

PPL MONTANA, LLC
THOMPSON FALLS UPSTREAM FISH LADDER PROJECT
TECHNICAL ADVISORY COMMITTEE MEETING
 September 9, 2010 @ 10:00 AM – 3:00 PM
 Whitefish Credit Union, Thompson Falls, Montana

PPL Montana, LLC held the Thompson Falls Technical Advisory Committee (TAC) on September 9, 2010 at the Whitefish Credit Union in Thompson Falls. The meeting started at 10:00 AM and was adjourned at 3:00 PM.

MEETING ATTENDEES

Name	Agency	Email	Phone
Brent Mabbott	PPL Montana, LLC	lbmabbott@pplweb.com	533-3447
Frank Pickett	PPL Montana, LLC	fjpickett@pplweb.com	533-3445
Jon Jourdonnais	PPL Montana, LLC	jhjourdonnais@pplweb.com	533-3443
Noel Jacobson	PPL Montana, LLC	njacobson@pplweb.com	533-3180
Andy Welch	MDEQ	awelch@mt.gov	444-9897
Wade Fredenberg	USFWS	Wade_fredenberg@fws.gov	758-6872
Jon Hanson	MFWP	jonhanson@mt.gov	827-9320
Jay Stuckey	MFWP	jstuckey@mt.gov	827-9205
Harvey Carlsmith	MFWP		
Craig Barfoot	CSKT	craigb@cskt.org	883-2888
Ginger Gillin	GEI Consultants	ggillin@geiconsultants.com	916-662-6233
Kristi Webb	Morrison-Maierle, Inc.	kwebb@m-m.net	542-8880
Erik Nyquist	Morrison-Maierle, Inc.	enyquist@m-m.net	922-6847

Meeting Objective

The goal of the meeting was to review the draft *Fish Passage Evaluation Plan*, review the draft *Fishway Operating Manual*, discuss and review the proposed 2011 study plan for Thompson Falls Reservoir Monitoring; discuss and review the 2010 *Total Dissolved Gas (TDG) Report*, and schedule the next TAC meeting for January/February 2011.

Ladder Construction Update

The fish ladder dedication was held on September 8, 2010 and there were approximately 70 to 80 people present. The fish ladder was watered up for the event.

Construction activities that still need to be completed include: walkways along ladder, the work station, installation of the anesthetizing tank, and installation of the V-trap. Anticipated schedule for COP's removal of the temporary work bridge is the week of September 20th.

PPL Montana will be watering the ladder up intermittently for the next 2 weeks to test the facility. GEI (Chad and Steve) will be with PPL Montana (Blaine Hildreth) to test facility. GEI will coordinate with Noel to schedule testing time (likely be the last week in September). GEI and PPL Montana testing will take about 3 days. MFWP (Jon Hanson and Jay Stuckey) will also be present.

Once testing of the fish ladder is complete, Brent would like to run the ladder for about 3 weeks in the fall (October 2011) to make sure everything is ready and runs for next spring (2011). Then PPL Montana will need to winterize the ladder this fall prior to the cold weather and freezing. PPL Montana needs to evaluate the potential need for aerators or ways to protect facility from freezing and damage.

Draft Fish Passage Evaluation Plan

TAC comments should be sent to Ginger Gillin by September 24, 2010.

REVIEW OF THE DRAFT FISH PASSAGE PLAN

Objectives of the passage plan:

- Assess the effectiveness of the upstream fish ladder to pass bull trout.
- Determine the optimal operational procedures to achieve the highest efficiency for upstream bull trout passage.
- Assess the potential length of delay for upstream bull trout passage and devise strategies to minimize.
- Assess the amount of fallback.

Fish Passage:

- MFWP recommends only native species to be passed over Thompson Falls Dam.
- Pass – all native species (bull trout, westslope cutthroat trout, suckers).
 - WCT – visual observation include red slash and spotting pattern and if in doubt, no passage.
 - Avista has established criteria to identify WCT (97-98% accuracy).
- No pass – all non-native species (e.g., brown trout, rainbow trout, northern pike, walleye, lake trout, brook trout).
 - Concerns of disease.
 - MFWP collecting data to evaluate whirling disease in Thompson River drainage.
 - Guidance for undesirable species: Released alive? Yes (Jon Hanson) until further information is available.
- Impacts surrogate species and studies – Rainbow or other non-native salmonids only used to evaluate up to fish ladder, but no passage.
- PPL Montana will need to develop a plan to return fish back to tailrace (return loop).
 - GEI – Chad and Steve develop return loop options in September during testing visit.
- MFWP: Jon Hanson will work with Bruce Rich to see if a decision can be made regarding nonnative salmonids passage at facility by spring 2010 (March).
- PPL Montana and USFWS requested a written statement from MFWP regarding official guidelines for passage of species and non-passage of species.

Genetics & Transporting Bull Trout:

- Avista presented a question regarding bull trout collected by Avista at Cabinet Gorge Dam and genetically assigned to Region 4.
 - Should genetically assigned Region 4 bull trout be transported upstream to Region 4 or transported to Region 3 (Noxon Reservoir near Vermilion Bay)?
 - If Region 4 fish are transported to Region 3, then they can be monitored to see how they approach Thompson Falls ladder.

- Avista presented some general information about bull trout to be considered in the decision making process:
 - Is USFWS concerned about Vermilion or Bull River bull trout moving over Thompson Falls dam?
 - Early in the season, bull trout move a lot.
 - Are there concerns regarding bull trout exposure to turbine passage if bull trout move upstream of Thompson Falls Dam and then fallback?
 - Mortality for transport of bull trout is higher earlier in the year than later in the year.
 - Avista has 10 years of data with over 300 adult bull trout.
- USFWS did not have a definitive answer at this meeting but will provide guidance on how to address Region 4 bull trout collected by Avista at Cabinet Gorge Dam.
 - An option may include having bull trout released in Noxon (Vermilion Bay) and then adaptively manage after a couple years of operating the fish ladder and determine if any of the above items become issues.

Fish Collection Datasheet:

- Add temperature to biological datasheet.
 - Real time digital temperature collection at ladder holding tank.
- Set up data entry sheet (hard copy) for use in field.
- Add data sheet for Hobo data collection.
- Add data sheet for Operations data (GEI to prepare with SOP).
- Add data sheet for Weather data.
- Add data sheet for Flow data (USGS/SCADA).
- In the 2010 Annual Plan, details regarding biological and operational data collection will be specified.

Tagging and Marking Fish:

- Remove adipose clip to bull trout as secondary mark to bull trout.
- 2 numbers on new PIT tags.
 - 15-digit code by hand reader.
 - 12-digit code with antennas.
 - MFWP has conversion excel sheet.
 - Need to have fish database link 15-digit code to 12-digit code.
- PPL Montana will PIT tag numerous fish species to study movement up ladder.
- VIE tags will be used to study fallback.

Seasonal operations:

- Spring, summer, fall (no winter).

PROPOSED STUDIES IN THE FISH PASSAGE PLAN

Effectiveness of the Ladder

Weir vs. Orifice Study

- Alternate operations on weekly basis.
 - When altering from orifice to weir, the ladder may have to be shut down.
 - At weirs 23 and 27-28, orifice is up 9 inches from bottom for PIT tags.
 - 1, 2, 7, 8, 23 weirs are fairly accessible for change.
 - Took approximately 30 minutes to drain and alternate from orifice to weir.
 - Assume the draining process not required from weir to orifice. However, the process is unknown until further testing is complete.
 - Lower 6 weirs only run in weir mode.

Attractant Flow Study

- Manipulation of the auxiliary water system (AWS) to determine how much attractant flow is needed to attract fish to ladder under various flow regimes and conditions.

Assess the Length of Delay

Assess Fallback

- Question: How many times will USFWS allow bull trout to fallback (Thompson Falls Dam)? What is USFWS position or recommendation for this potential situation?
- USFWS to identify Service's approach to fallback issues for bull trout, if they occur.
 - Goal is to minimize handling and let bull trout fallback a few times
 - USFWS will provide management decision.

GENERAL COMMENTS

- Annual work plans – request that plans are determined by November/December prior to filing of the Annual Report on April 1. This will allow adequate time to plan and schedule resources for the following year.

Draft Fishway Operations Manual

- Plan is not complete and will be completed once Chad and Steve test ladder facility in late-September. GEI will submit a second draft to TAC for final review by November 1, 2010.
- In the event that changes are made to the operations manual, the entire document will be revised and distributed to TAC. This will keep all the parts of pieces of the document in one single manual. There is no requirement to submit revisions to FERC. TAC may elect to file updated version with the Annual Plan as an Appendix.
- PPL Montana requested to have all valves labeled on site.
- Comment regarding draft: Text is “dense” and hard to implement in field.
- Comment: Add datasheet in manual that identifies operation documentation and variables to be collected in the field.
- Final draft must be reviewed and approved by USFWS.
- Deadline to submit final manual to FERC is December 31, 2010.

5-Year Reservoir Monitoring Plan

- Approved by USFWS and filed with FERC on June 22, 2010.
- FERC approval pending.

Annual Work Plan (5-year Plan) for Thompson Falls Reservoir

Brent Mabbott presented the proposed annual work plan for Thompson Falls Reservoir for 2011 through 2015. The proposed annual work plan is provided in Appendix A of this document.

The annual work plan provides a detailed summary of activities that are in support of the objectives developed and submitted in the *5-Year Reservoir Monitoring Plan*. The annual work plan will be discussed and reviewed in detail during the next TAC meeting in 2011.

Annual Work Plan for Thompson River Drainage

Jon Hanson presented a summary of 2010 activities and proposed 2011 objectives for the Thompson River Drainage. The summary of 2010 activities and proposal for 2011 is provided in Appendix B of this document.

2010 Total Dissolved Gas (TDG) Report

Ginger Gillin presented a PowerPoint summarizing TDG data collected through 2010. A draft report was submitted to TAC and comments are due back to Ginger Gillin by October 8, 2010. The finalized TDG report will be submitted to MDEQ by the end of 2010. The TDG report is not required to be submitted to FERC.

2011 Funding Proposals

- 2011 funding proposals are due 2 weeks prior to January 26, 2011 TAC meeting (January 12, 2011).
- PPL Montana will also need a summary of 2010 activities funded by TAC to include in the 2010 Annual Report.

TASKS FROM MEETING

DRAFT PLANS

- Fish Passage Plan – Comments due September 24, 2010 to Ginger Gillin.
- TDG Report – Comments due October 8, 2010 to Ginger Gillin.
- Fishway Operating Manual – GEI will submit final draft to TAC for review by November 1.

GEI/MMI

- GEI (Steve and Chad) will finalize draft SOP for distribution to TAC by November 1. Steve and Chad will also identify fields/variables for logging on a datasheet.
- GEI/MMI to prepare a manual datasheet and Access database for biological information, weather, temperature, flow, and operations.
- Web posting – updates of fish ladder activities on project website.

PPL MONTANA

- PPL Montana will use remaining 2010 TAC funding (approximately \$40,000) towards aeration. PPL Montana will add \$40,000 funding to 2011 TAC fund account. This proposal was approved unanimously by TAC during this meeting.
- Request was made for PPL Montana/MFWP to post weekly fish passage updates (similar to what Avista does) and then GEI will post information to Thompson Falls website.

MFWP

- Request was made for MFWP to provide written letter describing fish to pass and not pass for distribution to TAC.
- Request was made for PPL Montana/MFWP to post weekly fish passage updates (similar to what Avista does) and then GEI will post information to Thompson Falls website.
- MFWP has conversion excel sheet for PIT tag codes. Request was made for a copy to be sent to GEI (Ginger Gillin) to be incorporated in fish database.

USFWS

- USFWS needs to address Avista's question regarding where Region 4 bull trout collected by Avista at Cabinet Gorge Dam should be released (see section on *Genetics and Bull Trout Transport*).
- USFWS to identify Service's approach to fallback issues for bull trout, if they occur (see section on *Assess Fallback*).

NEXT TAC MEETING

- Annual Meeting –January 26, 2011 – Missoula @ 10am (MFWP office). Brent will set up meeting location and email TAC. Note: the meeting room at FWP has been reserved.

2010 SCHEDULE

Task/Deliverable	Preparers	Submittal to TAC	Discussion at TAC Meeting	TAC Comments Due	Comments Incorporated - Submitted to TAC for Final Approval	Finalized with Approval from TAC Complete	E-File with FERC	E-Archive on Website
ANNUAL REPORTS	PPL Montana, MFWP, GEI Consultants	25-Jan-10	1-Feb-10	22-Feb-10	12-Mar-10	18-Mar-10	19-Mar-10	19-Mar-10
SOP	GEI Consultants	1-Sep-10	9-Sep-10	1-Dec-10	9-Dec-10	17-Dec-10	31-Dec-10	2-Jan-11
RESERVOIR PLAN (5-Year)	PPL Montana, MFWP, USFWS	15-Jun-10				22-Jun-10	22-Jun-10	Pending FERC approval
PHASE 2 ACTION PLAN (10 –Year Evaluation of Efficiency of Upstream Fish Passage)	PPL Montana, MFWP, USFWS	20-Aug-10	9-Sep-10	24-Sept-10	1-Nov-10	30-Nov-10	31-Dec-10	2-Jan-11

The Memorandum of Understanding (MOU) dated January 15, 2008 defines the TAC quorum as one voting representative from PPL Montana, USFWS, CSKT, and MFWP. Quorum decisions by the TAC will require each of these agencies to be present in person or by proxy. The above tasks will require signatory approval from USFWS, CSKT, MFWP, and PPL Montana prior to submittal to FERC.

Note: Cells highlighted in green indicate task is complete.

APPENDIX A
ANNUAL WORK PLAN
THOMPSON FALLS RESERVOIR (PPL MONTANA)

**Thompson Falls
Reservoir**

5 year

2011-2015

**Proposed
Annual
Work Plan
Plan**

Establish by

**Thompson Falls
Fisheries
Technical Advisory Committee**

January 1, 2011

The importance of fish passage at the ladder is critical and will be the top objective and focus for initial work at Thompson Falls Dam/Reservoir. This adaptive monitoring of fish passage will involve considerable effort and be the main focus at least through 2012 or until operators are comfortable that they are achieving acceptable success with this facility. Reservoir sampling, as noted in the 5-Year Reservoir Monitoring Plan, 2011 – 2015), will be determined annually with approval of the Thompson Falls Fisheries TAC.

Below are the proposed (subject to change) yearly reservoir and ladder monitoring schedules. Detailed monitoring and plans will be completed and approved by the TAC annually.

2011

Annual monitoring (details in Appendix 1)

- | | |
|---|------------------|
| 1. Electro-fishing established reservoir sites. | April |
| 2. Fall gill netting at established sites | October |
| 3. Fall electro-fishing Clark Fork River | October |
| 4. Track radio tagged Bull trout | Weekly as needed |
| 5. Ladder evaluation | In season, Daily |
| Operations | |
| Fish movement/monitoring | |

Additional 2011 work:

Objectives include:

1. Determine the effectiveness of “shaping the water at the main dam” for attracting fish to the ladder and movement through the ladder.
As part of the objective to determination if the reservoir can be manipulated to impact a population of non-native predators:
2. Determining area of N. Pike spawning and rearing habitat in island complex above Thompson River with relation to flows, water temperature and seasonality.

- | | |
|--|-----------------|
| 1. PIT tag salmonids below Thompson Falls dam | March and April |
| other species maybe PIT tagged | |
| - PIT tag monitoring of fish movement through the ladder | |

2. N. Pike spring spawning locations and the changing surface

area of spawning and rearing habitat with relation to flow,
water temperature, and time of year. Measurements will be
taken bracketing flows between 20,000 and max seasonal flows.
May and June

3. N Pike y-o-y habitat use (monthly)

July through Nov

2012

Annual monitoring (Appendix 1)

This may include PIT/Radio tagging of fish below Thompson Falls Dam. PIT tagging may be similar to 2011 effort.

Additional 2012 work

Objectives: 1. Determine impact of predators in Thompson Falls Reservoir on migrant Bull trout, including overlap with other species, timing, habitat use, influences of flow and temperature

1. Radio tagging and monitoring of Bull trout emigrating from Thompson River/tributaries April – June (daily)
answer the following questions:
 - a. timing of “out migrations”
 - b. duration in reservoir
 - c. pattern of movement through reservoir
 - d. water temperatures - Thompson River/reservoir
 - e. flow patterns –Thompson/Clark Fork Rivers
 - f. approach to and over/through the dam
2. Continue 2011 work on N. Pike spawning and rearing area enumeration with respect to flow, temperature and time of year. This will be monitored during flows not measured in 2010 and 2011 April - July
3. Radio tagging salmonids below Thompson Falls Dam, if the TAC determines that there is a need, may include the following:
 - Radio tag salmonids below Thompson Falls dam
 - 20-30 radio tagsMarch and April

-ladder monitoring

Approach and use of ladder
Movement through the ladder
Evaluation of panel removal/replacement (flows
patterns) below the main dam and with emphasis on the
influence on fish movements

2013

Annual Monitoring (Appendix 1)

May include PIT tagging/Radio Tagging of fish below Thompson Falls Dam

Additional 2013 work:

Objectives: 1. Determine Reservoir N. Pike population characteristics through marking and monitoring. This may include radio tagging and tracking of marked fish
2. Determine impact of angling pressure on the reservoir fishery

no 1. Repeat the 2009 N. Pike population estimate, conducted in April and May and stomach sampling April and May

Additional information to be obtained from

floy tagging (marking) of the N. Pike:

a. movement

b. angler (harvest) mortality or release

Radio tags may be used to monitor N. Pike movements March through Nov
(these tags may be implanted in October of 2012)

2. Creel Survey of Thompson Falls Reservoir

Survey will provide:

a. angler pressure

b. harvest

- N. Pike, marked/not marked

- fish targeted and harvest of fish by anglers

- incidental catch of bull trout

- cpue

c. compliance with angling regulations

d. N. Pike movement

March through Nov
(stratified random sample)

2014

Annual Monitoring (Appendix 1)

May include PIT/radio tagging of fish below Thompson Falls Dam

Additional 2014 work:

Adaptive to 2012-2013 work to meet the objective of characterizing influences that the Thompson Reservoir may have on emigrating Bull trout.

Radio tagging of migrants from Thompson River (2012 work)
Selective marking (radio, floy etc) of N Pike or other Reservoir Predator (2013 work)

2015

Annual Monitoring (Appendix 1)

May include PIT/radio tagging of fish below Thompson Falls Dam

Additional 2015 work:

Adaptive to prior work to answer objective: Characterize the influences that the Thompson Reservoir may have on emigrating Bull trout. This may include monitoring of non-native predators (i.e. Small/largemouth bass) for potential impacts to bull trout movements...

Appendix 1
2010-2015
Thompson Falls Reservoir
Annual Monitoring Plan

Annual Monitoring

Objective: Establish baseline information of fish populations in Thompson Falls reservoir and the Clark Fork River, pre and post fish ladder operation. The construction of the full height fish ladder at Thompson Falls Dam is scheduled to begin operations the fall of 2010. This information will help track changes to the fish community annually, and over a long period of time. Fish populations will be monitored as indices of abundance unless otherwise noted.

Spring Reservoir Electro fishing

Lower Reservoir:

Location:	Right bank (looking downstream)
Start:	Physical: Upstream from Town Boat launch
	GPS : N 47.59240
	W 115.33567
End:	Physical: 100 m. upstream from old pump house
	GPS : N 47.58702
	W 115.32812

Physical characteristics of this section include low flows, mean widths near 510 meters, abundant aquatic vegetation and is off the main river channel.

Record will include:

1. Date of monitoring. Middle week of April is optimal
2. Total time electro fishing
3. All fish will be netted and the following recorded:
 - a. Length
 - b. Weight
 - c. previous tags or markings recorded
4. The following may occur:
 - Fish maybe tagged or marked
 - Stomachs maybe sampled (lavage)
 - Genetic fish tissue maybe collected
 - Other monitoring as needed

Electro fishing efforts will use a aluminum hull Wooldridge boat with a gasoline 6500 Honda generator and a Smith-Root VVP 15A rectifier using 120-160 volts and 4-6 amps (subject to water conductivity). Two booms are attached to the hull extending 4 feet past the bow with 4 electrodes per boom. Sampling is parallel to Highway 200 from Wild Goose Landing (town boat launch) upstream to above the pump house. Sampling is conducted at night on the right bank by slowly moving upstream (because of an eddy, the boat will move with the current). Shocking crews will generally consist of a boat driver and two netters. Captured fish will be put into a 100 gallon holding tank before being measured.

Upper Reservoir:

Location: Right Bank

Start: Physical: Mouth of Thompson River
GPS: N 47.57638
W 115.24066

End: Physical: Under power Lines
GPS: N 47.56990
W. 115.30111

Characteristics of this section include riverine conditions, with noticeable flowing water, average widths around 240 meters, little to no aquatic vegetation and some recreational docks.

Record will include:

1. Date of monitoring. Middle week of April is optimal
2. Total time electro fishing
3. All fish will be netted and the following recorded:
 - a. Length
 - b. Weight
 - c. previous tags or markings recorded
4. The following may occur:
 - Fish maybe tagged or marked
 - Stomachs maybe sampled (lavage)
 - Genetic fish tissue maybe collected
 - Other monitoring as needed

Electro fishing efforts will use a aluminum hull Wooldridge boat with a gasoline 6500 Honda generator and a Smith-Root VVP 15A rectifier using 120-160 volts and 4-6 amps (subject to water conductivity). Two booms are attached to the hull extending 4 feet past the bow with 4 electrodes per boom. Sampling is conducted at night on the right bank by slowly moving downstream. Shocking crews will generally consist of a boat

driver and two netters. Captured fish will be put into a 100 gallon holding tank before being measured.

The right bank is sampled from the confluence of Thompson River to power lines over the reservoir about 800m below the Cherry Creek boat launch.



Figure 1. Lower (red) and upper (blue) Electro fishing sections in Thompson Falls Reservoir.

Fall Clark Fork River Electro fishing Upstream of Island complex

Location: Both Banks

Start (Upper): Physical: Beneath 4 strand power lines crossing just downstream from the mouth of Eddy Creek in the Clark Fork River.

Left Bank GPS: N 47.54360
W 115.10217

Right Bank GPS: N 47.54513
W 115.10137

End (lower) Physical: Top end of island complex

Left Bank GPS N 47.56972
W 115.17390

Right Bank GPS: N 47.57122
W. 115.17356

This monitoring is a single nighttime pass per bank during mid to late October.

Record will include:

1. Date of monitoring. Mid October
2. Total time electro fishing
3. All fish will be netted and the following recorded:
 - a. Length
 - b. Weight
 - c. previous tags or markings recorded
4. The following may occur:
 - Fish maybe tagged or marked
 - Stomachs maybe sampled (lavage)
 - Genetic fish tissue maybe collected
 - Other monitoring as needed

Electro fishing efforts will use a aluminum hull Wooldridge boat with a gasoline 6500 Honda generator and a Smith-Root VVP 15A rectifier using 120-160 volts and 4-6 amps (subject to water conductivity). Two booms are attached to the hull extending 4 feet past the bow with 4 electrodes per boom. Sampling is conducted at night on the right bank by slowly moving downstream. Shocking crews will generally consist of a boat driver and two netters. Captured fish will be put into a 100 gallon holding tank before being measured.

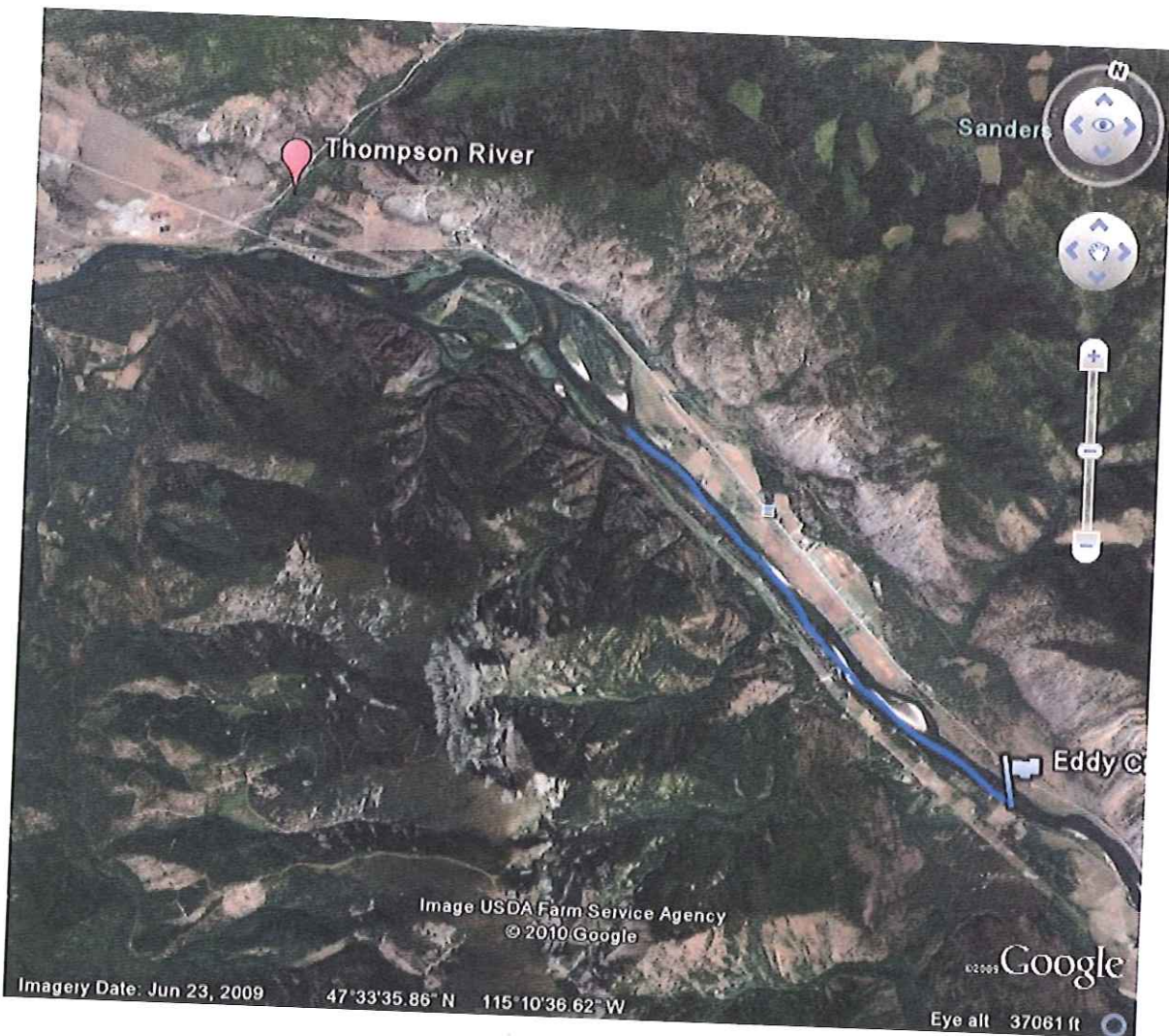


Figure 2. Electro fishing section in the Clark Fork River above Thompson River and the Island complex. Section is from Eddy Creek downstream to the upper boundary of the islands above Thompson River.

Fall Reservoir Gill Netting

Locations: (See Figure 3-1) Gillnet locations were determined through reconnaissance of approximately 24 potential sites considering aquatic vegetation present, water current, depth, and proximity to tributaries. A subset of habitats was selected based on representative conditions and in all years, except 2004, 10 nets were set from

approximately one-half mile above Thompson Falls Dam upstream to approximately one-half mile above the mouth of Thompson River.

Number	GPS	
	N	W
1a (1)	47.58852	115.33651
1b (2)	47.58814	115.33336
2a (3)	47.57942	115.31928
4a (4)	47.56812	115.29570
6a (5)	47.57809	115.22110
6b (6)	47.57753	115.22084
8a (7)	47.57173	115.25995
9a (8)	47.59103	115.32737
9b (9)	47.59214	115.33022
10 (10)	47.58753	115.32697

Gillnetting occurs the second week of October with nets set in the afternoon and pulled the following morning, approximately 18 hours later. Montana experimental mesh nets are 125 feet (5-25 ft panels) in length with a different mesh size (3/4", 1", 1 1/4", 1 3/4", 2") for each 25 foot panel. Depth of sets varies from 1 foot to 25 feet. Nets are perpendicular to the shore with the smallest mesh closest to the bank and largest being set farthest from the bank.

Species, length, and weight are documented for fish captured during this monitoring. Mean catch by species/net is documented for comparison to netting which began in 2004.



Figure 3. Locations of fall gill net sets in Thompson Falls Reservoir.

APPENDIX B
ANNUAL WORK PLAN
THOMPSON RIVER DRAINAGE (MFWP)

Thompson River Bull Trout Work Plan

2010 work within the Thompson River drainage will focus on the West Fork Thompson River (WFTR), one of the two main bull trout producing tributaries to the Thompson River. The long term intent of this work is to maximize the survival of out-migrant juvenile and adult bull trout through Thompson Falls Reservoir and dam so that they have an opportunity to complete their natural life cycle. A subcommittee of the PPL TAC group met and felt that concentrating on the population of bull trout that was nearest upstream of the dam represented the population that most likely is influenced by the dam. There are also fewer variables that influence this population compared to those fish that have to travel 50+ miles to reach the reservoir. Further, studying the bull trout population of the Thompson River to determine its productive capability and the behavior of bull trout found in the drainage will provide a first step to assist in ways to maximize safe, timely and efficient bull trout passage at the dam and survival through the reservoir. Secondly it may be used to measure the contribution fish passage will have on a salmonid population upstream of Thompson Falls Dam.

Substantial data has previously been collected by MFWP, Avista Corporation, and USFS within the WFTR drainage. Review of this work is briefly summarized below and will be used to identify data gaps that can be supplemented with work through MFWP and the PPL program.

Previous fisheries surveys have occurred, and are ongoing within WFTR. An Avista funded study from 2000 – 2002 laid much of the groundwork to build upon. Redd counts and fish abundance sections have continued based on this initial work.

The specific objectives of the 2000-2002 Avista funded study were to:

- 1) Determine the abundance of fishes moving to and from Fishtrap Creek (FTRP) and the WFTR.
- 2) Monitor the number of bull trout redds in FTRP and the WFTR.
- 3) Monitor fish abundance.
- 4) Compare bull trout life history and habitat differences between FTRP and WFTR.
- 5) Assess habitat improvement opportunities in the WFTR.

Numerous methods were employed to gather information on these objectives, including seasonal operation of a weir trap, electrofishing abundance estimates, redd surveys, and habitat surveys.

Seasonally, from 2000 to 2002 a weir was fished in the lower end of WFTR. The weir generally was installed in early July and was removed in mid November. In all years there were periods when the trap was not fishing due to pulses of high water or during the leaf fall period. Traps were checked once daily and cleaned up to twice a day during October and November. The intent of the trapping efforts was to "assess the abundance of fishes moving to and from the WFTR." This included both upstream and downstream migrating fishes. Weir trap operation was limited to low water periods and did not trap much of the season when bull trout are known to outmigrate. Information gained from this effort confirmed movement to and from the WFTR by bull trout, but missed the mark on assessing the abundance portion because of trapping inefficiencies.

Fish abundance was estimated using multiple pass electrofishing depletion estimates in two sections of WFTR. These electrofishing sections have been completed on an every other year basis since 2000. Redd counts during the fall have also been completed annually since 2002.

In 2001, Land and Water Consulting completed a watershed scale evaluation of physical channel conditions in the WFTR. Their objectives were to establish a baseline dataset of physical parameters, characterize the physical features, and identify limiting factors to fish habitat and recommend enhancement steps. In general they found that the aquatic habitat is very near its natural potential, with recommendations that habitat complexity could be improved with the addition of some large woody debris and that road sediment contribution in the lower reaches should be reduced.

2010 Work Plan

Additional work to complement the above and attempt to fill in some gaps will begin in 2010. Expanding the electrofishing survey to a drainage wide scale will help to characterize the upper limits of bull and cutthroat trout along with assisting in developing a more refined estimate of fish abundance for the drainage. In addition to the mainstem WFTR, primary tributaries will also be sampled including Honeymoon, Spruce, Four Lakes, and Anne Creeks. Population estimate sections will be performed along randomly chosen sections that roughly mimic habitat type frequency of the respective reach. Sections will be sampled with population depletion protocols with sample reaches typically around 100 meters in length. Field reconnaissance will occur prior to sampling to delineate electrofishing sections. It is expected that 8-10 reaches will be sampled on the mainstem WFTR and tributaries during the July 15th to September 1st time period. Gathering size and age information on this population of bull and westslope cutthroat trout will help in determining prevalence of resident vs. migratory life history forms and estimating total numbers and potential escapement within the drainage. Combined with information on previous catches in weir traps, 2011 work may focus on the behavior aspects of bull trout using radio or PIT tags to monitor movements through the mainstem Thompson River and Thompson Falls Reservoir.

McNeil core sampling will be conducted in identified spawning reaches to determine fine sediment abundance, and assess whether sediment may be a limiting factor reducing bull trout survival.

Another basin-wide sampling effort will occur in 2010 on Big Rock Creek, a tributary to the upper Thompson River. Bull trout were discovered there by the USFS Plains Ranger District in 2009. In 2010, FWP and USFS will complete a drainage-wide survey, using similar methods as described for the WFTR. The objective of this work will be 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. The PPL TAC voted to fund a road decommissioning/stream enhancement project in Big Rock Creek in 2010, and this work will complement this restoration.

Bull trout redd counts will continue to occur within bull trout tributaries in the Thompson River drainage.

Bull trout transported to Region 4 (upstream of Thompson Falls Dam) and radio tagged will be followed through the year. Tracking of these fish will occur at a minimum of twice per week, and more often surrounding the spawning period. This is an opportunity to determine staging, spawning, and outmigrating locations of fish captured early in the season, when behavioral impacts due to radio tagging are likely minimized. The life expectancy of the radio tags are approximately one year.

Proposed 2011 Work Objectives

A similar electrofishing sampling scheme will be developed for Fishtrap Creek, the other primary bull trout spawning tributary in the Thompson Drainage, during 2011. Fishtrap Creek is composed of multiple land ownership including USFS and Plum Creek Timber Company; collaboration will be sought to complete work within this drainage. At the conclusion of this assessment, we should have a reasonable estimate of the migratory timing, productivity, and outmigrant potential for bull trout existing in the Thompson River drainage.

This information will be useful as we assess the Thompson Falls fish ladder and conduct associated studies to determine its effectiveness.