	92	1		
WCT	206	97	1		
WCT	212	86	1		
WCT	215	110	1		
WCT	217	132	1		
WCT	220	105	1		
WCT	222	113	1		
WCT	273	204	1		
RBxWCT	131	23	1		
RBxWCT	160	40	1		
BULL	142	26	2		985121026919070
BULL	162	36	2		985121026907670
WCT	103	11	2		
WCT	105	11	2		
WCT	106	11	2		
WCT	109	13	2		
WCT	135	27	2		
WCT	228	145	2		
WCT	256	170	2		
WCT	305	290	2		

2011 Fishtrap Creek Electrofishing Section 2-10 mile (below West Fork)
Sampling Date 8/26/2011
Water Temp. 7.5°C
Section length: 90 m; Average Section width: 6.9 m
Data Collectors: TT, RD, JS Latitude N.47.81452 Longitude W.115.13959
Electrofishing settings: Hz = 40; mS = 2; Volts = 300; Conductivity = 211
Duration 1st Pass = 1,810 ; Duration 2nd Pass = 1,525 ; Duration 3rd Pass = 1,056 ; Duration 4th Pass = 1,053
Tailed frogs: Absent; Sculpin: Few

Table D-8. Data collection during 2011 electrofishing in Fishtrap Creek, Section 2-10 mile.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
BULL	63	2	1			
BULL	142	23	1			985121026867570
MWF	238	130	1			
RB	273	208	1			
WCT	83	5	1			
WCT	99	9	1			
WCT	99	8	1			
WCT	99	8	1			
WCT	103	10	1			
WCT	108	12	1			
WCT	113	15	1			
WCT	125	20	1			
WCT	125	19	1			
WCT	129	23	1			
WCT	134	23	1			
WCT	160	39	1			
WCT	163	43	1			
WCT	193	80	1			
WCT	198	74	1			
WCT	240	139	1			
WCT	283	240	1			
WCT	333	382	1			
BULL	66	2	2			
BULL	115	10	2			985121026831077
BULL	190	54	2		70	985121026841459
MWF	150	32	2			
WCT	90	6	2			
WCT	94	8	2			
WCT	101	9	2			
WCT	111	13	2			
WCT	125	17	2			
WCT	136	26	2			
WCT	155	40	2			
WCT	166	48	2			
WCT	178	53	2			
WCT	180	62	2			

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
WCT	185	66	2			
WCT	186	77	2			
WCT	190	73	2			
WCT	218	108	2			
WCT	245	164	2			
WCT	251	178	2			
WCT	265	190	2			
BULL	65	2	3			
BULL	121	15	3			985121026942304
BULL	123	14	3			985121026834130
BULL	189	55	3		72	985121026934177
BULL	194	60	3		73	985121026840737
BULL	200	69	3		71	985121026913092
MWF	375	534	3			
WCT	110	12	3			
WCT	131	24	3			
WCT	155	41	3			
WCT	177	59	3			
WCT	212	102	3			
WCT	266	201	3			
BULL	122	15	4			985121026939546
BULL	138	23	4			985121026842008
BULL	147	30	4			985121026844042
WCT	95	8	4			
WCT	96	8	4			
WCT	108	12	4			
WCT	111	12	4			
WCT	120	15	4			
WCT	120	17	4			
WCT	138	25	4			
WCT	143	29	4			
WCT	163	47	4			
WCT	203	88	4			
WCT	231	123	4			

2011 Fishtrap Creek Electrofishing Section 1 (Lower) of West Fork Fishtrap Creek
Sampling Date 8/2/2011
Water Temp. 8°C
Section length: 85 m; Average Section width: 6.6 m
Data Collectors: TT, RD, EF Latitude N.47.80459 Longitude W.115.17329
Electrofishing settings: Hz = 50; mS = 2; Volts = 500; Conductivity = 71
Duration 1st Pass = 4,664 ; Duration 2nd Pass = 2,186
Tailed frogs: Common; Sculpin: Absent

Table D-9. Data collection during 2011 electrofishing in West Fork Fishtrap Creek, Section 1 (Lower).

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
BULL	86	5	1		46	985121026907298
BULL	91	7	1		45	985121026942083
BULL	95	7	1		47	985121026917494
BULL	96	6	1	1743-80	42	985121026855575
BULL	97	8	1	1743-81	43	985121026981052
BULL	137	22	1	1743-85		985121026829605
BULL	146	30	1	1743-84		985121026913310
BULL	149	27	1	1743-83		985121026901586
BULL	153	28	1	1743-82	44	985121026837192
BULL	155	30	1	1743-78	40	985121026957744
BULL	160	37	1	1743-77	39	985121026943369
BULL	160	36	1	1743-79	41	985121026859021
BULL	219	92	1	1743-76	38	985121026847145
BULL	300	275	1	1743-75	37	985121026907315
WCT	51	0	1			
WCT (mortality)	55	1	1			
WCT	60	2	1			
WCT	62	2	1			
WCT (mortality)	65	2	1			
WCT	65	3	1			
WCT	72	4	1			
WCT	75	4	1			
WCT	98	8	1			
WCT	102	10	1			
WCT	111	13	1			
WCT	117	16	1			
WCT	125	19	1			
WCT	133	21	1			
WCT	135	24	1			
WCT	137	25	1			
WCT	145	29	1			
WCT	151	30	1			
WCT	160	40	1			
WCT	170	52	1			

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
WCT	172	54	1			
WCT	175	60	1			
WCT	182	64	1			
WCT	202	92	1			
WCT	204	93	1			
WCT	216	97	1			
WCT	216	104	1			
WCT	239	143	1			
WCT	105	12	2			
WCT	154	40	2			
WCT	178	62	2			
WCT	239	154	2			

2011 Fishtrap Creek Electrofishing Section 2 (at old bridge) of West Fork Fishtrap Creek
Sampling Date 8/3/2011
Water Temp. 8.5°C
Section length: 100 m; Average Section width: 5.8 m
Data Collectors: TT, RD, EF Latitude N.47.7994 Longitude W.115.20355
Electrofishing settings: Hz = 50; mS = 2; Volts = 600; Conductivity = 69
Duration 1st Pass = 4,349; Duration 2nd Pass = 2,218
Tailed frogs: Abundant; Sculpin: Absent

Table D-10. Data collection during 2011 electrofishing in West Fork Fishtrap Creek, Section 2.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
BULL	81	5	1			985121026832257	
BULL	88	5	1				Mortality
BULL	88	6	1		52	985121026957735	
BULL	88	6	1			985121026895902	
BULL	89	6	1		53	985121026856767	
BULL	90	6	1				Mortality
BULL	90	7	1			985121026919774	
BULL	91	8	1			985121026914132	
BULL	92	7	1			985121026912383	
BULL	93	7	1	1743-90		985121026919220	
BULL	93	7	1			985121026872011	
BULL	95	6	1			985121026966020	
BULL	95	7	1			985121026834988	
BULL	96	8	1			985121026922810	
BULL	96	7	1			985121026886959	
BULL	97	8	1			985121026831326	
BULL	97	8	1			985121026977952	
BULL	98	8	1			985121026840369	
BULL	98	8	1			985121026921599	
BULL	99	10	1			985121026929605	
BULL	100	10	1			985121026919213	
BULL	103	9	1			985121026981053	
BULL	105	11	1			985121026927557	
BULL	105	10	1			985121026831413	
BULL	127	16	1			985121026914549	
BULL	129	18	1			985121026959182	
BULL	144	26	1	1743-96		985121026867128	
BULL	151	28	1			985121026867074	
BULL	155	30	1	1743-97	51	985121026925739	
BULL	162	43	1	1743-91	48	985121026849737	
BULL	199	71	1	1743-94	50	985121026912870	
BULL	284	220	1	1743-93	49	985121026939728	
WCT	50	0	1				
WCT	57	1	1				
WCT	58	1	1				
WCT	61	2	1				

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
WCT	61	2	1				
WCT	61	1	1				
WCT	62	1	1				Mortality
WCT	64	2	1				
WCT	65	2	1				Mortality
WCT	65	2	1				
WCT	66	2	1				
WCT	68	3	1				
WCT	70	3	1				
WCT	70	3	1				
WCT	70	3	1				
WCT	71	3	1				
WCT	71	3	1				
WCT	72	3	1				Mortality
WCT	72	3	1				Mortality
WCT	73	4	1				Mortality
WCT	77	4	1				
WCT	91	7	1				Mortality
WCT	96	8	1				
WCT	98	9	1				
WCT	104	11	1				
WCT	104	12	1				
WCT	105	10	1				
WCT	106	11	1				Mortality
WCT	106	11	1				
WCT	106	11	1				
WCT	114	15	1				
WCT	116	16	1				
WCT	116	15	1				
WCT	125	17	1				
WCT	131	22	1				
WCT	133	23	1				
WCT	140	29	1				
WCT	141	28	1				
WCT	144	27	1				
WCT	158	39	1				
WCT	161	45	1				
WCT	164	45	1				
WCT	164	44	1				
WCT	166	50	1				
WCT	167	44	1				
WCT	181	61	1				
WCT	196	75	1				
WCT	202	86	1				
WCT	205	94	1				
WCT	207	83	1				
WCT	210	88	1				

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
WCT	212	97	1				
WCT	223	117	1				
WCT	223	110	1				
WCT	245	135	1				
WCT	245	125	1				
BULL	95	7	2	1743-87		985121026916641	
BULL	96	8	2	1743-86		985121026923327	
BULL	144	30	2	1743-88		985121026919367	
BULL	146	28	2	1743-89		985121026829748	
WCT	50	0	2				
WCT	52	1	2				
WCT	57	1	2				
WCT	63	2	2				
WCT	64	2	2				
WCT	68	2	2				
WCT	72	3	2				
WCT	213	95	2				

2011 Fishtrap Creek Electrofishing Section 3 of West Fork Fishtrap Creek
Sampling Date 8/5/2011
Water Temp. 8.5°C
Section length: 99 m; Average Section width: 5.0 m
Data Collectors: TT, RD, EF Latitude N.47.78462 Longitude W.115.22861
Electrofishing settings: Hz = 50; mS = 2; Volts = 700; Conductivity = 50
Duration 1st Pass = 2,375; Duration 2nd Pass = 1,352
Tailed frogs: Abundant; Sculpin: Absent

Table D-11. Data collection during 2011 electrofishing in West Fork Fishtrap Creek, Section 3.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
BULL	132	20	1			985121026895582
BULL	141	24	1			985121026977983
BULL	158	36	1			985121026902247
BULL	162	35	1			985121026905144
BULL	166	38	1			985121026898602
BULL	166	40	1			985121026926773
BULL	169	39	1			985121026910660
BULL	180	50	1	57		985121026949322
WCT	50	0	1			
WCT	55	0	1			
WCT	56	1	1			
WCT	62	2	1			
WCT	65	2	1			
WCT	71	3	1			
WCT	78	5	1			
WCT	85	6	1			
WCT	90	6	1			
WCT	90	7	1			
WCT	92	7	1			
WCT	105	10	1			
WCT	105	11	1			
WCT	106	11	1			
WCT	107	13	1			
WCT	108	12	1			
WCT	108	12	1			
WCT	116	15	1			
WCT	118	15	1			
WCT	121	16	1			
WCT	128	24	1			
WCT	128	23	1			
WCT	132	25	1			
WCT	135	24	1			
WCT	135	25	1			
WCT	139	25	1			
WCT	141	30	1			
WCT	148	33	1			

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
WCT	150	36	1			
WCT	151	44	1			
WCT	152	36	1			
WCT	153	31	1			
WCT	155	38	1			
WCT	169	49	1			
WCT	169	49	1			
WCT	180	63	1			
WCT	186	65	1			
WCT	198	80	1			
WCT	220	104	1			
BULL	160	34	2		56	985121026889935
WCT	56	1	2			
WCT	96	9	2			

2011 Fishtrap Creek Electrofishing Section 1 of Beatrice Creek
Sampling Date 7/26/2011
Water Temp. 6.8°C
Section length: 113 m; Average Section width: 5.5 m
Data Collectors: JS, HC, TB Latitude N.47.78964 Longitude W.115.11755
Conductivity = 116
Duration 1st Pass = 4,720; Duration 2nd Pass = 3,355 ; Duration 3rd Pass = 2,999
Tailed frogs: Common; Sculpin: Absent

Table D-12. Data collection during 2011 electrofishing in Beatrice Creek, Section 1.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
BULL	70	3	1				
BULL	73	3	1				
BULL	75	4	1				
BULL	76	4	1				
BULL	80	4	1				
BULL	80	4	1				
BULL	80	4	1				
BULL	80	5	1				
BULL	82	5	1				
BULL	82	5	1				
BULL	82	5	1				
BULL	83	5	1				
BULL	83	5	1				
BULL	85	5	1				
BULL	85	5	1				
BULL	86	5	1				
BULL	86	6	1				
BULL	86	5	1				
BULL	86	5	1				
BULL	87	6	1				
BULL	87	6	1				
BULL	88	6	1				
BULL	90	6	1				
BULL	90	6	1				
BULL	91	7	1				
BULL	91	6	1				
BULL	94	7	1				
BULL	94	7	1				
BULL	102	9	1				
BULL	103	9	1				
BULL	117	14	1				
BULL	120	15	1	1972-026	25	985121021881878	
BULL	120	15	1				
BULL	122	15	1	1972-036	34	985121021918197	
BULL	124	17	1	1972-027	26	985121021890260	
BULL	125	17	1	1972-040	36A	985121021898161	
BULL	128	18	1	1972-031	29	985121021871250	

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
BULL	130	22	1	1972-039	36	985121021914132	
BULL	131	23	1	1972-028	27	985121021914485	
BULL	131	23	1	1972-030	28	985121021918349	
BULL	131	19	1	1972-033	31	985121021909647	
BULL	131	19	1	1972-041		985121021899233	
BULL	132	20	1	1972-037	35	985121023469632	
BULL	135	21	1	1972-035	33	985121021882975	
BULL	137	22	1	1972-034	32	985121021874359	
BULL	141	24	1	1972-043		985121021887518	
BULL	145	27	1	1972-042		985121021912182	
BULL	148	29	1	1972-038		985121021900383	
BULL	150	29	1	1972-029	27A	985121021890440	
BULL	153	33	1	1972-044	37	985121021918454	
BULL	156	32	1	1972-032	30	985121021871515	
WCT	75	3	1				
WCT	80	4	1				
WCT	82	5	1				
WCT	86	7	1				
WCT	87	7	1				Mortality
WCT	87	7	1				
WCT	90	7	1				
WCT	90	7	1				
WCT	95	8	1				Mortality
WCT	100	10	1				
WCT	103	11	1				
WCT	105	11	1				
WCT	110	15	1				
WCT	112	14	1				
WCT	112	14	1				
WCT	112	32	1				
WCT	114	10	1				
WCT	130	23	1				
WCT	137	24	1				
WCT	140	30	1				
WCT	146	36	1				
WCT	168	50	1				
WCT	173	60	1				
WCT	178	58	1				
WCT	190	69	1				
WCT	195	82	1				
WCT	200	78	1				
WCT	210	100	1				
WCT	216	106	1				
WCT	216	114	1				
WCT	228	138	1				
WCT	230	133	1				
WCT	253	176	1				

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
WCT	278	235	1				
BULL	68	3	2				
BULL	74	3	2				
BULL	75	3	2				
BULL	80	5	2				
BULL	80	5	2				
BULL	80	4	2				
BULL	80	4	2				
BULL	87	6	2	1972-023	23		
BULL	90	6	2				
BULL	91	7	2	1972-024			
BULL	91	6	2				
BULL	92	6	2				
BULL	93	7	2				
BULL	105	10	2	1972-022	22		
BULL	120	17	2	1972-021	21	985121023298173	
BULL	130	21	2	1972-020	20	985121021918200	
BULL	145	26	2	1972-019	19	985121021914284	
BULL	181	21	2	1972-018	18	985121021882243	
BULL	181	21	2	1972-025	24	985121021896116	
WCT	61	2	2				
WCT	88	6	2				
WCT	91	8	2				
WCT	91	7	2				
WCT	97	10	2				
WCT	143	32	2				
WCT	180	68	2				
BULL	82	7	3				
BULL	82	5	3				
BULL	85	7	3				
BULL	85	5	3				
BULL	85	5	3				
BULL	90	7	3				
BULL	92	7	3				
BULL	95	8	3				
BULL	123	17	3	1972-045		985121021869209	
WCT	88	5	3				
WCT	210	100	3				

2011 Fishtrap Creek Electrofishing Section 2 of Beatrice Creek
Sampling Date 7/25/2011
Water Temp. 6.5°C
Section length: 100 m; Average Section width: 4.5 m
Data Collectors: JS, HC, TB, BS Latitude N.47.7763 Longitude W.115.14899
Conductivity = 78
Duration 1st Pass = 8,100 ; Duration 2nd Pass = 3,024
Tailed frogs: Few; Sculpin: Few

Table D-13. Data collection during 2011 electrofishing in Beatrice Creek, Section 2.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
BULL	144	25	1	1972-008	8	985121021893986
BULL	147	25	1	1972-007	7	985121023471026
BULL	148	26	1	1972-010	10	985121021914488
BULL	148	27	1	1972-011	11	985121021894959
BULL	149	26	1	1972-004	4	985121021877993
BULL	150	29	1	1972-005	5	985121021911967
BULL	163	35	1	1972-006	6	985121023381056
BULL	164	34	1	1972-009	9	985121023471026
BULL	165	38	1	1972-001	1	985121021912233
BULL	166	42	1	1972-014	14	985121021899134
BULL	171	40	1	1972-002	2	985121023471208
BULL	174	43	1	1972-003	3	985121021869293
BULL	178	44	1	1972-015	15	985121023463669
BULL	182	50	1	1972-013	13	985121021870161
BULL	234	105	1	1972-012	12	985121021881925
WCT	81	6	1			
WCT	89	7	1			
WCT	90	6	1			
WCT	92	6	1			
WCT	107	12	1			
WCT	110	14	1			
WCT	115	16	1			
WCT	119	18	1			
WCT	123	18	1			
WCT	128	22	1			
WCT	135	22	1			
WCT	138	25	1			
WCT	138	26	1			
WCT	138	25	1			
WCT	146	25	1			
WCT	156	34	1			
WCT	159	37	1			
WCT	162	41	1			
WCT	164	40	1			
WCT	165	48	1			
WCT	169	49	1			
WCT	173	50	1			

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.
WCT	175	54	1			
WCT	187	59	1			
WCT	194	67	1			
WCT	199	87	1			
WCT	199	76	1			
WCT	205	90	1			
WCT	207	87	1			
WCT	225	90	1			
WCT	242	133	1			
BULL	167	37	2	1972-017	17	985121021903298
BULL	300	298	2	1972-016	16	985121021918193
WCT	59	1	2			

2011 Fishtrap Creek Electrofishing Section 1 of Jungle Creek
Sampling Date 7/28/2011
Water Temp. 6.4°C
Section length: 100 m; Average Section width: 4.1 m
Data Collectors: JS, HC, TB Latitude N.47.73388 Longitude W.115.07779
Electrofishing settings: Hz = 40; mS = 2; Volts = 800; Conductivity = 132
Duration 1st Pass = 4,770 ; Duration 2nd Pass = 2,470
Tailed frogs: Common; Sculpin: Absent

Table D-14. Data collection during 2011 electrofishing in Jungle Creek, Section 1.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
BULL	137	21	1	1972-053	8	985121021918455	
BULL	181	44	1	1972-052	7	985121021914214	
WCT	57	1	1				
WCT	65	2	1				
WCT	67	3	1				
WCT	68	3	1				
WCT	85	5	1				
WCT	87	7	1				
WCT	90	7	1				
WCT	93	8	1				
WCT	99	9	1				
WCT	103	9	1				
WCT	119	16	1				
WCT	126	19	1				
WCT	128	20	1				
WCT	136	26	1				
WCT	137	28	1				Mortality
WCT	142	27	1				
WCT	144	26	1				
WCT	147	34	1				
WCT	151	32	1				
WCT	151	34	1				
WCT	153	34	1				
WCT	154	32	1				
WCT	157	35	1				
WCT	158	36	1				
WCT	161	36	1				
WCT	162	45	1				
WCT	167	41	1				
WCT	170	48	1				Mortality
WCT	170	45	1				
WCT	174	50	1				
WCT	175	52	1				
WCT	176	51	1				
WCT	177	46	1				
WCT	177	32	1				
WCT	183	67	1				

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
WCT	186	57	1				
WCT	188	68	1				
WCT	188	48	1				
WCT	190	68	1				
WCT	191	79	1				
WCT	194	53	1				
WCT	195	63	1				
WCT	196	80	1				
WCT	196	74	1				
WCT	197	75	1				
WCT	197	70	1				
WCT	200	93	1				
WCT	212	103	1				
WCT	223	117	1				
BULL	239	117	2	1972-054	9	985121021889359	
WCT	55	1	2				
WCT	74	4	2				
WCT	90	7	2				
WCT	98	10	2				Mortality
WCT	145	29	2				

2011 Fishtrap Creek Electrofishing Section 2 of Jungle Creek
Sampling Date 9/27/2011
Water Temp. 6.1°C
Section length: 117 m; Average Section width: 4.0 m
Data Collectors: JS, HC, TB Latitude N.47.74043 Longitude W.115.12384
Electrofishing settings: Hz = 30; mS = 8; Volts = 800; Conductivity = 90
Duration 1st Pass = 4,488 ; Duration 2nd Pass = 2,003
Tailed frogs: Common; Sculpin: Absent

Table D-15. Data collection during 2011 electrofishing in Jungle Creek, Section 2.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
BULL	156	32	1	1972-046	1	985121021842544	
BULL	172	44	1	1972-047	2	985121021920789	
BULL	179	48	1	1972-048	3	985121021881072	
BULL	185	58	1	1972-049	4	985121021891844	
BULL	187	56	1	1972-050	5	985121023367180	
WCT	50	1	1				
WCT	55	1	1				Mortality
WCT	55	1	1				
WCT	56	1	1				
WCT	59	1	1				
WCT	78	4	1				
WCT	78	5	1				
WCT	83	6	1				
WCT	84	7	1				
WCT	84	8	1				
WCT	93	8	1				
WCT	93	9	1				
WCT	98	9	1				
WCT	104	10	1				
WCT	118	15	1				
WCT	124	17	1				
WCT	141	28	1				
WCT	141	27	1				
WCT	142	29	1				
WCT	145	31	1				
WCT	148	31	1				
WCT	149	32	1				
WCT	150	30	1				
WCT	153	38	1				
WCT	153	42	1				
WCT	154	39	1				
WCT	155	45	1				
WCT	157	40	1				
WCT	158	44	1				
WCT	159	43	1				
WCT	163	44	1				
WCT	165	51	1				

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
WCT	167	45	1				
WCT	171	55	1				
WCT	174	52	1				
WCT	174	43	1				
WCT	176	56	1				
WCT	176	58	1				
WCT	176	58	1				
WCT	177	56	1				
WCT	178	58	1				
WCT	180	71	1				
WCT	184	68	1				
WCT	185	57	1				
WCT	188	60	1				
WCT	188	74	1				
WCT	192	62	1				
WCT	193	69	1				
WCT	198	82	1				
WCT	207	99	1				
WCT	210	100	1				
WCT	232	126	1				
WCT	234	106	1				
WCT	240	110	1				
WCT	248	148	1				
BULL	174	46	2	1972-051	6	985121021893350	
WCT	83	5	2				
WCT	159	46	2				
WCT	160	43	2				

2011 Fishtrap Creek Electrofishing Section 1 of Beartrap Creek
Sampling Date 7/14/2011
Water Temp. 6.5°C
Section length: 97 m; Average Section width: 4.7 m
Data Collectors: TT, RD, EF Latitude N.47.84515 Longitude W.115.17422
Electrofishing settings: Hz = 40; mS = 2; Volts = 550; Conductivity = 127
Duration 1st Pass = 4,899 ; Duration 2nd Pass = 2,611
Tailed frogs: Absent; Sculpin: Absent

Table D-16. Data collection during 2011 electrofishing in Beartrap Creek, Section 1.

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
BULL	97	7	1		29	985121012756194	
BULL	102	10	1		26	985121012756342	
BULL	102	9	1			985121012733531	
BULL	104	8	1			985121012742789	
BULL	108	11	1		25	985121012768621	
BULL	109	11	1		27	985121011607331	
BULL	109	10	1			985121012729872	
BULL	109	11	1			985121011606843	
BULL	110	12	1			985121012729778	
BULL	110	11	1			985121012764124	
BULL	111	11	1			985121012612677	
BULL	111	12	1			985121012731959	
BULL	112	13	1			985121012612341	
BULL	112	14	1			985121012617112	
BULL	113	12	1	1743-54	22	985121012729879	
BULL	113	13	1			985121012733334	
BULL	113	12	1			985121011608661	
BULL	115	11	1	1743-52	20	985121012742585	
BULL	115	13	1			985121012614526	
BULL	116	14	1		28	985121012761472	
BULL	116	15	1			985121011607826	
BULL	117	16	1			985121012756475	
BULL	118	14	1			985121012767478	
BULL	119	14	1	1743-47	17	985121011606743	
BULL	119	14	1		24	985121012612765	
BULL	119	15	1			985121012612954	
BULL	119	15	1			985121011605206	
BULL	120	14	1	1743-53	21	985121012639928	
BULL	120	16	1			985121012647933	
BULL	120	14	1			985121012764173	
BULL	122	17	1			985121012730312	
BULL	124	16	1			985121012729441	
BULL	124	18	1			985121011606583	
BULL	124	19	1			985121012648096	
BULL	124	16	1			985121012764697	
BULL	125	16	1		23	985121012758389	
BULL	127	17	1	1743-48	18	985121012722720	

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
BULL	129	19	1			985121012610724	
BULL	132	18	1			985121012647611	
BULL	135	21	1	1743-51	19	985121012742451	
WCT	71	4	1				
WCT	75	4	1				Mortality
WCT	75	4	1				
WCT	76	4	1				
WCT	76	4	1				
WCT	76	4	1				Mortality
WCT	77	4	1				
WCT	78	4	1				
WCT	80	5	1				
WCT	80	6	1				
WCT	80	5	1				
WCT	80	4	1				
WCT	80	5	1				
WCT	80	5	1				
WCT	81	5	1				
WCT	82	5	1				
WCT	82	5	1				
WCT	82	5	1				
WCT	84	5	1				
WCT	86	5	1				
WCT	87	5	1				
WCT	87	5	1				
WCT	87	6	1				
WCT	88	7	1				
WCT	89	7	1				
WCT	90	7	1				
WCT	90	7	1				
WCT	92	8	1				
WCT	92	7	1				
WCT	92	7	1				
WCT	93	7	1				
WCT	94	8	1				
WCT	95	8	1				
WCT	95	7	1				
WCT	96	7	1				
WCT	96	8	1				
WCT	97	7	1				
WCT	97	10	1				
WCT	98	9	1				
WCT	98	9	1				
WCT	99	8	1				
WCT	100	10	1				
WCT	100	10	1				
WCT	101	10	1				

Species	Length	Weight	Pass #	Genetic Sample	Scale Sample	PIT Tag No.	Comments
WCT	102	10	1				
WCT	102	10	1				
WCT	103	10	1				
WCT	104	11	1				
WCT	106	11	1				
WCT	106	11	1				
WCT	109	12	1				
WCT	115	14	1				
WCT	119	15	1				
WCT	120	12	1				
WCT	121	17	1				
WCT	125	17	1				
WCT	126	20	1				
WCT	130	21	1				
WCT	132	22	1				
WCT	133	22	1				
WCT	134	24	1				
WCT	136	24	1				
WCT	142	30	1				
WCT	142	28	1				
WCT	155	34	1				
WCT	173	55	1				
WCT	181	57	1				
WCT	197	68	1				
BULL	107	10	2	1743-46	16	985121012724018	
BULL	111	12	2	1743-43	14	985121011604540	
BULL	117	13	2	1743-44	15	985121012732045	
BULL	131	20	2	1743-41	13	985121012768432	
WCT	80	5	2				
WCT	82	5	2				
WCT	94	8	2				
WCT	115	15	2				
WCT	136	28	2				
WCT	137	25	2				Mortality
WCT	139	24	2				

2011 Fishtrap Creek Electrofishing Section 2 of Beartrap Creek
Sampling Date 7/28/2011
Water Temp. 6.5°C
Section length: 100 m; Average Section width: 2.2 m
Data Collectors: TT, RD, EF Latitude N.47.84463Longitude W.115.19190
Electrofishing settings: Hz = 50; mS = 2; Volts = 750; Conductivity = 41
Duration 1st Pass = 1,555
Tailed frogs: Absent; Sculpin: Absent

Table D-17. Data collection during 2011 electrofishing in Beartrap Creek, Section 2.

Pass #	Comments
1	No fish observed
	Stream looks to be perenial in this reach. Went downstream 700 meters (1/2 way to section 1, 47.84378 115.18136) and shocked habitat for ~50 meters. Found 5 WCT (~90, 110, 120,130, & 160mm).