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PPLM-TFalls-2751

PPL MONTANA, LLC

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

March 28, 2011

RE: Filing 2010 Annual Activity, Fish Passage and Bull Trout Take Report for the Thompson Falls Hydroelectric Project (1869)

Dear Secretary Bose:

Herein attached, per Item D of Commission Order February 12, 2009, is the 2010 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. The USFWS signature of approval (under their Section 7 Terms and Conditions Authority) for this report and this filing with the Commission is included 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, MDEQ
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Erich Gaedeke, FERC Portland

The USFWS has reviewed, and by signature below, approves this Thomson Falls Project 2010 Annual Activity, Fish Passage and Bull Trout Take Report filing with the Commission.

Name

Montana Field Supervisor
USFWS Position

March 28, 2011
Date

2010 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:
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Missoula, Montana

March 2011

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Executive Summary

PPL Montana, LCC is owner and operator of the Thompson Falls Dam (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; and 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. FERC agreed with 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, for approval, study and operational plans referenced in the FWS's Terms and Conditions numbers 1 through 7, after development and approval by the FWS and the Thompson Falls Technical Advisory Committee. 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 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 2010 activities (Sections 2.0 through 5.0), PPL Montana's compliance with the FWS's Terms and Conditions of the Biological Opinion (Section 6.0), and PPL Montana's proposed actions in 2011 (Section 7.0).

1.0 Introduction

1.1 Background

PPL Montana is owner and operator of the Thompson Falls Dam (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); and 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 Dam 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

[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.

Conditions to minimize incidental take of bull trout. The FWS concluded in its Biological Opinion 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.

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 2010 activities in Sections 2.0 through 5.0, PPL Montana's compliance with the FWS's Terms and Conditions of the Biological Opinion (Section 6.0), and PPL Montana's proposed actions in 2011 (Section 7.0).

[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 Summary of 2010 Activities

2.1 Upstream Fish Passage Facility and Evaluation Plan

Activities in 2010 for the upstream fish passage facility and evaluation included the completion of construction of the ladder, development of the *Final Thompson Falls Fish Ladder – Fishway Operations Manual 1.0* (SOP), and development of the 10-year *Fish Passage Facility Evaluation Plan Phase 2 Action Plan* (2011-2020). The SOP and Fish Passage Evaluation Plan were developed in consultation with the Thompson Falls TAC and approved by FWS. Following approval by FWS, the SOP and Fish Passage Evaluation Plan were submitted to FERC on December 15, 2010 and October 14, 2010, respectively, in compliance with the FWS Biological Opinion. FERC approval of these documents is still pending.

The construction of the upstream fish passage facility was completed in fall 2010. Following the completion of construction, there was an on-site training for the operations of the upstream fish passage facility in September 2010. The upstream fish passage facility is anticipated to commence operation in mid-March 2011, assuming weather conditions permit.

2.2 Reservoir Monitoring Plan

In 2010, PPL Montana continued to collect the baseline fisheries data (see Section 3.0) with FWP and deferred any reservoir specific studies in 2010 until after the 5-year study plan was developed and approved by FWS as required in the FWS Biological Opinion TC 5.

PPL Montana prepared the *5-Year Reservoir Monitoring Plan* (2011-2015) in consultation with the TAC, received FWS approval of the plan, and electronically submitted the plan to FERC on June 22, 2010. FERC approved the reservoir monitoring plan on February 11, 2011. Monitoring of bull trout in the West Fork Thompson River was initiated in 2010. Results from 2010 and 2011 will be reported in the 2011 Annual Report.

The Biological Opinion for the Project requires PPL Montana to "*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*". Residence time for the Thompson Falls Reservoir was calculated in 2010. Residence time is a calculated quantity expressing the mean time that water (or some dissolved substance) spends in a particular lake. At its simplest residence time is the result of dividing the lake volume by the flow in or out of the lake. The calculation estimates the amount of time it will take for a substance introduced into a lake to flow out of the lake again. The estimated residence time for the Thompson Falls

Reservoir is of interest because it provides an approximation of the impediment that the relatively slow water velocities in the reservoir pose to out migrating juvenile salmonids.

2.2.1 Methods

Calculations of the total storage capacity and elevation-area capacity curves for Thompson Falls Reservoir were developed in order to calculate the estimated average monthly residence time. Results of a bathymetric survey performed by Mark Reller (Constellation Services) on April 6, 2000 provided the elevation data necessary to approximate the total storage capacity of the Thompson Falls Reservoir (forebay pool). The forebay pool elevation ranges from 2,350.8 feet (ft) at the bottom to 2,395.8 ft at the maximum water level. The area enclosed by each 5-ft contour was measured within the forebay pool elevation range. The areas were used to generate the total storage capacity. Calculations are provided in Appendix A. The minimum and maximum elevations were extended beyond the survey to estimate the additional capacity. The area measured within the minimum and maximum elevation contours were used to establish a linear relationship to which the area increased with elevation. The estimated area and capacity beyond the range of the survey could then be added to the forebay pool totals. The elevation-area capacity curves were plotted using these totals (Figure 2-1).

The mean monthly flows for the Clark Fork River and Thompson River were taken from the U.S. Geological Survey (USGS) gage stations #12389000 and #12389500, respectively. Quantities were available for the Clark Fork River from 1912 to 2010 and for the Thompson River from 1956 to 2010. The average discharge for both rivers for each month was combined and assumed to be the mean monthly inflow to the Thompson Falls Reservoir. To generate an average monthly residence time, the total storage capacity is divided by the average monthly inflow (see Appendix A for calculations).

2.2.2 Results

The total cumulative storage capacity at full pool is estimated to be 13,946 acre-feet (ac-ft). The reservoir is generally kept at full pool elevation, or close to it, throughout the year.

The monthly fluctuation of average residence time is displayed in Figure 2-2. The results indicate that residence time in Thompson Falls Reservoir is very short, particularly in the spring when residence time is, on average, less than 4 hours. It is not uncommon for residence times in lakes to range from months to years. Thompson Falls Reservoir is a run-of-the-river reservoir, meaning there is very little storage and generally, the outflow of the reservoir is approximately equal to the inflow. Aquatic habitat in the reservoir is neither truly lotic nor lentic.

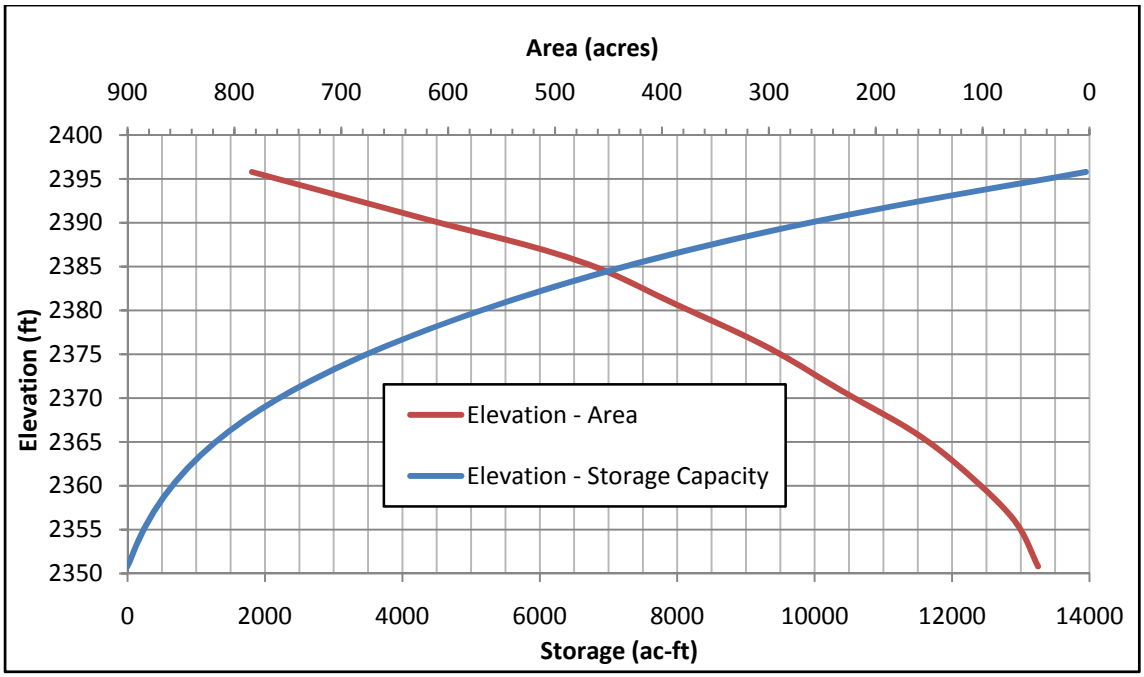

Figure 2-1. Thompson Falls Reservoir Elevation – Area Capacity Curve. Note: Topographic information based on Bathymetric Survey performed by Mark Reller (MarksLakeMaps.com) on April 6, 2000. Elevations were approximated relative to water surface elevation on the date of the survey.

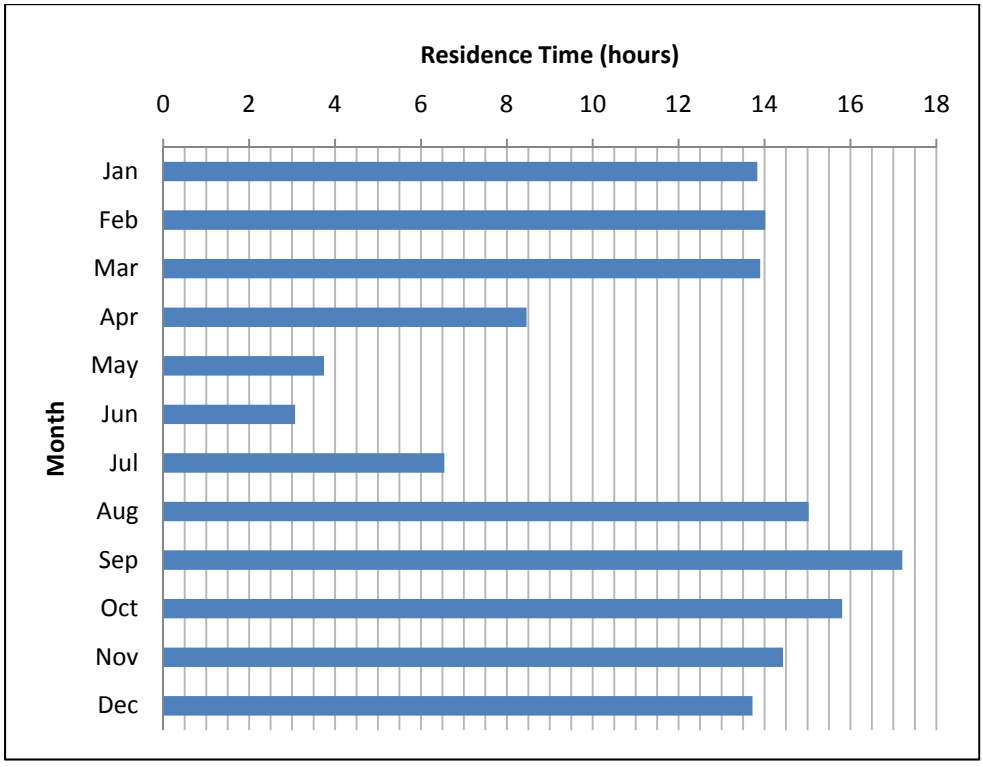

Figure 2-2. Estimated average monthly residence time in Thompson Falls Reservoir.

2.3 Total Dissolved Gas Control Plan

PPL Montana prepared and submitted a *Total Dissolved Gas Control Plan* to the Montana Department of Environmental Quality (MDEQ) in October 2010. The report summarizes total dissolved gas (TDG) data collected from 2002 through 2010 in the Thompson Falls Project area and proposed operational procedures to reduce or minimize TDG production at Thompson Falls Dam during periods of spill in 2011. Activities scheduled for 2011 are outlined in Section 7.3

2.4 Baseline Fisheries Data Collection

In 2010, PPL Montana continued to collect baseline fisheries data as presented in Section 3.0 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.

In previous years (2008 and 2009), PPL Montana set up a protocol to monitor for gas bubble trauma (GBT) in fish sampled below Thompson Falls Dam when spring flows reach or exceed 50,000 cubic feet per second (cfs). The majority of sampling in 2008 and 2009 was completed when flows were above 55,000 cfs. In 2010, spring flows exceeded 50,000 cfs for approximately 8 days between June 6 through 13, 2010. Peak flow at the dam was approximately 58,890 cfs on June 8, 2010. GBT monitoring was not conducted in 2010 due to the short duration of spring flows exceeding 50,000 cfs. PPL Montana proposes to continue monitoring GBT in 2011, if spring flows reach or exceed 50,000 cfs.

2.5 Bull Trout Passage and Monitoring

The only fish passed upstream of Thompson Falls Dam in 2010 were bull trout collected by the Avista Corporation (Avista) Upstream Fish Passage Program below Cabinet Gorge Dam. Nine of the total 35 different bull trout collected by Avista in 2010 were transported to Region 4 and released above Thompson Falls Dam. Radio transmitters were inserted in five of the nine bull trout and these bull trout were monitored by FWP. A detailed summary for each of the five bull trout monitored is provided in Section 4.2.

2.6 Bull Trout Incidental "Take"

In 2010, PPL Montana collected one bull trout via electrofishing in the Clark Fork River above the Island Complex (see Section 3.3.1 for details). The bull trout was captured on October 12, 2010 and released in the same location. The bull trout measured 325 millimeters (mm) in length and weighed 240 grams (g). A genetic sample was taken (ID#118-005). Results from this sample were not available at the time of this report. This bull trout was not tagged and was released live

and in excellent condition. There were no physical markings or signs of stress observed prior to release.

TAC-funded activities in 2010 included rehabilitation work in Big Rock Creek, a tributary of the Thompson River drainage. In 2010, this work included electrofishing surveys of Big Rock Creek. A total of 15 bull trout were handled during this survey in 2010 (two additional bull trout were observed but not captured). Cumulative "take" for the Thompson Falls Project (since 2009) is summarized in Table 2-1. Bull trout "take" from the 2009 sampling effort was previously reported to the FWS in the 2009 Annual Report.

The number of bull trout proposed to be incidentally taken by each activity in 2011 is described in 7.0.

Table 2-1. Cumulative incidental "take" of bull trout for the Thompson Falls Project, since January 1, 2009.
(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[3] (Lower)	Thompson Falls Reservoir	Long Term Population Monitoring	Reservoir Wide	Mabbott/PPLM	271	174	98512009494278	Fishtrap Ck	Alive
10/12/2010	EF	Clark Fork (Lower)[3]	Clark Fork River, upstream of Island Complex	Long Term Population Monitoring	3 miles	Mabbott/PPLM	325	240	N/A	Awaiting lab results	Alive
8/27/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 1	Fish Population Assessment	89 m	Hanson/FWP	259	125	985121021920498	Awaiting lab results	Alive
8/27/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 2	Fish Population Assessment	95 m	Hanson/FWP	189	52	985121021880115	Awaiting lab results	Alive
8/27/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 2	Fish Population Assessment	95 m	Hanson/FWP	191	51	985121021890292	Awaiting lab results	Alive
8/27/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 2	Fish Population Assessment	95 m	Hanson/FWP	184	51	985121021912007	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 3	Fish Population Assessment	100 m	Hanson/FWP	241	105	985121021882416	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 4	Fish Population Assessment	100 m	Hanson/FWP	250	123	985121021918395	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 4	Fish Population Assessment	100 m	Hanson/FWP	220	87	985121021876433	Awaiting lab results	Alive

[3] Sampling activity will be repeated in 2011.

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
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 4	Fish Population Assessment	100 m	Hanson/FWP	216	87	985121021922640	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 5	Fish Population Assessment	90 m	Hanson/FWP	224	85	985121021874365	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 5	Fish Population Assessment	90 m	Hanson/FWP	232	91	985121021922237	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 5	Fish Population Assessment	90 m	Hanson/FWP	256	127	985121021871628	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 5	Fish Population Assessment	90 m	Hanson/FWP	293	206	985121021892731	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 6	Fish Population Assessment	75 m	Hanson/FWP	235	100	985121021916059	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 6	Fish Population Assessment	75 m	Hanson/FWP	243	105	985121021918162	Awaiting lab results	Alive
8/26/2010	EF	Clark Fork (Lower)	Big Rock Ck Sec 7	Fish Population Assessment	76 m	Hanson/FWP	246	115	985121021912155	Awaiting lab results	Alive

2.7 2010 TAC Funded Projects

The Thompson Falls TAC funded three projects in 2010. These projects included: 1) restoration and revegetation of Oregon Gulch; 2) watershed rehabilitation of Fish Creek drainage; 3) road rehabilitation in the Big Rock Creek drainage; 4) and bull trout genetic sampling. A summary of 2010 activities associated with each project is presented in Section 5.0.

3.0 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 3-1 and 3-2. In 2010, PPL Montana added a new upstream electrofishing site in the Clark Fork River upstream of the Thompson Falls Dam between the towns of Plains and Paradise, Montana. This new site was electrofished in the fall and PPL Montana proposes to continue sampling this reach of the Clark Fork River for 5 years (2010-2014).

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 the 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 Dam scheduled to commence 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 3-1. Summary of abbreviations for fish identification, species common name, and scientific name.

Fish Abbreviation	Common Name	Scientific Name
BBH	Black bullhead	*Ameiurus melas*
BLT	Bull Trout	*Salvelinus confluentus*
LL	Brown trout	*Salmo trutta*
LMB	Largemouth bass	*Micropterus salmoides*
LND	Longnose dace	*Rhinichthys cataractae*
LNS	Longnose sucker	*Catostomus catostomus*
LSS	Largescale sucker	*Catostomus macrocheilus*
LT	Lake trout	*Salvelinus namaycush*
MWF	Mountain whitefish	*Prosopium williamsoni*
NP	Northern pike	*Esox lucius*
NPM	Northern pikeminnow	*Ptychocheilus oregonensis*
PEA	Peamouth	*Mylocheilus caurinus*
PUM	Pumpkinseed	*Lepomis gibbosus*
RBT	Rainbow trout	*Oncorhynchus mykiss*
RSS	Redside shiner	*Richardsonius balteatus*
SMB	Smallmouth bass	*Micropterus dolomieu*
WCT	Westslope cutthroat trout	*Oncorhynchus clarkii lewisi*
WCTxRBT	Westslope cutthroat x rainbow trout hybrid	*Oncorhynchus clarkii lewisi x Oncorhynchus mykiss*
YP	Yellow perch	*Perca flavescens*

Montana 2009 Color NAIP Orthophoto

MORRISON MAIERLE, INC.

DATE: February 16, 2011
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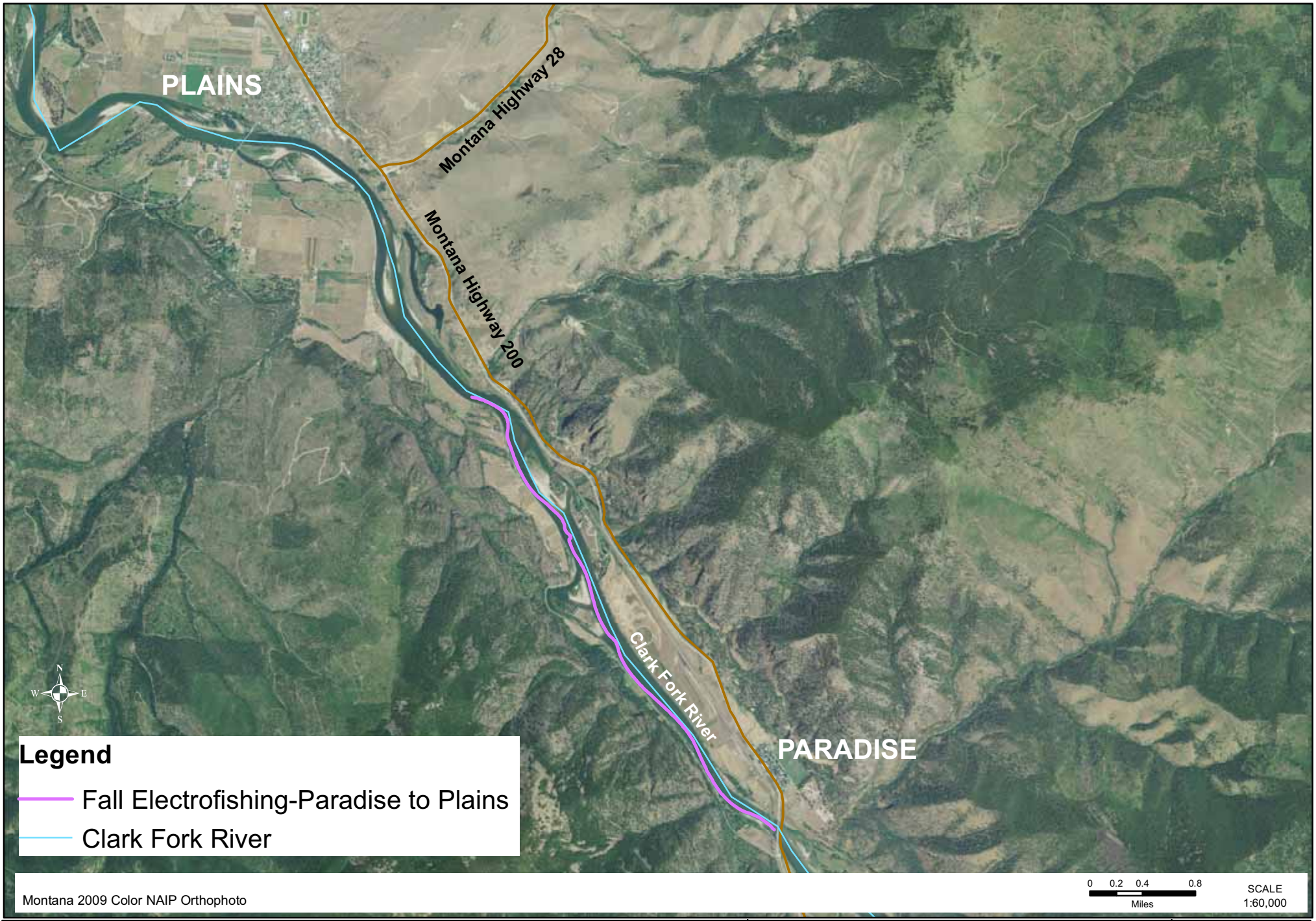
CHECKED BY: KMW

Thompson Falls Project
Thompson Falls **MT**

2010 Baseline Fisheries Sampling Locations

PROJECT NUMBER
4421.002.02A

FIGURE NUMBER
FIGURE 3-1



MORRISON MAIERLE, INC.

DATE: February 16, 2011
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Thompson Falls Project
Thompson Falls MT

2010 Baseline Fisheries Sampling Locations

PROJECT NUMBER
4421.002.02A

FIGURE NUMBER
FIGURE 3-2

3.1 Fall Gillnetting

Fall gillnetting in Thompson Falls Reservoir has been performed in designated locations since 2004 (see Figure 3-1). 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 3-2).

Table3-2. Total number and dates of fall gillnetting activities in Thompson Falls Reservoir from 2004 to 2010.

Year	# Gillnets	Date set	Date pulled
2004	6	10/13	10/14
2005	10	10/13	10/14
2006	10	10/12	10/13
2007	10	10/11	10/12
2008	10	10/8	10/9
2009	10	10/19	10/20
2010	10	10/14	10/15

Gillnetting efforts in 2004 captured a total of 48 fish representing eight species; 2005 efforts captured 79 fish representing seven species; 2006 efforts captured 116 fish representing seven species; 2007 efforts captured 122 fish representing nine species; 2008 efforts captured 59 fish representing seven species; 2009 efforts captured 55 fish representing six species; and 2010 efforts captured 50 fish representing nine species. The mean catch per net has varied widely by species and between years (Table 3-3). Lengths and weights were recorded for all fish captured via gillnetting in 2010 and are provided in Appendix B.

Table 3-3. Mean catch per net, by species, during annual October gillnetting series on Thompson Falls Reservoir.

Species	2004	2005	2006	2007	2008	2009	2010
BBH	2.8	3.4	8.3	6	0.6	0	0
LMB	0.2	0	0	0.3	0	0	0
LNS	0	0	0	0	0	0	0.1
LSS	0.7	1.3	0.7	1	0.8	1.2	0.8
NP	1.3	1.8	1.7	2	1.3	3.1	2.4
NPM	0.2	0	0.5	0.5	0.2	0.8	0.3
PEA	0.0	0.1	0.1	0.1	0	0	0.1
PUM	0.3	0.1	0.2	0.5	1.8	0.1	0.1
RBT	0	0	0	0	0	0.2	0.2
SMB	0.3	0.1	0	0.5	0.1	0	0.1
YP	1.7	0.7	0.1	1.2	0.2	0.1	0.9

3.1.1 2010 Thompson Falls Reservoir Gillnetting

The 2010 annual fall gillnet monitoring of Thompson Falls Reservoir began on October 14 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 3-1). Nets were set for approximately 18 to 19 hours and pulled on October 15.

A total of 50 fish representing nine species were captured during 2010 gillnetting efforts, the lowest total number of fish caught via gillnetting since monitoring began in 2004. There were no black bullheads captured in 2009 or 2010. Black bullheads were the predominant fish caught between 2004 and 2008.

In 2010 northern pike was the most abundant species with 24 individuals captured. Of these 24 northern pike, 21 had cleithras removed for aging and 16 had flesh samples taken for mercury testing by Montana Fish, Wildlife and Parks Fish Health staff from Helena. The remaining fish were kept for future education use with the Hooked on Fishing Program delivered to four area elementary schools as the fish anatomy lesson. Other species captured in 2010 included longnose sucker (n=1), largescale sucker (n=8), northern pikeminnow (n=3), peamouth (n=1), pumpkinseed (n=1), rainbow trout (n=2), smallmouth bass (n=1), and yellow perch (n=9). Data collected, including measurements for each fish captured in 2010 via gillnetting, are provided in Appendix B.

3.2 Spring Electrofishing

3.2.1 2010 Electrofishing Thompson Falls Reservoir

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 Dam and the upper section located immediately downstream of the confluence with the Thompson River (see Figure 3-1). In 2010 sampling occurred on April 28 and 29. Sampling efforts in 2010 were completed 1 week later than 2009, 2 weeks later than 2008, and 4 weeks later than 2007. Summaries of 2009 and 2010 catch per unit effort (CPUE, fish per hour) are provided in Table 3.4 and 3.5 for the lower and upper sections, respectively. Data for all fish collected and measurements taken in the lower and upper sections in 2010 are available in Appendix B.

Table 3-4. Summary of 2009 and 2010 spring electrofishing catch per unit effort (CPUE, fish per hour) in Thompson Falls Reservoir lower section.

	Lower Section 2009		Lower Section 2010	
Species	**Number**	**CPUE**	**Number**	**CPUE**
BBH	2	3.4	1	1.1
LMB	20	34.0	3	3.3
LSS	11	18.7	3	3.3
NP	10	17.0	14	15.2
NPM	7	12.0	1	1.1
PUM	2	3.4	2	2.2
RSS	1	1.7	0	0
WCT	1	1.7	1	1.1
YP	3	5.1	25	27.2
TOTAL FISH	**57**		**50**	

Table 3-5. Summary of 2009 and 2010 spring electrofishing CPUE (fish per hour) in Thompson Falls Reservoir upper section.

	Upper Section 2009		Upper Section 2010	
Species	**Number**	**CPUE**	**Number**	**CPUE**
BBH	2	3.4	0	0
LL	2	3.4	5	2.4
LNS	0	0	1	0.5
LSS	51	86.2	15	7.2
LT	1	1.7	0	0
MWF	1	1.7	1	0.5
NP	6	10.1	8	3.9
NPM	6	10.1	3	1.4
RBT	6	10.1	26	12.6
RSS	2	3.4	0	0
SMB	2	3.4	0	0
WCT	0	0	3	1.4
YP	0	0	4	0.5
TOTAL FISH	**79**		**66**	

The 2010 spring electrofishing efforts provided results not seen in previous years. The 2010 sampling of the upper section of the reservoir resulted in 34 trout captured representing westslope cutthroat trout (n=3), rainbow trout (n=26), and brown trout (n=5), which was triple the number of trout (n=8) captured in 2009 (see Table 3-5).

Although water temperatures in 2010 were similar to previous years (Table 3-6), an increase in stream flow in the Thompson River due to warmer air temperatures in 2010 may be related to the increased number of trout captured compared in 2010 compared to 2009. In 2010, there was a

warming weather pattern in Thompson Falls with air temperatures in the high 70s (degrees Fahrenheit or °F, or approximately 20 °C) between April 17 and April 23. The warmer weather melted some of the remaining high elevation snow resulting in an increase in flows in the Thompson River from 200 cfs on April 17 to 800 cfs on April 23. Approximately 1 week later (May 1), the Thompson River was flowing at 490 cfs and air temperatures had declined to the 50s and 60s (°F or 10 to 15 °C).

Table 3-6. Summary of water temperatures measured in Thompson Falls Reservoir during spring electrofishing between 2007 and 2010.

Date	Temperature, Lower Section	Date	Temperature, Upper Section
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

The April 28, 2010 sampling of the lower section of the reservoir resulted in 13 yearling northern pike captured with a mean length of 274 mm and one juvenile northern pike measuring 432 mm. The sampling results for northern pike captured in 2007, 2008, and 2009 in the lower section resulted in mean lengths of 541 mm, 566 mm, and 434 mm, respectively. Lengths and weights were recorded for all fish captured in 2010 and are presented in Appendix B.

3.3 Fall Electrofishing

3.3.1 2010 Electrofishing Above the Island Complex

In 2010 electrofishing efforts in the Clark Fork River were conducted at night on October 12 and 13. Electrofishing commenced at the confluence with Eddy Creek and moved downstream to the Island Complex (Figure 3-1). 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. The fall electrofishing reach above the Island Complex is illustrated in Figure 3-1.

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. In 2010, river left was electrofished the night of October 12 and river right was electrofished the night of October 13. The catch per unit effort (fish per hour) for river right is provided in Table 3-7 and for river left is provided in Table 3-8. Data collected from fish

sampled during electrofishing efforts in 2010, including length and weight measurements, are provided in Appendix B.

The 2010 results produced 488 fish representing 11 species, 34 of which were *Oncorhynchus* species. The 2010 results were similar to the 2009 effort that captured 699 fish representing 11 species, 37 of which were *Oncorhynchus* species. In 2009 and 2010, mountain whitefish was the predominant species captured. The predominant species captured in 2010 included mountain whitefish (n=215), largescale sucker (n=133), and northern pike minnow (n=71).

During electrofishing efforts on October 12, 2010, one bull trout was captured measuring 324 mm and weighing 240 grams (g). The bull trout was released in the same location in excellent condition. A sample was taken for genetic analysis. Genetic results for natal stream assignment assigned the South Fork Jocko River as the first/higher possibility with the North Fork Jocko River as the second possibility.

Table 3-7. Fall electrofishing CPUE (fish per hour) in the Clark Fork River, River Right, Above the Island Complex in 2009 and 2010.

	River Right 2009		River Right 2010	
Species	**Number**	**CPUE**	**Number**	**CPUE**
LL	2	0.9	3	1.4
LND	0	0	1	0.5
LSS	180	76.3	69	32.4
MWF	107	45.3	103	48.4
NP	2	0.9	7	3.3
NPM	44	18.6	45	21.1
PEA	1	0.4	0	0
RBT	31	13.1	18	8.5
RSS	0	0	3	1.4
SMB	1	0.4	3	1.4
WCT	3	1.3	2	0.9
WCTxRBT	3	1.3	0	0
YP	1	0.4	1	0.5
TOTAL FISH	**375**		**255**	

Table 3-8. Fall electrofishing CPUE (fish per hour) in the Clark Fork River, River Left, Above the Island Complex in 2009 and 2010.

	River Left 2009		River Left 2010	
Species	**Number**	**CPUE**	**Number**	**CPUE**
BLT	0	0	1	0.5
LL	3	0.9	2	0.9
LNS	0	0	1	0.5
LSS	158	48.8	64	29.6
MWF	89	27.5	112	51.9
NP	9	2.8	1	0.5
NPM	44	13.6	26	12.0
RBT	13	4.0	11	5.1
RSS	0	0	2	0.9
SMB	0	0	1	0.5
WCT	6	1.9	3	1.4
WCTxRBT	1	0.3	0	0
YP	1	0.3	0	0
TOTAL FISH	**324**		**224**	

3.3.2 2010 Electrofishing from Paradise to Plains

In 2010, a new electrofishing sampling section was added in order to acquire basic species composition in the Clark Fork River approximately 35 miles upstream of the Thompson Falls Dam. 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 3-2). Both right and left banks were electrofished the night of October 19.

A total of 421 fish representing nine species were captured during this effort including 43 rainbow trout and 17 westslope cutthroat trout (Table 3-9). The predominant species captured was northern pikeminnow (n=166) followed by largescale sucker (n=94), mountain whitefish (n=85), rainbow trout (n=43), westslope cutthroat trout (n=17), brown trout (n=10), redside shiner (n=3), smallmouth bass (n=2), and yellow perch (n=1). Measurements for each fish captured during the 2010 spring electrofishing are provided in Appendix B.

Table 3-9. Summary of CPUE (fish per hour) during 2010 fall electrofishing in the Clark Fork River, including river left and river right, from Paradise to Plains.

	River Left 2010		River Right 2010	
Species	**Number**	**CPUE**	**Number**	**CPUE**
LL	2	1.1	8	4.3
LSS	41	23.2	53	28.3
MWF	50	28.3	35	18.7
NPM	69	39.0	97	51.9
RBT	13	7.3	30	16.0
RSS	2	1.1	1	0.5
SMB	1	0.6	1	0.5
WCT	13	7.3	4	2.1
YP	1	0.6	0	0
TOTAL FISH	**192**		**229**	

4.0 Bull Trout Passage and Monitoring

4.1 Bull Trout Passage Totals

Avista continued their Upstream Fish Passage Program, including trap and haul, in 2010. Bull trout captured downstream of Cabinet Gorge Dam were genetically tested using DeHaan et al. (2010) rapid response genetic identification methodology. The rapid response genetic testing provides population assignment within 6 to 24 hours after receipt of fish tissue samples. The analysis determines the natal stream of each bull trout before being released. Bull trout with a natal stream upstream of Thompson Falls Dam are referred to as "Region 4" fish.

The only fish passed over Thompson Falls Dam in 2009 and 2010 were bull trout collected by the Avista's Upstream Fish Passage Program. This program collected a total of 35 unique bull trout in 2010 compared to 47 unique bull trout in 2009. Nine bull trout were transported to Region 4 in 2010 and 12 bull trout were transported to Region 4 in 2009. Below is a table summarizing bull trout captured by Avista below Cabinet Gorge Dam in 2009 and 2010 and transported to Regions 1, 2, 3, or 4 (Table 4-1).

In 2010 Avista transported 27 bull trout from downstream of Cabinet Gorge Dam to Cabinet Gorge Reservoir (n = 6), Noxon Reservoir (n = 12), or upstream of Thompson Falls Dam (n = 9). Of the nine bull trout transported above Thompson Falls Dam five of these fish were radio tagged and released in the lower Thompson River. Following the release of these five bull trout, personnel from FWP continued tracking their movements between May 2010 and January 2011. Four of the five bull trout being monitored passed downstream through Thompson Falls Dam. The latest telemetry data available, at the time of this report, indicate two of the bull trout had been detected in lower Vermilion River, a third was detected near the mouth of Prospect Creek, the fourth was located in the East Fork Bull River (downstream of Noxon Rapids Dam), and the fifth bull trout continued to be monitored upstream of Thompson Falls Dam (Bernall et al. 2011 in progress). Table 4-2 summarizes movement patterns of all five bull trout, the time frame when the four bull trout potentially passed downstream of Thompson Falls Dam, river flows, and condition (alive or dead) after passing Thompson Falls Dam. A detailed summary, including a figure, of each bull trout's movement is provided in Section 4.2.

Table 4-1. Summary of Avista's Upstream Fish Passage Program in 2009 and 2010. (Source: Bernall et al. 2011 in progress)

Region Released/ Transported	Capture Method						Totals	
	Night E-fishing		Hook and Line		Cabinet Gorge Hatchery Fish Ladder			
	2009	2010	2009	2010	2009	2010	2009	2010
Region 1 Released	2	6[1]	4[2]	1[3]	9	1	15[4]	8
Region 2 Transports	5	3	1	1	4	2	10	6
Region 3 Transports	7	9	2	1	3	2	12	12
Region 4 Transports	3	7	3	2	6	0	12	9
Total Captures	17	25	10	5	22	5	49[5]	35[6]

[1]One bull trout assigned to Region 4 but was too small to transport.
[2]One mortality from Hook and Line.
[3]Mortality from hook and line capture.
[4]Only 13 bull trout were released two of the 15 were bull trout captured twice in 2010), 3 of which were too small to transport.
[5]Two fish out of the 49 were captured twice throughout the year so the actual # was 47 unique bull trout.
[6]35 unique bull trout were captured throughout the year with one mortality so 34 released/transported and 27 in Montana.

Table 4-2. Summary of the five radio tagged bull trout (BLT) that were transported from downstream of Cabinet Gorge Dam upstream of Thompson Falls (TFalls) Dam into the Thompson River in 2010. USGS flow is the sum of the Clark Fork River at Plains (#12389000) and the Thompson River (#12389500).

BLT Code	Genetic Assignment	Date Captured below Cabinet	Date Released Above TFalls Dam	Last date Above Dam	Date First Detected Below Dam	Flow (cfs) during passage through TFalls Dam	BLT Pass Through Turbine or Spillway[2]	Condition After Passing TFalls Dam
27	Fishtrap Ck	25-Jun-10	30-Jun-10	23-Aug-10	27-Sep-10	10,159 - 16,440	Turbine	Undetermined
28	Char[1] Ck	13-May-10	19-May-10	19-May-10	20-May-10	25,620 - 27,682	Spillway or Turbine	Alive
30	Fishtrap Ck	5-May-10	12-May-10	10-Jan-11	NA	NA	NA	NA
31	Fishtrap Ck	16-May-10	19-May-10	24-Sep-10	8-Oct-10	16,544 - 12,337	Turbine	Alive
32	Fishtrap Ck	29-Apr-10	5-May-10	6-May-10	11-May-10	15,434 - 17,079	Turbine	Alive

[1]BLT #28 genetic assessment identified its most likely population origin as Char Creek and second most likely population of origin as Rattlesnake Creek near Missoula, Montana with a confidence of 1.8.
[2]Spill at Thompson Falls Dam occurs once river flows exceed 23,000 cfs.

4.2 Region 4 Bull Trout Monitoring

The following sections and figures 4-1 through 4-5 summarize the movement patterns of the five bull trout that were initially transported from downstream of Cabinet Gorge Dam and released upstream of Thompson Falls Dam in the Thompson River. Table 4-3 summarizes the tagging identification for each fish, length, weight, capture date, release date, and last date detected.

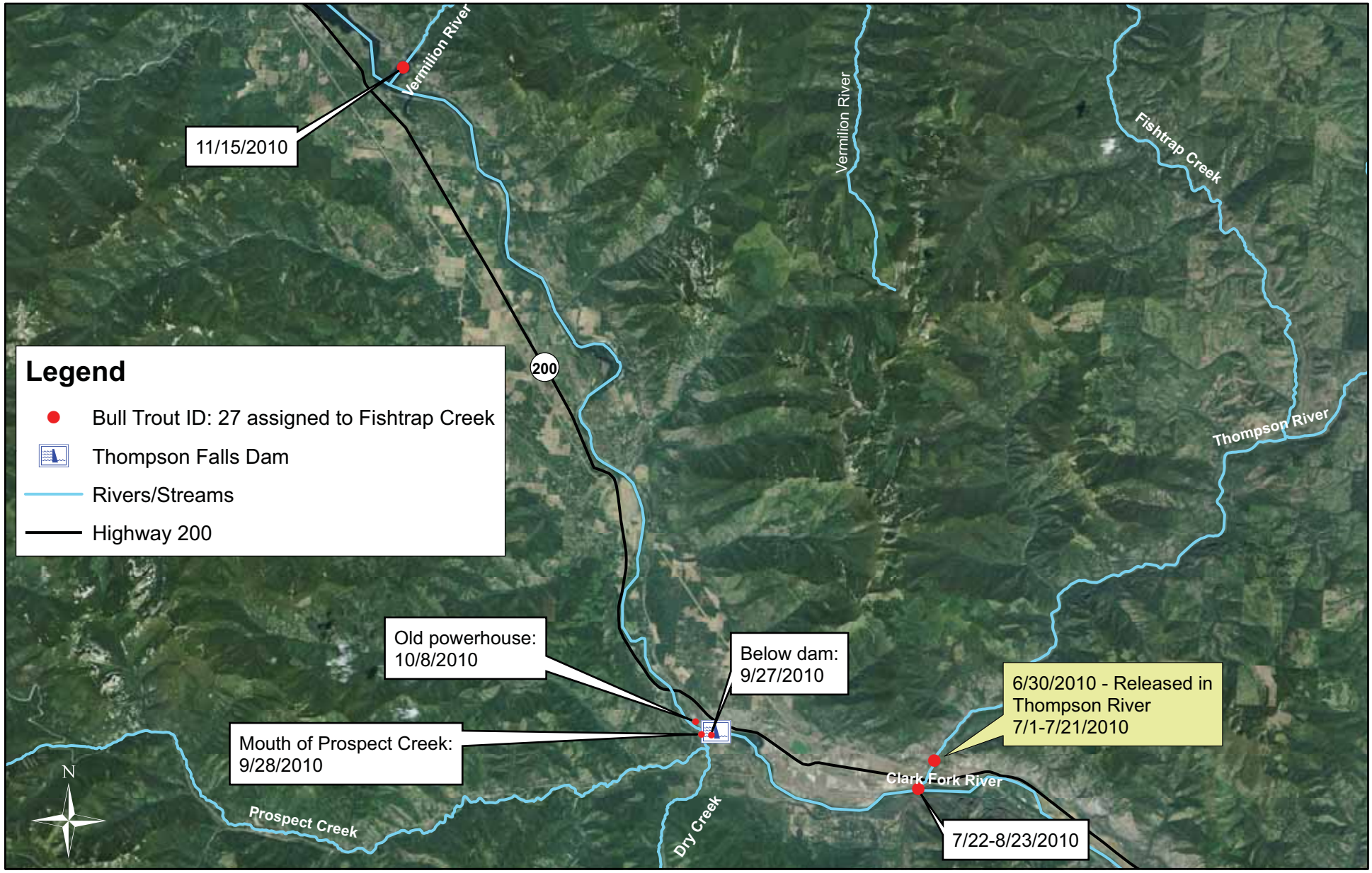
Table 4-3. Summary of radio tagged bull trout transported from downstream of Cabinet Gorge Dam upstream to Thompson River - Region 4. (Bernall et al. 2011 in progress)

ID	Length (mm)	Weight (g)	Gender[1]	PIT tag #	Frequency Code	Capture Date	Release Date	Last Date Detected
27	535	1587	Female	985121021187084	148.480	6/25/2010	6/30/2010	10/12/2010
28	621	2778	Female	985121016753895	148.480	5/13/2010	5/19/2010	10/18/2010
30	534	1247	NR[2]	985121016700474	148.480	5/5/2010	5/12/2010	1/7/2011
31	643	2665	Male	985121015963939	148.480	5/16/2010	5/19/2010	10/12/2010
32	547	1389	NR[2]	985121021199577	148.480	4/29/2010	5/5/2010	10/18/2010

[1]Gender is estimated based on secondary sexual characteristics.
[2]NR = Not Reported

4.2.1 Bull Trout 27

Bull trout #27 was captured by electrofishing in the Clark Fork River below the Cabinet Gorge Dam on June 25, 2010 at 23:00. The water temperature was recorded at 13 °C and the bull trout was tagged with a 8g Lotek transmitter. Results from the genetic assessment indicate this bull trout's most likely population of origin is Fishtrap Creek (Region 4), a tributary to the Thompson River approximately 15 miles upstream of its confluence with the Clark Fork River. This bull trout was transported and released in the Thompson River approximately 1 mile upstream of the confluence on June 30, 2010 at 14:00. This bull trout moved downstream of Thompson Falls Dam between August 23 and September 27 and was last recorded on October 12, 2010 in the Vermilion River. A summary of this bull trout's movement is provided below and illustrated in figure 4-1.



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2010 Bull Trout Locations

FIGURE NUMBER **FIG. 4-1**

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Personnel from FWP tracked this bull trout's movements in 2010 after it was released in the Thompson River. Bull trout #27 was detected ten times at or near its release point in the Thompson River between June 30 and July 21. On July 22 it was detected just below the mouth of the Thompson River in the Clark Fork River. Between July 22 and August 23, bull trout #27 was detected on ten separate occasions in the Clark Fork River near the mouth of the Thompson River or in the Thompson River less than 0.1 mile upstream. The bull trout was not detected again until September 27, where it was located downstream of the Thompson Falls Dam.

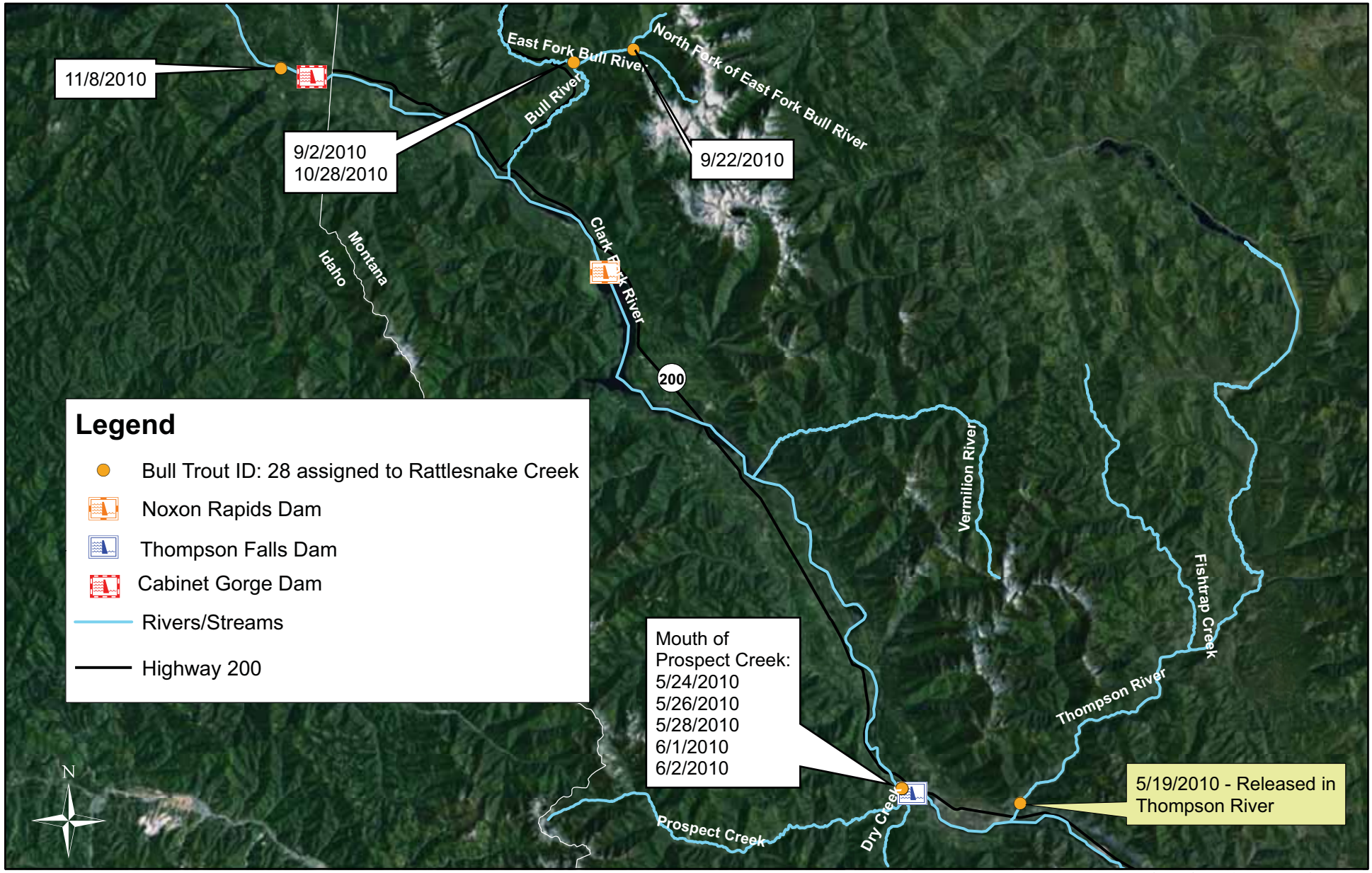
On August 23 river flows in the Clark Fork River near Thompson Falls Dam were approximately 10,159 cfs (USGS gage #12389000 Clark Fork River at Plains and #12389500 Thompson River near Thompson Falls). On September 27 river flows in the Clark Fork River near Thompson Falls Dam were approximately 16,440 cfs. Because flows were less than 23,000 cfs (river flow at which spill occurs), it is assumed that the bull trout passed through the turbine between August 23 and September 27.

On September 27, the bull trout was detected below the Thompson Falls Dam in the tailrace. The bull trout was detected twice more in this area, including, once near the mouth of Prospect Creek on September 28 and once near the old powerhouse on October 8. Bull trout #27 was last detected by Avista on November 15, 2010 near the confluence of the Vermilion River; a tributary to the Clark Fork River located approximately 20 miles downstream of Thompson Falls Dam.

4.2.2 Bull Trout 28

Bull trout #28 was captured via electrofishing in the Clark Fork River below the Cabinet Gorge Dam on May 13, 2010 at 22:30. The water temperature was recorded at 9 °C and the bull trout was tagged with a 8g Lotek transmitter. Results from the genetic assessment indicate this bull trout's most likely population of origin is Char Creek (Region 1) and second most likely population of origin is Rattlesnake Creek (Region 4) near Missoula, Montana. This bull trout was transported and released in the Thompson River (Region 4) approximately 1 mile upstream of the confluence on May 19, 2010 at 14:15. A summary of this bull trout movement is provided below and illustrated in figure 4-2.

Approximately 14 hours after it was released, the bull trout was detected by the PPL Montana Hilltop remote receiver just downstream of Thompson Falls Dam on May 20. The river flow at the dam on May 19 was approximately 25,620 cfs (USGS gages on the Clark Fork River at Plains and Thompson River) and approximately 27,682 cfs on May 20. Spill at the dam occurs when flows reach or exceed 23,000 cfs. Flows on May 19 and 20 at the dam indicate the bull trout downstream passage could have been through either through the turbines or spillways.



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2010 Bull Trout Locations

FIGURE NUMBER **FIG. 4-2**

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Bull trout #28 was detected five more times near the old powerhouse and the mouth of Prospect Creek between May 24 and June 2. This bull trout was not detected between June 2 and September 2.

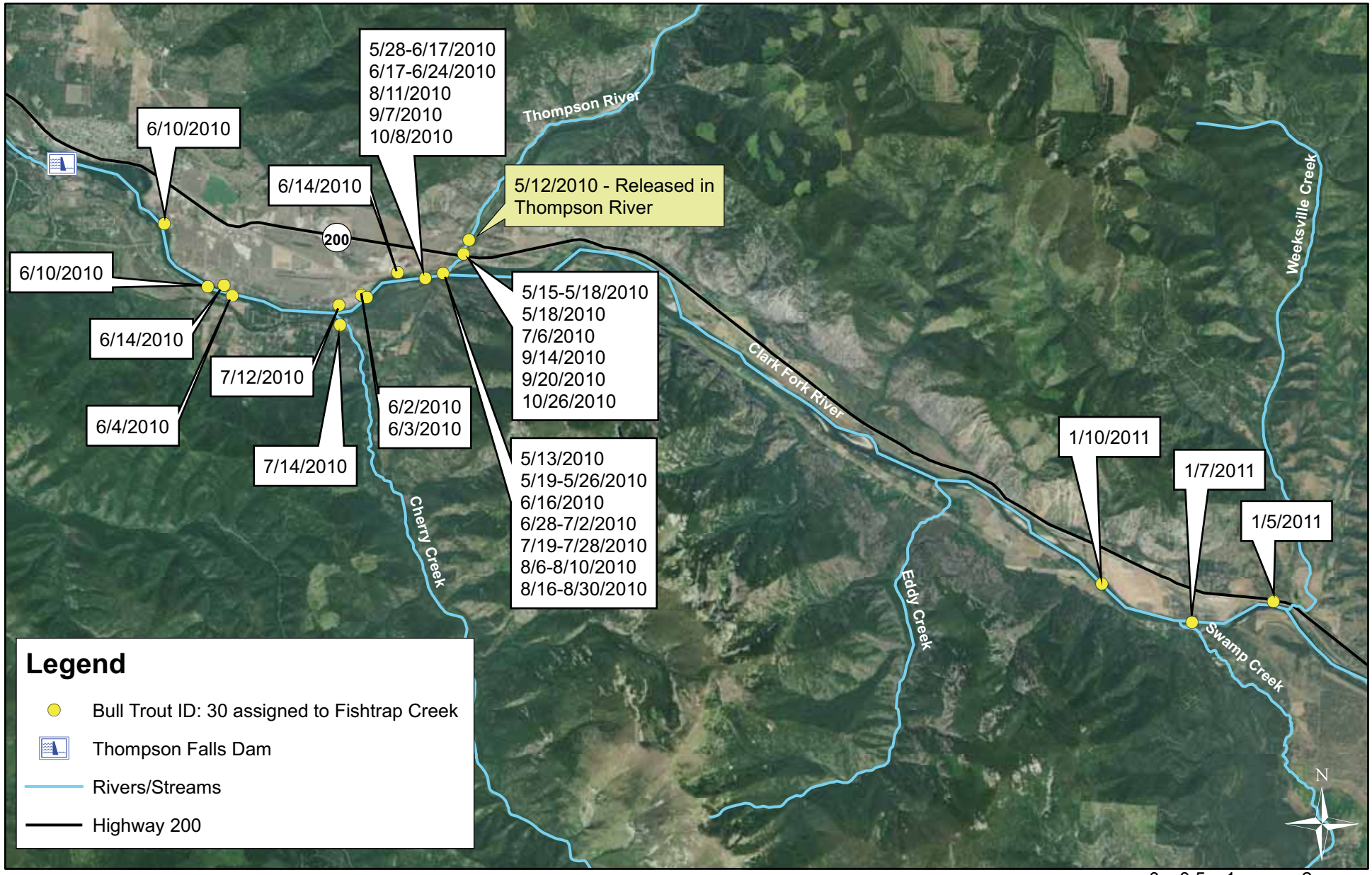
On September 2 the bull trout was caught in Avista's weir trap on the East Fork Bull River approximately 45 miles downstream of the Thompson Falls Dam and 10 miles below the Noxon Rapids Dam. It was then released above the weir trap and detected upstream near Snake Creek Pass. On September 22, the bull trout was detected in the East Fork Bull River near the North Fork of the East Fork Bull River confluence. The bull trout was last detected in the East Fork Bull River immediately upstream of Avista's weir trap on October 28 before moving out of the Bull River drainage and being detected on remote stations below Cabinet Gorge Dam on November 8, 2010.

4.2.3 Bull Trout 30

Bull trout #30 was captured via hook and line angling in the Clark Fork River below the Cabinet Gorge Dam on May 5, 2010 at 14:15. The water temperature was recorded at 8 °C and the bull trout was tagged with a 8g Lotek transmitter. Results from the genetic assessment indicate this bull trout's most likely population of origin is Fishtrap Creek (Region 4), a tributary to the Thompson River and second most likely population of origin is Upper Rock Creek (Region 4). This bull trout was transported and released in the Thompson River approximately 1 mile upstream of the confluence with the Clark Fork River on May 12, 2010 at 14:15. A summary of this bull trout movement is provided below and illustrated in figure 4-3.

Between May 12 and May 26, this bull trout was detected 12 times in and near the mouth of the Thompson River. The bull trout then moved into the Clark Fork River where it was detected approximately 0.5 miles upstream of the confluence with Cherry Creek on June 3.

The bull trout remained in the Clark Fork River just below the Thompson River mouth from June 15 to June 28. It was detected 10 times during this period and was found primarily on river right and within 300 meters of the Thompson River mouth. On June 30 the bull trout was detected in the Thompson River approximately 100 meters upstream of its mouth. The bull trout was detected in this area 4 times until July 6. On July 12 and 14 the bull trout was found in the Clark Fork River at the mouth of Cherry Creek approximately 1.5 miles downstream of the Thompson River mouth and 3.5 miles upstream of the Thompson Falls Dam. On July 19 the bull trout was again detected near the mouth of the Thompson River. It was detected in or around the mouth of the Thompson River an estimated 20 times between July 19 and October 26.



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2010 Bull Trout Locations

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FIGURE NUMBER **FIG. 4-3**

M:\4421\002-02\GIS\TFalls Bulltrout 2010 Fish 30.mxd

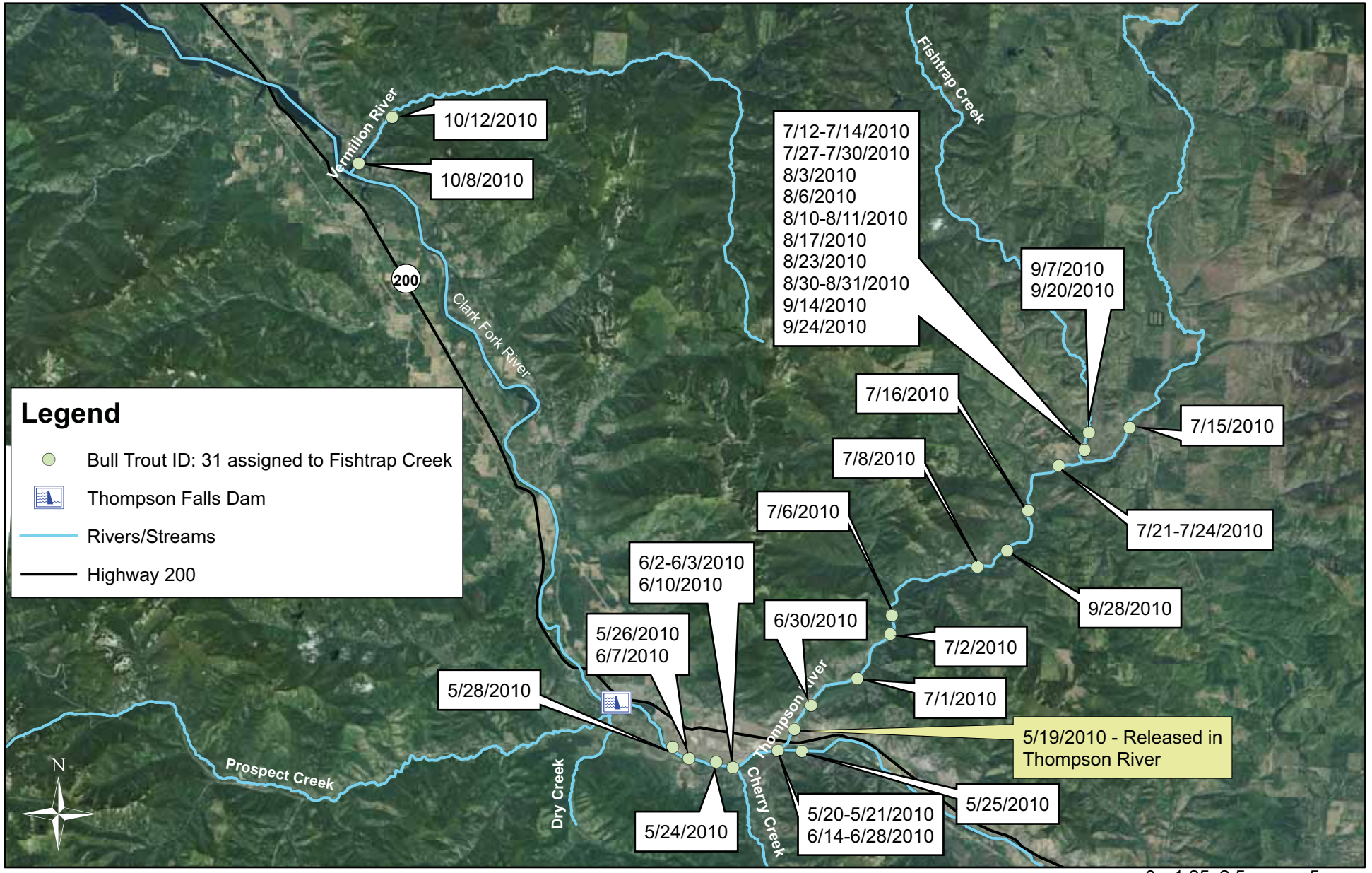
On December 17, 2010 bull trout #30 was detected near the mouth of Eddy Creek, which is approximately 13.5 miles upstream of the Thompson Falls Dam. On January 5, 2011 the bull trout was detected in the Clark Fork River just downstream of the confluence with Weeksville Creek, which is approximately 18 miles upstream of the Thompson Falls Dam. On January 7, 2011 it had moved back downstream and was detected in the Clark Fork River near the mouth of Swamp Creek, approximately 17.1 miles upstream from Thompson Falls Dam. The last recorded detection of the bull trout was in the Clark Fork River approximately 16 miles upstream from the Thompson Falls Dam, near Lawyer Nursery. Of the five bull trout radio tagged and monitored in 2010, bull trout #30 was the only bull trout that did not move downstream of Thompson Falls Dam after its release in the Thompson River.

4.2.4 Bull Trout 31

Bull trout #31 was captured via electrofishing in the Clark Fork River below the Cabinet Gorge Dam on May 16, 2010 at 21:00. The water temperature was recorded at 9 °C and the bull trout was tagged with a 8g Lotek transmitter. Results from the genetic assessment indicate this bull trout's most likely population of origin is Fishtrap Creek (Region 4), a tributary to the Thompson River, and second most likely population of origin is Copper Creek (Region 4). This bull trout was transported and released in the Thompson River approximately 1 mile upstream of the confluence on May 19, 2010 at 14:15. This bull trout moved downstream of Thompson Falls Dam between September 28 and October 12, 2010. A summary of this bull trout's movement is provided below and illustrated in figure 4-4.

The bull trout was detected on 19 occasions between May 20 and June 24 moving in the Clark Fork River between the confluence of the Thompson River and immediately downstream of the confluence of Cherry Creek. On June 28, the bull trout was detected 50 meters upstream Thompson River.

Bull trout #31 remained in the Thompson River drainage between June 28 and September 28, 2010. Between June 28 and July 8, bull trout #31 was detected in the Thompson River. On July 12 the bull trout had moved and was detected further upstream in Fishtrap Creek approximately 0.4 mile upstream from the confluence. On July 14 the bull trout moved back into the Thompson River, approximately 15 miles up the Thompson River (0.25 mile upstream from the confluence with Fishtrap Creek). Bull trout #31 remained in the Thompson River between July 14 and July 24. On July 27, bull trout #31 was again detected in Fishtrap Creek. The bull trout remained in Fishtrap Creek, approximately 0.5 to 1.2 miles upstream of the mouth, between July 27 and September 24, 2010. On September 28, bull trout was detected in the Thompson River approximately 5 miles downstream of Fishtrap Creek (10 miles up Thompson River). September 28 was the last date bull trout #31 was detected upstream of the Thompson Falls Dam. On October 12, 2010, Avista's remote receiver detected bull trout #31 approximately 2 miles upstream in the Vermilion River.



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DATE: 2/2011

Thompson Falls Project

Thompson Falls MT

PROJECT NO. M:\4421.002.02A

2010 Bull Trout Locations

FIGURE NUMBER **FIG. 4-4**

M:\4421\002-02\GIS\TFalls Bulltrout 2010 Fish 31.mxd

The flow at Thompson Falls Dam on September 28 was approximately 16,544 cfs (USGS gages Clark Fork River at Plains and Thompson River) and 12,337 cfs on October 8. Spill at the Main dam occurs when flows reach or exceed 23,000 cfs. River flows between September 28 and October 8 indicate no spill was occurring when bull trout #31 moved downstream of the Thompson Falls Dam. Therefore this bull trout must have passed through the turbines.

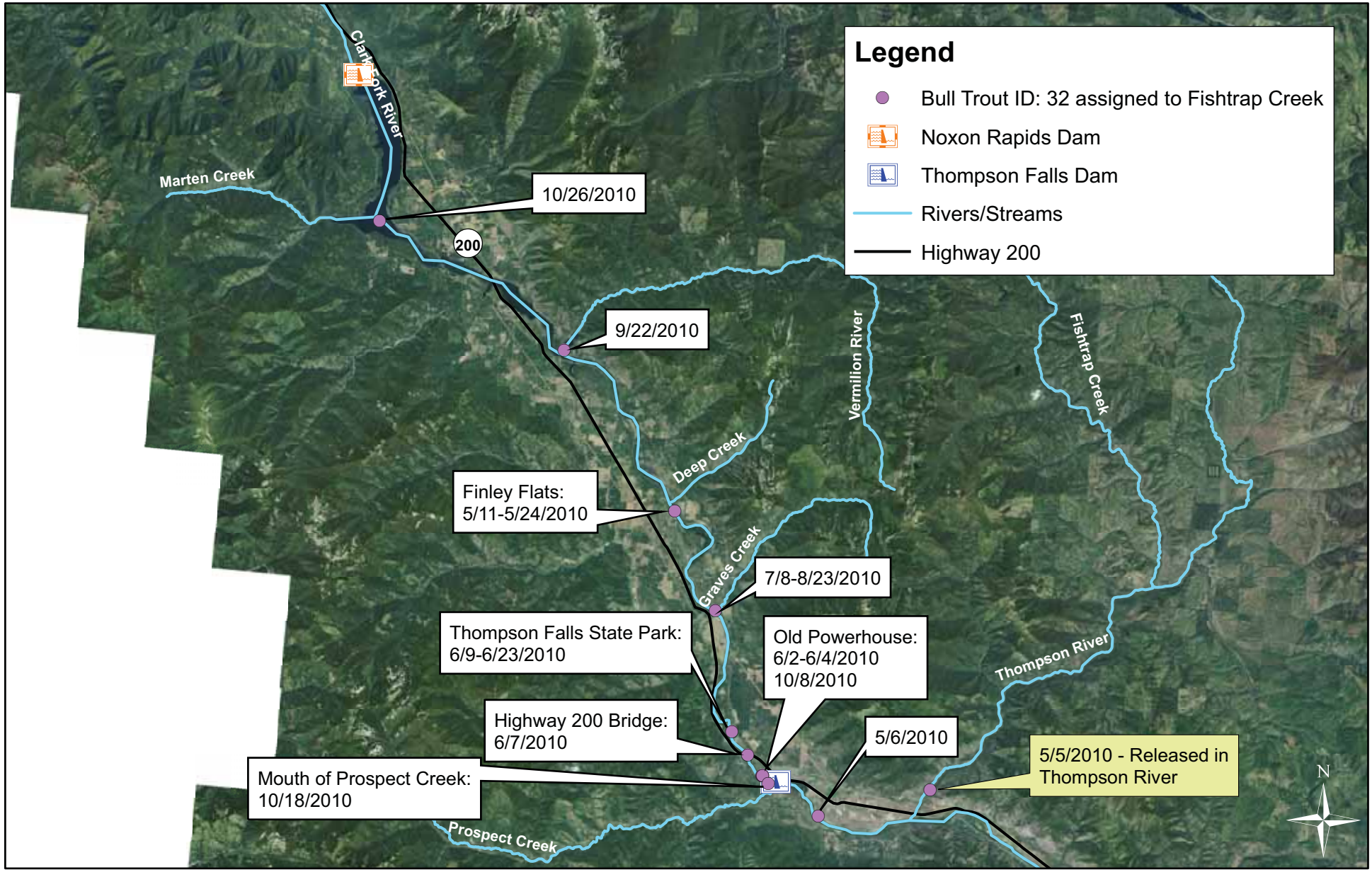
Based on the timing and movements recorded for bull trout #31 in the Thompson River drainage, this fish appears to be the only one out of the four bull trout with primary genetic assignment to Fishtrap Creek) that potentially spawned in the drainage in 2010.

4.2.5 Bull Trout 32

Bull trout #32 was captured via electrofishing in the Clark Fork River below the Cabinet Gorge Dam on April 29, 2010 at 20:15. The water temperature was recorded at 6 °C and the bull trout was tagged with a 8g Lotek transmitter. Results from the genetic assessment indicate this bull trout's most likely population of origin is Fishtrap Creek (Region 4), a tributary to the Thompson River, and second most likely population of origin is East Fork Bull River (Region 2). This bull trout was transported and released in the Thompson River approximately 1 mile upstream of the confluence on May 5, 2010 at 14:15. A summary of bull trout #32 movements is provided below and illustrated in figure 4-5.

Personnel from FWP continued to track this bull trout's movements after it was released in the Thompson River. It was detected on May 6 in the Clark Fork River approximately 4 to 5 miles downstream of the Thompson River. On May 6, the last date that bull trout #32 was detected upstream of the Thompson Falls Dam, the river flow (USGS gages on the Clark Fork River at Plains and Thompson River) was approximately 15,434 cfs. On May 11, bull trout #32 was detected approximately 10 miles downstream of Thompson Falls Dam near Finley Flats. River flow at the dam on May 11 was approximately 17,079 cfs. Spill at the dam occurs when flows reach or exceed 23,000 cfs. Flows in the river between May 6 and May 11 were less than 23,000 cfs; therefore, bull trout #32 must have passed through the turbines at Thompson Falls Dam.

Between May and October 2010, bull trout #32 appeared to make several lengthy upstream and downstream migrations. Between May 11 and 24, bull trout #32 continued to be detected near Finley Flats. Between June 2 and 4, bull trout #32 had migrated upstream and was detected downstream of the old powerhouse at Thompson Falls Dam. On June 7, the bull trout was located approximately 1.2 miles downstream of the dam near the Highway 200 bridge. Between June 9 and June 23 the bull trout was detected near the Thompson Falls State Park, approximately 2.5 miles downstream of Thompson Falls Dam. Between July 8 and August 23, bull trout #32 was detected on three different occasions near the mouth of Graves Creek, approximately 7.5 miles downstream of the Thompson Falls Dam. On September 22 the bull trout was detected in the outer Vermilion River Bay, approximately 20 miles downstream of the



Montana 2009 Color NAIP Orthophoto

Scale 1:325,000

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Thompson Falls Project

Thompson Falls MT

2010 Bull Trout Locations

PROJECT NO. M:\4421.002.02A

FIGURE NUMBER **FIG. 4-5**

M:\4421\002-02\GIS\TFalls Bulltrout 2010 Fish 32.mxd

Thompson Falls Dam. Approximately 2 weeks later, on October 8, the bull trout was detected immediately downstream of the old powerhouse. Bull trout #32 was last detected on October 26 near Marten Creek Bay.

5.0 2010 TAC Funded Projects

5.1 2010 TAC Funded Projects

Thompson Falls TAC funded four projects in 2010. The four approved proposals are provided below and include the following projects, Oregon Gulch mine restoration, Fish Creek watershed rehabilitation, Big Rock Creek road rehabilitation, and bull trout genetic sampling in the Clark Fork River drainage.

5.1.1 Oregon Gulch Mine Restoration

The following report was provided by Trout Unlimited in November 2010.

In 2010, the Thompson Falls TAC supported funding for a Trout Unlimited (TU) proposal for restoration of a stream channel and riparian corridor through a previously mined reach on Oregon Gulch, tributary of Cedar Creek. This proposal included completion of a final design, permitting, and implementation in 2010.

During discussions at the 2009 Annual TAC meeting, committee members expressed concerns regarding: 1) the risk of dewatering in the re-built project reach and 2) long-term re-assurance from the landowner that the project work would not be compromised through continued mining or disturbance. Although the proposal was fully funded, TU tried to address these concerns prior to finalizing a design.

With the proposed location for the new channel identified, TU monitored and evaluated the channel elevations relative to groundwater elevation. Test pits indicated that there may be a short reach that is at risk of dewatering. Plans were modified to slightly adjust channel elevation, incorporate extra fines, compaction, etc. to reduce infiltration and the risk of dewatering during extreme low water conditions.

Discussions with the landowner were positive, but led to an additional issue. The landowner requested that an access road be built along the edge of the new riparian area so that he could access other portions of his property downstream. The reach he was referring to includes a confined stream corridor that encompasses most of the bull trout redd count index section. It was apparent that his intention was to continue an access road down the riparian corridor adjacent to the stream. TU does not support construction of a new riparian road and will not facilitate its construction through the project. Therefore, TU has placed the project on hold and continues to evaluate options to resolve the issues.

Approved TAC funding ($51,500) is being held by Trout Unlimited.

5.1.2 Fish Creek Watershed Rehabilitation Phase II

The following report was provided by Trout Unlimited in November 2010.

Trout Unlimited was awarded $37,770 in 2010 in 2010 by the Thompson Falls Bull Trout PM&E Fund for watershed rehabilitation work in the Fish Creek drainage to improve bull trout habitat and connectivity. TU, The Nature Conservancy, and FWP proposed to restore aquatic passage at several prioritized sites within Fish Creek in conjunction with other work we were performing in the drainage. Funds from PPL Montana were used for watershed rehabilitation activities in the Bear Creek, Surveyor Creek, Thompson Creek and Wig Creek watersheds; however, to more accurately portray the scope of activity in the watershed, this report describes all of the projects completed in Fish Creek this year, including those completed with matching funds from other organizations. In total, TU and partners spent approximately $383,000 on watershed rehabilitation efforts during the 2010 field season, as follows:

5.1.2.1 Bear Creek

Thirteen miles of roads were pre-treated for weeds, decommissioned, and seeded with native grasses in Section 3 of Bear Creek. Five large culverts and approximately ten small culverts were removed and restored to natural stream dimensions.

5.1.2.2 Surveyor Creek

Five miles of roads were pre-treated for weeds, decommissioned, and seeded with native grasses in Section 35 of Surveyor Creek. Two large culverts, one bridge and approximately five small culverts were removed and restored to natural stream dimensions.

5.1.2.3 Thompson Creek

Forty miles of roads were pre-treated for weeds, decommissioned, and seeded with native grasses in Sections 13, 23, 24, and 25 of Thompson Creek. Fifteen large culverts and approximately 20 small culverts were removed and restored to natural stream dimensions. Two 4-acre sites near the confluence of Thompson Creek and South Fork of Fish Creek in Section 13 were revegetated heavily with native species. These heavily burned floodplain areas were planted at the rate of 2,187 native shrubs and conifers per acre. Site 1 was enclosed by a fence that uses Deer D Fence at 7’ and 6” in height using untreated 10’ ft posts at 3” in diameter at 20’ spacing with ground staples in between posts to secure fence netting. It was also planted with 1,000 Stinger Plants. These plants are roughly the equivalent of 2 gallon sized plants and will be planted closest to Fish Creek in hopes of re-establishing a wider protective riparian corridor that existed prior to the fire. All plants were watered and weeded during two maintenance visits throughout the summer of 2010.

5.1.2.4 Wig Creek

Three and a half miles of roads were pre-treated for weeds, decommissioned, and seeded with native grasses in Sections 21 and 29 of Wig Creek. Three large culverts and approximately one small culvert was removed and restored to natural stream dimensions.

5.1.2.5 Lion Creek

Fifteen miles of roads were pre-treated for weeds, decommissioned, and seed with native grasses in Sections 17 and 18 of Lion Creek. Five large culverts and approximately ten small culverts were removed and restored to natural stream dimensions.

Restored crossing on seasonal drainage in Thompson Creek watershed

Dewatering at Wig Creek culvert removal

Tree planters in Deer Creek burned area

Restored crossing on Surveyor Creek

5.1.3 Big Rock Creek Road Rehabilitation

Stream Name Big Rock Creek

Drainage	**Location**	**Landowner(s)**	
Thompson River	T24N R26W S6	Plum Creek	
Project Type	**Primary Goal**	**Secondary Goal(s)**	
Bank Stabilization	Bank Stabilization	Road Removal	
Year Funded	**Project Sponsor**	**Year Implemented**	**Project Implementer**
2009	FWP	2010	FWP & USFS
Total Cost	**Funding Sources**		
$13,000	PPL Montana	Plum Creek (rootwads)	FWP (in kind) USFS (in kind)
	$6,000	$2,000	$3,500 $3,750

Summary: Big Rock Creek is a tributary of upper Thompson River, entering roughly 27 miles above the confluence with the Clark Fork River. The lower portion of Big Rock Creek is paralleled by a county road. Issues with excessive erosion and road impingement at this site have been ongoing for years and finally culminated in a road washout in 2008. After consultation with FWP, the county decided that instead of repairing the washout, a portion of the road should be moved out of the floodplain. The road was moved in 2009. In addition, a bridge was installed directly upstream of the problem site, replacing two undersized culverts that were an additional problem source. With the road moved and the new bridge installed, the washout area presented an opportunity to improve fish habitat and create stability in the lower portion of the creek. In 2009 FWP and the U.S. Forest Service (USFS) proposed a reclamation project along approximately 100 m of stream at the washout site.

Goals of the project were to stabilize the eroding meander that had washed out the road prism, improve the function of the stream through that reach, reduce sediment inputs and provide better fish-holding habitat. The project was led by Jon Hanson and Jenn Mickelson, and funding was provided by PPL Montana (cash) and Plum Creek Timber Company (rootwad donation). Total costs, including in-kind and material donations were around $13,000. The project was funded in 2009 and carried out in the summer of 2010.

The project consisted of three different treatments within the washout site. All treatments focused on stream bank stability and floodplain function. No in-stream hardened structures were built. At the upstream portion of the project site, where the road prism entered the stream channel the stream bank was re-contoured and sloped back to allow floodplain access. No substantial hardening of the bank was done. Further downstream, where the road left the stream channel again, a tight meander bend had formed and was causing significant bank erosion. This bend received a rootwad revetment to prevent further bank erosion, along with minor reshaping to soften the bend. At the bottom of the project area the road prism encroached on the stream channel again, forming a high bank that was slowly sloughing. Although natural vegetation had colonized this bank, few woody species were growing there. This bank was altered to provide a slightly sloping bankfull bench, backed by a decompacted and sloped road prism.

Within the project reach the road prism was scarified and covered with local duff and slash to promote natural regeneration. Also, all of the modified stream banks received on-site transplants of small trees and native grass seeding. One interesting method involved transplants of large, fallen cottonwood trees that had begun to sprout new stems. In hopes of promoting quick cottonwood recolonization, several segments (up to 10’ in length) of these cottonwood stems were partially buried in the

floodplain with the newly-sprouted stems uncovered. If successful, this method could be used in future restoration projects to accelerate revegetation efforts in the early years following construction.

In fall of 2010 revegetation work was completed. Local willow and dogwood cuttings were collected from the Thompson River early in the year. These were sent to a USFS nursery in Coeur d'Alene, Idaho where they were planted to create rooted stock. These were planted on the Big Rock road site this fall, and received browse protection as well. It remains to be seen how well this project stands up to high water events, but it should meet its main goal of improving stability in a problematic site and preventing major sediment input from the road prism in the future.

Fisheries data on Big Rock Creek were collected on August 25 through 27, 2010. Photographs showing the upper and lower sections of the drainage are presented below.

Photo 1: Photograph taken on August 25, 2010 of the upper end of Big Rock Creek drainage.

Photo 2: Photograph taken on August 25, 2010 of the lower end of Big Rock Creek drainage.

The objective of this work was to determine the extent of bull trout distribution in the drainage, roughly estimate numbers and identify life history forms, and collect genetic samples to add to the baseline dataset. Eleven sites were sampled with backpack electrofishing equipment to determine relative abundance and distribution of salmonids (Figure 5-1 and Table 5-1). Fisheries data collected during the survey is provided in Appendix D. Sites were located from the mouth to the headwaters and were spaced approximately 1 mile apart.

Bull trout were captured in the lower eight sites, whereas only westslope cutthroat trout were captured at all sites and were the only species found at sites 9 through 11. Brown trout were only captured at site 1. A total of 15 genetic samples (Table 5-2) were taken from 17 bull trout encountered, as 2 bull trout were only observed and unable to be captured at site 8. Genetic results from the laboratory are still pending.

Sampling confirmed the presence of bull trout within Big Rock Creek, and is the first time a drainage wide survey has been completed on this stream. Bull trout densities appear to be relatively low, but consistent within sites 1 through 8. Size distribution of captured bull trout are within a reasonable range of resident life history forms, although additional years sampling should continue to gather more information on size distribution and migratory versus resident individuals.

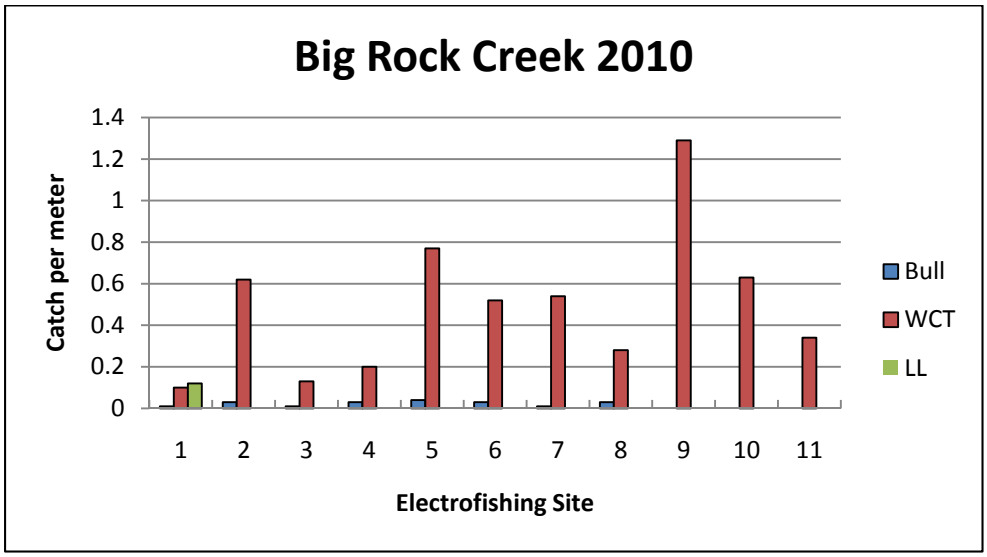

Figure 5-1. Summary of catch per meter in Big Rock Creek in 2010.

Table 5-1. Summary of fish captured during electrofishing efforts in Sections 1 through 11 in Big Rock Creek in 2010.

Location	Section Length (m)	Species	Number Captured	Catch/ meter	Size Range (mm)
Site 1	89	BLT	1	0.01	259
		WCT	9	0.1	165-266
		LL	11	0.12	140-285
Site 2	95	BLT	3	0.03	184-191
		WCT	59	0.62	90-245
Site 3	100	BLT	1	0.01	241
		WCT	13	0.13	75-237
Site 4	100	BLT	3	0.03	216-250
		WCT	20	0.2	60-212
Site 5	90	BLT	4	0.04	224-293
		WCT	69	0.77	89-243
Site 6	75	BLT	2	0.03	235-243
		WCT	39	0.52	97-243
Site 7	76	BLT	1	0.01	246
		WCT	41	0.54	95-215
Site 8	75	BLT	2	0.03	NA
		WCT	21	0.28	82-173
Site 9	75	WCT	97	1.29	73-217
Site 10	75	WCT	47	0.63	37-193
Site 11	100	WCT	34	0.34	70-222

Table 5-2. Bull Trout Genetic Sample Data from Big Rock Creek Sections 1 through 7.

Date	Section	Latitude	Longitude	L (mm)	Wt (g)	Pit Tag #	Genetic Vial #
8/27/2010	Sec. 1	N.47.87117	W.114.98481	259	125	985121021920498	004-H1
8/27/2010	Sec. 2	N.47.87480	W.114.96337	191	51	985121021890292	004-E1
8/27/2010	Sec. 2	N.47.87480	W.114.96337	189	52	985121021880115	004-F1
8/27/2010	Sec. 2	N.47.87480	W.114.96337	184	51	985121021912007	004-G1
8/26/2010	Sec. 3	N.47.87553	W.114.95390	241	105	985121021882416	004-D1
8/26/2010	Sec. 4	N.47.87496	W.114.94244	250	123	985121021918395	004-A1
8/26/2010	Sec. 4	N.47.87496	W.114.94244	220	87	985121021876433	004-B1
8/26/2010	Sec. 4	N.47.87496	W.114.94244	216	87	985121021922640	004-C1
8/26/2010	Sec. 5	N.47.87214	W.114.98682	232	91	985121021922237	003-A4
8/26/2010	Sec. 5	N.47.87214	W.114.98682	224	85	985121021874365	003-A5
8/26/2010	Sec. 5	N.47.87214	W.114.98682	256	127	985121021871628	003-B1
8/26/2010	Sec. 5	N.47.87214	W.114.98682	293	206	985121021892731	003-B2
8/26/2010	Sec. 6	N.47.86964	W.114.91619	235	100	985121021916059	003-A2
8/26/2010	Sec. 6	N.47.86964	W.114.91619	243	105	985121021918162	003-A3
8/26/2010	Sec. 7	N.47.86461	W.114.90332	246	115	985121021912155	003-A1

5.1.4 Bull Trout Genetic Sampling

In 2010, none of the funding allocated to bull trout genetic sampling was spent. The $5,000 fund allocated in 2010 remains available for use in 2011. Refer to Section 7.5.2 for details of the project proposal.

6.0 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.

6.1 Term and Condition TC1 - Upstream Passage:

6.1.1 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 Dam. 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 Dam 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).

6.1.2 Compliance

Construction of the upstream fish passage facility was completed in fall 2010. PPL Montana anticipates operation of the upstream fish passage facility will commence in spring 2011. PPL Montana's *Thompson Falls Fish Ladder - Fishway Operations Manual 1.0* (SOP) was approved by FWS and submitted to FERC on December 15, 2010. PPL Montana has completed project activities in compliance with TC1 (a, b, c).

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 FERC on October 14, 2010. The Fish Passage Evaluation Plan complies with TC 1 (e, f, g, and h).

6.2 TC2 – Downstream Passage

6.2.1 Requirement

The Biological Opinion states that:

> *a. 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.*

6.2.2 Compliance

In 2010 PPL Montana funded a total of three projects and the results of these projects are provided in Section 5.0 of this report. At the time of this report, PPL Montana has a total of $170,000 available for 2011 projects. No new projects were presented to the TAC during the January 26, 2011 annual meeting. PPL Montana shall continue to accept proposals throughout the 2011 calendar year for 2011 projects. As proposals are submitted, PPL Montana will distribute the information to the TAC for review and approval. If no funds are allocated in 2011, available funding in 2012 will reach the budget ceiling of $250,000 as outlined in the MOU. PPL Montana will continue to collaborate and coordinate with agencies and other entities to support projects in compliance with TC2 (a).

6.3 TC3 – Gas Supersaturation

6.3.1 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, MFWP, 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.

6.3.2 Compliance

PPL Montana prepared and submitted a *Total Dissolved Gas Control Plan* to MDEQ in October 2010. The report summarizes TDG data collected from 2002 through 2010 in the Thompson Falls Project area and proposes operational procedures to reduce or minimize TDG production at Thompson Falls Dam during periods of spill in 2011.

PPL Montana will 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 Dam to below Albeni Falls Dam. Eventually, the information from TDG studies will be used to craft an operational procedure that will comply with Montana's water quality regulations and the terms of the Biological Opinion. 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.

6.4 TC4 – MOU and TAC:

6.4.1 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.

6.4.2 Compliance

PPL Montana will comply with these requirements by addressing the MOU at the next TAC meeting scheduled for April 26, 2011.

6.5 TC5 – Thompson Falls Reservoir

6.5.1 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.

6.5.2 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. PPL Montana will start the implementation of the monitoring plan in 2011. 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.

6.6 TC6 – Systemwide Monitoring:

6.6.1 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 MFWP, 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).*

6.6.2 Compliance

PPL Montana will comply with these requirements by holding necessary TAC meetings (and sub-committee meetings) in 2011 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 2011 was approved and funded by the TAC during the 2011 annual meeting. PPL Montana has completed the construction of the fish ladder, which includes three antennas installed on the weirs. These antennas will 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.

6.7 TC7 – Reporting

6.7.1 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.

6.7.2 Compliance

PPL Montana complied with these requirements by preparing this annual report for the work completed in 2010. 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.

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.

7.0 Proposed Activities for 2011

7.1 Upstream Adult Fish Passage Studies

In 2011, PPL Montana will start to implement the 10-year (2011-2020) Fish Passage Evaluation Plan that was developed and submitted to FERC in October 2010. PPL Montana will collect biological and operational data during ladder operations in 2011. 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 7-1. The following text summarizes the study objectives and methods that are outlined in the Fish Evaluation Plan.

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; and
- Fallback.

Based on prior year's sampling in the Thompson Falls tailrace it is conservatively estimated that incidental take of bull trout during 2011 upstream adult fish passage studies will be no more than 10 bull trout.

Table 7-1. 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 *vs.* Orifice**	x	x	Determine if additional study is needed	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	Attractant Flow & Radio Telemetry	x (bull trout only)	x (bull trout & salmonids)	x (bull trout & salmonids)	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	**Fall Back**	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

7.1.1 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.

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 vs. orifice and optimal attractant flow. The weir vs. orifice study will commence in 2011 and continue through 2012. In 2011, PPL Montana proposes to alternate from weir to orifice mode on a weekly basis, 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 year of data collection, PPL Montana will analyze the data to identify potential design modifications for 2012.

The attractant flow study is scheduled to start in 2011 and 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 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?

7.1.2 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. 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 Dam) will be PIT tagged and may be radio tagged by Avista prior to release. 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. In cooperation with

Avista and FWP, PPL Montana will track movement of bull trout between Noxon Reservoir and Thompson Falls Dam. PPL Montana will use the data collected to assess movement patterns and timing. 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.

7.1.3 Evaluation of Fallback

The potential fallback of bull trout after ascending the ladder and moving into the Thompson 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.

7.2 Reservoir Studies

In 2011, PPL Montana will start to implement the *5-Year Reservoir Monitoring Plan (2011-2015)* that was submitted to FERC in June 2010. 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 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.

In 2011, FWP proposes to conduct electrofishing survey of the Fishtrap Creek drainage, a primary bull trout spawning tributary in the Thompson River drainage. Fishtrap Creek is composed of two primary land owners, including U.S. Forest Service and Plum Creek Timber Company. Collaboration with the land owners will be key to accessing the creek to complete the proposed survey efforts. At the conclusion of survey efforts in Fishtrap and West Fork Thompson River, FWP expects to have a reasonable estimate of the migrating timing, productivity, and outmigrant potential for bull trout existing in the Thompson River drainage. These data will be used to address objective 1 identified above.

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 Montana Fish Wildlife and Parks.

7.3 Total Dissolved Gas 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 Dam 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 2011 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 starting in 2011. 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. Panels: 4, 8, and 12*
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 illustrated in Figure 3-16 (Figure provide in the Total Dissolved Gas Control Plan). *This schedule is tentative, pending review by the TAC and Thompson Falls Project operators. It 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 2011 TDG monitoring and the proposed spillway operation plan for 2012 in next year's annual report.

7.4 Baseline Fisheries Data Collection

In 2011, PPL Montana will continue to collect baseline fisheries data as presented in Section 3.0 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 2011 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 2011 baseline fisheries studies will be no more than 5 bull trout.

GBT monitoring in fish downstream of Thompson Falls Dam will also continue in 2011 assuming flows reach 50,000 cfs. When river flows downstream of Thompson Falls Dam reach or exceed 50,000 cfs, PPL Montana will sample fish and examine fish for signs of GBT. The data collected in 2011 will be summarized and presented in the 2011 Annual Report.

7.5 2011 TAC Proposals

7.5.1 Oregon Gulch Mine Restoration

The 2010 TAC funding allocated for the Oregon Gulch Mine Restoration project was not expended due to project delays summarized in Section 5.1.1. The funds provided in 2010 ($51,500) remain available to Trout Unlimited to use for this project if and when landownership issues are resolved and the project resumes. Trout Unlimited will provide a status report to the TAC during the 2011 annual meeting.

7.5.2 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: $5,000

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 2011.

V. Personnel

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

VI. Budget

$5,000

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 $5,000 available for genetic sampling in 2011.

8.0 References

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Appendix A – Reservoir Calculations

Thompson Falls Storage Capacity Calculations:

Storage Capacity (including area beyond survey)

Elevation (ft)	Reservoir Area (ac)	Area (Beyond Dam) (ac)	Total Area (ac)	Reservoir Capacity (ac-ft)	Capacity (Beyond Dam) (ac-ft)	Capacity (ac-ft)	Total Capacity (ac-ft)
2395.8	738.73	44.8353	**783.57**	3,324.20	215.91	3,540.11	**13,946.40**
2390.8	590.95	41.5289	**632.48**	2,585.28	199.38	2,784.65	**10,406.28**
2385.8	443.16	38.2225	**481.38**	1,992.71	182.85	2,175.56	**7,621.63**
2380.8	353.92	34.9160	**388.84**	1,558.93	166.31	1,725.24	**5,446.07**
2375.8	269.65	31.6096	**301.26**	1,182.10	149.78	1,331.89	**3,720.83**
2370.8	203.19	28.3031	**231.50**	846.03	133.25	979.28	**2,388.94**
2365.8	135.22	24.9967	**160.21**	555.97	116.72	672.69	**1,409.66**
2360.8	87.17	21.6903	**108.86**	344.14	100.19	444.33	**736.97**
2355.8	50.48	18.3838	**68.87**	208.99	83.65	292.65	**292.65**
2350.8	33.11	15.0774	**48.19**	0.00	0.00	0.00	**0.00**

Thompson Falls Reservoir Residence Time Calculations:

Thompson Falls - Average Monthly Residence Time

Month	Mean Monthly Inflow (cfs)	Mean Monthly Inflow (ac-ft/s)	Average Monthly Residence Time (s)	Average Monthly Residence Time (hr)	Average Monthly Residence Time (days)
Jan	12200	0.2801	49795.50689	13.83	0.58
Feb	12039	0.2764	50461.43234	14.02	0.58
Mar	12141	0.2787	50037.49148	13.90	0.58
Apr	19943	0.4578	30462.07612	8.46	0.35
May	45070	1.0347	13479.14764	3.74	0.16
Jun	54983	1.2622	11048.96393	3.07	0.13
Jul	25789	0.5920	23556.75614	6.54	0.27
Aug	11229	0.2578	54101.45017	15.03	0.63
Sep	9807	0.2251	61946.0777	17.21	0.72
Oct	10677	0.2451	56898.49059	15.81	0.66
Nov	11694	0.2685	51950.16111	14.43	0.60
Dec	12300	0.2824	49390.66537	13.72	0.57

Appendix B – 2010 Baseline Fish Data Collection

2010 Thompson Falls Reservoir Gillnetting

Date gillnets set: 10/14/2010

Date gillnets pulled: 10/15/2010

Table B-1. Data collected during 2010 fall gillnetting in the Thompson Reservoir.

Location No.	Latitude	Longitude	H_20 Temp	Time Set	Depth Set	Time Pulled	Length (mm)	Weight (g)	Species Abbr	Comment
1a	N.47.58852	W.115.33651	9.4°C	13:14	0-19.2"	9:20	532	938	NP	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	488	1264	LSS	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	472	1348	LSS	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	493	796	NP	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	570	1450	NP	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	482	726	NP	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	556	1250	NP	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	526	994	NP	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	527	997	NP	Cleithra taken
1b	N.47.58814	W.115.33336	9.4°C	13:20	6'	9:26	491	874	NP	Cleithra taken
2a	N.47.57942	W.115.31928	9.4°C	13:43		9:53	531	1106	NP	Cleithra taken
4a	N.47.56812	W.115.29570	9.4°C	13:50		10:00	345	664	SMB	
4a	N.47.56812	W.115.29570	9.4°C	13:50		10:00	395	680	NPM	
6a	N.47.57809	W.115.22110	9.4°C	14:19	3-8'	10:25	462	1066	NPM	
6a	N.47.57809	W.115.22110	9.4°C	14:19	3-8'	10:25	501	1228	LSS	
6a	N.47.57809	W.115.22110	9.4°C	14:19	3-8'	10:25	599	1466	NP	Cleithra taken
6a	N.47.57809	W.115.22110	9.4°C	14:19	3-8'	10:25	688	2382	NP	Cleithra taken
6b	N.47.57753	W.115.22084	9.4°C	14:14	3-9.5'	10:20	143	34	YP	
6b	N.47.57753	W.115.22084	9.4°C	14:14	3-9.5'	10:20	413	692	RB	
6b	N.47.57753	W.115.22084	9.4°C	14:14	3-9.5'	10:20	544	1626	LSS	
6b	N.47.57753	W.115.22084	9.4°C	14:14	3-9.5'	10:20	535	1548	LSS	
8a	N.47.57173	W.115.25995	9.0°C	14:03		10:13	549	1192	NP	Cleithra taken

Location No.	Latitude	Longitude	H_20 Temp	Time Set	Depth Set	Time Pulled	Length (mm)	Weight (g)	Species Abbr	Comment
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	452	560	NP	Cleithra taken
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	517	910	NP	Cleithra taken
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	449	506	NP	Cleithra taken
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	240	78	NP	
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	521	882	NP	Cleithra taken
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	637	1948	NP	Cleithra taken
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	552	1340	NP	Cleithra taken
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	268	114	NP	
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	150	46	YP	
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	211	122	YP	
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	145	70	PUM	
9a	N.47.59103	W.115.32737	9.8°C	13:33		9:45	428	796	RB	
9b	N.47.59210	W.115.33022	9.8°C	13:38		9:15	408	350	NP	Cleithra taken
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	308	292	PEA	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	562	1624	LSS	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	510	1548	LNS	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	352	428	NPM	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	481	1102	LSS	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	525	1604	LSS	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	515	1054	NP	Cleithra taken
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	542	1174	NP	Cleithra taken
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	208	110	YP	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	212	128	YP	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	221	140	YP	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	245	186	YP	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	229	178	YP	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	245	184	YP	
10	N.47.58753	W.115.32697	9.6°C	13:28		9:37	538	1014	NP	

2010 Thompson Falls Reservoir Electrofishing, Lower Section

Sampling Location: N 47.58700, W 115.32805 Date 4/28/10

Sampling Time: Night, Duration (sec): 3307

Weather: Air Temperature 43˚F, overcast, calm wind and rain, Water Temp 9°C

Data Collectors: GM, JS, HC

Table B-2. Data collected during 2010 electrofishing efforts in the lower section of the Thompson Reservoir

Capture No.	Species Abbr	Length (mm)	Weight (g)	Mark	Recap?	Comment
1	LMB	360	284	y floy 16406	y	
2	WCT	258	202	n	n	
3	LMB	400	368	o floy 00303	n	
4	NPM	503		n	n	ripe male
5	NP	432	646	o floy 00304	n	
6	LMB	342	650	o floy 00305	n	
7	NP	258	102	n	n	
8	NP	262	126	n	n	
9	NP	291	160	n	n	
10	NP	270	124	n	n	
11	NP	281	154	n	n	
12	NP	271	132	n	n	
13	NP	270	118	n	n	
14	YP	188	86	n	n	ripe male
15	YP	182	74	n	n	ripe male
16	YP	130	24	n	n	ripe male
17	PUM	130	52	n	n	
18	PUM	138	58	n	n	
19	LSS	213	94	n	n	
20	BBH	227	172	n	n	
21	LSS	490	1546	n	n	
22	YP	125	26	n	n	ripe male
23	YP	203	104	n	n	ripe male
24	YP	162	60	n	n	ripe male
25	YP	170	68	n	n	ripe male
26	YP	172	70	n	n	ripe male
27	YP	166	72	n	n	ripe male
28	YP	132	38	n	n	ripe male
29	YP	141	46	n	n	ripe male
30	YP	175	86	n	n	ripe male
31	YP	170	56	n	n	ripe male
32	YP	148	36	n	n	ripe male
33	YP	186	84	n	n	ripe male
34	YP	110	112	n	n	ripe male
35	YP	128	26	n	n	ripe male
36	YP	170	64	n	n	ripe male
37	LSS	281	242	n	n	
38	NP	290	148	n	n	

Capture No.	Species Abbr	Length (mm)	Weight (g)	Mark	Recap?	Comment
39	NP	310	180	n	n	
40	NP	270	118	n	n	
41	NP	244	84	n	n	
42	YP	155	46	n	n	ripe male
43	YP	155	50	n	n	ripe male
44	YP	133	24	n	n	ripe male
45	YP	120	22	n	n	ripe male
46	YP	176	68	n	n	ripe male
47	YP	142	30	n	n	ripe male
48	YP	137	30	n	n	ripe male
49	NP	243	88	n	n	
50	NP	301	170	o floy 00306	n	

2010 Thompson Falls Reservoir Electrofishing, Upper Section

Sampling Time: Night, Date: 4/29/10

Weather: 46 °F, overcast, calm wind and rain, Water Temp 7.5^{o}C

Data Collectors: BM, JH, HC Duration (sec): 7467

Table B-3. Data collected during 2010 electrofishing efforts in the upper section of the Thompson Reservoir

Capture No.	Species Abbr	Length (mm)	Weight (g)	Recap?	PIT Tag No.
1	LNS	220	98	n	n
2	LL	162	36	n	n
3	RBT	151	30	n	n
4	LL	132	22	n	n
5	RBT	159	40	n	n
6	NP	370	330	n	n
7	NP	407	442	n	n
8	NP	340	240	n	n
9	LSS	302	24	n	n
10	RBT	100	8	n	n
11	RBT	415	824	n	985121021920597
12	RBT	332	438	n	n
13	RBT	331	396	n	n
14	LSS	492	1412	n	n
15	MWF	185	50	n	n
16	WCT	290	248	n	985121021865073
17	RBT	341	448	n	n
18	RBT	223	122	n	n
19	RBT	192	70	n	n
20	LL	247	160	n	n
21	LL	185	70	n	n
22	LSS	132	26	n	n
23	LSS	291	230	n	n
24	LSS	283	218	n	n
25	LSS	195	74	n	n
26	YP	92	8	n	n
27	NPM	340	334	n	n
28	RBT	167	46	n	n
29	NP	307	182	n	n
30	RBT	297	292	n	n
31	RBT	295	312	n	n
32	RBT	371	562	n	n
33	LSS	525	1308	n	n
34	LSS	501	1274	n	n
35	LSS	392	686	n	n
36	LSS	460	1136	n	n
37	RBT	342	404	n	n
38	WCT	333	372	n	n
39	RBT	390	640	n	n

Capture No.	Species Abbr	Length (mm)	Weight (g)	Mark	Recap?	PITT Tag No.
40	LL	105	10	n	n	n
41	RBT	270	216	n	n	n
42	RBT	307	306	n	n	n
43	RBT	331	370	n	n	n
44	WCT	304	290	n	n	n
45	RBT	314	386	n	n	n
46	RBT	370	594	n	n	n
47	RBT	197	80	n	n	n
48	NP	340	256	o floy 00311	n	n
49	NP	322	222	o floy 00312	n	n
50	NP	360	274	o floy 00313	n	n
51	NP	345	250	o floy 00314	n	n
52	LSS	134	34	n	n	n
53	RBT	298	308	n	n	n
54	RBT	287	230	n	n	n
55	RBT	300	296	n	n	n
56	RBT	317	412	n	n	n
57	RBT	272	208	n	n	n
58	LSS	192	84	n	n	n
59	LSS	205	96	n	n	n
60	NPM	281	192	n	n	n
61	LSS	152	38	n	n	n
62	LSS	516	1630	n	n	n
63	NPM	552	1722	n	n	n

2010 Clark Fork River Above Island Complex Electrofishing, River Left

Sampling Time: 1900 to 2300 Date 10/12/2010 Duration (sec) 7772

Weather: 50F, clear skies, 0-5 mph winds, no precipitation H_2O Temp13°C

Data Collectors: BM, JS, HC Latitude N.47.54368 Longitude W.115.10291

Table B-4. Data collection during 2010 electrofishing in the Clark Fork River above the Island Complex, river left.

Capture No.						Species No.	Length (mm)	Weight (g)	Species Abbr
1						033	452	804	NPM
2	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	535	1208	LSS
3	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	500	1066	LSS
4	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	480	822	LSS
5	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	485	1002	LSS
6	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	455	980	LSS
7	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	450	682	LSS
8	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	230	98	MWF
9	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	370	482	MWF
10	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	225	82	MWF
11	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	220	80	MWF
12	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	12	MWF
13	10/12/2010	N.47.54368	W.115.10291	13°C	7772	049	105	10	RSS
14	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	210	74	MWF
15	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	115	14	MWF
16	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	215	104	RBT
17	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	130	16	MWF
18	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	12	MWF
19	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	16	MWF
20	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	10	MWF
21	10/12/2010	N.47.54368	W.115.10291	13°C	7772	073	100	14	SMB
22	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	560	1104	LSS
23	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	550	1610	LSS
24	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	455	878	LSS
25	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	325	266	RBT
26	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	475	1000	LSS
27	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	340	358	NPM
28	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	400	628	NPM
29	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	350	370	NPM
30	10/12/2010	N.47.54368	W.115.10291	13°C	7772	023	545	1072	NP
31	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	14	MWF
32	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	12	MWF
33	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	13	MWF
34	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	15	MWF
35	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	16	MWF
36	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	355	352	MWF
37	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	225	86	MWF
38	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	13	MWF
39	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	125	16	MWF

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Species No.	Length (mm)	Weight (g)	Species Abbr
40	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	130	20	MWF
41	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	245	156	RBT
42	10/12/2010	N.47.54368	W.115.10291	13°C	7772	012	345	452	WCT
43	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	230	106	MWF
44	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	215	78	MWF
45	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	115	10	MWF
46	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	117	15	MWF
47	10/12/2010	N.47.54368	W.115.10291	13°C	7772		325	240	BLT*
48	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	360	456	NPM
49	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	355	426	NPM
50	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	550	1536	LSS
51	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	465	1000	LSS
52	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	535	1430	LSS
53	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	130	16	NPM
54	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	14	MWF
55	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	235	96	MWF
56	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	215	82	MWF
57	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	275	190	RBT
58	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	385	482	NPM
59	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	445	784	NPM
60	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	360	342	NPM
61	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	345	424	NPM
62	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	210	66	MWF
63	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	470	898	LSS
64	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	440	826	LSS
65	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	500	1486	LSS
66	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	505	1318	LSS
67	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	123	16	MWF
68	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	117	12	MWF
69	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	295	210	MWF
70	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	290	194	MWF
71	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	225	90	MWF
72	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	125	14	MWF
73	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	130	18	MWF
74	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	215	82	MWF
75	10/12/2010	N.47.54368	W.115.10291	13°C	7772	004	475	1126	LL
76	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	500	1126	LSS
77	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	520	1092	LSS
78	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	510	1162	LSS
79	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	460	878	LSS
80	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	555	1542	LSS
81	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	480	1036	LSS
82	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	550	1598	LSS
83	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	440	806	LSS
84	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	410	680	LSS

Capture No.	Date	H_2O Temp	Duration (sec)	Mark	Recap?	PITT Tag No.	Length (mm)	Weight (g)	Species Abbr
85	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	330	318	LSS
86	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	355	402	NPM
87	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	410	666	NPM
88	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	380	522	NPM
89	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	355	398	NPM
90	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	295	224	MWF
91	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	215	74	MWF
92	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	12	MWF
93	10/12/2010	N.47.54368	W.115.10291	13°C	7772	049	130	18	RSS
94	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	200	60	MWF
95	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	12	MWF
96	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	405	594	RBT
97	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	130	14	MWF
98	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	340	318	MWF
99	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	295	252	MWF
100	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	295	202	MWF
101	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	405	698	RBT
102	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	10	MWF
103	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	375	502	NPM
104	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	385	532	NPM
105	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	405	592	NPM
106	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	350	420	NPM
107	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	125	17	MWF
108	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	520	1328	LSS
109	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	465	926	LSS
110	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	470	1000	LSS
111	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	435	818	LSS
112	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	440	826	LSS
113	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	485	1110	LSS
114	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	500	1088	LSS
115	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	470	956	LSS
116	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	460	934	LSS
117	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	450	876	LSS
118	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	325	320	LSS
119	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	115	14	LSS
120	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	115	12	LSS
121	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	335	418	MWF
122	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	360	462	RBT
123	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	300	214	MWF
124	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	145	22	NPM
125	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	430	724	NPM
126	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	355	386	NPM
127	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	385	494	LSS
128	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	525	1226	LSS
129	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	380	570	LSS

Capture No.	Date	H_2O Temp	Duration (sec)	Mark	Recap?	PITT Tag No.	Length (mm)	Weight (g)	Species Abbr
130	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	12	MWF
131	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	117	10	MWF
132	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	123	15	MWF
133	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	300	228	MWF
134	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	220	72	MWF
135	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	205	62	MWF
136	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	215	74	MWF
137	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	116	10	MWF
138	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	13	MWF
139	10/12/2010	N.47.54368	W.115.10291	13°C	7772	012	380	554	WCT
140	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	225	82	MWF
141	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	225	80	MWF
142	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	127	17	MWF
143	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	335	288	MWF
144	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	17	MWF
145	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	125	20	MWF
146	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	21	MWF
147	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	118	15	MWF
148	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	20	MWF
149	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	125	20	MWF
150	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	13	MWF
151	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	117	12	MWF
152	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	115	10	MWF
153	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	15	MWF
154	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	121	16	MWF
155	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	330	304	NPM
156	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	120	12	NPM
157	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	400	568	LSS
158	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	520	1274	LSS
159	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	495	1052	LSS
160	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	460	936	LSS
161	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	230	92	MWF
162	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	18	MWF
163	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	121	17	MWF
164	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	122	19	MWF
165	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	118	12	MWF
166	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	215	78	MWF
167	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	365	404	MWF
168	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	17	MWF
169	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	119	16	MWF
170	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	123	20	MWF
171	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	115	10	MWF
172	10/12/2010	N.47.54368	W.115.10291	13°C	7772	004	240	132	LL
173	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	121	20	MWF
174	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	115	12	MWF

Capture No.	Date	H_2O Temp	Duration (sec)	Mark	Recap?	PITT Tag No.	Length (mm)	Weight (g)	Species Abbr
175	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	16	MWF
176	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	122	19	MWF
177	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	117	15	MWF
178	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	425	862	LSS
179	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	485	1654	LSS
180	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	530	1094	LSS
181	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	535	1590	LSS
182	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	445	956	LSS
183	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	420	724	LSS
184	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	230	98	MWF
185	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	350	364	NPM
186	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	118	13	MWF
187	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	122	19	MWF
188	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	17	MWF
189	10/12/2010	N.47.54368	W.115.10291	13°C	7772	012	270	216	WCT
190	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	350	428	RBT
191	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	115	10	MWF
192	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	245	114	MWF
193	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	220	76	MWF
194	10/12/2010	N.47.54368	W.115.10291	13°C	7772	033	450	762	NPM
195	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	117	12	MWF
196	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	123	20	MWF
197	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	440	880	LSS
198	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	460	1062	LSS
199	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	480	1098	LSS
200	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	540	1670	LSS
201	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	450	772	LSS
202	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	510	1200	LSS
203	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	300	272	LNS
204	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	119	15	MWF
205	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	121	20	MWF
206	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	18	MWF
207	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	16	MWF
208	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	117	13	MWF
209	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	122	18	MWF
210	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	123	20	MWF
211	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	460	870	RBT
212	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	350	392	RBT
213	10/12/2010	N.47.54368	W.115.10291	13°C	7772	001	275	194	RBT
214	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	115	12	MWF
215	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	119	16	MWF
216	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	19	MWF
217	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	220	84	MWF
218	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	220	74	MWF
219	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	105	6	LSS

Capture No.	Date	H_2O Temp	Duration (sec)	Mark	Recap?	PITT Tag No.	Length (mm)	Weight (g)	Species Abbr
220	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	560	1378	LSS
221	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	455	874	LSS
222	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	455	884	LSS
223	10/12/2010	N.47.54368	W.115.10291	13°C	7772	058	210	94	LSS
224	10/12/2010	N.47.54368	W.115.10291	13°C	7772	085	120	17	MWF

*Genetics Vial # 118-005

2010 Clark Fork River Above the Island Complex Electrofishing, River Right

Table B-5. Data collection during 2010 electrofishing in the Clark Fork River above the Island Complex, river right.

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Species No.	Length (mm)	Weight (g)	Species Abbr
1	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	350	296	MWF
2	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	125	16	MWF
3	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	235	94	MWF
4	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	250	118	MWF
5	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	340	382	MWF
6	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	225	86	MWF
7	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	375	472	RBT
8	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	350	358	MWF
9	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	225	90	MWF
10	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	303	236	MWF
11	10/13/2010	N.47.54367	W.115.10294	12°C	7685	073	325	522	SMB
12	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	200	64	MWF
13	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	145	18	MWF
14	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	350	916	LSS
15	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	130	18	MWF
16	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	70	1	NPM
17	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	480	1058	MWF
18	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	500	1122	MWF
19	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	505	1306	MWF
20	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	440	722	MWF
21	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	390	504	MWF
22	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	435	814	MWF
23	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	400	612	MWF
24	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	80	1	LSS
25	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	125	14	MWF
26	10/13/2010	N.47.54367	W.115.10294	12°C	7685	023	600	1668	NP
27	10/13/2010	N.47.54367	W.115.10294	12°C	7685	023	595	1566	NP
28	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	345	310	MWF
29	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	80	4	NPM
30	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	225	88	MWF
31	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	120	12	MWF
32	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	90	6	NPM
33	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	395	546	NPM
34	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	360	408	NPM
35	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	375	458	NPM
36	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	340	302	MWF
37	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	280	174	MWF
38	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	440	828	NPM
39	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	430	674	NPM

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Species No.	Length (mm)	Weight (g)	Species Abbr
40	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	480	1198	NPM
41	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	415	632	NPM
42	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	490	1130	NPM
43	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	515	1494	NPM
44	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	460	904	NPM
45	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	325	350	LSS
46	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	440	1016	LSS
47	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	450	784	LSS
48	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	470	852	LSS
49	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	460	792	LSS
50	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	495	1138	LSS
51	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	480	948	LSS
52	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	360	420	LSS
53	10/13/2010	N.47.54367	W.115.10294	12°C	7685	004	210	82	LL
54	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	175	44	LSS
55	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	120	16	LSS
56	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	95	5	LSS
57	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	140	20	MWF
58	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	370	490	MWF
59	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	225	94	MWF
60	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	295	200	MWF
61	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	230	138	RBT
62	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	200	78	MWF
63	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	220	80	MWF
64	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	280	184	MWF
65	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	290	316	MWF
66	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	350	382	RBT
67	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	120	454	MWF
68	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	380	428	MWF
69	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	215	76	MWF
70	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	375	520	MWF
71	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	195	56	MWF
72	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	210	84	RBT
73	10/13/2010	N.47.54367	W.115.10294	12°C	7685	023	560	1260	NP
74	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	415	844	NPM
75	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	410	694	NPM
76	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	480	1108	NPM
77	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	425	686	NPM
78	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	435	858	NPM
79	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	440	812	NPM
80	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	520	1210	NPM
81	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	430	762	NPM
82	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	410	664	NPM
83	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	410	586	NPM
84	10/13/2010	N.47.54367	W.115.10294	12°C	7685	004	250	156	LL

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Species No.	Length (mm)	Weight (g)	Species Abbr
85	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	320	306	LSS
86	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	420	724	LSS
87	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	430	768	LSS
88	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	160	38	LSS
89	10/13/2010	N.47.54367	W.115.10294	12°C	7685	049	115	12	RSS
90	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	140	18	NPM
91	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	360	380	NPM
92	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	155	22	NPM
93	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	110	6	LSS
94	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	110	6	LSS
95	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	130	14	NPM
96	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	280	164	MWF
97	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	110	8	NPM
98	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	200	58	MWF
99	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	325	288	MWF
100	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	205	56	MWF
101	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	230	88	MWF
102	10/13/2010	N.47.54367	W.115.10294	12°C	7685	049	75	3	RSS
103	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	135	14	MWF
104	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	130	12	MWF
105	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	125	14	MWF
106	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	145	24	NPM
107	10/13/2010	N.47.54367	W.115.10294	12°C	7685	073	160	52	SMB
108	10/13/2010	N.47.54367	W.115.10294	12°C	7685	073	170	70	SMB
109	10/13/2010	N.47.54367	W.115.10294	12°C	7685	049	85	4	RSS
110	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	490	1114	NPM
111	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	455	828	NPM
112	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	360	432	NPM
113	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	310	286	NPM
114	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	415	630	NPM
115	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	300	294	LSS
116	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	325	324	LSS
117	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	130	20	LSS
118	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	150	28	LSS
119	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	140	22	LSS
120	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	115	16	LSS
121	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	115	12	LSS
122	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	135	16	MWF
123	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	135	16	MWF
124	10/13/2010	N.47.54367	W.115.10294	12°C	7685	039	105	6	LND
125	10/13/2010	N.47.54367	W.115.10294	12°C	7685	023	698	2816	NP
126	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	305	246	MWF
127	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	293	190	MWF
128	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	471	1080	RBT
129	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	287	178	MWF

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Species No.	Length (mm)	Weight (g)	Species Abbr
130	10/13/2010	N.47.54367	W.115.10294	12°C	7685	023	637	2216	NP
131	10/13/2010	N.47.54367	W.115.10294	12°C	7685	023	569	1254	NP
132	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	580	1856	LSS
133	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	509	1216	NPM
134	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	410	678	NPM
135	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	435	784	LSS
136	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	458	1092	LSS
137	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	373	480	NPM
138	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	419	634	RBT
139	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	470	1054	LSS
140	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	475	1000	NPM
141	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	346	334	MWF
142	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	336	304	MWF
143	10/13/2010	N.47.54367	W.115.10294	12°C	7685	012	351	444	WCT
144	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	421	634	RBT
145	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	462	848	RBT
146	10/13/2010	N.47.54367	W.115.10294	12°C	7685	012	390	600	WCT
147	10/13/2010	N.47.54367	W.115.10294	12°C	7685	023	573	1202	NP
148	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	430	720	NPM
149	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	411	614	NPM
150	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	402	622	NPM
151	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	421	600	RBT
152	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	234	98	MWF
153	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	202	64	MWF
154	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	232	98	MWF
155	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	491	1120	LSS
156	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	450	766	LSS
157	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	532	1426	LSS
158	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	490	1100	LSS
159	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	344	416	MWF
160	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	337	370	MWF
161	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	297	216	MWF
162	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	339	334	MWF
163	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	202	68	MWF
164	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	395	516	MWF
165	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	371	482	MWF
166	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	445	790	LSS
167	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	502	1090	LSS
168	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	495	1200	LSS
169	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	547	1742	LSS
170	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	545	1344	LSS
171	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	544	1420	LSS
172	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	511	1242	LSS
173	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	347	328	MWF
174	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	257	136	MWF

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Species No.	Length (mm)	Weight (g)	Species Abbr
175	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	228	82	MWF
176	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	345	382	RBT
177	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	277	176	MWF
178	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	216	90	MWF
179	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	325	324	MWF
180	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	221	88	MWF
181	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	218	78	MWF
182	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	332	270	MWF
183	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	296	212	MWF
184	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	320	284	MWF
185	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	546	1216	LSS
186	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	541	1594	LSS
187	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	540	1528	LSS
188	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	406	596	LSS
189	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	360	394	MWF
190	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	298	266	RBT
191	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	535	1604	LSS
192	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	516	1332	LSS
193	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	449	856	LSS
194	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	405	574	RBT
195	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	300	226	MWF
196	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	349	350	MWF
197	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	232	94	MWF
198	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	421	672	LSS
199	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	460	902	LSS
200	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	467	1004	LSS
201	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	461	810	LSS
202	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	463	896	LSS
203	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	215	84	MWF
204	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	344	402	RBT
205	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	221	92	MWF
206	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	195	74	MWF
207	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	277	186	MWF
208	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	472	962	RBT
209	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	380	532	RBT
210	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	332	362	MWF
211	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	222	78	MWF
212	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	215	70	MWF
213	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	290	204	MWF
214	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	262	386	MWF
215	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	511	1318	LSS
216	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	425	742	LSS
217	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	515	1358	LSS
218	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	532	1384	LSS
219	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	399	584	RBT

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Species No.	Length (mm)	Weight (g)	Species Abbr
220	10/13/2010	N.47.54367	W.115.10294	12°C	7685	004	235	124	LL
221	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	428	688	NPM
222	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	453	932	LSS
223	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	465	950	LSS
224	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	434	892	LSS
225	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	337	362	LSS
226	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	491	1126	LSS
227	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	246	142	RBT
228	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	211	88	MWF
229	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	201	60	MWF
230	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	212	70	MWF
231	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	101	9	MWF
232	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	219	80	MWF
233	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	101	12	MWF
234	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	104	11	MWF
235	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	120	20	MWF
236	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	369	478	MWF
237	10/13/2010	N.47.54367	W.115.10294	12°C	7685	001	333	330	RBT
238	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	365	435	NPM
239	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	472	1042	LSS
240	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	339	336	NPM
241	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	370	442	MWF
242	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	223	96	MWF
243	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	560	1824	LSS
244	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	535	1566	LSS
245	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	476	1010	LSS
246	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	445	824	LSS
247	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	415	758	LSS
248	10/13/2010	N.47.54367	W.115.10294	12°C	7685	058	445	792	LSS
249	10/13/2010	N.47.54367	W.115.10294	12°C	7685	033	410	630	NPM
250	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	305	230	MWF
251	10/13/2010	N.47.54367	W.115.10294	12°C	7685	020	161	52	YP
252	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	290	206	MWF
253	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	131		MWF
254	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	124		MWF
255	10/13/2010	N.47.54367	W.115.10294	12°C	7685	085	130		MWF

2010 Clark Fork River Electrofishing from Paradise to Plains, River Right

Table B-6. Data collection during 2010 electrofishing in the Clark Fork River from Paradise to Plains, river right.

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
1	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	004	350	412	LL
2	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	215	118	RBT
3	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	202	72	RBT
4	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	241	114	MWF
5	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	205	68	MWF
6	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	298	206	MWF
7	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	241	138	RBT
8	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	238	108	MWF
9	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	250	154	RBT
10	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	232	106	MWF
11	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	212	78	MWF
12	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	012	250	172	WCT
13	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	232	104	MWF
14	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	012	305	282	WCT
15	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	220	124	RBT
16	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	375	458	NPM
17	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	370	434	NPM
18	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	375	488	NPM
19	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	348	444	NPM
20	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	320	290	NPM
21	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	438	812	NPM
22	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	352	394	NPM
23	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	238	166	RBT
24	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	561	1790	LSS
25	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	232	152	LSS
26	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	222	90	RBT
27	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	438	730	LSS
28	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	322	274	NPM
29	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	358	488	NPM
30	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	382	546	NPM
31	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	521	1648	NPM
32	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	418	674	NPM
33	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	378	556	NPM
34	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	315	272	NPM
35	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	281	220	MWF
36	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	004	202	88	LL
37	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	215	86	MWF
38	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	286	258	RBT
39	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	260	178	RBT

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
40	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	482	998	NPM
41	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	352	408	NPM
42	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	442	800	NPM
43	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	355	468	NPM
44	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	470	1104	NPM
45	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	375	524	NPM
46	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	320	336	NPM
47	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	351	388	NPM
48	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	375	492	NPM
49	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	365	468	NPM
50	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	372	512	NPM
51	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	475	1004	LSS
52	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	521	1008	LSS
53	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	481	1106	LSS
54	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	430	815	LSS
55	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	312	272	NPM
56	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	332	304	NPM
57	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	135	20	NPM
58	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	004	198	74	LL
59	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754		085	135	18	MWF
60	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	570	1858	LSS
61	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	004	215	98	LL
62	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	004	195	68	LL
63	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	372	464	RBT*
64	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	012	322	312	WCT
65	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	218	112	RBT
66	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	004	207	82	LL
67	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	430	726	RBT
68	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	261	148	NPM
69	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	368	444	NPM
70	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	073	115	22	SMB
71	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	370	422	MWF
72	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	215	84	MWF
73	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	292	208	MWF
74	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	275	182	MWF
75	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	130	14	MWF
76	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	225	88	MWF
77	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	128	10	MWF
78	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	118	12	MWF
79	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	355	382	NPM
80	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	360	388	NPM
81	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	428	736	NPM
82	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	370	432	NPM
83	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	420	650	NPM
84	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	303	378	NPM

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
85	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	372	492	NPM
86	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	361	440	NPM
87	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	366	500	NPM
88	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	372	498	NPM
89	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	411	632	NPM
90	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	362	452	NPM
91	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	220	112	RBT
92	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	276	180	NPM
93	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	193	92	LSS
94	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	445	880	LSS
95	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	462	1174	LSS
96	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	416	712	LSS
97	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	242	146	RBT
98	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	482	1026	LSS
99	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	448	808	LSS
100	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	177	52	RBT
101	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	250	122	NPM
102	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	181	50	LSS
103	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	147	24	LSS
104	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	115	10	MWF
105	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	300	252	RBT
106	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	341	390	RBT
107	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	205	100	RBT
108	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	235	122	RBT
109	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	485	1042	NPM
110	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	315	310	NPM
111	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	236	96	NPM
112	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	167	36	NPM
113	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	372	432	NPM
114	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	325	322	NPM
115	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	355	396	NPM
116	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	271	168	NPM
117	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	362	412	NPM
118	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	353	368	NPM
119	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	383	482	NPM
120	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	361	426	NPM
121	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	350	390	NPM
122	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	378	534	NPM
123	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	266	156	NPM
124	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	368	404	MWF
125	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	450	850	LSS
126	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	386	632	LSS
127	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	440	756	LSS
128	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	410	698	LSS
129	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	347	376	LSS

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
130	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	510	1222	LSS
131	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	282	210	LSS
132	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	242	156	LSS
133	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	408	686	RBT
134	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	357	358	NPM
135	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	327	340	NPM
136	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	420	682	NPM
137	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	462	1018	NPM
138	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	225	92	NPM
139	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	162	38	NPM
140	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	143	22	MWF
141	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	247	152	LSS
142	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	207	96	RBT
143	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	012	383	516	WCT
144	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	302	242	MWF
145	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	216	84	MWF
146	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	241	110	MWF
147	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	203	68	MWF
148	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	004	212	78	LL
149	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	452	796	LSS
150	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	452	934	LSS
151	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	511	1184	LSS
152	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	480	836	LSS
153	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	460	904	LSS
154	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	440	776	LSS
155	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	366	430	LSS
156	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	452	956	LSS
157	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	462	1040	LSS
158	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	478	1058	LSS
159	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	457	876	LSS
160	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	252	166	LSS
161	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	226	118	RBT
162	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	232	100	NPM
163	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	220	84	NPM
164	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	398	594	NPM
165	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	362	506	NPM
166	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	340	344	NPM
167	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	321	290	NPM
168	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	370	506	NPM
169	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	212	174	NPM
170	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	351	388	NPM
171	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	115	12	NPM
172	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	338	384	LSS
173	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	240	134	LSS
174	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	197	88	LSS

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
175	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	318	282	LSS
176	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	176	62	RBT
177	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	352	440	RBT
178	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	212	98	RBT
179	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	281	190	MWF
180	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	412	712	RBT
181	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	222	96	NPM
182	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	340	346	NPM
183	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	362	434	NPM
184	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	207	66	NPM
185	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	187	48	NPM
186	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	222	84	NPM
187	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	182	52	NPM
188	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	182	46	NPM
189	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	148	20	NPM
190	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	321	284	NPM
191	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	320	296	NPM
192	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	163	46	LSS
193	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	157	34	LSS
194	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	184	56	LSS
195	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	191	68	LSS
196	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	444	992	LSS
197	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	547	1354	LSS
198	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	407	620	NPM
199	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	181	54	LSS
200	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	049	91	4	RSS
201	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	311	282	RBT
202	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	004	320	482	LL
203	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	125	132	RBT
204	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	168	46	RBT
205	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	300	208	MWF
206	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	205	68	MWF
207	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	121	14	MWF
208	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	230	98	MWF
209	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	1	001	240	150	RBT
210	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	380	488	NPM
211	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	435	734	NPM
212	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	250	428	NPM
213	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	395	574	NPM
214	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	238	384	NPM
215	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	422	690	NPM
216	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	405	732	NPM
217	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	358	414	NPM
218	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	415	642	NPM
219	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	240	102	MWF

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
220	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	233	96	MWF
221	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	205	70	MWF
222	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	210	70	MWF
223	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	085	120		MWF
224	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	470	1014	LSS
225	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	535	1676	LSS
226	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	448	846	LSS
227	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	472	1004	LSS
228	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	058	413	690	LSS
229	10/19/2010	N.47.59372	W.114.89063	9.4°C	6754	0	033	390	500	NPM

*Dolphin head

2010 Clark Fork River Electrofishing from Paradise to Plains, River Left

Table B-7. Data collection during 2010 electrofishing in the Clark Fork River from Paradise to Plains, river left.

Capture No.	Date	Latitude	Longitude	H_20 Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
1	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	370	522	WCT
2	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	370	490	RBT
3	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	352	494	WCT
4	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	350	518	WCT
5	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	333	350	RBT
6	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	231	132	RBT
7	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	381	474	NPM
8	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	312	280	NPM
9	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	392	500	NPM
10	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	522	1252	NPM
11	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	341	362	NPM
12	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	310	308	NPM
13	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	232	106	NPM
14	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	255	148	NPM
15	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	362	380	NPM
16	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	355	400	MWF
17	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	345	356	MWF
18	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	347	318	MWF
19	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	235	124	MWF
20	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	212	102	MWF
21	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	308	216	MWF
22	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	132	22	NPM
23	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	162	36	NPM
24	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	115	18	NPM
25	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	97		NPM
26	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	128	16	MWF
27	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	049	88	4	RSS
28	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	073	132	88	SMB
29	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	402	592	LSS
30	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	507	1322	LSS
31	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	360	438	RBT
32	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	240	142	RBT
33	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	302	254	RBT
34	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	256	192	WCT
35	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	222	104	MWF
36	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	283	198	MWF
37	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	332	344	MWF
38	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	322	242	MWF
39	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	191	62	MWF

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
40	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	205	80	MWF
41	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	141	24	MWF
42	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	307	232	MWF
43	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	365	440	MWF
44	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	233	102	NPM
45	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	152	28	NPM
46	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	146	26	NPM
47	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	160	34	NPM
48	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	358	422	NPM
49	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	137	26	NPM
50	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	385	542	NPM
51	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	361	432	NPM
52	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	532	1438	NPM
53	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	391	502	NPM
54	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	250	148	RBT
55	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	004	195	62	LL
56	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	336	424	WCT
57	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	233	110	MWF
58	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	245	118	MWF
59	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	033	233	108	NPM
60	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	033	145	24	NPM
61	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	033	156	28	NPM
62	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	033	206	86	NPM
63	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	547	1552	LSS
64	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	511	1254	LSS
65	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	452	848	LSS
66	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	462	962	LSS
67	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	180	68	LSS
68	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	410	608	MWF
69	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	301	220	MWF
70	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	367	462	MWF
71	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	231	96	MWF
72	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	197	58	MWF
73	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	130	20	MWF
74	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	210	92	RBT
75	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	342	440	WCT
76	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	430	706	WCT
77	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	418	600	RBT
78	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	290	274	WCT
79	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	203	98	RBT
80	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	462	836	WCT
81	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	242	60	MWF
82	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	220	30	MWF
83	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	152	24	NPM
84	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	310	252	NPM

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
85	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	355	406	NPM
86	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	295	208	NPM
87	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	133	22	NPM
88	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	150	28	NPM
89	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	207	82	NPM
90	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	295	206	MWF
91	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	341	352	NPM
92	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	552	1710	LSS
93	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	441	938	LSS
94	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	550	1676	LSS
95	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	550	1568	LSS
96	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	456	896	LSS
97	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	251	140	LSS
98	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	421	742	LSS
99	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	472	1096	LSS
100	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	362	402	MWF
101	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	370	460	NPM
102	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	243	122	NPM
103	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	301	274	NPM
104	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	415	650	NPM
105	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	218	84	MWF
106	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	200	92	LSS
107	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	231	112	LSS
108	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	128	16	NPM
109	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	049	78		RSS
110	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	207	84	LSS
111	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	360	472	WCT
112	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	370	474	WCT
113	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	350	464	WCT
114	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	004	281	210	LL
115	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	356	424	RBT
116	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	245	148	RBT
117	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	188	68	RBT
118	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	012	368	512	WCT
119	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	175	42	MWF
120	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	247	142	MWF
121	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	372	424	MWF
122	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	020	75		YP
123	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	232	122	MWF
124	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	340	340	NPM
125	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	368	478	NPM
126	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	371	490	NPM
127	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	314	270	NPM
128	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	292	216	NPM
129	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	160	54	NPM

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
130	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	141	46	NPM
131	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	358	366	NPM
132	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	410	682	NPM
133	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	372	452	NPM
134	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	230	92	MWF
135	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	302	270	MWF
136	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	310	252	MWF
137	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	112		MWF
138	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	201	86	RBT
139	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	155	26	NPM
140	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	228	72	NPM
141	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	112		NPM
142	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	220	106	MWF
143	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	345	404	MWF
144	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	255	154	LSS
145	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	195	84	LSS
146	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	180	66	LSS
147	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	138	28	LSS
148	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	248	166	LSS
149	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	420	666	LSS
150	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	485	1044	LSS
151	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	483	968	LSS
152	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	388	624	LSS
153	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	540	1464	LSS
154	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	432	750	LSS
155	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	92		NPM
156	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	1	001	253	168	RBT
157	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	342	376	MWF
158	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	225	64	MWF
159	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	228	94	MWF
160	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	381	520	MWF
161	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	383	510	MWF
162	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	225	92	MWF
163	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	226	92	MWF
164	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	361	528	MWF
165	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	300	234	NPM
166	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	341	338	NPM
167	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	256	128	NPM
168	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	233	84	NPM
169	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	230	96	MWF
170	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	130	20	NPM
171	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	188	40	NPM
172	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	202	56	NPM
173	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	132	8	NPM
174	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	115		NPM

Capture No.	Date	Latitude	Longitude	H_2O Temp	Duration (sec)	Mark Code	Species No.	Length (mm)	Weight (g)	Species Abbr
175	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	251	136	NPM
176	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	308	304	MWF
177	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	385	528	NPM
178	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	176	48	NPM
179	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	191	70	LSS
180	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	533	1344	LSS
181	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	445	902	LSS
182	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	445	908	LSS
183	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	510	1264	LSS
184	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	410	684	LSS
185	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	203	92	LSS
186	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	515	1370	LSS
187	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	286	228	LSS
188	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	206	110	LSS
189	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	248	150	LSS
190	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	085	141	22	MWF
191	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	033	248	116	NPM
192	10/19/10	N.47.59372	W.114.89063	9.4°C	6366	0	058	185	52	LSS

Appendix C – 2010 Avista Bull Trout Transport Data

Table C-1. Avista Corporation Fish Transport Program 2010, Bull Trout Collected Downstream of Cabinet Gorge Dam and Released in Region 4 in 2010. (EF-electrofishing)

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
4/29/2010	Night EF	985121021199577	542	1389	Thompson River (lower bridge)	5/5/2010 14:15	Fishtrap Creek (Region 4)	East Fork Bull River (Region 2)	63,000	148.480-32
5/5/2010	Hook-and-line	985121016700474	534	1247.4	Thompson River (lower bridge)	5/12/2010 14:15	Fishtrap Creek (Region 4)	Upper Rock Creek (Region 4)	2,640	148.480-30
5/13/2010	Night EF	985121016753895	621	2778	Thompson River (lower bridge)	5/19/2010 14:15	Char Creek (Region 1)	Rattlesnake Creek (Region 4)	2	148.480-28
5/16/2010	Night EF	985121015963939	643	2665	Thompson River (lower bridge)	5/19/2010 14:15	Fishtrap Creek (Region 4)	Copper Creek (Region 4)	2,000,000	148.480-31
6/25/2010	Night EF	985121021187084	535	1587	Thompson River (lower bridge)	6/30/2010 14:00	Fishtrap Creek (Region 4)	Graves Creek (Region 3	58.624	148.480-27
7/6/2010	Night EF	985121021185451	724	4366	WF Thompson River (mouth)	7/13/2010 0:00	Fishtrap Creek (Region 4)	Copper Creek (Region 4)	500,000	N/A
7/25/2010	Night EF	985121001907073	598	2211.5	WF Thompson River (mouth)		Fishtrap Creek (Region 4)	Grouse Creek (Region 1)	1050	N/A
8/18/2010	Hook-and-line	985121021156358	535	1190	Thompson River (ACM bridge)	8/20/2010 15:30	Thompson River (Region 4)	Rock Creek (Region 2)	57,173,700	N/A
8/31/2010	Night EF	985121021141387	614	1842	Thompson River (ACM bridge)	9/3/2010 14:16	Thompson River (Region 4)	Cooper Gulch (Region 3)	1,052,470,000	N/A

Appendix D – 2010 Big Rock Creek Data Collection

Section 1
Date: 8/27/2010
Latitude: N.47.87117
Longitude: W.114.98481
Temp: 11.9 °C
Duration: 1390 sec.
Notes:

Section Length: 89 m
Section Width: 7 m
Shocker Settings: not noted
Conductivity: 30
Personnel: Mickelson, Hanson, Regan
Yes: tailed frogs

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
1	005	259	125	BLT	985121021920498	Genetic Vial # 004-H1
2	004	153	36	LL		
3	004	285	255	LL		
4	110	238	135	WCTxRBT		
5	110	185	56	WCTxRBT		
6	012	266	180	WCT		
7	110	165	44	WCTxRBT		
8	004	256	187	LL		
9	004	153	37	LL		
10	110	190	67	WCTxRBT		
11	110	185	56	WCTxRBT		
12	004	142	32	LL		
13	004	140	29	LL		
14	004	165	44	LL		
15	110	190	65	WCTxRBT		
16	110	266	197	WCTxRBT		
17	110	221	105	WCTxRBT		
18	004	148	33	LL		
19	004	160	44	LL		
20	004	163	49	LL		
21	004	158	42	LL		

Section 2
Date: 8/27/2010
Latitude: N.47.87480
Longitude: W.114.96337
Temp: 11 °C
Duration: 1750 sec.
Notes:

Section Length: 95 m
Section Width: 5 m
Shocker setting: H3 400
Conductivity: not noted
Personnel: JH, JM, TR
Yes: tailed frogs

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
62	110	90	7	WCTxRBT		
11	110	95	8	WCTxRBT		
55	110	95	7	WCTxRBT		
44	110	99	8	WCTxRBT		
60	110	100	9	WCTxRBT		
50	110	103	10	WCTxRBT		
53	110	103	11	WCTxRBT		
43	110	105	10	WCTxRBT		
56	012	105	11	WCT		
58	110	108	13	WCTxRBT		
27	110	109	12	WCTxRBT		
52	110	109	11	WCTxRBT		
46	110	111	12	WCTxRBT		
40	110	119	14	WCTxRBT		
30	110	120	15	WCTxRBT		
59	110	120	15	WCTxRBT		
54	110	121	13	WCTxRBT		
51	110	125	16	WCTxRBT		
61	012	125	9	WCT		
57	110	138	23	WCTxRBT		
23	110	143	25	WCTxRBT		
26	110	143	26	WCTxRBT		
35	110	145	27	WCTxRBT		
36	110	145	28	WCTxRBT		
39	110	145	25	WCTxRBT		
41	110	145	29	WCTxRBT		
49	110	145	28	WCTxRBT		
4	110	148	26	WCTxRBT		
48	110	160	35	WCTxRBT		
37	110	161	38	WCTxRBT		
16	012	162	38	WCT		
42	110	162	20	WCTxRBT		

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
17	110	165	47	WCTxRBT		
22	110	168	39	WCTxRBT		
25	110	173	42	WCTxRBT		
29	110	174	47	WCTxRBT		
19	110	175	52	WCTxRBT		
21	110	175	49	WCTxRBT		
24	110	175	51	WCTxRBT		
33	110	175	47	WCTxRBT		
47	110	179	48	WCTxRBT		
28	110	181	54	WCTxRBT		
5	110	182	52	WCTxRBT		
3	005	184	51	BLT	985121021912007	Genetic Vial #004-G1
18	110	187	55	WCTxRBT		
38	110	187	61	WCTxRBT		
2	005	189	52	BLT	985121021880115	Genetic Vial # 004-F1
12	110	190	62	WCTxRBT		
1	005	191	51	BLT	985121021890292	Genetic Vial # 004-E1
20	110	191	62	WCTxRBT		
34	110	198	69	WCTxRBT		
31	110	202	90	WCTxRBT		
6	110	203	79	WCTxRBT		
32	110	203	79	WCTxRBT		
13	110	209	82	WCTxRBT		
45	012	209		WCT		
8	110	211	88	WCTxRBT		
9	110	221	131	WCTxRBT		
14	012	221	100	WCT		
7	110	223	112	WCTxRBT		
10	110	231	105	WCTxRBT		
15	110	245	147	WCTxRBT		

Section 3
Date: 8/26/2010
Latitude: N.47.87553
Longitude: W.114.95390
Temp: 13 °C
Duration: not noted
Notes:

Section Length: 100 m
Section Width: not noted
Shocker Setting: 820 Volts
Conductivity: not noted
Personnel: JS, JM, TR
Yes: tailed frogs

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
1	005	241	105	BLT	985121021882416	Genetic Vial # 004-D1
2	110	186	62	WCTx RB		
3	110	209	82	WCTx RB		
4	012	223	108	WCT		
5	110	217	98	WCTxRBT		
6	110	152	36	WCTxRBT		
7	110	237	121	WCTxRBT		
8	110	196	79	WCTxRBT		
9	110	75	57	WCTxRBT		
10	110	146	38	WCTxRBT		
11	110	111	19	WCTxRBT		
12	110	126	27	WCTxRBT		
13	110	170	54	WCTxRBT		
14	110	136	27	WCTxRBT		

Section 4
Date: 8/26/2010
Latitude: N.47.87496
Longitude: W.114.94244
Temp: 11 °C
Duration: not noted

Section Length: 100 m
Section Width: not noted
Shocker Setting: 820 volts
Conductivity: not noted
Personnel: JS, JM, TR
Yes: tailed frogs

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
1	005	250	123	BLT	985121021918395	Genetic Vial # 004-A1
2	005	220	87	BLT	985121021876433	Genetic Vial # 004-B1
3	005	216	87	BLT	985121021922640	Genetic Vial # 004-C1
4	012	180	53	WCT		
5	012	205	66	WCT		
6	110	174	50	WCTxRBT		
7	110	212	118	WCTxRBT		
8	110	194	96	WCTxRBT		
9	110	183	86	WCTxRBT		
10	110	193	98	WCTxRBT		
11	110	176	81	WCTxRBT		
12	110	205	106	WCTxRBT		
13	110	157	67	WCTxRBT		
14	110	142	57	WCTxRBT		
15	110	191	103	WCTxRBT		
16	110	175	84	WCTxRBT		
17	110	152	61	WCTxRBT		
18	110	158	68	WCTxRBT		
19	110	167	80	WCTxRBT		
20	110	184	85	WCTxRBT		
21	110	136	55	WCTxRBT		
22	110	85	38	WCTxRBT		
23	110	60	34	WCTxRBT		Mort:Yes

Section 5
Date: 8/26/2010
Latitude: N.47.87214
Longitude: W.114.98682
Temp: 13.5 °C
Duration: 1390 sec.

Section Length: 90 m
Section Widths: 5.3 m, 5.3 m, 5.9 m
Shocker Setting: H3 500
Conductivity: 26
Personnel: CH, HC
Yes: tailed frogs

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
50	012	89	6	WCT		
60	012	90	5	WCT		
73	012	92	7	WCT		
63	012	93	7	WCT		
58	012	98	9	WCT		
71	012	101	9	WCT		
59	012	102	10	WCT		
69	012	103	9	WCT		
70	012	103	10	WCT		
8	012	105	11	WCT		Genetic Vial # 003-C4
51	012	105	13	WCT		
65	012	106	10	WCT		
66	012	106	12	WCT		
55	012	110	11	WCT		
68	012	113	12	WCT		
24	012	126	19	WCT		Genetic Vial # 003-F3
37	012	126	18	WCT		Mort: Yes
38	012	126	19	WCT		
30	012	129	15	WCT		Genetic Vial # 003-G4
33	012	133	20	WCT		Genetic Vial # 003-H2
15	012	137	25	WCT		Genetic Vial # 003-D5
56	012	137	22	WCT		
72	012	137	21	WCT		
28	012	140	22	WCT		Genetic Vial # 003-G2
7	012	141	26	WCT		Genetic Vial # 003-C3
29	012	143	25	WCT		Genetic Vial # 003-G3

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
61	012	143	29	WCT		
11	012	145	27	WCT		Genetic Vial # 003-D1
62	012	145	30	WCT		
32	012	148	28	WCT		Genetic Vial # 003-H1
19	012	151	31	WCT		Genetic Vial # 003-E3
67	012	152	31	WCT		
27	012	154	31	WCT		Genetic Vial # 003-G1
14	012	159	35	WCT		Genetic Vial # 003-D4
45	012	159	40	WCT		
10	012	161	36	WCT		Genetic Vial # 003-C5
13	012	163	42	WCT		Genetic Vial # 003-D3
16	012	164	39	WCT		Genetic Vial # 003-E1
12	012	166	42	WCT		Genetic Vial # 003-D2
36	012	167	46	WCT		Genetic Vial # 003-H5
18	012	173	50	WCT		Genetic Vial # 003-E2
21	012	175	49	WCT		Genetic Vial # 003-E5
5	012	176	51	WCT		Genetic Vial # 003-C1
43	012	181	53	WCT		
23	012	182	51	WCT		Genetic Vial # 003-F2
49	012	182	53	WCT		
54	012	182	59	WCT		
64	012	183	57	WCT		
9	012	184	59	WCT		Genetic Vial # 003-B5
40	012	184	58	WCT		
39	012	187	63	WCT		
25	012	191	68	WCT		Genetic Vial # 003-F4
20	012	192	61	WCT		Genetic Vial # 003-E4

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
22	012	192	65	WCT		Genetic Vial # 003-F1
31	012	194	65	WCT		Genetic Vial # 003-G5
35	012	195	68	WCT		Genetic Vial # 003-H4
48	012	195	65	WCT		
26	012	200	79	WCT		Genetic Vial # 003-F5
42	012	203	85	WCT		
47	012	203	83	WCT		
52	012	203	79	WCT		
46	012	205	90	WCT		
53	012	206	92	WCT		
6	012	207	85	WCT		Genetic Vial # 003-C2
2	005	224	85	BLT	985121021874365	Genetic Vial # 003-A5
57	012	226	107	WCT		
41	012	227	114	WCT		
34	012	230	115	WCT		Genetic Vial # 003-H3
1	005	232	91	BLT	985121021922237	Genetic Vial # 003-A4
44	012	237	137	WCT		
17	012	243	130	WCT		
3	005	256	127	BLT	985121021871628	Genetic Vial # 003-B1
4	005	293	206	BLT	985121021892731	Genetic Vial # 003-B2

Section 6
Date: 8/26/2010
Latitude: N.47.86964
Longitude: W.114.91619
Temp: 13.1 °C
Duration: 1895 sec.
Notes: LWD Count:11, 1 Big LWD Jam

Section Length: 75 m
Section Widths: 4.6 m, 6.1 m, 3.9 m
Shocker Setting: H3 500v.
Conductivity: 27
Personnel: CH, HC
Yes: tailed frogs

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
41	012	97	7	WCT		
37	012	98	7	WCT		
40	012	98	8	WCT		
38	012	99	5	WCT		
39	012	100	9	WCT		
23	012	138	23	WCT		
36	012	141	23	WCT		
20	012	143	24	WCT		
35	012	144	25	WCT		
28	012	149	30	WCT		
21	012	151	29	WCT		
24	012	153	28	WCT		
26	012	155	31	WCT		
30	012	158	32	WCT		
31	012	159	34	WCT		
5	012	160	35	WCT		
18	012	162	35	WCT		
27	012	162	36	WCT		
8	012	163	41	WCT		
6	012	168	40	WCT		
33	012	172	44	WCT		
29	012	174	45	WCT		
34	012	174	49	WCT		
25	012	178	49	WCT		
9	012	179	55	WCT		
15	012	179	54	WCT		
19	012	179	51	WCT		
32	012	184	56	WCT		
7	012	185	55	WCT		
14	012	185	55	WCT		
10	012	187	63	WCT		
13	012	187	58	WCT		
17	012	194	70	WCT		

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
22	012	197	76	WCT		
3	012	200	73	WCT		
4	012	212	98	WCT		
16	012	224	108	WCT		
11	012	230	118	WCT		
1	005	235	100	BLT	985121021916059	Genetic Vial # 003-A2
2	005	243	105	BLT	985121021918162	Genetic Vial # 003-A3
12	012	243	105	WCT		

Section 7
Date: 8/26/2010
Latitude: N.47.86461
Longitude: W.114.90332
Temp: 10.7 °C
Duration: 2183 sec.
Notes: LWD Count: 9, most barely in water, B3; Type Channel

Section Length: 76 m
Section Width: not noted
Shocker Setting: H3 400v.
Conductivity: 27
Personnel: CH, HC
Yes: tailed frogs

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
37	012	95	5	WCT		
38	012	96	9	WCT		
2	012	101	10	WCT		
42	012	101	9	WCT		
40	012	103	10	WCT		
34	012	123	21	WCT		
33	012	127	18	WCT		
39	012	130	21	WCT		
32	012	132	21	WCT		
15	012	133	22	WCT		
20	012	135	22	WCT		
41	012	139	26	WCT		
31	012	142	26	WCT		
16	012	148	22	WCT		
23	012	153	32	WCT		
26	012	153	29	WCT		
25	012	154	30	WCT		
22	012	156	39	WCT		
36	012	156	35	WCT		
14	012	159	38	WCT		
28	012	159	33	WCT		
3	012	166		WCT		
19	012	166	47	WCT		
10	012	169	42	WCT		
21	012	170	47	WCT		
35	012	171	44	WCT		
12	012	172	50	WCT		
29	012	172	50	WCT		
17	012	174	53	WCT		
6	012	180	57	WCT		
8	012	182	60	WCT		

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
24	012	187	57	WCT		
30	012	187	62	WCT		
13	012	192	64	WCT		
7	012	193	73	WCT		
27	012	195	74	WCT		
18	012	197	72	WCT		
4	012	199	85	WCT		
9	012	204	81	WCT		
5	012	207	94	WCT		
11	012	215	100	WCT		
1	005	246	115	BLT	985121021912155	Genetic Vial # 003-A1

Section 8
Date: 8/25/2010
Latitude: N.47.86505
Longitude: W.114.88968
Temp: 14.6 °C
Duration: 1190 sec.
Notes: Possibly missed 2 Bull Trout

Section Length: 75 m
Section Widths: 6.1 m, 4.9 m, 7.0 m
Shocker Setting: not noted
Conductivity: 26
Personnel: HC, JH, JS

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
15	012	82	4	WCT		
21	012	86	6	WCT		
16	012	104	9	WCT		
13	110	105	9	WCTxRBT		
7	110	106	11	WCTxRBT		
18	110	106	7	WCTxRBT		
19	110	110	11	WCTxRBT		
20	012	110	10	WCT		
8	012	115	12	WCT		
17	110	119	14	WCTxRBT		
1	110	121	15	WCTxRBT		
9	012	126	17	WCT		
14	110	126	16	WCTxRBT		
4	012	142	23	WCT		
10	012	142	23	WCT		
5	012	144	23	WCT		
11	012	150	26	WCT		
2	012	151	27	WCT		
12	110	166	38	WCTxRBT		
6	012	169	41	WCT		
3	012	173	45	WCT		

Section 9
Date: 8/25/2010
Latitude: N.47.86660
Longitude: W.114.87597
Temp: 13.5 °C
Duration: 2205 sec.
Notes: Pictures: #1 and #2

Section Length: 75 m
Section Widths: 7.2 m, 7.9 m, 7.1 m
Shocker Setting: not noted
Conductivity: 24
Personnel: JH, JS, HC

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
84	012	73	2	WCT		
94	012	82	4	WCT		
30	012	85	5	WCT		
88	012	86	3	WCT		
97	110	87	6	WCTxRBT		
92	012	89	3	WCT		
93	012	90	7	WCT		
2	012	91	8	WCT		
96	110	91	6	WCTxRBT		
95	012	92	7	WCT		
51	012	95	7	WCT		
90	110	95	7	WCTxRBT		
64	012	98	8	WCT		
85	012	99	6	WCT		
14	012	100	9	WCT		
56	012	100	8	WCT		
62	012	100	7	WCT		
91	012	100	7	WCT		
27	110	101	9	WCTxRBT		
23	012	104	9	WCT		
68	110	105	7	WCTxRBT		
16	110	106	10	WCTxRBT		
29	110	110	11	WCTxRBT		
72	110	113	11	WCTxRBT		
83	012	118	13	WCT		
74	110	119	14	WCTxRBT		
21	110	120	15	WCTxRBT		
82	110	120	13	WCTxRBT		
61	110	121	14	WCTxRBT		
43	110	126	17	WCTxRBT		
60	110	127	16	WCTxRBT		
77	110	127	14	WCTxRBT		

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
81	012	128	16	WCT		
38	110	130	18	WCTxRBT		
78	110	130	19	WCTxRBT		
79	012	130	20	WCT		
9	110	131	18	WCTxRBT		
25	110	131	18	WCTxRBT		
75	110	131	20	WCTxRBT		
15	110	132	20	WCTxRBT		
46	110	132	18	WCTxRBT		
6	110	133	23	WCTxRBT		
87	012	133	18	WCT		
34	110	134	21	WCTxRBT		
50	110	134	20	WCTxRBT		
41	110	135	22	WCTxRBT		
55	110	135	22	WCTxRBT		
80	110	135	20	WCTxRBT		
53	110	136	21	WCTxRBT		
48	110	137	21	WCTxRBT		
86	110	138	21	WCTxRBT		
49	110	140	22	WCTxRBT		
89	110	141	23	WCTxRBT		
73	110	142	21	WCTxRBT		
76	012	142	25	WCT		
10	012	143	24	WCT		
11	012	145	23	WCT		
67	012	146	25	WCT		
54	012	147	24	WCT		
71	012	147	26	WCT		
24	012	148	26	WCT		
59	110	149	30	WCTxRBT		
42	012	153	32	WCT		
7	110	156	34	WCTxRBT		
69	012	161	34	WCT		
70	012	164	37	WCT		
12	012	166	37	WCT		
57	012	166	40	WCT		
17	012	168	43	WCT		
58	110	168	41	WCTxRBT		
3	012	170	45	WCT		
5	110	170	41	WCTxRBT		
13	110	170	41	WCTxRBT		

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
37	012	171	75	WCT		
4	012	174	44	WCT		
32	110	175	47	WCTxRBT		
35	012	176	50	WCT		
22	012	179	53	WCT		
45	012	179	45	WCT		
33	012	183	59	WCT		
52	012	188	56	WCT		
66	012	188	53	WCT		
63	012	190	60	WCT		
19	012	191	61	WCT		
65	110	192	62	WCTxRBT		
47	012	193	58	WCT		
31	110	195	67	WCTxRBT		
8	012	196	60	WCT		
26	012	198	73	WCT		
36	012	200	67	WCT		
18	012	204	76	WCT		
44	012	204	80	WCT		
20	110	205	73	WCTxRBT		
40	012	205	79	WCT		
28	012	208	84	WCT		
1	012	213	87	WCT		
39	110	217	94	WCTxRBT		

Section 10
Date: 8/25/2010
Latitude: N.47.86445
Longitude: W.114.86719
Temp: 11.6 °C
Duration: 1097 sec.
Notes: LWD Count: 18

Section Length: 75 m
Section Width: not noted
Shocker Setting: not noted
Conductivity: 17
Personnel: JH, JS, HC

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
47	012	37	1	WCT		
35	012	69	3	WCT		
30	012	78	4	WCT		
13	012	80	4	WCT		
44	012	82	5	WCT		
16	012	86	5	WCT		
34	012	86	6	WCT		
45	012	87	6	WCT		
27	012	88	6	WCT		
39	012	88	5	WCT		
15	012	94	7	WCT		
33	012	98	8	WCT		
26	012	99	8	WCT		
20	012	100	9	WCT		
42	012	104	9	WCT		
32	012	108	11	WCT		
17	012	109	11	WCT		
25	012	110	11	WCT		
3	012	111	12	WCT		
46	012	114	12	WCT		
11	012	115	13	WCT		
31	012	115	13	WCT		
12	012	116	15	WCT		
38	012	116	13	WCT		
41	012	116	13	WCT		
14	012	117	15	WCT		
29	012	117	13	WCT		
40	012	117	13	WCT		
28	012	122	15	WCT		
1	012	125	16	WCT		
43	012	128	18	WCT		
2	012	130	18	WCT		

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
9	012	130	20	WCT		
22	012	137	23	WCT		
37	012	139	25	WCT		
8	012	144	30	WCT		
24	012	145	26	WCT		
18	012	154	33	WCT		
7	012	158	36	WCT		
36	012	158	33	WCT		
19	012	161	37	WCT		
21	012	161	39	WCT		
23	012	162	43	WCT		
10	012	164	42	WCT		
6	012	169	47	WCT		
5	012	184	58	WCT		
4	012	193	66	WCT		

Section 11

Date: 8/25/2010
Latitude: N.47.85366
Longitude: W.114.82721
Temp: not noted
Duration: not noted

Section Length: 100 m
Section Width: approximately 9 m
Shocker Setting: not noted
Conductivity: not noted
Personnel: Mickelson, Regan

Record #	Sp. #	L (mm)	Wt (g)	Species	Pit Tag #	Comment
31	012	70		WCT		
34	012	80		WCT		
33	012	85		WCT		
23	012	95		WCT		
32	012	95		WCT		
24	012	105		WCT		
6	012	110		WCT		
28	012	114		WCT		
25	012	115		WCT		
3	012	120		WCT		
10	012	120		WCT		
14	012	120		WCT		
21	012	120		WCT		
19	012	123		WCT		
29	012	126		WCT		
16	012	127		WCT		
1	012	130		WCT		
17	012	130		WCT		
18	012	130		WCT		
30	012	138		WCT		
22	012	140		WCT		
13	012	142		WCT		
9	012	145		WCT		
8	012	150		WCT		
26	012	150		WCT		
11	012	170		WCT		
20	012	170		WCT		
2	012	172		WCT		
7	012	175		WCT		
4	012	185		WCT		
27	012	187		WCT		
15	012	200		WCT		
12	012	221		WCT		
5	012	222		WCT		

Table C-1: Big Rock Creek Westslope Cutthroat and Westslope Cutthroat x Rainbow Hybrid Genetic Sample Data from Big Rock Creek.

Date	Area	Latitude	Longitude	Length	Weight	Genetic Vial #
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	176	51	003-C1
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	207	85	003-C2
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	141	26	003-C3
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	105	11	003-C4
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	184	59	003-B5
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	161	36	003-C5
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	145	27	003-D1
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	166	42	003-D2
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	163	42	003-D3
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	159	35	003-D4
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	137	25	003-D5
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	164	39	003-E1
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	173	50	003-E2
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	151	31	003-E3
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	192	61	003-E4
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	175	49	003-E5
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	192	65	003-F1
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	182	51	003-F2
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	126	19	003-F3
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	191	68	003-F4
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	200	79	003-F5
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	154	31	003-G1
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	140	22	003-G2
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	143	25	003-G3
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	129	15	003-G4
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	194	65	003-G5
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	148	28	003-H1
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	133	20	003-H2
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	230	115	003-H3
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	195	68	003-H4
8/26/2010	Big Rock Creek	N.47.87214	W.114.98682	167	46	003-H5