Thompson Falls Dam Fish Passage Studies Annual Report for 2004

Thompson Falls, MT

Submitted to:
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Project 050070

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Executive Summary

PPL Montana is the owner and operator of the Thompson Falls Dam, located on the Clark Fork River near Thompson Falls, Montana (Figure 1). Because bull trout (*Salvelinus confluentus*), a federally listed species under the Endangered Species Act (ESA), are present within the project area, a biological evaluation (BE) was prepared for the Thompson Falls Project and submitted to the U.S. Fish and Wildlife Service (USFW) and the Federal Energy Regulatory Commission (FERC) in 2003. The BE concluded that the Thompson Falls Project was likely to adversely affect bull trout. Thereafter, informal consultation between PPL Montana and the USFWS identified the need to assess the means to implement adult, upstream fish passage at the Thompson Falls Dam. Consequently, PPL Montana submitted a long-term plan to develop adult upstream fish passage at Thompson Falls Dam to the USFWS. The long-term plan identified the need for additional fish behavior and project operations data prior to the development of a permanent fish passage facility at Thompson Falls Dam.

PPL Montana, in consultation with GEI Consultants, Inc., developed an annual study plan for 2004 fish passage studies (GEI Consultants, Inc. 2004). Fisheries work conducted in 2004 was planned and implemented in cooperation with the USFWS, Montana Fish, Wildlife and Parks (MFWP), Avista Corporation, Northwestern Energy, and the Confederated Salish and Kootenai Tribes. This report details the data collected during the 2004 field season by PPL Montana with staff assistance from MFWP.

The emphasis in 2004 was on establishing a radio telemetry study in the tailrace of Thompson Falls Dam. Fish for radio tagging were collected through trapping, angling, and electrofishing in the areas downstream of the dam. Most of these fish were transported downstream of the dam and released for the tailrace fish behavior study, although a few were released upstream of the dam in order to monitor upstream migratory behavior. In addition, initial efforts to characterize the fish population of Thompson Falls Reservoir were undertaken, and studies of water quality, particularly total dissolved gas, were also continued. Results of water quality studies are in a separate report under preparation by PPL Montana.

PPL Montana was successful in implementing a stationary telemetry system at Thompson Falls Dam to monitor the movements of radio tagged salmonids approaching the tailrace of the project. A total of 31 salmonids were tagged with coded radio transmitters and released downstream of the dam in 2004. A total of 21 radio tagged fish were observed migrating back upstream to the dam after their release at Squaw Creek, approximately 6 river miles downstream of Thompson Falls Dam.

Various methods were used in 2004 to collect fish for radio tagging, including the Thompson Falls Dam fish trap, boat electrofishing, and angling. A total of eight bull trout were captured using these methods, six of which were radio tagged. Three bull trout were tagged with coded radio transmitters and released downstream of Thompson Falls Dam, and three bull trout were tagged with pulsed radio transmitters and released upstream of the dam. Bull trout that were too small to be radio tagged were PIT tagged and released. No mortalities were reported for bull trout being handled at Thompson Falls Dam in 2004.

In addition to the previously mentioned fish sampling methods, gill netting in Thompson Falls Reservoir took place on 13 and 14 October 2004. A low total catch-per-unit-effort was observed during the gill netting effort and no salmonids were captured. At total of eight northern pike were captured, all of which were caught in shallow near bottom sets.

PPL Montana successfully installed three stationary radio telemetry receiver stations within the project area during 2004. The installed set up is designed to more specifically identify movements of radio tagged fish within the project area in relation to the various project structures than was previously possible by manual tracking alone. The stationary receiver stations are equipped with cellular modems, which allow for the off-site retrieval of data from all three receivers. This ability to download data on a daily basis from an offsite office greatly decreases the time required to access and process fish behavior data, which will allow for more "real time" analysis in 2005. Using the stationary telemetry stations, PPL Montana successfully monitored radio tagged fish within the project area during 2004. In addition, MFWP tracked radio tagged fish manually both upstream and downstream of Thompson Falls Dam at least twice a week from 17 March to 31 October.

The initial year of the Thompson Falls Dam fish behavior study was successful in gathering important fish behavior data, but possibly more important was the successful establishment of a method that will greatly enhance the quality and quantity of data that will be collected during 2005.

Section 1 - Introduction

1.1 Background

PPL Montana is the owner and operator of the Thompson Falls Dam, located on the Clark Fork River near Thompson Falls, Montana (Figure 1). Because bull trout (*Salvelinus confluentus*), a federally listed species under the Endangered Species Act (ESA), are present within the project area, a biological evaluation (BE) was prepared for the Thompson Falls Project and submitted to the U.S. Fish and Wildlife Service (USFWS) and the Federal Energy Regulatory Commission (FERC) in 2003. The BE concluded that the Thompson Falls Project was likely to adversely affect bull trout. Thereafter, informal consultation between PPL Montana and the USFWS identified the need to assess the means to implement adult, upstream fish passage at the Thompson Falls Dam. Consequently, PPL Montana submitted a long-term plan to develop adult upstream fish passage at Thompson Falls Dam to the USFWS. The long-term plan identified the need for additional fish behavior and project operations data prior to the development of a permanent fish passage facility at Thompson Falls Dam.

Before the installation of any permanent fish passage facility a critical and logical step is to gather information on the behavior of the target species as they enter the project area during their migration. Knowledge of the target species movement patterns in the tailrace of a dam is critical to understanding the ideal location of any future fish passage facility. In addition, understanding how fish behavior might change in relation to changing dam operations and varying river discharge is critical for determining the ideal location of a passage facility and how dam operations might be manipulated to improve passage. An understanding of these variables are especially important for the Thompson Falls Project because of the complexity of the site, including two dams separated by an island, two powerhouses, a long wingwall between the powerhouses, and a large tributary (Prospect Creek) adjacent to the project.

PPL Montana, in consultation with GEI Consultants, Inc., developed a study plan for 2004 fish passage studies (GEI Consultants, Inc. 2004). A fish-collecting permit for this project was received from Montana Fish, Wildlife and Parks (MFWP) and the USFWS (for handling the threatened bull trout). Fisheries work conducted in 2004 was planned and implemented in cooperation with the USFWS, MFWP, Avista Corporation, Northwestern Energy, and the Confederated Salish and Kootenai Tribes. This report details the data collected during the 2004 field season by PPL Montana with staff assistance from MFWP.

1.2 Project Description

Thompson Falls Dam was built in 1917 on the Lower Clark Fork River near Thompson Falls, Montana. Integral with Thompson Falls Dam is a 92.6 MW hydropower facility contained in two powerhouses. The Federal Energy Regulatory Commission (FERC) relicensed Thompson Falls Dam to the Montana Power Company (now PPL Montana) in 1979, and amended the license to include the new powerhouse in 1990.

The existing facilities enable water to be released from four major locations (two spillways and two powerhouses). These flows change at different times of the day, season and year and are variable from year to year depending on runoff volume and snowmelt timing as well as power demands and tradeoffs between the two powerhouses. Additionally flows emerge from Prospect Creek on the left bank within a quarter-mile of the dam. There are thus five sources of water that may provide attraction for upstream migrating fish depending on the time of year, species, and location of natal stream. Movements of fish into any specific area will be influenced by the volume and velocity of discharges in the river, the creek and the powerhouses (spill and generator operations).

In 2001, PPL Montana and MFWP installed a Denil fish ladder and trap box near the left bank of the Clark Fork River downstream of spillway #2 (Photo 1). This site was selected because fish had been observed in this area, jumping towards the dam. The trap has been successful of catching a variety of native and non-native fishes. While the fish trap does catch fish, this may not be the best location for a permanent fishway. The percentage of fish that are trying to pass the dam that find their way into the existing trap is unknown. In addition, the length of time fish need to find this location is also unknown.

1.3 Study Objectives

The main objective of the 2004 study was to establish a stationary radio telemetry receiver array and begin identifying the movement patterns of tagged fish to facilitate the understanding of where the ideal location for a permanent fish passage facility could be constructed. Although this was the main objective, it was known that 2004 would not give all the information needed to completely meet the objective. Therefore, 2004 was used for baseline data gathering and a review of the telemetry system employed, with revisions to the design to be implemented in 2005.

In addition to the main objective, other continuing fisheries data were collected by the MFWP and PPL Montana to gain further biological data on: migratory behavior of lower Clark Fork River fishes, fish populations in Thompson Falls Reservoir, and water quality. Results of the water quality monitoring are in a separate report under preparation by PPL Montana. Activities undertaken during 2004 at Thompson Falls Dam included the set up and use of stationary telemetry receivers, radio tagging of salmonids using both coded and pulsed

radio telemetry tags, the use of the Thompson Falls fish trap, electrofishing in the Clark Fork River, gill netting in Thompson Falls Reservoir, angling, and identifying the movement of tagged fish both below and above Thompson Falls Dam.

Section 2 - Methods and Materials

2.1 Radio Telemetry Equipment

Digitally encoded radio transmitters (model MCFT-3FM and MCFT-3BM. Lotek Engineering, Newmarket, Ontario, Canada) used in the study were digitally encoded and transmitted signals on one of three frequencies (148.300, 148.640, and 148.740 MHz). The two models of radio tags were cylindrical with a 300 mm whip antennae. Twenty-one Model MCFT-3FM and nine model MCFT-3BT transmitters were used in 2004. The MCFT-3FM weigh 4.6 g in water, are 11 mm in diameter, 59 mm in length, and have an approximate operation life of 560 days at the set burst rate of 5 seconds. The smaller MCFT-3BM weigh 3.7 g in water, are 11 mm in diameter, 43 mm in length, and have an approximate operating life of 278 days at the set burst rate of 5 seconds.

Three Lotek SRX_400 telemetry receivers were used. Each receiver was programmed with Code_Log Version 4.2x W31 software and equipped with 64k data storage memory. Whenever a signal was detected, the receiver recorded the starting date and time, channel, code, antenna, power level, number of events, and stop date and time for that particular coded signal. The three receivers were kept in weatherproof enclosures and connected to a deep cycle 12 Volt battery (Sun Xtender Series, Concorde Battery Corporation) and an 80-Watt solar panel (Model SW90, SunWize® Technologies) with a solar controller (Model Sunsaver-10, Morningstar). All receivers were connected to cellular modems allowing data to be downloaded from a distant location.

Nine-element and four-element Yagi antennae were use at the fixed monitoring locations. The antennae arrays were grouped together at the dam and wingwall areas and separated at the hilltop. All antennae arrays were linked to one receiver and scanned sequentially. Antennas on the main channel dam and the wingwall were mounted on a stand built of 4” x 4” treated wood and bolted down into the concrete deck. The hilltop antennas were mounted using large wooden poles supported by plastic covered cable.

2.2 Monitoring System Design

The movements of radio tagged salmonids released below Thompson Falls Dam were determined using three fixed monitoring stations. A monitoring station was established on the wingwall off the old powerhouse, the hilltop of the island between the new powerhouse and the dry channel dam, and on the main channel dam. Each monitoring station consisted of one receiver and an antennae array. Dummy transmitters were used to validate the identification of transmitters in the desired areas at all stations. Although more than one antenna identifies a transmitter at a given time, the power of the signal was used to identify

what area a fish was residing in at a specific time. Each antenna had a specific identifying number or letter to distinguish what specific antenna was receiving signals. A schematic of the Thompson Falls project area with the telemetry configuration can be found in Figure 2. The specific layout of the antenna arrays were as follows.

Wingwall

Five antennae were used to distinguish the location of fish from the wingwall receiver, Photo 2 shows the configuration of antennae 5, 1, A, and 6. The areas specifically encompassed by the individual antennae and their identifiers were:

- Antenna 5. Right side of the wingwall (facing downstream) nearest to the east end of the old powerhouse.
- Antenna 1. Wingwall channel entrance (west side of wingwall channel).
- Antenna A. Clark Fork River downstream of the old powerhouse.
- Antenna 6. Main channel of the Clark Fork River adjacent (left side) to the wingwall.
- Antenna 7. New powerhouse tailrace.

Hilltop

Five antennae were used to distinguish the location of fish from the hilltop receiver, the areas they specifically encompassed and their identifiers were:

- Antenna 4. Overseeing the new powerhouse tailrace and the mainstem Clark Fork River below island (Photo 3).
- Antenna 3. Mainstem Clark Fork River, just downstream of the mouth of Prospect Creek.
- Antenna 2. Mainstem Clark Fork River encompassing the mouth of Prospect Creek (Photo 4).
- Antenna 1. Mainstem Clark Fork River, just upstream of the mouth of Prospect Creek (Photo 5).
- Antenna A. Dry channel dam tailrace (Photo 6).

Main Channel Dam

Three antennae were used to distinguish the location of fish from the dam receiver (Photo 7), the areas they specifically encompassed and their identifiers were:

- Antenna 3. Right side (facing downstream) of main channel dam tailrace.

- Antenna 0. Middle of main channel dam tailrace.
- Antenna A. Left side (facing downstream) of main channel dam tailrace.

2.3 Data Collection

GEI Consultants, Inc. periodically checked radio telemetry receivers and downloaded data stored on the receivers to a notebook computer. After ensuring that downloaded data was secure, the receivers were initialized (cleared of existing data). Data was also downloaded via the cellular modems to a server computer in GEI's Bozeman office. All fish detection data was consolidated into a database (Microsoft Access) for editing, review, and verification.

2.4 Fish Capturing and Tagging Procedures

Salmonids tagged with radio telemetry transmitters during the 2004 telemetry study were captured using the Thompson Falls trap as well as electrofishing and angling methods. All fish that were radio tagged were done in the same matter and personnel followed the protocols outlined in the 2004 Thompson Falls Dam Fish Passage Study Plan (GEI Consultants, Inc. 2004). All fish handled during trap, electrofishing, and angling during 2004 can be found in the capture table located in Appendix C. Appendix C lists various attributes for all fishes captured and includes the individuals who present when handling occurred.

2.4.1 Tagging Procedures

Bull trout, westslope cutthroat (*Oncorhynchus clarki lewisi*) trout, rainbow trout (*O. mykiss*), and brown trout (*Salmo trutta*) were tagged with either coded or pulsed radio telemetry transmitters during 2004. Fish selected for radio tagging were placed in an anesthetic tank containing a minimal solution of MS-222. Once the fish were anesthetized, they were measured (total length) and weighed. The fish were then placed in a V-shaped trough with a clean towel to keep fish from sliding and to hold fish ventral side up. The gills were flushed with MS-222 water using a manual anesthetic infusion pump (Photo 8) during the operation to maintain both oxygen and anesthetic to the gills. Prior to tagging, all surgical instruments and the operating area were disinfected. Radio tags were inserted into the fish through an incision made near the mid-ventral line and anterior to the pelvic girdle. Incision lengths were kept to a minimum, but varied depending on the size of radio tag being inserted. A cannula was used to insert the antenna through the body cavity musculature posterior to the pelvic girdle and was allowed to trail posteriorly. Between 2 and 4 surgical staples or sutures were used depending on the preference of the surgeon to close the incision. After surgery, fish were allowed to gain equilibrium in an aerated live well and were then transported either downstream or upstream to their release site.

Only fish that met the criteria outlined in the 2004 Thompson Falls Study Plan (PPL Montana 2004) received radio tags. All radio tagged fish that were released downstream of Thompson Falls Dam received a coded radio tag, while all fish released upstream of the dam received pulsed radio tags. Fish released downstream where either released at the mouth of Squaw Creek or at Thompson Falls State Park. Fish released upstream of Thompson Falls Dam were released from the south side of Thompson Falls Reservoir approximately 4 miles upstream of Thompson Falls Dam.

In addition, all salmonids captured were scanned for previously implanted passive integrated transponder (PIT) tags. All bull trout, westslope cutthroat trout, and rainbow trout that did not have a PIT tag received one during the surgery. The PIT tags were placed in the body cavity next to the radio tag. Other fish not receiving radio tags were implanted with PIT tags using an injector into the same location. In addition to PIT tags, westslope cutthroat trout received an adipose fin clip for future identification.

Genetic samples were taken from all bull trout and westslope cutthroat trout captured during 2004. A small (1/2 size of standard paper punch) section of a rayed fin was clipped and placed in a container containing a 95% solution of ethanol. Genetic samples were then stored by the MFWP and will be evaluated by a qualified laboratory at a future date.

2.4.2 Thompson Falls Fish Trap

The Thompson Falls Trap was operational from 16 March to 10 May, and operated for two days in September (16th and 17th). River discharge was the main factor influencing when the trap was operational. During the spring freshet the trap area becomes inaccessible due to spill at the dam. Due to spill conditions, the trap was closed on 11 May. At the end of the spill period, water temperatures in Clark Fork River were above the prescribed trapping and tagging limit of 16 C^{o} until mid September. The upper limit of 16 C^{o} was set to reduce the amount of stress fish are exposed to during the ongoing fisheries monitoring activities.

2.4.3 Electrofishing

Night electrofishing in the Clark Fork River below Thompson Falls Dam was conducted on four occasions during 2004, once each on 29 March and 5, 19, and 22 of April. Each electrofishing effort began after sunset and varied in the length of time sampling occurred. A jet boat mounted with an electrofishing unit was used in areas thought to hold salmonids. No catch per unit effort data was obtained, since the objective was to catch salmonids for radio tagging.

2.4.4 Angling

Angling for salmonids occurred on two occasions during 2004. On 16 March four people fished for 1.0 hour below the apron of the main channel dam. On 13 October four people fished for 1.5 hours in the same location. Angling was done using standard fishing equipment that consisted of spinning reels and either bait (worms) or lures. The same procedures mentioned above for handling and tagging fish were used during the angling efforts.

2.5 Thompson Falls Reservoir Sampling

To better understand the species composition of Thompson Falls Reservoir and the age structure of selected species, six horizontal experimental mesh gill nets were set in Thompson Falls Reservoir on 13 October and were pulled on 14 October. The nets were fished for an average of 19 hours and 48 minutes. Nets were set perpendicular to the shore and ranged from 3.0 ft to 27 ft in depth. Nets were pulled the morning after being set, taken to shore, and fish removed and data collected by MFWP, PPL Montana, and GEI Consultants, Inc. personnel. Lengths (TL) and weights were taken on all fish. Otoliths were removed from largemouth (*Micropterus salmoides*) and smallmouth bass (*Micropterus dolomieu*) for aging. Northern pike (*Esox lucius*) had their stomachs analyzed as well as their heads removed and saved for aging using the cleithra. All aging will done by MFWP personnel at a later date.

Section 3 – Results

3.1 Fish Sampling

3.1.1 Thompson Falls Fish Trap

Nine different species including five salmonid species were captured in the Thompson Falls Fish Trap during 2004 (Figure 3). Three bull trout were captured in the trap during 2004 one on each of 7 April, 13 April, and 5 May. Rainbow trout were the most common fish in the trap with 76 individual fish being captured from 16 March to 5 May. Nine individual westslope cutthroat trout were captured from 17 March to 5 May. Two brown trout were captured, one on 13 April and one on 16 September. One unidentified salmonid was captured on 27 April; further discussions with the collectors led us to believe the fish was a kokanee salmon (*Oncorhynchus nerka*). Largescale suckers (*Catostomus macrocheilus*) were the most common non-salmonid species in the trap with a total of 42 captured during 2004. Twenty northern pikeminnow (*Ptychocheilus oregonesis*), 18 peamouth (*Mylocheilus caurinus*), and 1 largemouth bass were also captured.

Overall captures in the trap were higher than the number of individual fish captured due to recaptures. Two types of recaptures were observed in 2004, the first when fish marked from previous years entered the trap, and the second when fish previously captured in 2004 entered the trap. The cumulative numbers of capture events for each species are displayed in Figure 4.

Five rainbow trout were captured in 2004 that had been marked in previous years. Eight rainbow trout and two westslope cutthroat trout were captured in the fish trap multiple times during 2004. Of the eight rainbow trout recaptured, six were captured twice, one was captured three times, and one was captured four times. Therefore, 10.5% of all rainbow trout and 22.2% of all westslope cutthroat trout that were captured in the trap in 2004 entered the trap more than once. In addition, 7 rainbow trout were tagged with non-coded radio tags and released upstream of Thompson Falls Dam, therefore increasing the proportion of recaptured rainbow trout that were released downstream. Out of a total of 69 rainbow trout captured in the trap and released downstream, 11.6% (8) were recaptured in the fish trap. No fish that were captured and tagged during electrofishing or angling efforts were recaptured in the fish trap during 2004.

Salmonids started entering the trap in greater numbers before the beginning of the spring freshet around 5 April, (Figures 4 and 5). Water temperatures in the trap were beginning to rise during this time, and were recorded at 7^{o} C on 4 April and 11^{o} C on 8 April. Water temperatures in the trap then remained relatively stable during the rest of the time the trap

was used until after the hydrograph began is descending limb. Temperatures and dissolved oxygen measurements were taken below Thompson Falls Dam on an hourly basis from 20 April to 13 July by PPL Montana and are displayed in Figure 6.

Northern pikeminnow and peamouth began entering the trap around 3 May, corresponding to the ascending limb of the hydrograph and river temperatures near 12^{o} C. The overall magnitude of the spring freshet was much lower, and later in the season, in 2004 when compared to the average for the period of record (See Figure 5).

Bull trout were on average the largest fish captured in the trap during 2004 with a mean total length of 505.0 mm and weight of 1,297.7 g (Table 1). The size classes of all salmonids captured in the trap are shown in the length frequency histogram in Figure 7, while the means and ranges of lengths and weights for all species can be found in Table 1. Rainbow trout ranged from 230 mm in total length to 552 mm. The length weight relationship for all rainbow trout captured in the trap during 2004 is shown in Figure 8.

3.1.2 Angling

Four salmonids were captured using angling off the main channel dam apron in 2004. One brown trout with a total length of 556 mm was captured on 16 March. It was implanted with a 10 g coded radio tag and PIT tag and released near downstream at Thompson Falls State Park. On 13 October one bull trout and two rainbow trout were captured again off the main channel dam apron. The bull trout measured 390 mm total length and weighed 485 g and was implanted with a PIT tag and released near the location of capture. The two rainbow trout measured 443 and 452 mm in total length and were both implanted with a 10 g coded radio tag and a pit tag and were released downstream at the mouth of Squaw Creek.

3.1.3 Electrofishing

A total of 388 fish of 12 different species were collected during the four nights electrofishing efforts. Forty-two salmonids were sampled including 4 bull trout, 36 rainbow trout, and 2 each of westslope cutthroat trout, brown trout, and brook trout. Overall largescale suckers were the most common species with 300 captures. The total number of each species collected as well as their length and weight statistics are displayed in Table 2. A comparative display of the numbers of fish captured while electrofishing and all other techniques used is found in Figure 3.

Three electrofished bull trout and two rainbow trout were inserted with coded radio tags and PIT tags and released at the mouth of Squaw Creek. The remaining bull trout was PIT tagged and released on site because it was too small (109 mm) for radio tagging. All 18 largemouth bass and all 5 smallmouth bass were tagged with Floy Tags. All nine northern pike were tagged using cinch tags and each species was released near the site of capture. The time intervals of electrofishing were not recorded; therefore no CPUE data is available.

3.2 Thompson Falls Reservoir Sampling

A total of eight species were captured during the October gill netting effort (Table 3). Black bullhead (*Ameiurus melas*) were the most abundant species overall with 17 being captured, although they were only captured in the shallowest net. A total of 8 northern pike were captured in two nets, 10 yellow perch (*Perca flavescens*) in three nets, and 2 smallmouth bass in two nets, and 1 largemouth bass (*Micropterus salmoides*). The total numbers of each species captured during gill netting are displayed in Figure 9. Overall the nets had a combined CPUE of 0.38 fish per hour of fishing (See Table 3).

On average northern pike were the largest species with an average total length of 566.4 mm, while the smallest fish captured was a pumpkinseed (*Lepomis gibbosus*) at 136.5 mm total length. The mean lengths and weights of species captured are shown in Table 4. In addition, the lengths and weights of all 8 northern pike are shown in Figure 10.

3.3 Thompson Falls Dam Fish Movement Study

Thirty-one salmonids were tagged with coded radio transmitters and released below Thompson Falls Dam between 16 March and 13 October 2004 using various capture techniques that are described in the following sub-sections. Three bull trout, seven westslope cutthroat trout, nineteen rainbow trout, and two brown trout were radio tagged for the tailrace study. Twenty-one large (10.0 g) tags and ten small (7.7 g) tags were used. Only one radio tag (2.6%) exceeded 2.0% of the individual fish's body weight. The time of capture, method of capture, area of release, species, size of fish, tag size, radio frequency, and code are all displayed in Table 5.

Each stationary telemetry station became operational on a different day. The main channel dam (dam) station started collecting data on 3 May, wingwall station on 15 May, and the hilltop station on 10 June. Power surges blew the fuse on the dam station and it was not operational from 4 May until 17 May, but then ran uninterrupted till 29 October. The hilltop station ran uninterrupted from its 10 June start until 17 October. The wingwall station also ran uninterrupted from it start on 15 May until 17 October. Although all the recorded data for these periods of time was safely downloaded manually to a notebook computer, GEI Consultants, Inc. personnel were not able to download data off site via the cellular modems for much of the 2004 field season. Problems associated with the cellular modems have been fixed and communication with receivers through the cellular modems is now working.

All fish that received coded radio transmitters were released downstream of Thompson Falls Dam. All but two fish were released at the mouth of Squaw Creek approximately six miles downstream of Thompson Falls Dam. Two fish on 16 March were released at the Thompson Falls State Park boat launch, which is approximately 2.8 miles downstream of Thompson Falls Dam.

The number of radio tagged fish present at the dam by date for 2004 is shown in Figure 12. We detected most of the radio tagged fish at the dam from the end of April to the beginning of May. The earliest detection of a fish at the dam was a rainbow trout on 17 March. The largest number of individual radio tagged fish that were detected at the dam occurred on both 4 and 5 May, when a total five radio tagged fish were detected. The species composition was different on the two dates. On 4 May the five fish consisted of four rainbow trout and one westslope cutthroat trout, while the composition on 5 May consisted of three rainbow trout, one bull trout, and one westslope cutthroat trout. The only other bull trout that was detected at the dam was identified on 24 May.

In 2004, 21 of the 31 radio tagged trout moved up into the Thompson Falls Dam tailrace, assuming the tailrace is broadly defined as including the area of the Clark Fork River at the mouth of Prospect Creek and the mouth of Blue Creek. The 21 trout consisted of 12 rainbow trout, five westslope cutthroat trout, one brown trout and three bull trout. Most trout moved rapidly from the downstream release site back upstream to the tailrace, generally taking between 3 and 27 days (average 14 days) to travel the 5.3 miles. On average bull trout took an average of 15.0 days to reach the dam, while rainbow and westslope cutthroat trout took an average of 14.5 and 11.5 days respectively (Figure 11). The one brown trout that was released at Squaw Creek was later detected at the dam 23 days after its release. The shortest (1 day) and longest (81 days) migration time interval from release at Squaw Creek to being detected at the dam were both made by rainbow trout.

Not all these fish were detected making forays to the dam. Some moved to the mouth of Prospect Creek and either held in that area, or moved upstream into Prospect Creek (one cutthroat and three rainbow trout). Of the 21 fish that returned to the tailrace, ten were documented all the way upstream at the main dam, and three were detected adjacent to one of the powerhouses.

Although radio tagged fish were present in the tailrace throughout the year, forays to the main dam and powerhouse occurred between mid- March and early July (Figure 12). During the rest of the year, radio tagged fish were primarily detected at the mouth of Prospect Creek, or upstream near the mouth of Blue Creek. The last half of April and the first week of May was the peak time period when trout were detected at the main dam. This time period corresponded to the rising limb of the hydrograph, prior to peak flow (Figure 12). Fish that remained in the tailrace after July were generally in the area at the mouth of Prospect Creek or the mouth of Blue Creek. They were not detected approaching the dam later in the summer or fall.

Montana Fish, Wildlife and Parks manually tracked all tagged fish released below (coded tags) and above (pulsed tags) Thompson Falls Dam twice a week from 17 March to 31 October 2004. Summaries of MFWP tracking for all fish released below Thompson Falls Dam can be found in Appendix A, while summaries for all fish tracked above Thompson

Falls Dam can be found in Appendix B. Jay Stuckey from MFWP in Thompson Falls, MT composed both Appendix A and B.

3.3.1 Individual fish histories – stationary receiver data

Below is both a description of the individual fish and its radio telemetry history collected by the three stationary receiver stations. Note that many fish were only recorded as being at the dam and were not detected at the wingwall or hilltop stations. This is most likely due to the fish being released before the stations were operational and therefore fish moved into the project area (especially the main channel dam area) before the telemetry receivers could detect them.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
4/26	Squaw Creek	RBT	389	500	148.300	24

History:

Date	Station	Antenna
6/3	Dam	3
6/13	Dam	3
6/1	Dam	3
6/19	Dam	3
6/21 to 6/23	Dam	3
27-Jun	Dam	3
28-Jun	Dam	3
7/2 to 7/3	Dam	3
11-Jul	Dam	3
12-Jul	Dam	3
14-Jul	Dam	3
16-Jul	Dam	3
17-Jul	Dam	3

Summary: Fish was only detected at the dam station. It spent all of its recorded time on right bank area below the main channel dam. Although this fish was recorded on Antenna 3 on numerous days, the recordings were sporadic, in that it would be recorded for a very short period of time, in most cases three events and then it would leave. This may be due to the fish using deep-water habitats within the area of the apron where reception may have been lost. This fish presumably left the main channel dam area but was not picked up on any other stationary receivers.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
4/23	Squaw Creek	WCT	364	531	148.300	25

History:

Date	Station	Antenna
5/3	Dam	A

Summary: Fish was located at the main channel dam station on the day that the receiver began collecting data. It spent approximately 5.5 hours near the left bank of river below the main channel dam, within the same vicinity of the fish trap. Montana Fish Wildlife and Parks detected this fish on 7 May 2.5 miles above the mouth of the Vermilion River and it was never again detected near the project area.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
4/9	Squaw Creek	WCT	410	636	148.300	28

History:

Date	Station	Antenna's	Most Time and/or Strongest Signal
5/3	Dam	A & 0	A
5/4	Dam	A & 0	A
5/17	Dam	A, 0, 3	0 then A
5/18 to 5/19	Dam	A, 0, 3	0, then A and 3
5/20 to 5/25	Dam	A, 0, 3	0, then A
6/2 to 6/5	Dam	A, 0, 3	0, then A
7/27 to 10/29	Dam	A, 0, 3	0, then A
Likely Dead or Expelled Tag			

Summary: Fish spent all of its recorded time at the main channel area. In early may the fish was detected near the left bank below the main dam in the area of the fish trap. During mid May to early June all three antennae were recording the fish, but the signal was noticeably

higher on antenna 0 and second strongest on antenna A. These signal strengths give evidence that the fish was somewhere between the middle of the dam towards the left bank. From late July to late October the signal strengths varied little on all three antennae, indicating the radio tag was not moving. These data as well as MFWP data indicate that the fish either expelled the radio tag or that it died.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
4/2	Squaw Creek	WCT	400	529	148.300	29

History:

Date	Station	Antenna's	Most Time and/or Strongest Signal
5/17	Dam	A & 3	A
5/17	Dam	3 & A	3
5/17	Dam	A, 3, 0	A
5/18 to 5/19	Dam	A, 0, 3	A
5/19	Wingwall	7	7
6/10	Hilltop	All	2
6/15 to 6/16	Hilltop	All	2
6/21 to 6/22	Hilltop	All	2
6/27 to 7/22	Hilltop	All	2
8/23 to 10/17	Hilltop	All	2
Not Moving			

Summary: This fish was detected on the dam receiver on the first day it was operational. It was strongest for the most part on Antenna A (left bank near fish trap), but did make a noticeable movement to the right bank where Antenna 3 detected it. It then went back to the left bank area. On 19 May the fish was no longer being detected at the dam and was detected by Antenna 7 (tailrace of new powerhouse) of the wingwall station. It spent little time in the new powerhouse tailrace and was not again detected until 10 June by the hilltop receiver. From 10 June to 22 July the fish was detected frequently on all hilltop antennae, but was considerably strongest on Antenna 2 (directly aimed at mouth of Prospect Creek). From 23 August to 17 October signals were consistently the same on all antennae. Therefore the radio tag was not moving and the fish likely either expelled the tag or died.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code

4/28	Squaw Creek	RBT	475	1032	148.640	1

History:

Date	Station	Antenna's	Most Time/Strongest Signal
7/15	Hilltop	4,3,2,1	5 hrs on 4
7/15	Hilltop	2,4,3,1	13 hrs on 2
7/16 to 7/22	Hilltop	2,4,3,1	Strongest on 2
8/23	Hilltop	2,1	8 hrs on 2
8/23	Hilltop	2,1,A	4 hrs on 2
8/24	Hilltop	1,2,A,3	Strongest on 1 & 2
8/25	Hilltop	1,2,A,3	3 hours on 1 & 2
8/25	Wingwall	A	2 minutes
8/25	Hilltop	4	8 minutes
8/25	Hilltop	2	1 minute

Summary: This fish was first detected on 15 July on the hilltop station, where it was being read on four of five antennas. Although it the signal was strongest for approximately 5 hours on Antenna 4 (hilltop overlooking Clark Fork River and new powerhouse tailrace), it was steadily strongest on Antenna 2 (Mouth of Prospect Creek) and 1 (main channel Clark Fork upstream of Prospect Creek) for the majority of the time it spent in the area. On 25 August this fish moved downstream slightly where it was recorded on the antenna A of the wingwall station (New powerhouse tailrace) and on Antenna 4 of the hilltop (main channel and new powerhouse tailrace) almost simultaneously. The fish then moved back upstream and was recorded near the mouth of Prospect Creek. This was the last recording of this fish on the stationary stations. Montana Fish Wildlife and Parks received the last signal from this fish near Prospect Creek on 23 August, and then detected the fish near the town of Trout Creek downstream from Thompson Falls Dam on 4 and 15 October.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
4/19	Squaw Creek	RBT	394	535	148.640	3

History:

Date	Station	Antenna's	Most Time/Strongest Signal
7/8	Wingwall	A	1 hr 12 minutes
7/8	Wingwall	7	3 minutes
7/8	Wingwall	A	1 minute
7/8	Wingwall	5	3 hrs
7/8	Wingwall	A	2 hrs 20 minutes

Summary: Only detected at the wingwall station and on only one day (8 July). Fish was being detected on Antenna A (mainstem channel Clark Fork River downstream of old powerhouse) and then moved for a brief period to antenna 7 (new powerhouse tailrace). It was next detected for 5 hours on the inside of the wingwall retaining wall within the old powerhouse tailrace (Antenna 5). The fish was then last detected on Antenna A (mainstem Clark Fork downstream of old powerhouse). Montana Fish Wildlife and Parks detected this fish on 26 August at the mouth of Graves Creek, downstream of Thompson Falls Dam.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
3/19	Squaw Creek	RBT	403	610	148.640	4

Date	Station	Antenna's	Most Time/Strongest Signal
5/3	Dam	0 & A	7 hours on 0
5/4	Dam	0 & A	2 hrs 5 minutes on 0

Summary: Fish was only recorded at the main channel dam station. It was first detected when the dam station began operating and the signal was lost when the receiver failed on 4 May. For the nine hours the fish was in the area, it spent all of its time between Antenna 0 and A, with the strongest signals being recorded on Antenna 0 (Middle of main channel

dam). Due to the fact that no signal was detected on Antenna 3 (right side of main channel dam tailrace) it is logical to believe that the fish was residing downstream of the dam from the middle of the channel to the left bank (near fish trap). The last detection of this fish by MFWP was on 6 May, below Thompson Falls Dam. It is unclear where this fish went after this date.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
4/19	Squaw Creek	BLT	535	1275	148.640	7

Date	Station	Antenna's	Most Time/Strongest Signal
5/15	Wingwall	1, A, 5	1 and A
5/15	Wingwall	5	made short foray to Antenna 5
5/16 to 5/17	Wingwall	1 & A	~ equal signal strength
5/17 left Wingwall & 4 hrs 20 min later detected at Dam			
5/17	Dam	A, 0, 3	couldn't decipher strongest Antenna
5/20	Wingwall	1 & A	7 minutes equal signal strength
5/20 left Wingwall 30 min later detected at dam			
5/20	Dam	0, A, 3	5 hrs strongest on 0
5/20 left Dam 20 min later detected at Wingwall			
5/20	Wingwall	7	1 hr 20 min
5/20	Wingwall	A, 5, 6, 7	8 hrs 30 min couldn't decipher strongest antenna
5/21	Wingwall	6, A, 5, 7	5 hrs 45 min strongest on 6 & A
5/21	Wingwall	6, 5, A, 1, 7	~ 11 hrs equal between 6 and 5
5/22	Wingwall	5, 6, 7, A, 1	~ 2 hrs strongest on 5
5/22	Wingwall	7	~ 1 hr 20 min strongest on 7
5/22 left wingwall & 1 hr 20 min later detected at Dam			
5/22	Dam	0, A, 3	~ 5 hrs 30 min strongest on 0 then A
5/22	Dam	0, A, 3	~ 18 hrs strongest on 0

Summary: This bull trout was first detected on 15 May at the wingwall station, where its signal was strongest on Antennas 1 and A, which corresponds to downstream of the wingwall and old powerhouse. This fish did make a short foray to Antenna 5 (east end of old powerhouse), but spent little time in this area. On 17 May it was detected at the wingwall again on antennas 1 and A, then was detected 4 hrs and 20 min later at the main channel dam station. Although this fish must have passed the hilltop station this station was not yet operational until 10 June. The bull trout spent time at the main channel dam station on 17 May, although all antennas were approximately of equal strength, therefore the specific location could not be deciphered.

On 20 May the bull trout was recorded on the wingwall receiver on antennas 1 and A (downstream of wingwall). It spent approximately 7 min in this area and was then detected again in the vicinity of the main channel dam, approximately 30 min after leaving the wingwall area.

It spent five hrs at the dam with its strongest signal coming from the middle antenna (Antenna 0), which may correspond to an area further downstream of the dam apron area. It left the dam area and was detected 20 min later at the wingwall station on Antenna 7 (new powerhouse tailrace), where it spent approximately 1 hr and 20 min. From 20 May to 22 May the fish spent time around the wingwall area. During this time it spent approximately 2 hrs on the inside of the wingwall on the east end of the old powerhouse (Antenna 5). On 22 May it moved again into the new powerhouse tailrace for approximately 1 hr and 20 min. On the same day, the fish moved to the main channel dam area. This migration took approximately 1 hr and 20 min. It then spent approximately 5 hrs and 30 min on the left bank (near the fish trap) and then moved further into the middle of the mainstem channel below the dam.

This bull trout was then detected by MFWP on 24 May near the Thompson Falls Dam, although the stationary receivers were not detecting it. Mobile tracking by MFWP then detected it at the mouth of Prospect Creek on 27 May and the last detection of this fish was on 18 October at the mouth of Graves Creek, downstream of Thompson Falls Dam.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
3/17	Squaw Creek	WCT	415	626	148.740	18

Date	Station	Antenna's	Most Time/Strongest Signal
5/3	Dam	A, O	7 hrs strongest on A
Captured in Trap on 5/5			

Summary: This westslope cutthroat trout was identified at the dam on the day that the dam's telemetry station began operations. It was then captured in the trap by MFWP on May 5, 2004 and was released downstream of Thompson Falls Dam, although the location of release was not specified within the MFWP data sheet. This fish was not detected again by any of the stationary telemetry receivers within the project area, but was detected numerous times downstream of the project area by MFWP.

Description:

Release Date	Release Location	Species	Length (mm)	Weight (g)	Frequency	Code
4/23	Squaw Creek	RBT	438	804	148.740	19

Date	Station	Antenna's	Most Time/Strongest Signal
6/15 to 10/17	Hilltop	2 & 1	2
Tag either expelled or fish died in the mouth of Prospect Creek			

Summary: The consistent reading from Antenna's 2 and 1 from 16 June to 17 October lends evidence that the tag was either expelled by the rainbow trout or the fish died in the mouth of Prospect Creek. The same conclusion was made by MFWP during their manual tracking.

Section 4 – Discussion

The fish trap at Thompson Falls Dam was operational from 16 March to 10 May and two days in September (16th and 17th) during 2004. The fish trap was successful at catching salmonids, especially from early April to early May. A total of ten fish (8 rainbow trout and 2 westslope cutthroat trout) were captured in the trap more than once in 2004.

A total of 31 salmonids were tagged with coded radio transmitters and released below Thompson Falls Dam during 2004. The median time it took for tagged fish to make their way upstream from the release site at Squaw Creek to Thompson Falls Dam was 14 days. Once in the project area tagged fish showed a variety of movement behaviors. Of the 31 fish tagged with coded tags, only 10 were observed within the project area via the stationary receivers. The low proportion (32%) of detection with the stationary receivers was likely due to the timing that the stationary receivers began collecting data. Some fish that migrated to the project area may not have been detected because they reached the dam before the stationary receivers were operational. In all, 21 fish tagged with coded transmitters were observed in the tailrace when both stationary receiver data and MFWP manual tracking data are combined.

Once at the dam, radio tagged fish showed various behaviors. The four rainbow trout monitored in the project area by the stationary receivers showed variable behavior. One spent most of its time on the right bank of the main channel dam. One spent the majority of time again at the main channel dam, but on the left bank. One used the inside of the wingwall near the old powerhouse, and one spent its time in the mouth of Prospect Creek. Interestingly, all four westslope cutthroat trout monitored in the project area spent the majority of their time near the left bank near the main channel dam.

No salmonids were captured during the October gill netting in Thompson Falls Reservoir. Catch-per-unit-effort was relatively low at 0.38 fish/hour of net soaking time. Black bullhead were the most abundant species captured during gill netting. Eight northern pike that averaged 566.4 mm in total length were captured in two shallow nets.

4.1 Summary of bull trout data

During 2004, eight bull trout were handled. They were captured in the trap (three), by electrofishing (four), and by angling (one). The bull trout captured in the trap were tagged with pulsed radio transmitters and released upstream of Thompson Falls Reservoir in 2004. One of these three fish fell back into Noxon Reservoir, and one expelled its radio tag in the West Fork Fishtrap Creek. The fate of this fish was unknown since no carcass was found. The other bull trout had its last reliable signal observed in the Thompson River drainage.

The bull trout that were captured electrofishing that were large enough to tag (three fish) were transported downstream of the dam. In total, six bull trout were tagged in 2004 with coded and pulsed tags, none of which were confirmed mortalities.

All three of the downstream radio tagged bull trout were tagged and released on April 19, 2004. Bull trout #148.300 Code 22 was detected at the mouth of Prospect Creek four days after release. It made at least two forays upstream of the mouth of Prospect Creek towards the main dam, reaching the mouth of Blue Creek between 23 April and 7 June, before moving downstream into Noxon Reservoir.

Bull trout #148.640 Code 7 was first detected in the area of the old powerhouse 27 days after release. It made at least three forays upstream from the old powerhouse and wingwall area to the main dam between 16 May and 27 May before moving downstream into Noxon Reservoir.

Bull trout #148.640 Code 2 was first detected at the mouth of Prospect Creek 14 days after release. It was detected in that area between 3 May and 6 May, but has not been detected since.

4.2 Plans for 2005

Although no major problems surfaced with the stationary telemetry set up at Thompson Falls in 2004, small glitches such as power surges periodically interrupted the stationary receivers. These minor problems have been fixed and we are confident that 2005 will be a successful year in gathering important fish behavior data at the project. The telemetry array has been up and running through the late winter months of 2005 and will be ready to collect data as soon as fish are tagged and released downstream of the dam in 2005. We have approximately 40 coded tags to be deployed in fish for 2005, which should greatly enhance our understanding of how fish behave in the project area. Data collected in 2004 and 2005 will be of great value in prescribing a successful permanent fish passage facility at Thompson Falls Dam.

For more information about planned activities for 2005, see the 2005 Detailed Study Plan prepared by PPL Montana.

Section 5 – References

GEI Consultants, Inc. 2004. Study Plan: 2004 Thompson Falls Dam Fish Passage Studies. Thompson Falls, MT. Submitted to PPL Montana, 45 Basin Creek Road Butte, MT 59701.

Section 6 – Tables

Table 1. Statistics of fish captured in Thompson Falls fish trap during 2004.

	Length (mm)		Weight (g)		
	Mean	Range	Mean	Range	n
Bull Trout	505.0	487-523	1297.7	1185-1483	3
Rainbow Trout	403.5	230-552	671.9	170-1604	76
Westslope Cutthroat Trout	358.0	255-415	438.8	158-636	9
Brown Trout	473.5	400-547	929.5	469-1390	2
Unidentified Salmonid (Kokanee)	145	*	413	*	1
Largescale Sucker	404.8	83-455	672.9	5-927	42
Northern Pikeminnow	337.1	271-510	338.1	158-1193	20
Peamouth	291.0	256-395	187.9	147-228	18
Largemouth Bass	394	*	954	*	1

Table 2. Statistics of fish captured by night electrofishing below Thompson Falls Dam during 2004.

	Length (mm)			Weight (g)		
	Mean	Range	n	Mean	Range	n
Bull Trout	433.5	109-718	4	1776.0	393-3660	3
Rainbow Trout	288.2	176-492	36	263.9	50-1110	36
Westslope Cutthroat Trout	267.0	240-294	2	190.0	155-225	2
Brown Trout	213.0	132-258	3	180.0	180.0	2
Brook Trout	177.5	175-180	2	53.5	45-62	2
Mountain Whitefish	*	*	4	*	*	4
Largescale Sucker	*	*	300	*	*	300
Northern Pikeminnow	*	*	5	*	*	5
Largemouth Bass	337.8	250-400	18	720.6	350-1005	18
Smallmouth Bass	298.2	244-332	5	401.4	190-522	5
Northern Pike	598.4	402-756	9	1993.7	550-4100.5	9
Redside Shiner	*	*	2	*	*	2

Table 3. Catch-per-unit-effort data by species and net, for all gill nets set in Thompson Falls Reservoir on October 13 and pulled on October 14, 2004.

	Net 1	Net 2	Net 3	Net 4	Net 9	Net 10	Total	CPUE (#/hr)
Depth (ft)	3.5-7.5	8.0-17.5	4.0-17.0	5.0-24.5	5.0-15.0	3.0-27.0	**	**
Soaking Time (hr:min)	19:54	19:46	19:55	19:50	19:33	19:55	118:13:00	**
Northern Pike	6	0	0	0	2	0	8	0.07
Largemouth bass	1	0	0	0	0	0	1	0.01
Smallmouth bass	0	0	1	1	0	0	2	0.02
Yellow perch	4	1	0	0	5	0	10	0.08
Pumpkinseed	2	0	0	0	0	0	2	0.02
Northern pike minnow	0	0	1	0	0	0	1	0.01
Large scale sucker	3	0	0	1	0	0	4	0.03
Black bullhead	17	0	0	0	0	0	17	0.14
Total	33	1	2	2	7	0	45	0.38
CPUE (#/hr)	1.66	0.05	0.1	0.1	0.36	0	0.38	**

Table 4. Statistics of fish captured during the 13 October gill netting effort in Thompson Falls Reservoir.

	Length (mm)		Weight (g)		
	Mean	Range	Mean	Range	n
Northern Pike	566.4	298-767	1592.3	170-3628.8	8
Largemouth bass	150.0	*	44.0	*	1
Smallmouth bass	326.5	325-328	588.0	577-599	2
Yellow perch	212.9	149-332	168.7	37-537	10
Pumpkinseed	136.5	125-148	55.0	41-69	
Northern pike minnow	496.0	*	1162.0	*	1
Large scale sucker	429.8	238-525	931.0	126-1326	4
Black bullhead	206.1	12.5-250	168.9	30-261	17

Table 5. Radio tagged salmonids used in 2004 telemetry study. Column headers: Method = how fish was captured, H20 Temp = trap temp, Species (BLT = Bull Trout, WCT = Westslope Cutthroat Trout, RBT = Rainbow Trout, BRN = Brown Trout), Released = general vicinity of release after tagging (Below = downstream of dam specific site not mentioned on datasheet, Tfalls State Park= Thompson Falls State Park), Genetics = if genetic sample was taken.

Date	Method	H20 Temp	Species	Length (mm)	Weight (g)	Radio Freq	Radio Code	Tag Size (g)	Recap	PIT Tag	Released	Genetics
3/16/2004	Angling	4	BRN	556	1129	148.740	17	10	n	985120006333770	Tfalls State Park	n
3/16/2004	Trap	4	RBT	465	1165	148.640	5	10	n	985120007068371	Tfalls State Park	n
3/17/2004	Trap	4	WCT	415	626	148.740	18	10	n	985120007072804	Squaw Creek	y
3/19/2004	Trap	6.5	RBT	403	610	148.640	4	10	n	985120007064849	Squaw Creek	n
03/19/04	Trap	6.5	RBT	552	1565	148.740	20	10	n	985120006335527	Squaw Creek	*
03/19/04	Trap	6.5	RBT	543	1604	148.740	13	10	n	985120006340391	Squaw Creek	n
3/26/2004	Trap	7	WCT	385	490	148.300	23	7.7	n	985120007072004	Squaw Creek	y
4/2/2004	Trap	7	WCT	400	529	148.300	29	7.7	n	432C7F3F00	Squaw Creek	y
4/9/2004	Trap	10	WCT	410	636	148.300	28	7.7	n	432B262C68	Squaw Creek	y
4/19/2004	Efish	8.5	BLT	372	393	148.300	22	7.7	n	45251F6840	Squaw Creek	y
4/19/2004	Efish	NA	RBT	353	420	148.300	26	7.7	n	452A5D3B13	Squaw Creek	n
4/19/2004	Efish	NA	RBT	394	535	148.640	3	10	n	45252635A	Squaw Creek	n
4/19/2004	Efish	8.5	BLT	535	1275	148.640	7	10	n	452A4C0801	Squaw Creek	y
4/19/2004	Efish	8.5	BLT	718	3660	148.640	2	10	n	4525273C71	Squaw Creek	y
4/23/2004	Trap	9	WCT	364	531	148.300	25	7.7	n	985120019719372	Squaw Creek	y
4/23/2004	Trap	9	RBT	390	544	148.740	12	10	y	985120019763985	Squaw Creek	n
04/23/04	Trap	9.0	RBT	438	804	148.740	19	10	n	985120019762826	Squaw Creek	*
4/26/2004	Trap	10	RBT	389	500	148.300	24	7.7	n	985120019761817	Squaw Creek	n
4/26/2004	Trap	10	RBT	432	759	148.640	10	10	y	432B354051	Squaw Creek	n
4/27/2004	Trap	11	RBT	385	449	148.300	27	7.7	n	985120019839380	Squaw Creek	n
4/27/2004	Trap	11	RBT	353	450	148.300	30	7.7	n	985120019869665	Squaw Creek	n
4/27/2004	Trap	11	RBT	455	895	148.640	8	10	y	985120019760960	Squaw Creek	n
4/28/2004	Trap	11	RBT	345	387	148.740	15	10	y	432D17696C	Squaw Creek	n
4/28/2004	Trap	11	RBT	395	579	148.740	14	10	n	432C1E6B7F	Squaw Creek	n
4/28/2004	Trap	11	RBT	510	1010	148.640	6	10	n	432B206105	Squaw Creek	n
4/28/2004	Trap	11	RBT	475	1032	148.640	1	10	n	432C39087A	Squaw Creek	n

Date	Method	H20 Temp	Species	Length (mm)	Weight (g)	Radio Freq	Radio Code	Tag Size (g)	Recap	PIT Tag	Released	Genetics
5/5/2004	Trap	11	WCT	395	559	148.640	9	10	n	985120019764250	Squaw Creek	y
9/16/2004	Trap	15	BRN	547	1390	148.640	32	10	n	985120019798817	Squaw Creek	n
10/13/04	Angling	12.0	RBT	452	763	148.740	39	10	n	985120019744624	Squaw Creek	*
10/13/2004	Angling	12	RBT	443	863	148.640	34	10	n	985120019762501	Squaw Creek	n

Section - 7 Figures

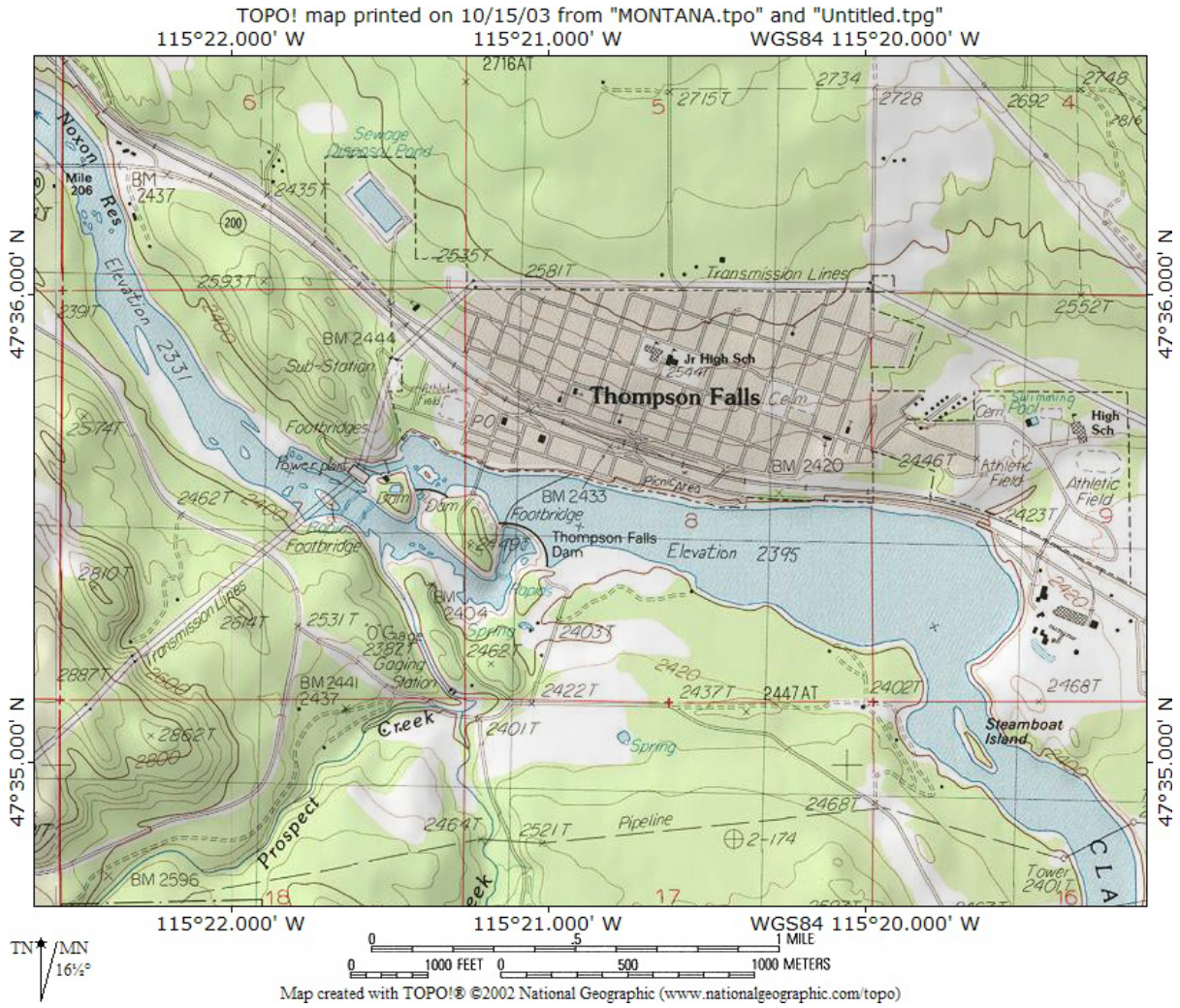

Figure 1. Map of Thompson Falls hydroelectric project.

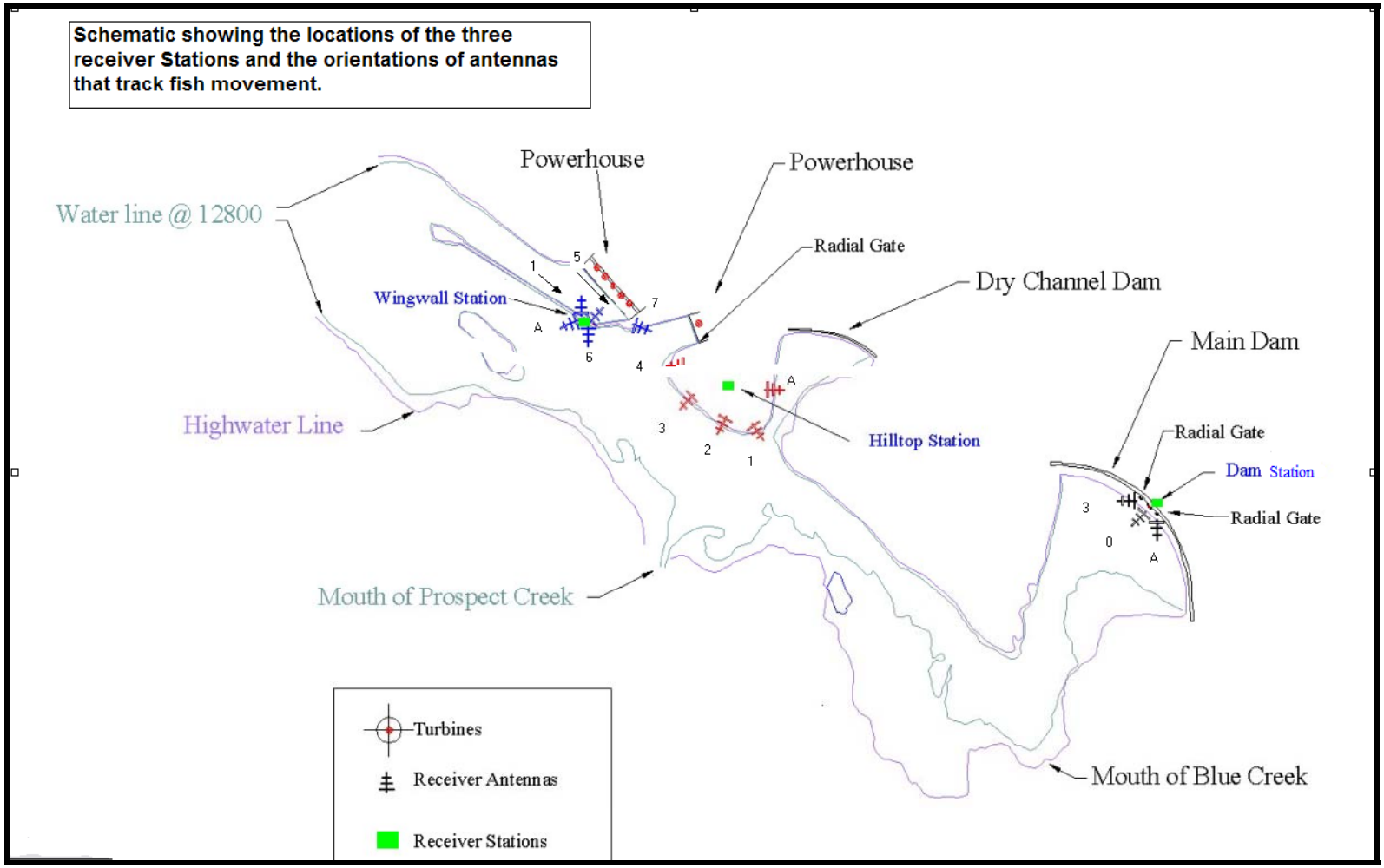

Figure 2. Schematic of Thompson Falls project area; indicating the location of the two powerhouses, two dams, three radio telemetry stations, and the direction coverage of all antennas

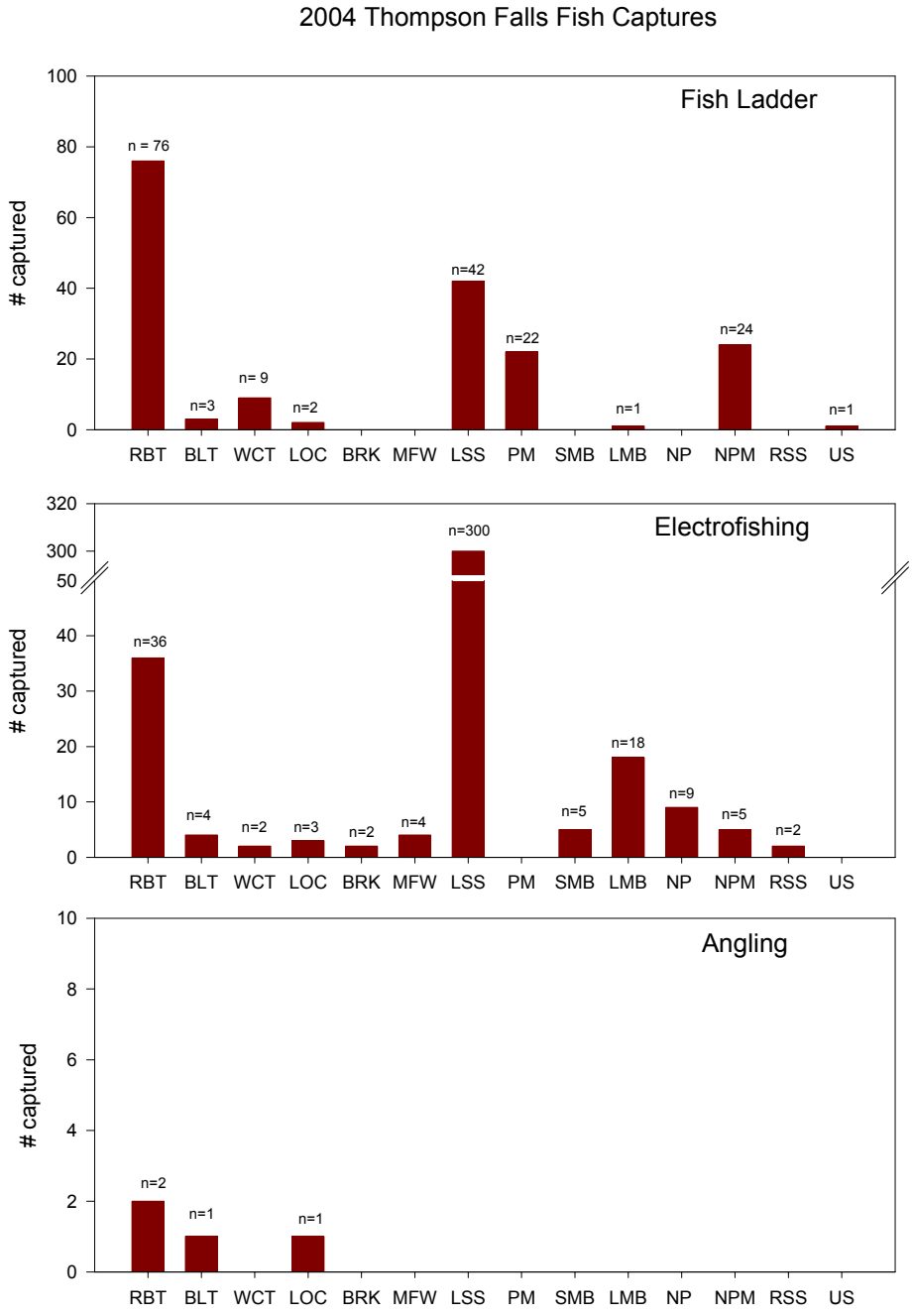

Figure 3. Numbers of fish captured during 2004 by the Thompson Falls fish trap (Top Panel), night electrofishing below Thompson Falls Dam (Middle Panel), and by angling below Thompson Falls Dam (Bottom Panel). (RBT = Rainbow Trout, BLT = Bull Trout, WCT = Westslope Cutthroat Trout, LOC = Brown Trout, BRK = Brook Trout, MFW = Mountain Whitefish, LSS = Largescale Sucker, PM = Peamouth, SMB = Smallmouth Bass, LMB = Largemouth Bass, NP = Northern Pike, NPM = Northern Pikeminnow, RSS = Redside Shiner, US = Unidentified Salmonid (most likely Kokanee)).

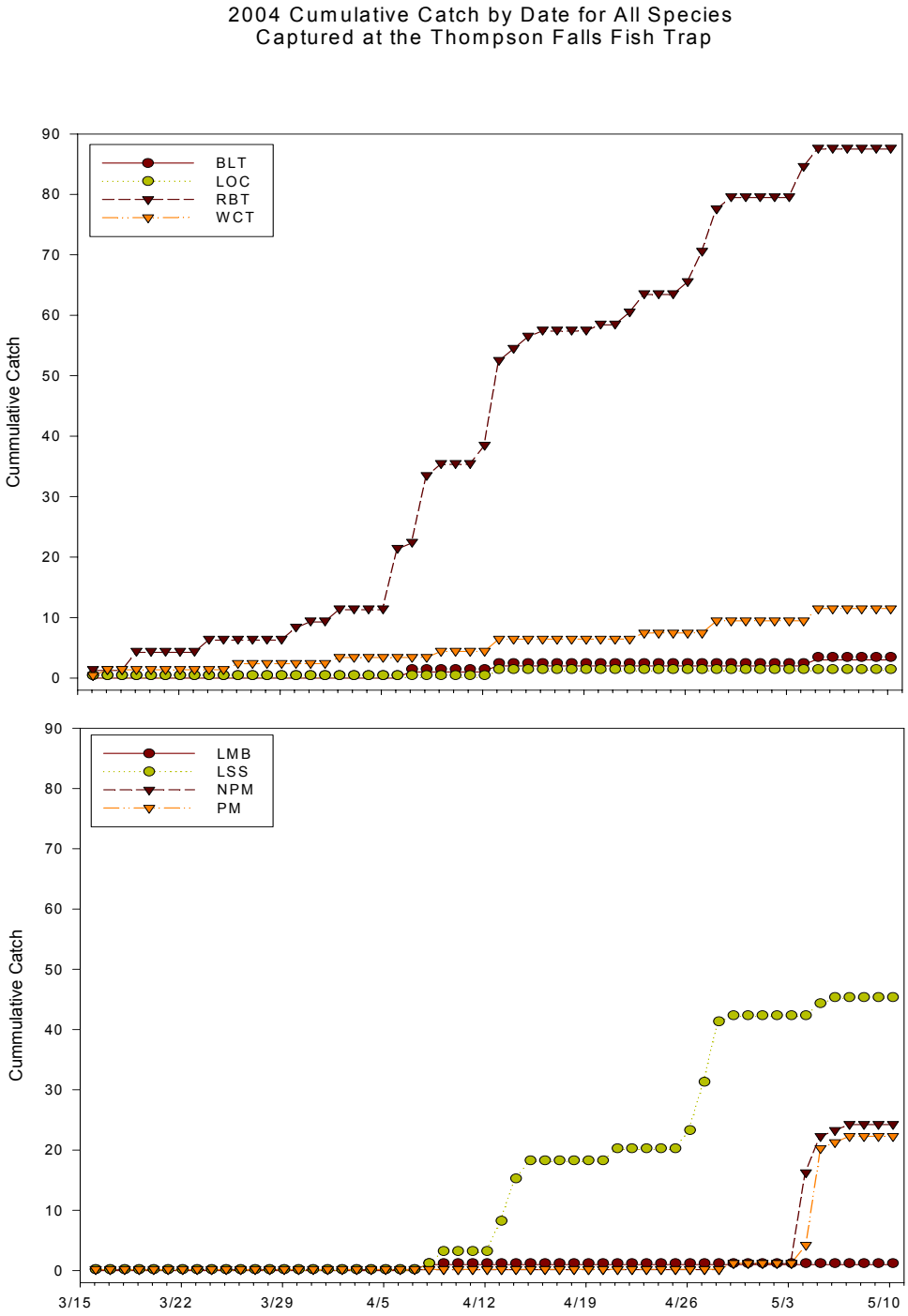

Figure 4. Cumulative catch of salmonids (Top Panel) and other fish (Bottom Panel) at the Thompson Falls Fish Trap during 2004. (BLT = Bull Trout, LOC = Brown Trout, RBT = Rainbow Trout, WCT = Westslope Cutthroat Trout, LMB = Largemouth Bass, LSS = Largescale Sucker, NPM = Northern Pikeminnow, PM = Peamouth).

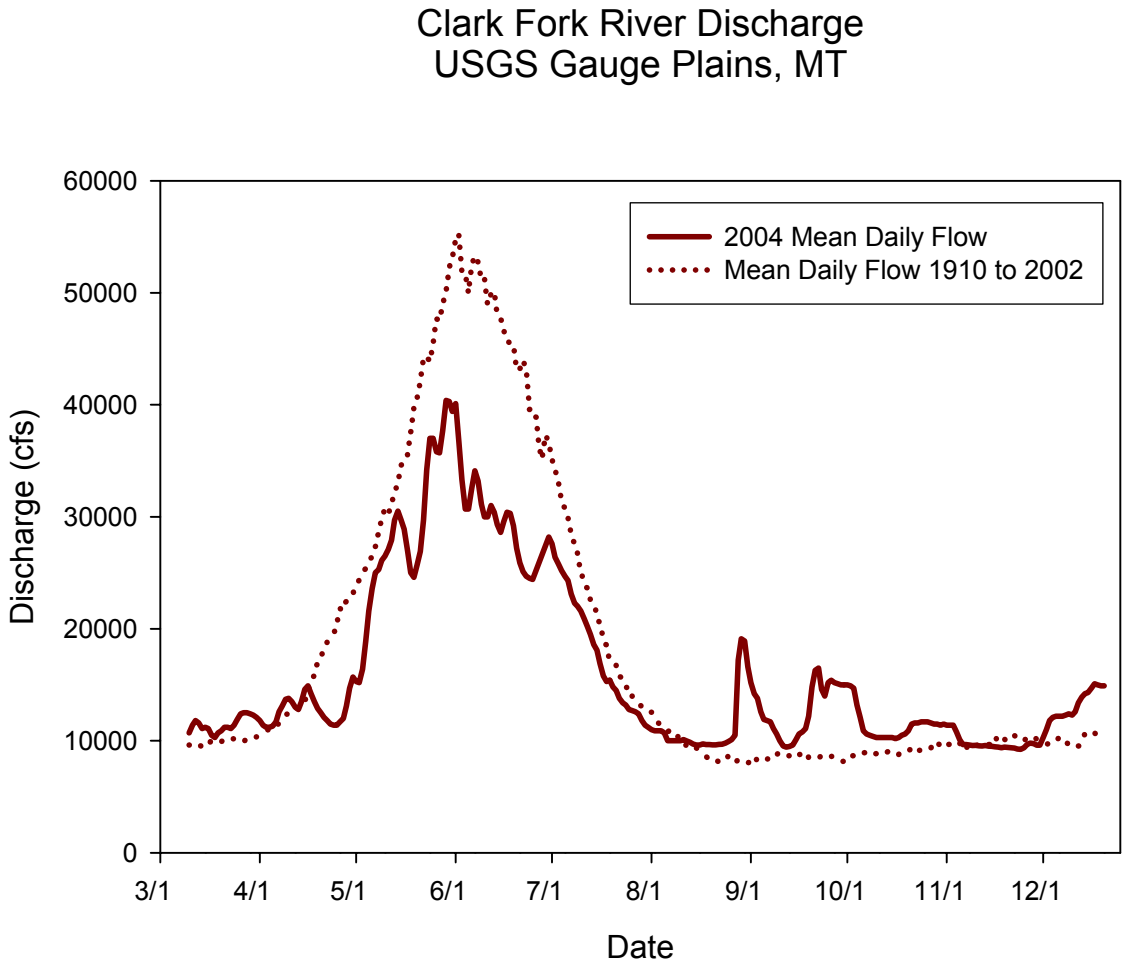

Figure 5. Flow characteristics for Clark Fork River near Plains, MT from 1 March to 25 December 2004. Mean daily flow for 2004 and average mean daily flow for 1910 to 2002 are given.

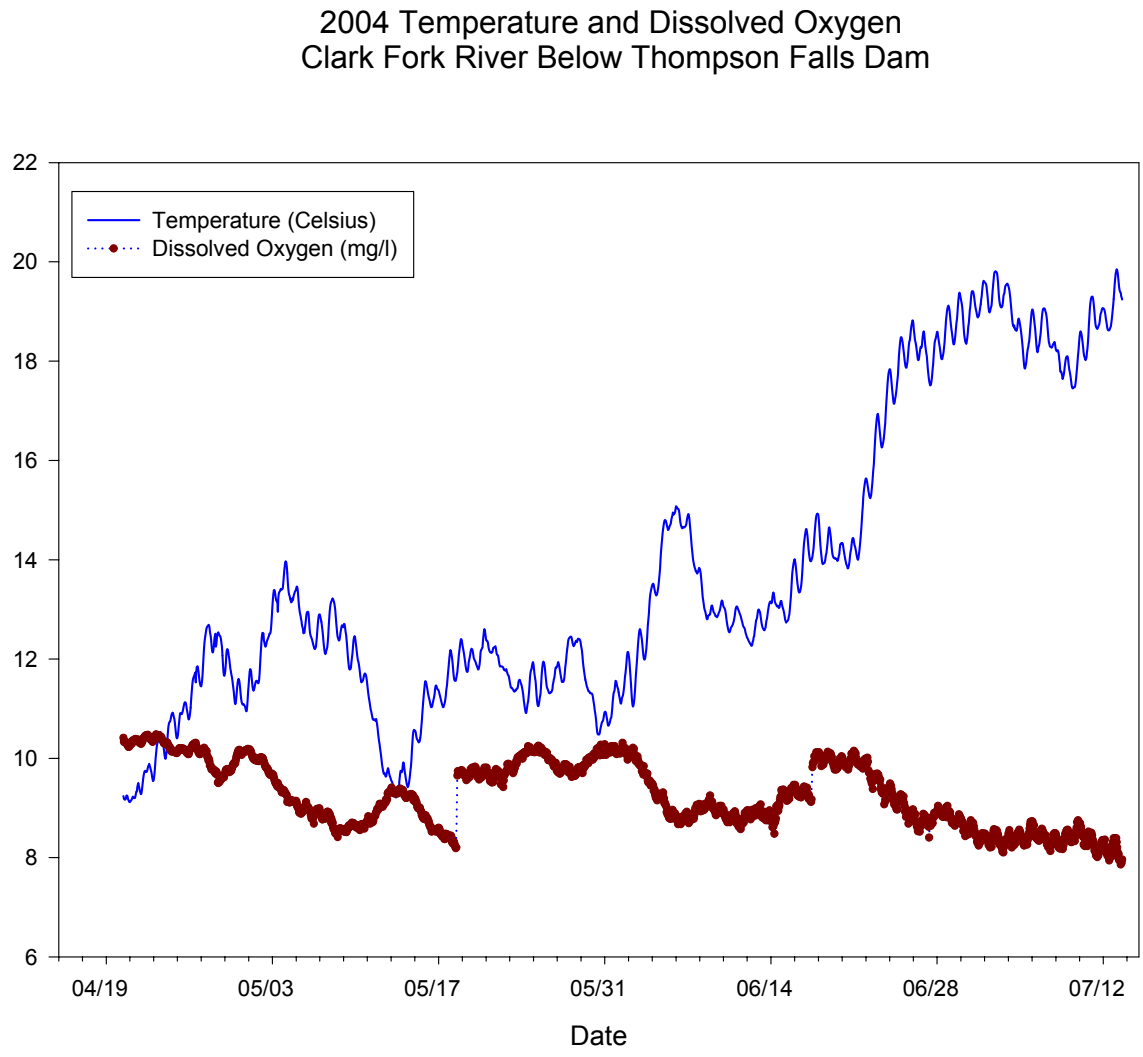

Figure 6. Temperature and dissolved oxygen concentrations for Clark Fork River below Thompson Falls Dam from 20 April to 13 July 2004.

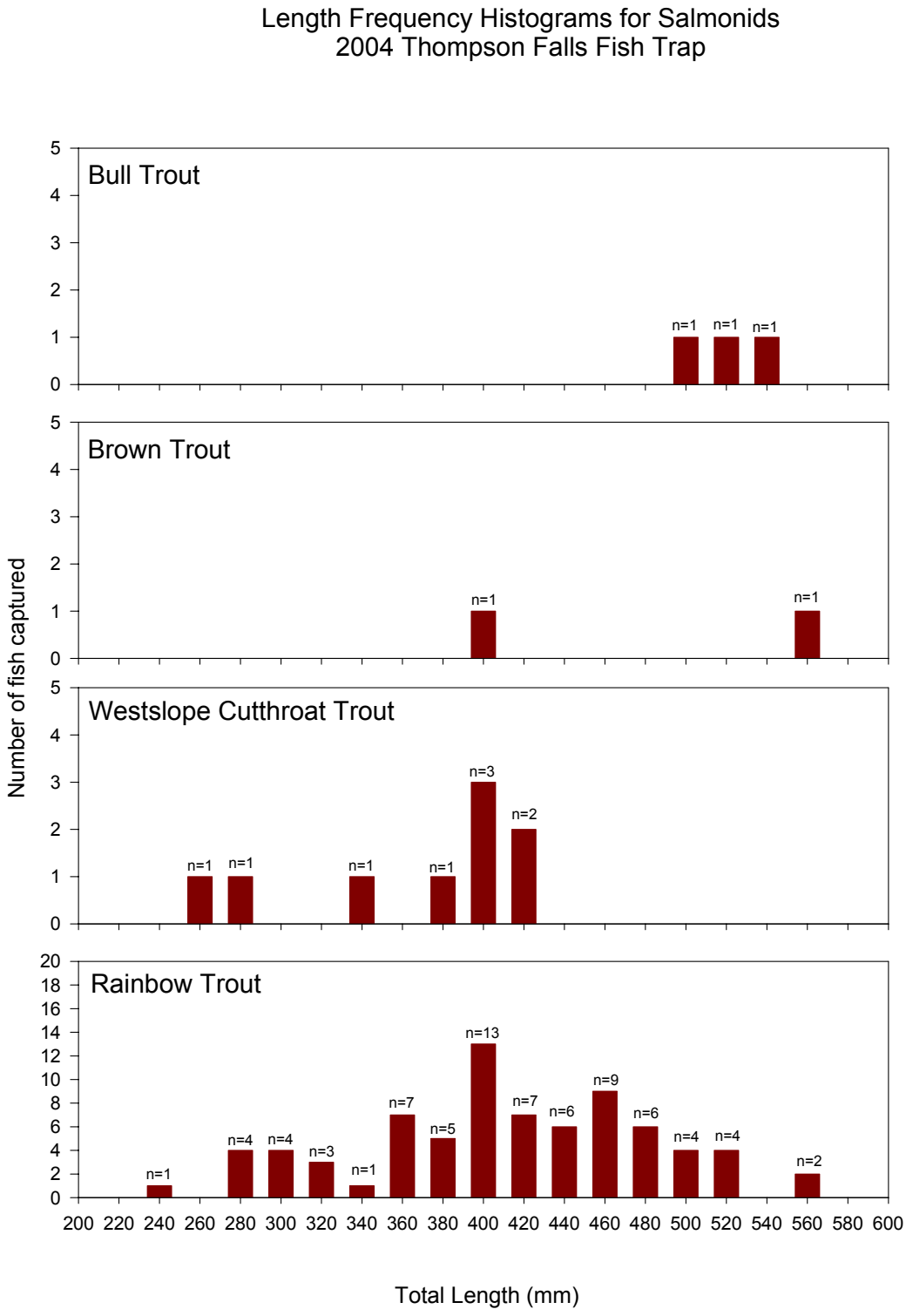

Figure 7. Length frequency histograms for bull trout, brown trout, westslope cutthroat trout, and rainbow trout captured in the Thompson Falls Fish Trap, 2004.

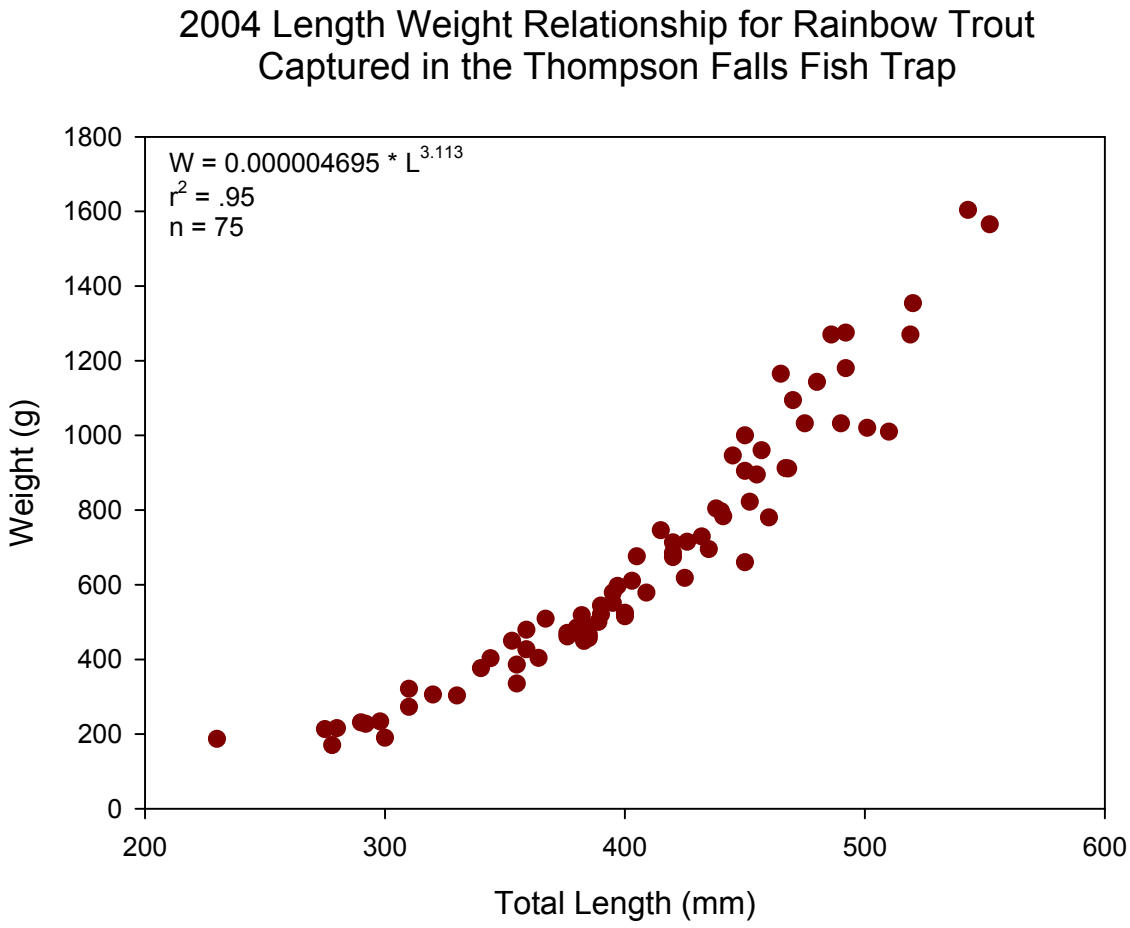

Figure 8. Length weight relationship for rainbow trout captured in Thompson Falls Fish Trap, 2004.

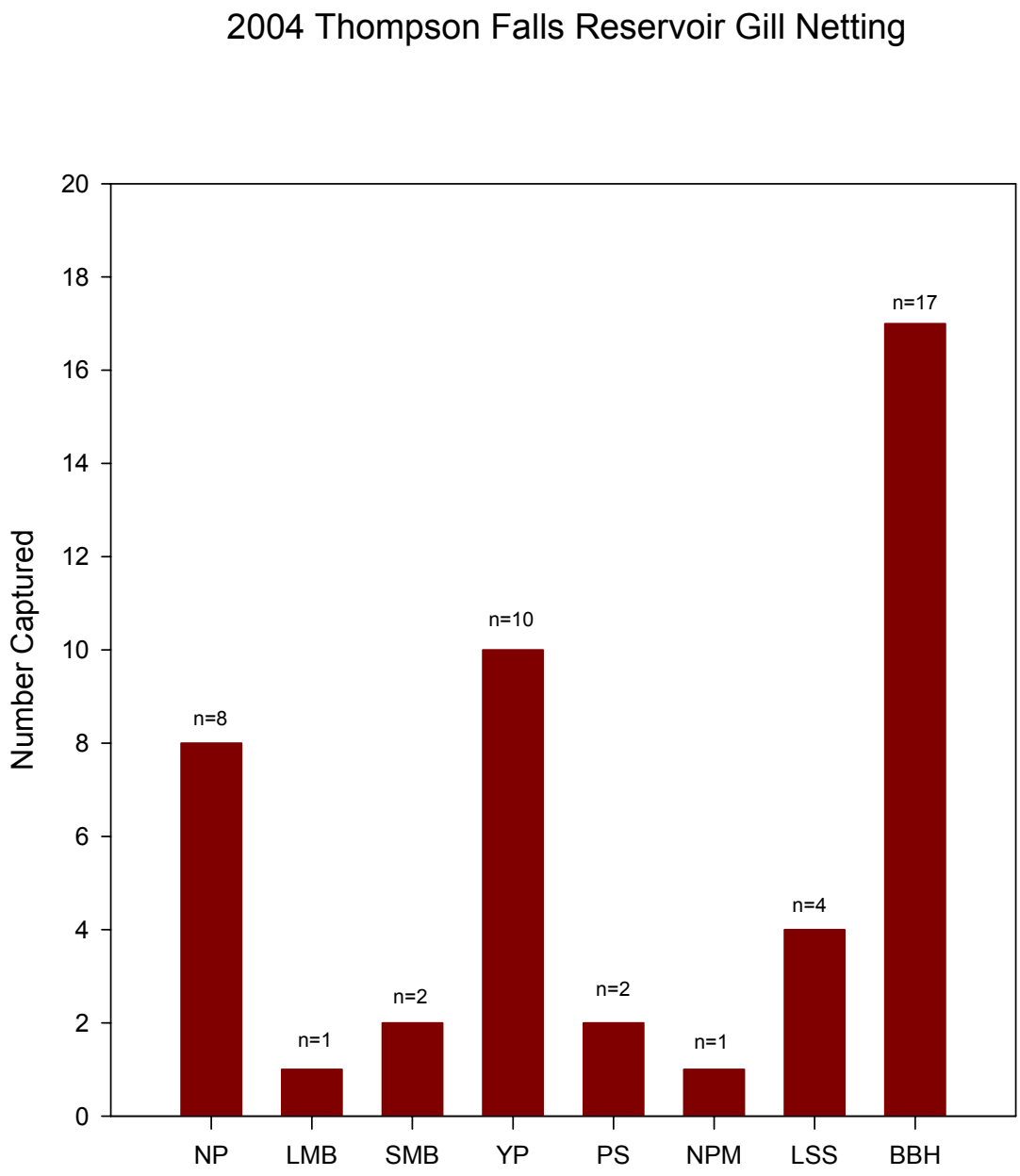

Figure 9. Number of fish captured during 13 October 2004 gill netting effort in Thompson Falls Reservoir. (NP = Northern pike, LMB = Largemouth bass, SMB = Smallmouth bass, YP = Yellow perch, PS = Pumpkinseed, NPM = Northern pikeminnow, LSS = Largescale sucker, BBH = Black bullhead)

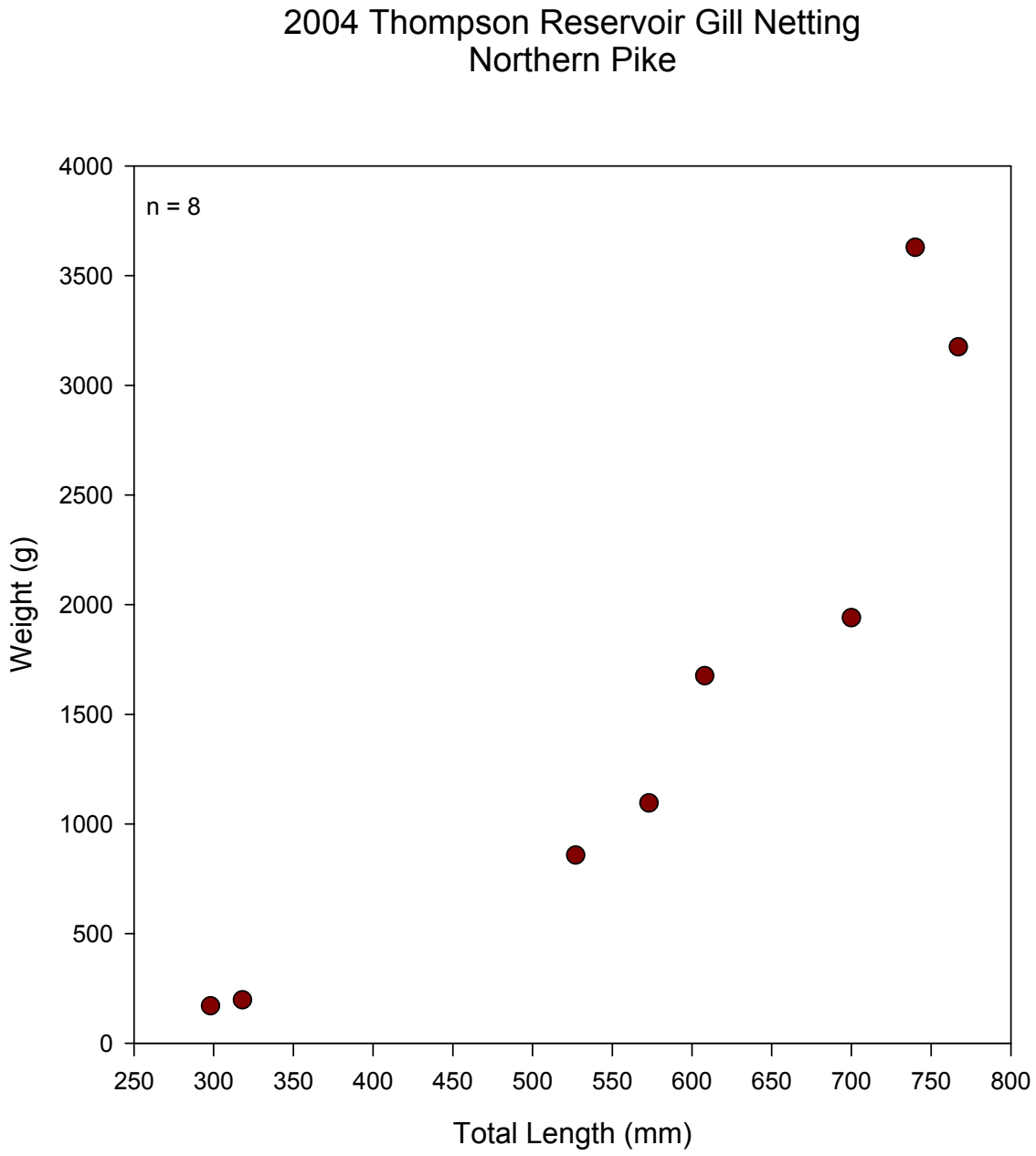

Figure 10. Lengths and weights of all northern pike captured during 2004 gill netting effort.

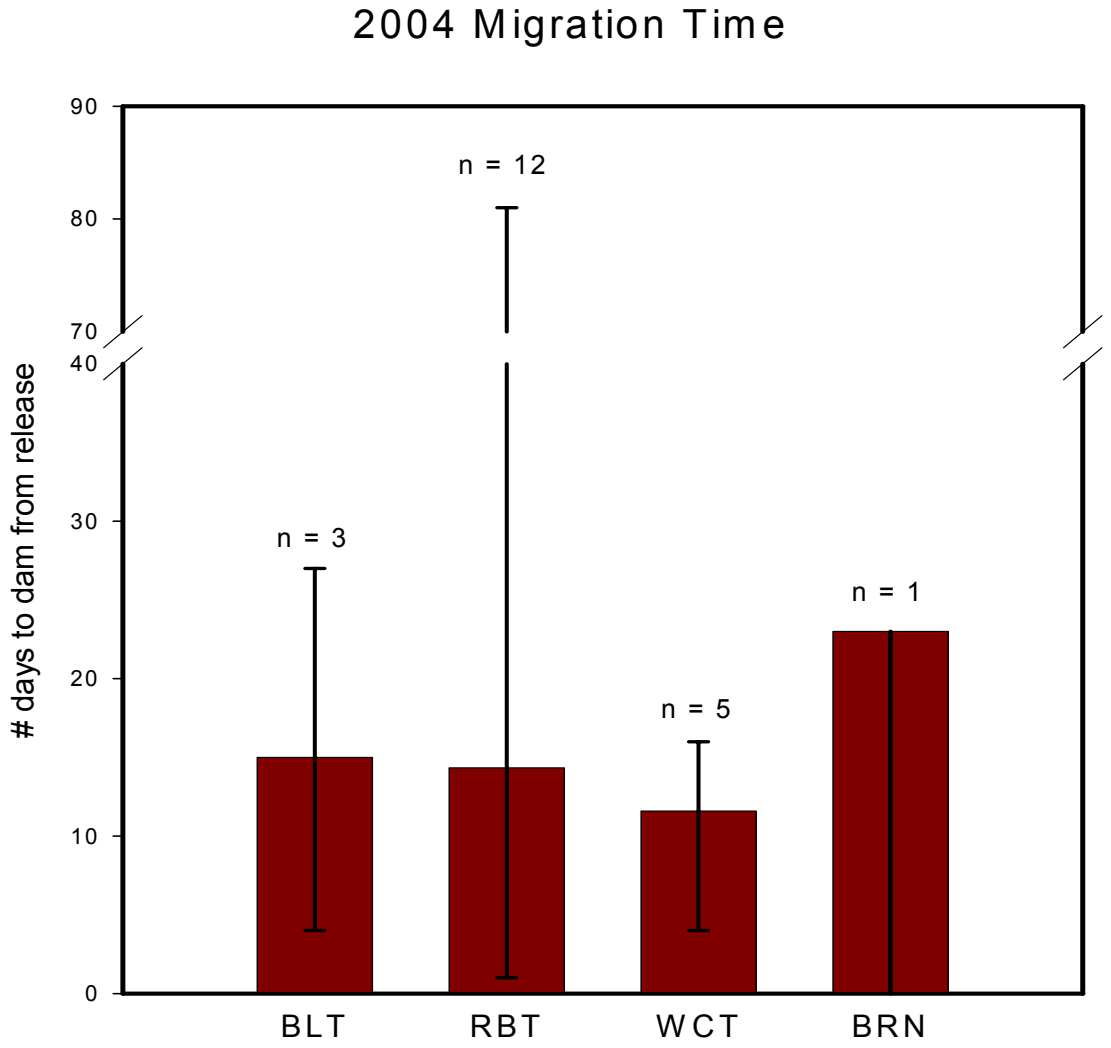

Figure 11. Migration time for tagged salmonids from the Squaw Creek release site to being detected at the main channel dam. Data includes both PPLM stationary receivers and MFWP manual tracking. Error bars represent range. Note the break in the Y-axis. Sample sizes are given.

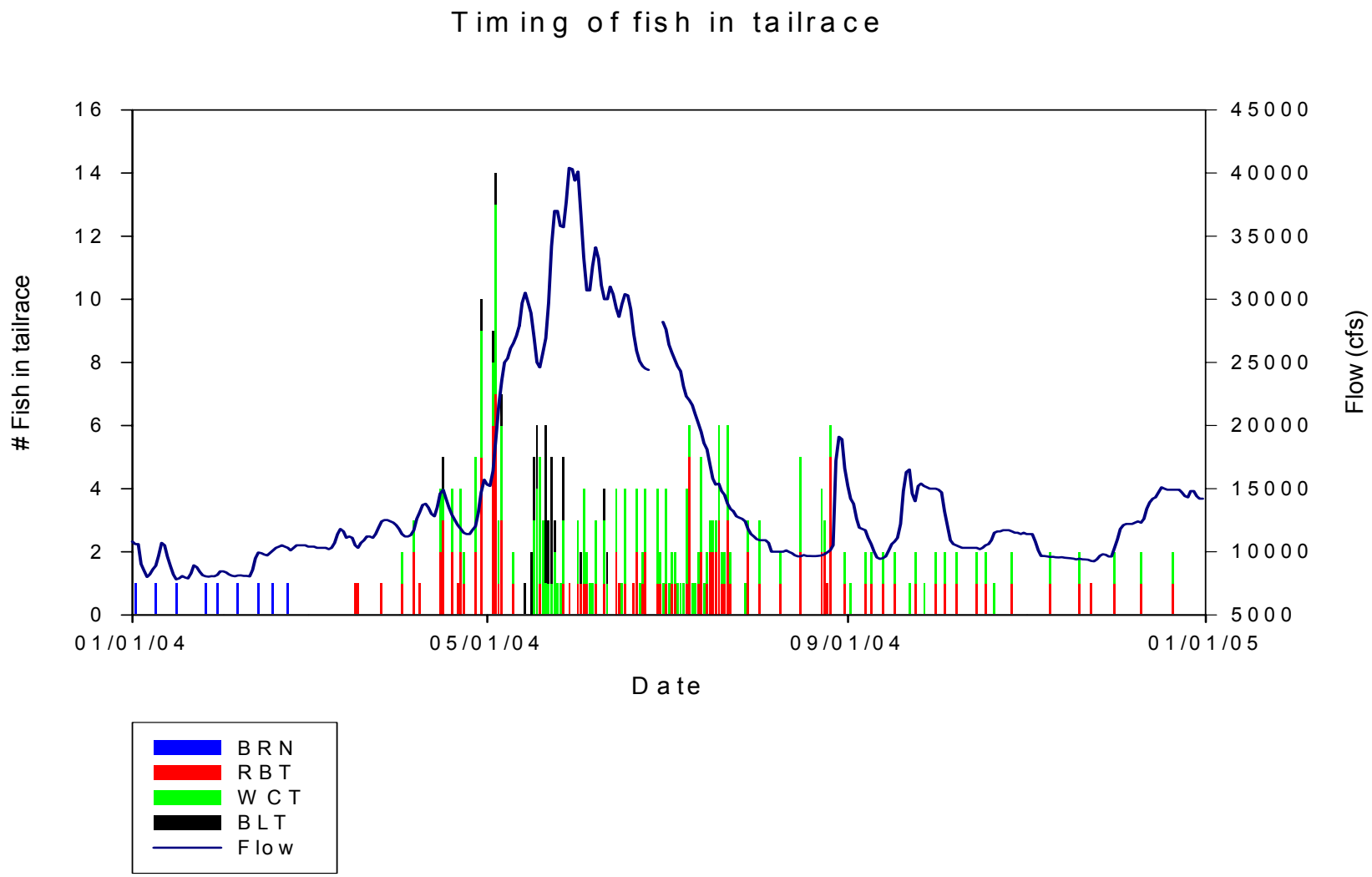

Figure 12. Number of radio tagged fish detected in the tailrace, including the mouth of Prospect Creek and the mouth of Blue Creek, by date. Detections occurred through both PPLM stationary telemetry receivers and MFWP manual tracking.

Section – 8 Photos

Photo 1. Thompson Falls Fish Trap, located on the left bank just downstream of the main dam.

Photo 2. Wingwall telemetry station showing antennas. Antenna 5 is directed to the right and encompasses the tailrace of old powerhouse, Antenna 1 is directed right at an approximate 45^{o} angle encompassing the entrance to the wingwall channel, Antenna A is facing left at a 45^{o} angel encompassing the mainstem Clark Fork River downstream of the wingwall, Antenna 6 is facing left at a 90^{o} angle and encompasses the mainstem Clark Fork River directly adjacent to the wingwall. Antenna 7 is not shown; it is positioned on the right bank facing into the new powerhouse tailrace.

Photo 3. Antenna 4 of the Hilltop telemetry station, it encompasses both the entrance to the new powerhouse tailrace and the mainstem Clark Fork River downstream of the island.

Photo 4. Antenna 2 of the Hilltop telemetry station. Antenna 2 encompasses the mouth of Prospect Creek and the mainstem Clark Fork River on the left side (facing downstream) of island.

Photo 5. Antenna 1 of Hilltop telemetry station. Antenna 1 faces upstream on the mainstem Clark Fork River toward the viewable bridge. Note that the antenna facing towards the right was not used.

Photo 6. Antenna A of Hilltop telemetry station. Antenna A encompasses the area behind the dry channel dam.

Photo 7. Main channel dam telemetry station. Antenna 3 is directed towards the right and encompasses the right side of the area behind the main channel dam. Antenna A is directed towards the left and encompasses the left side of the area behind the main channel dam. Antenna 0 is directed between Antenna's A and 3 encompassing the Clark Fork River downstream of main channel dam.

Photo 8. Surgical insertion of radio tag, with fish under anesthesia.

Appendix A

History of all salmonids tagged and released downstream of Thompson Falls Dam. Data collected and summarized by Montana Fish, Wildlife and Parks and PPL Montana.

BULL TROUT, 148.300 code 22

Fish data: 372 mm TL, 393g, PIT tag#45251F6840.

Capture data: 4/19/04, 23:00; caught night electrofishing below PPL Dam Thompson Falls

Weather: Overcast, air temperature 7.2ºC, 0-5 mph wind,

Radio tag: 148.300, code 22, 7.7 g Lotek transmitter, 278 day tag

Surgery: 2 min. 30 sec., 3 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 24:00.

Telemetry Summary:

4/20/04:	Fish located in Clark Fork River at mouth of Squaw Creek release site, 8.48 km downstream of PPL Dam.
4/22/04:	Fish located in Clark Fork River at Flatiron Recreation site, 2.56 km upstream from release site, 5.92 km downstream of PPL Dam.
4/23/04:	Fish located in Clark Fork River 6.88 km upstream from release site, 1.6 km downstream of PPL Dam.
4/29 - 5/27/04:	Fish located in Clark Fork River moving between Prospect Creek mouth and PPL Dam, 7.68 km to 8.48km upstream from release site.
6/7/04:	Fish located in Clark Fork River, 6.884 km upstream from release site, 1.6 km downstream from PPL Dam.
6/17 – 1/5/04:	Fish located in Clark Fork River at Finley Flats Recreation site, 8.8 km downstream from release site, 16.48 km downstream of PPL Dam.

BULL TROUT, 148.640 code 2

Fish data: 718 mm TL, 3660g, PIT tag#4525273C71.

Capture data: 4/19/04, 23:00; caught night electrofishing below PPL Dam Thompson Falls

Weather: Overcast, air temperature 7.2ºC, 0-5 mph wind,

Radio tag: 148.640, code 2, 10 g Lotek transmitter, 400 day tag

Surgery: 4 min., 5 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 24:00.

Telemetry Summary:

4/20/04:	Fish located in Clark Fork River at Finley Flats Recreation site, 8.8 km downstream from release site, 16.48 km downstream of PPL Dam.
5/3 – 5/4/04:	Fish located in Clark Fork River at Prospect Creek mouth, 7.68 km upstream from release site.
5/6/04:	Fish last heard located in Clark Fork River 6.88 km upstream from release site, 1.6 km downstream of PPL Dam, .8 km downstream from Prospect Creek mouth.

BULL TROUT, 148.640 code 7

Fish data: 535 mm TL, 1275g, PIT tag#452A420801.

Capture data: 4/19/04, 23:00; caught night electrofishing below PPL Dam Thompson Falls

Weather: Overcast, air temperature 7.2ºC, 0-5 mph wind,

Radio tag: 148.6400, code 7, 10 g Lotek transmitter, 400 day tag

Surgery: 4 min., 4 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 24:00.

Telemetry Summary:

4/20 – 4/22/04:	Fish located in Clark Fork River at Flatiron Recreation site, 2.56 km upstream from release site, 5.92 km downstream of PPL Dam.
5/19/04:	Fish located in Prospect Creek 100m upstream from mouth, 7.68 km upstream from release site, .8 km downstream of PPL Dam.
5/24 – 5/27/04:	Fish located in Clark Fork River moving between Prospect Creek mouth and PPL Dam, 7.68 km to 8.48km upstream from release site.
6/1 - 6/7/04:	Fish located in Clark Fork River at Graves Creek mouth, 3.2 km downstream from release site, 11.68 km downstream from PPL Dam.
6/21 – 8/31/04:	Fish located in Clark Fork River at Vermillion River bay/mouth, 24.8 km downstream from release site, 33.28 km downstream of PPL Dam.
10/18/04:	Fish last heard located in Clark Fork River at Graves Creek mouth, 3.2 km downstream from release site, 11.68 km downstream from PPL Dam.

BROWN TROUT, 148.640 code 32

Fish data: 547 mm TL, 1390g, PIT tag# 985120019798817.

Capture data: 9/16/04, 9:15; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature 12.8ºC, calm, water temperature 15ºC

Radio tag: 148.640, code 32, 10 g Lotek transmitter, 400 day tag

Surgery: 3 min., 3 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 10:15, H2O 15ºC.

Telemetry Summary:

9/17/04:	Fish located in Clark Fork River at Squaw Creek release site 8.48 km downstream from PPL Dam.
10/4 – 10/8/04:	Fish located in Clark Fork River 28.16 km downstream from release site, 36.64 km downstream from PPL Dam.
10/13 – 12/14/04:	Unable to locate fish.
12/21/04:	Fish located in Clark Fork River at Vermillion River Bay, 24.8 km downstream from release site, 33.28 km downstream from PPL Dam.

BROWN TROUT, 148.740 code 17

Fish data: 556 mm TL, 1129g, PIT tag# 985120006333770, spawned out female

Capture data: 3/16/04, 16:20; caught by angling below PPL dam Thompson Falls

Weather: Overcast, air temperature 7.2ºC, calm, water temperature 4ºC

Radio tag: 148.740, code 17, 10 g Lotek transmitter, 400 day tag

Surgery: 6 min. 32 sec., 5 staples

Release data: Released at Thompson Falls State Park, 3.68 km downstream of PPL Dam, at 17:15, H2O 4ºC.

Telemetry Summary:

3/17/04: Fish located in Clark Fork River 13.28 km downstream from Thompson Falls State Park release site, 16.96 km downstream of PPL Dam.

5/27/04: Fish last heard located in Clark Fork River 44.3 km downstream from release site, 52.8 km downstream of PPL Dam, 3.2 km upstream of Avista Noxon Rapids Dam.

RAINBOW TROUT, 148.300 code 24

Fish data: 389 mm TL, 500g, PIT tag#985120019761817.

Capture data: 4/26/04, 09:25; water temperature 10ºC, caught in Denil/Aldrich Fish Trap at PPL Dam Thompson Falls

Weather: Clear, air temperature 10ºC, 0-5 mph wind,

Radio tag: 148.300, code 24, 7.7g Lotek transmitter, 278 day tag

Surgery: 3 min. 15 sec., 4 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 10:45, H2O 10.5ºC.

Telemetry Summary:

4/29 /04:	Fish located in Clark Fork River at Thompson Falls State Park, 3.36 km upstream from release site, 5.1 km downstream from PPL Dam.
5/3/04:	Fish located in Clark Fork River at Prospect Creek mouth, 7.68 km upstream from release site, .8 km downstream from PPL Dam.
5/4/04:	Fish located in Clark Fork River at PPL Dam, 8.48 km upstream from release site.
5/6 – 7/20/04:	Unable to locate fish.
7/22/04:	Fish last heard located in Clark Fork River at PPL Dam, 8.48 km upstream from release site.

RAINBOW TROUT, 148.300 code 26

Fish data: 353 mm TL, 420g, PIT tag#452A5D3B13.

Capture data: 4/19/04, 23:00; caught night electrofishing below PPL Dam Thompson Falls

Weather: Overcast, air temperature 7.2ºC, 0-5 mph wind,

Radio tag: 148.300, code 26, 7.7 g Lotek transmitter, 278 day tag

Surgery: 4 min. 30 sec., 3 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 24:00.

Telemetry Summary:

4/22/04:	Fish located in Clark Fork River at Flatiron Recreation site, 2.56 km upstream from release site, 5.92 km downstream of PPL Dam.
4/29/04:	Fish located in Clark Fork River at PPL Dam in morning, 8.48 km upstream from release site. Fish last heard located in Clark Fork River at Flatiron Recreation site, 2.56 km upstream from release site, 5.92 km downstream of PPL Dam in afternoon.

RAINBOW TROUT, 148.300 code 27

Fish data: 383 mm TL, 449g, female/eggs, PIT tag#985120019839380.

Capture data: 4/27/04, 11:10; water temperature 11ºC, caught in Denil/Aldrich Fish Trap at PPL Dam Thompson Falls

Weather: Clear, air temperature 13.9ºC, 0-5 mph wind,

Radio tag: 148.300, code 27, 7.7g Lotek transmitter, 278 day tag

Surgery: 4 min., 3 sutures

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:55, H2O 12ºC.

Telemetry Summary:

5/4/ – 5/6/04: Fish located in Clark Fork River 6.56 km upstream from release site, 1.9 km downstream from PPL Dam. Fish last heard 5/6/04.

RAINBOW TROUT, 148.300 code 30

Fish data: 353 mm TL, 450g, PIT tag#985120019869665.

Capture data: 4/27/04, 11:30; water temperature 11ºC, caught in Denil/Aldrich Fish Trap at PPL Dam Thompson Falls

Weather: Clear, air temperature 13.9ºC, 0-5 mph wind,

Radio tag: 148.300, code 30, 7.7g Lotek transmitter, 278 day tag

Surgery: 6 min., 3 sutures

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:55, H2O 12ºC.

Telemetry Summary:

5/7 – 5/10/04: Fish located in Clark Fork River 4 km upstream from Vermillion River Bay, 21 km downstream from release site, 29.48 km downstream from PPL Dam.

5/19/04: Fish located in Clark Fork River at town of Trout Creek, 28.48 km downstream from release site, 37 km downstream from PPL Dam.

5/27/04: Fish last heard located in Clark Fork River 3.2 km upstream from Noxon Dam, 44.32 km downstream from release site, 52.8 km downstream from PPL Dam.

RAINBOW TROUT, 148.640 code 1

Fish data: 475 mm TL, 1032g, PIT tag#432C39087A.

Capture data: 4/28/04, 12:02; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature .6ºC, calm, water temperature 11ºC

Radio tag: 148.640, code 1, 10 g Lotek transmitter, 400 day tag

Surgery: 2 min. 30 sec., 3 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:30, H2O 11ºC.

Telemetry Summary:

5/3/04:	Fish located in Clark Fork River at Mosquito Creek mouth, 3.36 km downstream from release site, 11.84 km downstream from PPL Dam.
5/4 – 5/6/04:	Fish located in Prospect Creek mouth approximately 1.2 km to 1.6 km upstream from mouth, 8.8 km to 9.28 km upstream from release site, 2 km downstream from PPL Dam.
5/24/04:	Fish located in Clark Fork River at Flatiron recreation site, 2.56 km upstream from release site, 5.9 km downstream of PPL Dam.
5/27/04:	Fish located in Clark Fork River 29.28 km downstream from release site, 37.76 km downstream from PPL Dam.
6/1 – 7/8/04:	Unable to locate fish.
7/13/04:	Fish located in Clark Fork River 28.48 km downstream from release site, 36.96 km downstream from PPL Dam.
7/19 – 8/23/04:	Fish located in Clark Fork River at Prospect Creek mouth, 7.68 km upstream from release site, .8 km downstream from PPL Dam.
8/29 – 10/2/04:	Unable to locate fish.
10/4 – 10/15/04:	Fish located in Clark Fork River moving between 27.2 km to 28.8 km downstream from release site, 35.68 km to 37.28 km downstream from PPL Dam.
10/23 – 12/21/04:	Unable to locate fish.

1/5/05: Fish located in Clark Fork River 38.4 km downstream from release site, 46.88 km downstream from PPL Dam.

RAINBOW TROUT, 148.640 code 10

Fish data: 432 mm TL, 759g, PIT tag#432B354051, recapture/old adipose clip.

Capture data: 4/26/04, 09:25; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Clear, air temperature 10ºC, calm, water temperature 10ºC

Radio tag: 148.640, code 10, 10 g Lotek transmitter, 400 day tag

Surgery: 2 min. 30 sec., 4 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 10:45, H2O 10.5ºC.

Telemetry Summary:

4/29 – 5/6/04: Fish located in Clark Fork River moving between Prospect Creek mouth and PPL Dam, 7.68 km to 8.48 km upstream from release site.

5/6/04: Fish located in Clark Fork River at Flatiron recreation site 3 hours after hearing fish at PPL Dam, 2.56 km upstream from release site, 5.9 km downstream of PPL Dam.

5/21/04: Fish located in Clark Fork River 2.4 km downstream from Vermillion River Bay, 27.2 km downstream from release site, 35.68 km downstream from PPL Dam.

5/24/04: Fish located in Clark Fork River above Noxon Dam, 47.52 km downstream from release site, 56 km downstream from PPL Dam.

9/13/04: Fish last heard located in Clark Fork River at Vermillion River Bay, 24.8 km downstream from release site, 33.28 km downstream from PPL Dam.

RAINBOW TROUT, 148.640 code 3

Fish data: 394 mm TL, 535g, PIT tag# 45252635A

Capture data: 4/19/04, 23:00; caught by electrofishing below PPL dam Thompson Falls

Weather: Overcast, air temperature 7.2ºC, calm

Radio tag: 148.640, code 3, 10 g Lotek transmitter, 400 day tag

Surgery: 7 min., 3 staples

Release data: Released at, mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 24:00.

Telemetry Summary:

4/19-4/27/04:	Fish located in Clark Fork River at Squaw Creek mouth release site, 8.48 km downstream of PPL Dam.
5/10-7/1/04:	Fish located in Clark Fork River moving between 44.3 km to 46.7 km downstream from release site, 52.78 km to 55.18 km downstream of PPL Dam, 3.2 km to .8 km upstream from Avista Noxon Rapids Dam.
7/13-8/26/04:	Fish located in Clark Fork River, moving from Graves Creek mouth to .64 km upstream from Graves Creek, 3.2 km to 2.56 km downstream fro release site, 11.68 km to 11 km downstream from PPL Dam.
8/30-10/25/04:	Unable to locate fish.
10/27/04:	Fish located in Clark Fork River at the Finley Flats recreation site, 7.84 km downstream of release site, 16.32 km downstream from PPL dam.
10/31/04 – 1/5/05:	Unable to locate fish.
1/13/04:	Fish located in Clark Fork River .16 km upstream from Graves Creek mouth, 2.88 km downstream from release site, 11.36 km downstream from PPL dam.

RAINBOW TROUT, 148.640 code 34

Fish data: 443 mm TL, 863g, PIT tag#985120019762501.

Capture data: 10/13/04, 16:00; caught by angling below PPL dam Thompson Falls

Weather: Clear, air temperature 17.8ºC, calm, water temperature 12ºC

Radio tag: 148.640, code 34, 10 g Lotek transmitter, 400 day tag

Surgery: 3 min., 4 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 18:36, H2O 12ºC.

Telemetry Summary:

10/18/04:	Fish located in Clark Fork River .64 km downstream from release site, 9.12 km downstream from PPL Dam.
11/19/04:	Fish located in Clark Fork River 4.8 km downstream from release site, 13.28 km downstream of PPL Dam.
11/23/04:	Fish last heard located in Clark Fork River at Vermillion River Bay, 24.8 km downstream from release site, 33.28 km downstream from PPL Dam.

RAINBOW TROUT, 148.640 code 4

Fish data: 403 mm TL, 610g, PIT tag# 985120007064849, female

Capture data: 3/19/04, 09:25; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature 1.7ºC, calm, water temperature 6.5ºC

Radio tag: 148.640, code 4, 10 g Lotek transmitter, 400 day tag

Surgery: 10 min., 3 sutures, two extra doses of MS-222 needed to get fish under to perform surgery.

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 11:12, H2O 6ºC.

Telemetry Summary:

4/2/04:	Fish located in Clark Fork River at Prospect Creek mouth, 7.68 km upstream from release site, .8 km downstream of PPL Dam.
4/6/04:	Fish located in Clark Fork River below PPL spillway #1, across river from Prospect Creek mouth, 7.68 km upstream from release site, .8 km downstream of PPL Dam.
4/15/04:	Fish recaptured in PPL Dam fish trap, 8.48 km upstream from release site, release fish in pool below trap.
4/16 - 5/6/04:	Fish located in Clark Fork River moving between Prospect Creek mouth and PPL Dam, 7.68 km to 8.48 km upstream from release site, fish last heard 5/6/04.

RAINBOW TROUT, 148.640 code 5

Fish data: 465 mm TL, 1165g, PIT tag# 985120007068371

Capture data: 3/16/04, 16:20; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature 7.2ºC, calm, water temperature 4ºC

Radio tag: 148.640, code 5, 10 g Lotek transmitter, 400 day tag

Surgery: 6 min. 40 sec., 4 staples

Release data: Released at Thompson Falls State Park, 3.68 km downstream of PPL Dam, at 17:15, H2O 4ºC.

Telemetry Summary:

3/17/04:	Fish located in Clark Fork River at Thompson Falls State Park release site, 3.68 km downstream of PPL Dam.
3/18/04:	Fish located in Clark Fork River .16 km upstream of Prospect Creek mouth, 3 km upstream of release site, .64 km downstream of PPL Dam.
4/2/04:	Fish located in Clark Fork River, .32 km upstream of Graves Creek mouth, 7.2 km downstream of release site, 11.36 km downstream from PPL Dam.
4/6/04 - 1/19/05:	Fish located in Clark Fork River at the mouth of Mosquito Creek (opposite side of Clark Fork from Graves Creek) 7.2 km downstream of release site, 11.7 km downstream from PPL dam.

RAINBOW TROUT, 148.640 code 6

Fish data: 510 mm TL, 1010g, female/eggs, PIT tag# 432B206105

Capture data: 4/28/04, 11:40; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature .6ºC, calm, water temperature 11ºC

Radio tag: 148.640, code 6, 10 g Lotek transmitter, 400 day tag

Surgery: 2 min. 15 sec., 3 staples.

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:30, H2O 11ºC.

Telemetry Summary:

5/3 – 5/4/04: Fish located in Clark Fork River at Prospect Creek mouth, 7.68 km upstream from release site, .8 km downstream of PPL Dam.

6/10 – 10/18/04: Fish located in Clark Fork River moving between 38.4 km to 40 km downstream from release site, 46.88 km to 48.48 km downstream of PPL Dam. Fish last heard 10/18/04.

RAINBOW TROUT, 148.640 code 8

Fish data: 455 mm TL, 895g, female/eggs, PIT tag#985120019760960, recapture/old adipose clip.

Capture data: 4/27/04, 12:10; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Clear, air temperature 13.9ºC, calm, water temperature 11ºC

Radio tag: 148.640, code 8, 10 g Lotek transmitter, 400 day tag

Surgery: 8 min., 4 sutures

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:55, H2O 12ºC.

Telemetry Summary:

4/28/04: Fish located in Clark Fork River 3.84 km upstream from release site, 4.64 km downstream from PPL Dam.

5/4 – 5/10/04: Fish located in Clark Fork River moving between Prospect Creek mouth and PPL Dam, 7.68 km to 8.48 km upstream from release site.

5/13/04: Fish located in Prospect Creek approximately .8 km to 1.2 km upstream from mouth, 8.88 km upstream from release site, 2 km downstream of PPL Dam.

6/21/04: Fish last heard located in Clark Fork River at Vermillion River Bay, 24.8 km downstream from release site, 33.28 km downstream from PPL Dam.

RAINBOW TROUT, 148.740 code 12

Fish data: 390 mm TL, 544g, female, PIT tag#985120019763985, recapture with old adipose fin clip and VI tag V20.

Capture data: 4/23/04, 10:30, caught in Denil/Aldrich Fish Trap at PPL Dam Thompson Falls

Weather: Clear, air temperature 7.2ºC, calm, water temperature 9ºC

Radio tag: 148.740, code 12, 10g Lotek transmitter, 400 day tag

Surgery: 3 min. 30 sec., 5 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 11:10.

Telemetry Summary:

4/29 – 1/5/05: Fish located in Clark Fork River moving from 2.56 km downstream from release site to 3.2 km upstream from release site, 11 km to 5.28 km downstream from PPL Dam. Fish has spent entire time within this reach but never migrated up Squaw, Graves or Mosquito Creeks, also located in this reach.

RAINBOW TROUT, 148.740 code 13

Fish data: 543 mm TL, 1604g, PIT tag# 985120006340391, male

Capture data: 3/19/04, 10:27; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature 1.7ºC, calm, water temperature 6.5ºC

Radio tag: 148.740, code 13, 10 g Lotek transmitter, 400 day tag

Surgery: 7 min., 3 sutures.

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 11:12, H2O 6ºC.

Telemetry Summary:

4/2 - 5/24/04: Fish located in Prospect Creek approximately 1.2 km to 2 km upstream from mouth, picked up by remote telemetry station on Prospect Creek, stayed within .4 km of remote station.

6/1 – 6/7/04: Fish located in Clark Fork River at Vermillion River Bay, 24.8 km downstream from release site, 32.28 km downstream from PPL Dam.

6/14 – 10/18/04: Fish located in Clark Fork River moving from 3.2 km downstream from Vermillion River Bay to 3.2 upstream from Vermillion River Bay, 21.6 km to 28 km downstream from release site and 30 km to 36.48 downstream from PPL Dam. Fish last heard 10/18/04.

RAINBOW TROUT, 148.740 code 14

Fish data: 395 mm TL, 579g, female/eggs, PIT tag#432C1E6B7F,

Capture data: 4/28/04, 11:15; water temperature 11ºC, caught in Denil/Aldrich Fish Trap at PPL Dam Thompson Falls

Weather: Overcast, air temperature .6ºC, 0-5 mph wind,

Radio tag: 148.740, code 14, 10g Lotek transmitter, 400 day tag

Surgery: 4 min., 5 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:30, H2O 11ºC.

Telemetry Summary:

5/4 – 8/29/04: Fish located in Clark Fork River moving between 3.36 km to 4.8 km upstream from release site, 5.12 km to 3.68 km downstream from PPL Dam.

8/31/04: Retrieve tag from Clark Fork Riverbank 4.8 km upstream from release site, 3.68 km downstream from PPL Dam.

RAINBOW TROUT, 148.740 code 15

Fish data: 345 mm TL, 387g, female/eggs, PIT tag#432D17696C, recapture with old adipose fin clip.

Capture data: 4/28/04, 11:30, caught in Denil/Aldrich Fish Trap at PPL Dam Thompson Falls

Weather: Overcast, air temperature .6ºC, calm, water temperature 11ºC

Radio tag: 148.740, code 15, 10g Lotek transmitter, 400 day tag

Surgery: 2 min., 3 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:30, H2O 11ºC.

Telemetry Summary:

4/29/04: Fish located in Clark Fork River .8 km upstream from Graves Creek mouth, 2.24 km downstream from release site, 10.72 km downstream from PPL Dam.

5/3/04 – 1/5/05: Fish located in Clark Fork River at Graves Creek mouth, 3.2 km downstream from release site, 11.68 km downstream from PPL Dam.

RAINBOW TROUT, 148.740 code 19

Fish data: 438 mm TL, 804g, PIT tag#985120019762826.

Capture data: 4/23/04, 10:30, caught in Denil/Aldrich Fish Trap at PPL Dam Thompson Falls

Weather: Clear, air temperature 7.2ºC, calm, water temperature 9ºC

Radio tag: 148.740, code 19, 10g Lotek transmitter, 400 day tag

Surgery: 3 min., 3 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 11:10, H2O 10ºC.

Telemetry Summary:

4/29 – 5/3/04: Fish located in Clark Fork River at PPL Dam, 8.48 km upstream from release site.

5/4/04 – 1/5/05: Fish located in Clark Fork River at Prospect Creek mouth, 7.68 km upstream from release site, .8 km downstream from PPL Dam. During

this time variable signal strengths from 75 to 211 have been heard from the same location with a gain of 80. A signal strength of 154 was heard on 11/19/04 from the river's edge, no radio tag was found. Fish may still be alive, considering water depth at this location and the various signal strengths received, even though fish has been in same location for 6 months.

RAINBOW TROUT, 148.740 code 20

Fish data: 552 mm TL, 1565g, PIT tag# 985120006335527

Capture data: 3/19/04, 09:25; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature 1.7ºC, calm, water temperature 6.5ºC

Radio tag: 148.740, code 20, 10 g Lotek transmitter, 400 day tag

Surgery: 14 min., 3 sutures, two extra doses of MS-222 needed to get fish under to perform surgery.

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 11:12, H2O 6ºC.

Telemetry Summary:

4/6 - 5/3/04: Fish located in Clark Fork River moving between Prospect Creek mouth and PPL Dam, 7.68 km to 8.48 km upstream from release site.
5/4/04: Recapture in Denil/Aldrich trap, surgery incision healed.
5/10/04: Fish last heard located in Clark Fork River at the mouth of Graves Creek, 3.2 km downstream from release site, 11.68 km downstream from PPL Dam.

RAINBOW TROUT, 148.740 code 39

Fish data: 452 mm TL, 763g, PIT tag# 985120019744624.

Capture data: 10/13/04, 16:00; caught by angling below PPL Dam Thompson Falls

Weather: Clear, air temperature 17.8ºC, calm, water temperature 12ºC

Radio tag: 148.740, code 39, 10 g Lotek transmitter, 400 day tag

Surgery: 3 min., 3 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 18:36, H2O 12ºC.

Telemetry Summary:

10/15/04: Fish located in Clark Fork River 1.6 km downstream from Squaw Creek release site, 10 km downstream from PPL Dam.

10/29/04: Fish located in Clark Fork River at Squaw Creek release site, 8.48 km downstream from PPL Dam.

11/9/04 – 1/5/04: Fish located in Clark Fork River 6.56 km upstream from release site, 1.92 km downstream from PPL Dam.

WESTSLOPE CUTTHROAT TROUT, 148.300 code 23

Fish data: 385 mm TL, 490g, PIT tag# 985120007072004.

Capture data: 3/26/04, 09:00; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Scattered clouds, air temperature 3.9ºC, 10-15 mph wind, water temperature 7ºC

Radio tag: 148.300, code 23, 7.7 g Lotek transmitter, 278 day tag

Surgery: 8 min., 3 sutures

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 10:28, H2O 8ºC.

Telemetry Summary:

4/2/04: Fish located in Clark Fork River at release site, mouth of Squaw Creek, 8.48 km downstream of PPL Dam.

4/7/04: Fish located in Clear Creek 150 meters upstream of mouth, 10.88 km upstream from release site. Clear Creek is a tributary of Prospect Creek with its confluence approximately 3.2 km upstream from the mouth of Prospect Creek.

4/12/04: Fish located in Clear Creek 1.6 km upstream from mouth, 12.48 km upstream from release site.

4/15 - 8/22/04: Fish located in Clear Creek with possible movements from mouth to 150 meters upstream, 10.88 km upstream from release site. Several unsuccessful attempts were made to locate transmitter in creek and on banks.

8/24/04: Transmitter retrieved from dry bank of overflow pond 100 meters upstream from Clear Creek mouth.

WESTSLOPE CUTTHROAT TROUT, 148.300 code 25

Fish data: 364 mm TL, 531g, PIT tag#985120019719372.

Capture data: 4/23/04, 10:30; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Clear, air temperature 7.2ºC, calm, water temperature 9ºC

Radio tag: 148.300, code 29, 7.7 g Lotek transmitter, 278 day tag

Surgery: 2 min. 45 sec, 3 staples

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 11:10, H2O 10ºC.

Telemetry Summary:

4/27 – 4/29/04: Fish located in Clark Fork River, moving between mouth of Prospect Creek and PPL Dam, 7.68 km to 8.48 km upstream from release site.

5/5/04: Fish located in Clark Fork River at Flatiron recreation site, 2.56 km upstream from release site, 5.9 km downstream from PPL Dam.

5/7/04: Fish located in Clark Fork River 4 km upstream from Vermillion River Bay, 20.8 km downstream from release site, 29.28 km downstream from PPL Dam.

6/21/04: Fish last heard located in Clark Fork River at Vermillion River Bay 24.8 km downstream from release site, 33.28 km downstream from PPL Dam.

WESTSLOPE CUTTHROAT TROUT, 148.300 code 28

Fish data: 410 mm TL, 636g, PIT tag#432B262C68.

Capture data: 4/9/04, 09:06; caught in Denil/Aldrich trap below PPL Dam Thompson Falls

Weather: Overcast, air temperature 2.8ºC, calm, water temperature 10ºC

Radio tag: 148.300, code 28, 7.7 g Lotek transmitter, 278 day tag

Surgery: 7 min., 3 sutures

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 10:38, H2O 10ºC.

Telemetry Summary:

4/12/04: Fish located in Clark Fork River 7.52 km downstream from release site, 16 km downstream of PPL Dam.

4/19/04: Fish located in Clark Fork River 36.8 km downstream from release site, 45.28 km downstream from PPL Dam.

4/22/04: Fish located in Clark Fork River at mouth of Prospect Creek, 7.68 km upstream from release site, .8 km downstream from PPL Dam.

4/27 – 5/19/04: Fish located in Clark Fork River moving between mouth of Prospect Creek and PPL Dam, 7.68 km to 8.48 km upstream from release site.

5/24 – 8/23/04: Fish located in Clark Fork River at PPL Dam, 8.48 km upstream from release site.

8/24/04: Signal strength of 186 with receiver gain of 15, coax cable only, from dry cobble/boulder pile below PPL Dam. Presume fish is dead but could not retrieve transmitter.

WESTSLOPE CUTTHROAT TROUT, 148.300 code 29

Fish data: 400 mm TL, 529g, PIT tag#432C7F3F00.

Capture data: 4/2/04, 10:00; caught in Denil/Aldrich trap below PPL Dam Thompson Falls

Weather: Clear, air temperature 6.7ºC, calm, water temperature 7ºC

Radio tag: 148.300, code 29, 7.7 g Lotek transmitter, 278 day tag

Surgery: 8 min., 3 sutures

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:25, H2O 7ºC.

Telemetry Summary:

4/6/04: Fish located in Clark Fork River 5.28 km upstream from Vermillion River Bay, 19.5 km downstream from release site, 28 km downstream of PPL Dam.

4/15 – 8/23/04: Fish located in Clark Fork River, moving between mouth of Prospect Creek and PPL Dam, 7.68 km to 8.48 km upstream from release site.

8/26 – 1/5/05: Fish located in Clark Fork River at mouth of Prospect Creek, 7.68 km upstream from release site. Efforts to locate transmitter or visual of fish in Prospect Creek 30 meters upstream from mouth were unsuccessful, receiver gain of 30 with signal strength of 233.

WESTSLOPE CUTTHROAT TROUT, 148.640 code 9

Fish data: 395 mm TL, 559g, PIT tag# 985120019764250.

Capture data: 5/5/04, 11:51; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Scattered clouds, air temperature 11.7ºC, calm, water temperature 11ºC

Radio tag: 148.640, code 9, 10 g Lotek transmitter, 400 day tag

Surgery: 4 min., 5 sutures

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 12:45, H2O 9ºC.

Telemetry Summary:

5/13 – 10/29/04: Fish located in Clark Fork River moving from 3.2 km upstream from Vermillion River Bay to Vermillion River Bay, 20.8 km to 24.8 km downstream from release site, 29.28 km to 33.28 km downstream from PPL Dam.

10/31 – 11/30/04: Unable to locate fish.

12/1 – 12/21/04: Fish located in Clark Fork River at Vermillion River Bay, 24.8 km downstream from release site, 33.28 km downstream from PPL Dam.

WESTSLOPE CUTTHROAT TROUT, 148.740 code 18

Fish data: 415 mm TL, 626g, PIT tag# 985120007073804, female with eggs.

Capture data: 3/17/04, 08:40; caught in Denil/Aldrich trap below PPL Dam Thompson Falls

Weather: Overcast, air temperature 10ºC, 10-15 mph wind, water temperature 6ºC

Radio tag: 148.740, code 18, 10 g Lotek transmitter, 400 day tag

Surgery: 8 min. 30 sec., 3 sutures

Release data: Released at mouth of Squaw Creek, 8.48 km downstream of PPL Dam, at 09:58, H2O 6ºC.

Telemetry Summary:

4/2 – 4/15/04: Fish located in Clark Fork River at mouth of Prospect Creek, 7.68 km upstream from release site, .8 km downstream of PPL Dam.

4/16/04: Fish located in Clark Fork River .8 km upstream of Graves Creek mouth, 2.4 km downstream from release site, 9.28 km downstream from PPL Dam.

4/19/04: Fish located in Clark Fork River at mouth of Prospect Creek, 7.68 km upstream from release site, .8 km downstream of PPL Dam.

4/23 - 4/29/04: Fish located in Clark Fork River 8.48km upstream from release site, at PPL Dam.

5/3/04: Fish located in Clark Fork River, 6.24 km upstream from release site, 1.9 km downstream from PPL Dam.

5/4 – 5/6/04: Fish located in Clark Fork River moving between Prospect Creek mouth and PPL Dam, 7.68 km to 8.48 km upstream from release site.

5/5/04: Recapture in Denil/Aldrich trap, surgery incision healed.

5/13 – 5/17/04: Fish located in Clark Fork River at the mouth of Deep Creek, 13.44 km downstream from release site, 21.9 km downstream from PPL Dam.

5/24/04: Fish located in Clark Fork River, .96 km upstream from release site, 7.5 km downstream from PPL Dam.

6/1/04: Fish located in Clark Fork River at the mouth of Graves Creek, 3.2 km downstream from release site, 11.68 km downstream from PPL Dam.

6/7 – 11/23/04: Fish located in Clark Fork River moving from 6.6 km upstream from Vermillion River Bay to Vermillion River Bay, 26.7 km to 33.3 km downstream from release site, 35.18 km to 41.8 km downstream from PPL Dam. Fish last heard 11/23/04.

Appendix – B

History of all radio tagged salmonids released upstream of Thompson Falls Dam. Data collected and summarized by Montana Fish, Wildlife and Parks and PPL Montana.

BULL TROUT, 148.500

Fish data: 523 mm TL, 1483g, PIT tag# 985120001979608

Capture data: 4/13/04, 12:55; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Clear, air temperature 5.6ºC, calm, water temperature 10ºC

Radio tag: 148.500, pulse tag, 10.3 g Lotek transmitter, 360 day tag, off Sunday & Monday and daily 06:35 – 12:35

Surgery: 6 min., 3 sutures.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 13:31, H2O 10ºC.

Telemetry Summary:

4/14/04:	Fish located in Thompson River .4 km upstream from mouth, 3.6 km upstream from release site at 11:45. Fish located in Clark Fork River, Thompson Falls reservoir, 1.6 km downstream from release site at 14:00.
4/16/04:	Fish located in Clark Fork River, Thompson Falls reservoir, at PPL Dam 5.28 km downstream from release site.
4/21/04:	Fish located in Clark Fork River, Thompson Falls reservoir 1.2 km downstream from Thompson River mouth, 2 km upstream from release site.
4/30/04:	Fish located in Thompson River moving to 18.8 km upstream from mouth, 22 km upstream from release site. Fish detected moving upstream past Thompson River remote telemetry station.
5/1-5/11/04:	Unable to locate fish in Thompson River drainage.
5/12-5/14/04:	Fish located in Thompson River moving .64 km to .32 km downstream from the mouth of Fishtrap Creek, 23.2 km to 23.5 km upstream from

Thompson River mouth, 26.4 km to 26.7 km upstream from release site.

5/19-5/28/04: Unable to locate fish in Thompson River drainage.

6/2/04: Fish located in Clark Fork River at PPL powerhouse 6 km downstream from release site and .8 km downstream from PPL Dam. This occurrence seemed very abnormal for a bull trout that had migrated 23.5 km upstream Thompson River to return to the Clark Fork River in early June.

6/9/04: Fish located in Thompson River 15 km upstream from mouth, 18.2 km upstream from release site.

6/10/04: Fish located for the second time in Clark Fork River at PPL powerhouse 6 km downstream from release site and .8 km downstream from PPL Dam.

6/11/04: Fish located in Fishtrap Creek 15.2 km upstream from mouth at 13:17, 39 km upstream from release site. ATS receiver with a gain of 50% and using hand held antenna elicited a strong /steady signal at this location, no power lines or interference source at this location and considered a reliable relocation of this fish. This was the last time fish was heard in the Thompson River drainage.

At 15:13 heard frequency 148.500 signal at PPL powerhouse and considered this and other previous finds at this location to be anomalies. Investigated with PPL personnel at the powerhouse the possibility that radio frequencies used by PPL personnel may be a false location signal for 148.500. This was ruled out as a possibility when no PPL used frequencies were within 2.0 MHz of 148.500. Unfortunately the cause of this interference was never determined but continues. A signal for 148.500 can still be detected at the PPL powerhouse, even on days/hours the transmitter is off. The remote telemetry station located on Prospect Creek approximately 1.2 km upstream from its confluence with the Clark Fork River also continues to occasionally detect signals for 148.500, up to signal strength of 70 with the gain set at 70. The PPL powerhouse is approximately .4 km downstream from the Prospect Creek/ Clark Fork River confluence. Aside from the interference related to the PPL powerhouse, it is presumed that the transmitter was faulty; resulting in two periods of up to ten days when no signal was detected in the Thompson River drainage, then reappear.

BULL TROUT, 148.540

Fish data: 487 mm TL, 1225g, PIT tag# 432E6E787B

Capture data: 4/7/04, 09:55; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Clear, air temperature 10ºC, calm, water temperature 10ºC

Radio tag: 148.540, pulse tag, 10.3 g Lotek transmitter, 360 day tag, off Monday & Tuesday and daily 05:10 – 11:10

Surgery: 8 min., 4 sutures.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 12:20, H2O 11ºC.

Telemetry Summary:

4/7 – 4/8/04:	Fish located in Clark Fork River, Thompson Falls reservoir, moving from 2.4 km downstream to .16 km upstream from release site.
4/16-4/23/04:	Fish located in Thompson River moving from .48 km to 3.2 km upstream from mouth, 3.68 km to 6.4 upstream from release site.
4/28- 5/5/04:	Fish located in Thompson River moving from 16.48 km to 23.52 km upstream from mouth, 19.68 km to 26.72 km upstream from release site. Fish has moved to .32 km downstream from Fishtrap Creek, fish detected moving upstream past the Thompson River remote telemetry station.
5/7/04:	Fish located in Thompson River 24.8 km upstream from mouth, 28 km upstream from release site, .96 km upstream from Fishtrap Creek mouth.
5/12/04:	Fish located in Thompson River at mouth of Fishtrap Creek 23.84 km upstream from mouth, 27 km upstream from release site.
5/14-6/11/04:	Fish located in Fishtrap Creek moving to 15 km upstream from mouth, 42 km upstream from release site.
6/16 – 6/18/04:	Fish located in Fishtrap Creek moving to 17.28 km upstream from mouth, .32 km upstream from West Fork Fishtrap Creek, 44.3 km upstream from release site.
6/25 – 8/27/04:	Fish located in West Fork Fishtrap Creek 1.6 km upstream from mouth, 17.92 km upstream from Fishtrap Creek mouth, 49.96 km upstream from release site.

9/1/04: Radio transmitter retrieved at dry overflow channel of West Fork Fishtrap Creek 1.6 km upstream from mouth, 17.92 km upstream from Fishtrap Creek mouth, 49.96 km upstream from release site.

BULL TROUT, 149.620

Fish data: 505 mm TL, 1185g, PIT tag# 981520019761853

Capture data: 5/5/04, 11:40; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Scattered clouds, air temperature 11.7ºC, calm, water temperature 11ºC

Radio tag: 149.620, pulse tag, 10.3 g Lotek transmitter, 360 day tag, off Monday & Tuesday and daily 05:40 – 11:40

Surgery: 2 min. 30 sec., 6 staples.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 12:20, H2O 11ºC.

Telemetry Summary:

5/7/04: Fish located in Clark Fork River, Thompson Falls reservoir .16 km upstream from release site.

5/12/04: Fish located in Thompson River .56 km upstream from mouth, 3.76 km upstream from release site.

5/14/04: Fish located in Clark Fork River, Thompson Falls reservoir 5.6 km downstream from release site, above PPL spillway #1.

5/21/04: Fish last heard located in Clark Fork River, Noxon reservoir, 6 km downstream from release site, .8 km downstream from PPL Dam which had flashboards removed and spilling water.

RAINBOW TROUT, 148.354

Fish data: 490 mm TL, 1032g, RBT spotting with faint orange slash, female, PIT tag# 985120006333920

Capture data: 3/24/04, 09:55; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature 4.4ºC, calm, water temperature 10ºC

Radio tag: 148.354, pulse tag, 3.6 g Lotek transmitter, 180 day tag

Surgery: 7 min., 3 sutures.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 12:16, H2O 8ºC.

Telemetry Summary:

3/25/04:	Fish located in Clark Fork River .4 km upstream from Thompson River mouth, 3.6 km upstream from release site.
3/26/04:	Fish located in Thompson River .4 km upstream from mouth, 3.6 km upstream from release site.
3/29/04:	Fish located in Thompson River 1.6 km upstream from mouth, 4.8 km upstream from release site.
3/30/04:	Fish located in Thompson River 2 km upstream from mouth, 5.2 km upstream from release site.
4/5/04:	Fish located in Thompson River 15.76 km upstream from mouth, 4.8 km upstream from mouth of West Fork Thompson River, 18.96 km upstream from release site. Fish detected moving upstream past Thompson River remote telemetry station.
4/7/04:	Fish located in Thompson River 22.8 km upstream from mouth, .8 km downstream from mouth of Fishtrap Creek, 26 km upstream from release site.
4/8 – 4/16/04:	Fish located in Little Thompson River 1.2 km upstream from mouth, 31.6 km upstream from release site.
4/21 – 5/19/04:	Fish located in Little Thompson River moving from 2.4 km to 4 km upstream from mouth, 32.8 km to 34.4 km upstream from release site.
5/21/04:	Fish located in Thompson River 16.4 km upstream from mouth, 19.6 km upstream from release site.
5/29 – 6/2/04:	Fish located in Clark Fork River at Prospect Creek mouth to .4 km downstream, .8 km to 1.2 km downstream from PPL Dam, fish detected moving downstream past Thompson River remote telemetry station. The PPL Dam was spilling water over the dam during May/June 2004 with fish being passed over dam with flows to downstream location. Fish last heard 6/2/04.

RAINBOW TROUT, 148.382

Fish data: 467 mm TL, 912g, very faint orange slash, PIT tag# 985120007066164

Capture data: 3/24/04, 09:55; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature 4.4ºC, calm, water temperature 10ºC

Radio tag: 148.382, pulse tag, 3.6 g Lotek transmitter, 180 day tag

Surgery: 9 min., 4 sutures.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 12:16, H2O 8ºC.

Telemetry Summary:

3/26/04:	Fish located in Clark Fork River at Thompson River mouth, 3.2 km upstream from release site.
4/12/04:	Fish located in St. Regis River 5.6 km upstream from mouth, at the mouth of Two Mile Creek, 88.8 km upstream from release site.
4/16 – 4/23/04:	Fish located in St. Regis River moving from 19.2 km to 22.4 km upstream from mouth, 102.4 km to 105.6 km upstream from release site.
4/30 – 8/25/04:	Fish located in St. Regis River 18.4 km upstream from mouth, 101.6 km upstream from release site. Fish staying within .4 km reach, .8 km downstream from mouth of Twelve Mile Creek. Fish last heard 8/25/04, presume transmitter battery expired.
8/24/04:	Fish located in St. Regis River 18.4 km upstream from mouth, 101.6 km upstream from release site. Snorkel to locate radio tag or fish. Receiver gain at 30 produced signal strength of 180. Numerous occurrences when no signal was detected until technicians moved up to 100m upstream or downstream from last detected signal, then snorkel at location when signal strength 180 or greater, no visual of fish.

RAINBOW TROUT, 148.401

Fish data: 320 mm TL, 306g, PIT tag# 432E76121B

Capture data: 4/2/04, 10:00; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Clear, air temperature 6.7ºC, calm, water temperature 7ºC

Radio tag: 148.401, pulse tag, 3.6 g Lotek transmitter, 180 day tag

Surgery: 7 min., 3 sutures.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 11:49, H2O 7ºC.

Telemetry Summary:

4/5-4/23/04: Fish located in Thompson River, moving from 2.4 km to 9.6 km upstream from mouth, 5.6 km to 12.8 km upstream from release site. Fish detected moving upstream past Thompson River remote telemetry station.

5/12/04: Fish last heard located in Thompson River 8 km upstream from mouth, 11.2 km upstream from release site. Fish was not detected moving downstream past Thompson River remote telemetry station, presume fish was killed by predator or caught by angler. Fish was within catch and release size limits on Thompson River and if caught by angler this would have been an illegal catch, almost insuring that radio transmitter would not be returned to the FWP office in Thompson Falls. Transmitter battery life should have lasted into/through August 2004.

RAINBOW TROUT, 148.413

Fish data: 470 mm TL, 1094g, ripe female, PIT tag# 432E781163

Capture data: 4/6/04, 10:30; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Clear, air temperature 7.2ºC, calm, water temperature 9ºC

Radio tag: 148.413, pulse tag, 3.6 g Lotek transmitter, 180 day tag

Surgery: 5 min., 3 staples.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 11:20, H2O 10ºC.

Telemetry Summary:

4/8-4/14/04: Fish located in Thompson River, moving to .48 km upstream from mouth, 3.68 km upstream from release site.

4/16-6/11/04: Fish located in Clark Fork River, Thompson Falls reservoir, moving from 4.48 km to 5.28 km downstream from release site.

6/15/04: Fish caught by angler in Thompson Falls reservoir, Clark Fork River, 4.48 km downstream from release site. Transmitter turned in by angler to FWP office in Thompson Falls.

RAINBOW TROUT, 148.422

Fish data: 492 mm TL, 1180g, male, PIT tag# 432C1A1F60

Capture data: 4/6/04, 10:35; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Clear, air temperature 7.2ºC, calm, water temperature 9ºC

Radio tag: 148.422, pulse tag, 3.6 g Lotek transmitter, 180 day tag

Surgery: 5 min., 5 staples.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 11:20, H2O 10ºC.

Telemetry Summary:

4/7-4/8/04: Fish located in Thompson River moving from 1.28 km to 6 km upstream from mouth, 4.48 km to 9.2 km upstream from release site. Fish detected moving upstream past Thompson River remote telemetry station.

4/14-4/23/04: Fish located in Thompson River moving from 12.96 km to 14.4 km upstream from mouth, 16.1 km to 17.3 km upstream from release site.

4/28-8/18/04: Fish located in Thompson River in deep pool 6.72 km upstream from mouth, 9.9 km upstream from release site. Fish last heard 8/18/04, 6.72 km upstream from mouth in pool. Fish was not detected moving downstream past Thompson River remote telemetry station, presume fish was killed by predator, caught by angler, or transmitter battery expired.

RAINBOW TROUT, 148.432

Fish data: 445 mm TL, 946g, PIT tag# 985120007062513

Capture data: 3/31/04, 09:12; caught in Denil/Aldrich trap below PPL dam Thompson Falls

Weather: Overcast, air temperature 4.4ºC, calm, light rain, water temperature 8ºC

Radio tag: 148.432, pulse tag, 3.6 g Lotek transmitter, 180 day tag

Surgery: 9 min., 3 sutures.

Release data: Released at Clark Fork Road Ramp 5.28km upstream of PPL Dam, at 10:25, H2O 8.5ºC.

Telemetry Summary:

4/2-4/5/04:	Fish located in Clark Fork River, Thompson Falls Reservoir, moving from 4.8 km downstream from release site to Thompson River mouth, 3.2 km upstream from release site.
4/7-5/12/04:	Fish located in Thompson River from .8 km to 11.2 km upstream from mouth, .8 km upstream from West Fork Thompson River, 14.4 km upstream from release site. Fish detected moving upstream past Thompson River remote telemetry station.
5/14-6/11/04:	Fish located in Thompson River moving from 13.6 km to 23.68 km upstream from mouth to the mouth of Fishtrap Creek, 16.8 km to 26.68 km upstream from release site. Fish last heard 6/11/04, 19.36 km upstream from mouth, 22.36 km upstream from release site. Fish was not detected moving downstream past Thompson River remote telemetry station, presume fish was killed by predator or caught by angler. Fish was within catch and release size limits on Thompson River and if caught by angler this would have been an illegal catch, almost insuring that radio transmitter would not be returned to the FWP office in Thompson Falls. Transmitter battery life should have lasted into/through August 2004.

RAINBOW TROUT, 149.822

Fish data: 382 mm TL, 518g, female, faint orange slash, PIT tag# 4320215250

Capture data: 4/2/04, 10:00; caught in Denil/Aldrich trap below PPL Dam Thompson Falls

Weather: Clear, air temperature 6.7ºC, calm, water temperature 7ºC

Radio tag: 149.822, pulse tag, 3.6 g Lotek transmitter, 180 day tag

Surgery: 6 min., 3 sutures.

Release data: Released at Clark Fork Road Ramp 5.28 km upstream of PPL Dam, at 11:49, H2O 7ºC.

Telemetry Summary:

4/5/04:	Fish located in Clark Fork River 38.4 km upstream from release site, 9.6 km downstream from Clark Fork/Flathead River confluence.
4/7 – 4/22/04:	Unable to locate fish.
4/26-10/29/04:	Fish located in Flathead River moving between 1.92 km and 3.84 km upstream from confluence, 49.92 km to 51.84 upstream from release site. Fish last heard 10/29/04.

Appendix –C Fish Capture Data Sheet Data

All fish sampled at Thompson Falls Dam by MFWP and PPL Montana personnel during the 2004 sampling season, excluding reservoir gill netting. Data was taken as is from MFWP capture data sheets. Collectors were: JS = Jay Stuckey (MFWP), BM = Brent Mabbott (PPLM), TS = Tim Schulz (PPLM), CC = Chris Crane (MFWP), MK = Marty Koskala (MFWP), BB = Bill Beckman (MFWP), Tyler = Tyler Haddix (GEI).

Date	H2O Temp C	Time	Species	Length (mm)	Weight (g)	Mark	Recap?	Tag #	Radio Freq	Radio Code	Tag Size	Scale No.	Genetic Sample No.	Method	Collectors	Comments
03/16/04	4.0	1620	RBT	465	1165	ad clip	n	985120007068371	148.640	5	10g	1		trap	JS, CC, BM, Tim, Tyler	installed trap, open at 1130, released TF State Park
03/16/04	4.0	1620	BRN	556	1129	ad clip	n	985120006333770	148.740	17	10g	2		angling	JS, CC, BM, TS, Tyler	Spawned out female, released TF State Park
03/17/04	6.0	840	WCT	415	626	ad clip	n	985120007073804	148.740	18	10g	3	1	trap	CC, TS, Tyler	Possible blockage in ladder by sandbag, female with eggs, released mouth of Squaw Creek. Trap opened at 0825. Possibly incision in ovary.
03/18/04	4.0	900	NF	n	n	n	n		n	n	n	n		trap	CC, JS	open trap 0905
03/19/04	6.5	925	RBT	403	610	ad clip	n	985120007064849	148.640	4	10g	4		trap	CC,JS	female, 10 min. surgery, 3 sutures/vet bond
03/19/04	6.5	925	RBT	552	1565	ad clip	n	985120006335527	148.740	20	10g	5		trap	CC,JS	female,14 min. surgery, 3 sutures/vet bond
03/19/04	6.5	1027	RBT	543	1604	ad clip	n	985120006340391	148.740	13	10g	6		trap	CC,JS	7 min. surgery, 3 sutures/vet bond, release Squaw Ck. Mouth 1112, H2O 6, close trap 0850
03/22/04	6.0	950	NF	n	n	n	n		n	n	n	n		trap	JS,BM,MK	open trap 3/21/04, 0900, H2O 6
03/23/04	8.0	855	NF	n	n	n	n		n	n	n	n		trap	JS,BM,MK	

03/24/04	10.0	955	RBT	490	1032	ad clip	n	985120006333920	148.354	n	3.6g	7		trap	JS,MK	faint slash, old scaring on sides, surgery start 1108/end 1115, 3 sutures/vet bond
03/24/04	10.0	955	RBT	467	912	ad clip	n	985120007066164	148.382	n	3.6g	8		trap	JS,MK	very faint slash, MS 1125, surgery start 1131/end1140, 4 sutures, release both RBT at CFRR 1216, H2O 8
03/25/04	7.0	915	NF	n	n	n	n		n	n	n	n		trap	JS,MK	install temp logger in trap 0930 and above dam 0950
03/26/04	7.0	900	WCT	385	490	ad clip	n	985120007072004	148.300	23	7.7g	9	2	trap	JS, MK	scarring one side, surgery start 0947, end 0955, release downstream Squaw Ck. Mouth 1028, H2O 8, close trap 0906
03/29/04	8.0	night	5-NPM	n	n	n			n	n	n	n		efish	BM,JS,MK	night electrofishing from PPL dam to PPL powerhouse
03/29/04	8.0	night	4-MWF	n	n	n			n	n	n	n		efish	BM,JS,MK	
03/29/04	8.0	night	2-RSS	n	n	n			n	n	n	n		efish	BM,JS,MK	
03/29/04	8.0	night	300-LSS	n	n	n			n	n	n	n		efish	BM,JS,MK	
03/29/04	8.0	night	RBT	273	150	ad clip	n	VI Z 00	n	n	n	13		efish	BM,JS,MK	
03/29/04	8.0	night	RBT	269	155	ad clip	n	VI Z 01	n	n	n	14		efish	BM,JS,MK	
03/29/04	8.0	night	RBT	443	750	ad clip	n	VI Z 03	n	n	n	15		efish	BM,JS,MK	
03/29/04	8.0	night	RBT	362	470	ad clip	n	VI Z 15	n	n	n	16		efish	BM,JS,MK	
03/29/04	8.0	night	RBT	203	96	ad clip	n	VI Z 17	n	n	n	17		efish	BM,JS,MK	mort at release
03/29/04	8.0	night	RBT	400	530	ad clip	n	VI Z 16	n	n	n	18		efish	BM,JS,MK	
03/29/04	8.0	night	NP	755	4100.5	n	n	cinch 00470	n	n	n	n		efish	BM,JS,MK	
03/29/04	8.0	night	NP	756	4082.4	n	n	cinch 00469	n	n	n	n		efish	BM,JS,MK	
03/29/04	8.0	night	BRN	132	n	n	n		n	n	n	n		efish	BM,JS,MK	
03/29/04	8.0	night	BLT	109	n	n	n		n	n	n	n		efish	BM,JS,MK	
03/29/04	8.0	night	RBT	265	200	ad clip	n	VI Z 19	n	n	n	19		efish	BM,JS,MK	
03/29/04	8.0	night	BRN	249	180	ad clip	n	VI Z 18	n	n	n	20		efish	BM,JS,MK	
03/29/04	8.0	night	RBT	301	250	ad clip	n	VI Z 05	n	n	n	21		efish	BM,JS,MK	

03/29/04	8.0	night	RBT	492	1110	ad clip	n	VI Z 21	n	n	n	22		efish	BM,JS,MK	
03/30/04	8.0	913	RBT	420	713	ad clip	n	985120007073167	n	n	n	10		trap	BM,JS,MK	male/ milt
03/30/04	8.0	915	RBT	486	1270	ad clip	n	432B3D3121	n	n	n	11		trap	BM,JS,MK	female
03/31/04	8.0	912	RBT	445	946	ad clip	n	985120007062513	148.432	n	3.6g	12		trap	JS,MK	surgery start 0945, end 0954, 3.6g tag, 3 sutures, release CFRR 1025, H2O 8.5
04/01/04	8.5	1058	NF	n	n	n	n		n	n	n	n		trap	JS, MK	
04/02/04	7.0	1000	WCT	400	529	ad clip	n	432C7F3F00	148.300	29	7.7g	23	3	trap	JS,MK	surgery start 1048 /end 1056, 3 sutures, release Squaw Ck 1225, H2O 7
04/02/04	7.0	1000	RBT	320	306	ad clip	n	432E76121B	148.401		3.6g	24		trap	JS,MK	surgery start 1105 /end 1112, 3 sutures
04/02/04	7.0	1000	RBT	382	518	ad clip	n	4320215250	149.822		3.6g	25		trap	JS,MK	female, faint slash, surgery start 1121 /end 1127, 3 sutures, release both RBT @ CFRR 1149, H2O 7
04/05/04	7.0	night	LMB	400	1005	n		floy 15031	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	360	900	n		floy 15032	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	268	350	n		floy 15033	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	250	410	n		floy 15034	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	300	496	n		floy 15035	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	390	1005	n		floy 15036	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	282	450	n		floy 15037	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	360	905	n		floy 15038	n	n	n	n		efish	JS, BM, BB	caught in Tfalls res 8/18/04, released, floy removed , 18.5", 4lbs
04/05/04	7.0	night	LMB	362	750	n		floy 15039	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	390	1005	n		floy 15040	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	320	600	n		floy 15041	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	365	805	n		floy 15042	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	370	850	n		floy 15043	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	372	900	n		floy 15044	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	370	860	n		floy 15045	n	n	n	n		efish	JS, BM, BB	

04/05/04	7.0	night	LMB	350	830	n		floy 15046	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	280	400	n		floy 15047	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	LMB	292	450	n		floy 15048	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	NP	445	680	n		cinch 00452	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	NP	583	1480	n		cinch 00747	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	NP	550	1250	n		cinch 00467	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	NP	585	1650	n		cinch 00464	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	NP	735	2500	n		cinch 00466	n	n	n	n		efish	JS, BM, BB	caught 4/14/04, Clark Fork R/Swamp Ck mouth
04/05/04	7.0	night	NP	575	1650	n		cinch 00468	n	n	n	n		efish	JS, BM, BB	
04/05/04	7.0	night	NP	402	550	n		cinch 00461	n	n	n	n		efish	JS, BM, BB	
04/06/04	9.0	930	RBT	359	479		n		n	n	n	n		trap	JS,BM,MK	mort in trap, frayed fins, trap not closed 4/2/04
04/06/04	9.0	930	RBT	359	427		n					n		trap	JS,BM,MK	belly up in trap/gilling, frayed fins, release @ trap
04/06/04	9.0	930	RBT	292	227	ad clip	n	VI V33	n	n	n	26		trap	JS,BM,MK	wear on fins, missing scales
04/06/04	9.0	930	RBT	367	509	ad clip	n	VI V34	n	n	n	27		trap	JS,BM,MK	wear on fins, missing scales
04/06/04	9.0	930	RBT	432	729	ad clip	n	VI V36	n	n	n	28		trap	JS,BM,MK	wear on fins, missing scales
04/06/04	9.0	957	RBT	405	676	ad clip	n	VI V37	n	n	n	29		trap	JS,BM,MK	wear on fins, missing scales
04/06/04	9.0	957	RBT	383	491	ad clip	n	VI V38	n	n	n	30		trap	JS,BM,MK	wear on fins, missing scales, male/milt
04/06/04	9.0	1030	RBT	470	1094	ad clip	n	432E781163	148.413	n	3.6g	31		trap	JS,BM,MK	surgery start 1028 /end 1033, ripe female, 3 staples
04/06/04	9.0	1035	RBT	492	1180	ad clip	n	432C1A1F60	148.422	n	3.6g	32		trap	JS,BM,MK	surgery start 1040 /end 1045, male/milt,5 staples, release CFRR 1120, H2O 10
04/06/04	9.0	1500	RBT	450	1000	ad clip	n	45273D4002	n	n	n	33		trap	JS,BM,MK	
04/07/04	10.0	1030	RBT	415	654	old ad clip	y	985120007073167	n	n	n	n		trap	JS,MK	male/ milt
04/07/04	10.0	1130	BLT	487	1225	ad clip	n	432E6E787B	148.540	n	10.3g	34	4	trap	JS,MK	surgery 8 min, 4 sutures, 360d tag, off Mon&Tues, daily 0510-1110, release CFRR 1222, H2O 11
04/08/04	11.0	916	LSS	410	667	LC	n		n	n	n	n		trap	JS,MK	

04/08/04	11.0	916	RBT	395	551	ad clip	n	432D150971	n	n	n	35		trap	JS,MK	
04/08/04	11.0	916	RBT	298	234	ad clip	n	432D380575	n	n	n	36		trap	JS,MK	
04/08/04	11.0	916	RBT	355	386	ad clip	n	432E6C6E4C	n	n	n	37		trap	JS,MK	
04/08/04	11.0	916	RBT	520	1354	ad clip	n	432C1B5168	n	n	n	38		trap	JS,MK	ripe female
04/08/04	11.0	931	RBT	450	660	ad clip	n	432B155616	n	n	n	39		trap	JS,MK	
04/08/04	11.0	931	RBT	330	303	ad clip	n	432B1B6C25	n	n	n	40		trap	JS,MK	
04/08/04	11.0	931	RBT	440	797	ad clip	n	432B354051	n	n	n	41		trap	JS,MK	ripe female
04/08/04	11.0	931	RBT	400	515	ad clip	n	432B314B14	n	n	n	42		trap	JS,MK	ripe female
04/08/04	11.0	931	RBT	452	822	ad clip	n	432E44655D	n	n	n	43		trap	JS,MK	
04/08/04	11.0	931	RBT	400	525	ad clip	n	98512000633172	n	n	n	44		trap	JS,MK	
04/08/04	11.0	931	RBT	397	597	ad clip	n	98512000631830	n	n	n	45		trap	JS,MK	
04/08/04	11.0	931	LMB	394	954	n	n		n	n	n	n		trap	JS,MK	in trap pool behind baffle
04/09/04	10.0	845	RBT	480	1143	ad clip	n	432B0B0E07	n	n	n	46		trap	JS,MK	hook jaw
04/09/04	10.0	845	RBT	468	911	ad clip	n	432B265113	n	n	n	47		trap	JS,MK	ripe female
04/09/04	10.0	845	LSS	415	545	LC	n		n	n	n	n		trap	JS,MK	
04/09/04	10.0	906	WCT	410	636	ad clip	n	432B262C68	148.300	28	7.7g	48	5	trap	JS,MK	surgery 7 min, 3 sutures, release Squaw Ck 1038, H2O 10
04/09/04	10.0	906	LSS	450	802	LC	n		n	n	n	n		trap	JS,MK	
04/12/04	10.0	1015	RBT	426	715	old ad clip	y	VI V39	n	n	n	49		trap	JS,MK	no PIT or VI tag in fish
04/12/04	10.0	1015	RBT	480	1123	old ad clip	y	432B0B0E07	n	n	n	n		trap	JS,MK	
04/12/04	10.0	1015	RBT	393	540	old ad clip	y	432D150971	n	n	n	n		trap	JS,MK	
04/13/04	10.0	915	WCT	255	158	ad clip	n	432B1D5E07	n	n	n	50	6	trap	JS,MK	
04/13/04	10.0	915	WCT	270	187	ad clip	n	432E67641A	n	n	n	51	7	trap	JS,MK	
04/13/04	10.0	915	RBT	441	783	ad clip	n	432B02086A	n	n	n	52		trap	JS,MK	
04/13/04	10.0	915	RBT	420	685	ad clip	n	432B3A383B	n	n	n	53		trap	JS,MK	hook jaw
04/13/04	10.0	915	RBT	460	780	ad clip	n	432B345A49	n	n	n	54		trap	JS,MK	
04/13/04	10.0	915	LSS	405	590	UC	n	n	n	n	n	n		trap	JS,MK	
04/13/04	10.0	915	LSS	432	710	UC	n	n	n	n	n	n		trap	JS,MK	
04/13/04	10.0	915	LSS	452	925	UC	n	n	n	n	n	n		trap	JS,MK	

04/13/04	10.0	1000	RBT	492	1275	ad clip	n	432C7F4C13	n	n	n	55		trap	JS,MK	frayed pectoral fins
04/13/04	10.0	1000	RBT	420	665	old ad clip	y	985120007073167	n	n	n	56		trap	JS,MK	hook jaw
04/13/04	10.0	1000	RBT	278	170	ad clip	n	432E6D6876	n	n	n	57		trap	JS,MK	
04/13/04	10.0	1000	RBT	519	1270	ad clip	n	432C120B5E	n	n	n	58		trap	JS,MK	
04/13/04	10.0	1000	RBT	425	618	ad clip	n	432D31146B	n	n	n	59		trap	JS,MK	
04/13/04	10.0	1024	RBT	385	466	old ad clip	y	VI V38	n	n	n	60		trap	JS,MK	
04/13/04	10.0	1024	LSS	420	727	UC	n	n	n	n	n	n		trap	JS,MK	
04/13/04	10.0	1024	LSS	435	722	UC	n	n	n	n	n	n		trap	JS,MK	
04/13/04	10.0	1036	RBT	275	213	ad clip	n	432B172441	n	n	n	61		trap	JS,MK	
04/13/04	10.0	1036	RBT	344	403	ad clip	n	432D17696C	n	n	n	62		trap	JS,MK	
04/13/04	10.0	1036	RBT	409	579	ad clip	n	432B081141	n	n	n	63		trap	JS,MK	
04/13/04	10.0	1036	RBT	390	520	ad clip	n	432C0F033B	n	n	n	64		trap	JS,MK	
04/13/04	10.0	1045	RBT	385	457	ad clip	n	432C7F635B	n	n	n	65		trap	JS,MK	
04/13/04	10.0	1124	BRN	400	469	ad clip	n	n	n	n	n	66		trap	JS,MK	in trap pool behind baffle
04/13/04	10.0	1255	BLT	523	1483	ad clip	n	985120001979608	148.500	n	10.3g	67	8	trap	JS,MK	surgery 6min,3 sutures, release CFRR 1331,H2O 10
04/14/04	10.0	1000	RBT	290	231	ad clip	n	VI V40	n	n	n	68		trap	JS,MK	
04/14/04	10.0	1000	RBT	501	1020	ad clip	n	VI V41	n	n	n	69		trap	JS,MK	
04/14/04	10.0	1000	LSS	425	803	UC	n	n	n	n	n	n		trap	JS,MK	
04/14/04	10.0	1000	LSS	420	761	UC	n	n	n	n	n	n		trap	JS,MK	
04/14/04	10.0	1000	LSS	390	642	UC	n	n	n	n	n	n		trap	JS,MK	
04/14/04	10.0	1000	LSS	420	696	UC	n	n	n	n	n	n		trap	JS,MK	
04/14/04	10.0	1000	LSS	376	497	UC	n	n	n	n	n	n		trap	JS,MK	
04/14/04	10.0	1000	LSS	410	650	UC	n	n	n	n	n	n		trap	JS,MK	
04/14/04	10.0	1000	LSS	450	808	UC	n	n	n	n	n	n		trap	JS,MK	
04/15/04	10.0	930	RBT	550	1300	old ad clip	y	985120006335527	148.640	4	n	n		trap	JS,MK	sutures/scar looks good, nose banged up
04/15/04	10.0	930	RBT	457	960	ad clip	n	432B395D0B	n	n	n	70		trap	JS,MK	leading edge of dorsal scarred
04/15/04	10.0	930	LSS	420	773	UC	n	n	n	n	n	n		trap	JS,MK	

04/15/04	10.0	930	LSS	410	735	UC	n	n	n	n	n	n		trap	JS,MK	
04/15/04	10.0	930	LSS	416	722	UC	n	n	n	n	n	n		trap	JS,MK	
04/16/04	9.0	915	RBT	420	674	ad clip	n	VI V42	n	n	n	71		trap	JS,MK	
04/19/04	8.5	930	NF	n	n	n	n	n	n	n	n	n		trap	JS,MK	
04/19/04			RBT	295	250	ad clip	n	45285D227F	n	n	n	72		night efish	BM,TS,JS	Prospect Ck mouth
04/19/04			RBT	312	260	ad clip	n	452A695B1E	n	n	n	73		night efish	BM,TS,JS	Prospect Ck mouth
04/19/04			RBT	340	395	ad clip	n	4529495663	n	n	n	74		night efish	BM,TS,JS	Prospect Ck mouth
04/19/04			RBT	180	50	ad clip	n	45297A1A	n	n	n	75		night efish	BM,TS,JS	Prospect Ck mouth
04/19/04			BRK	180	62	ad clip	n	n	n	n	n	n		night efish	BM,TS,JS	Prospect Ck mouth
04/19/04			RBT	279	180	ad clip	n	45293442	n	n	n	76		night efish	BM,TS,JS	below PPL dam
04/19/04			RBT	265	160	ad clip	n	452719047A	n	n	n	77		night efish	BM,TS,JS	below PPL dam
04/19/04			RBT	250	125	ad clip	n	45295F3F7d	n	n	n	78		night efish	BM,TS,JS	below PPL dam
04/19/04			RBT	272	170	ad clip	n	4523170123	n	n	n	79		night efish	BM,TS,JS	below PPL dam
04/19/04			RBT	272	185	ad clip	n	452C641B03	n	n	n	80		night efish	BM,TS,JS	below PPL dam
04/19/04			RBT	255	160	ad clip	n	45283D2A4F	n	n	n	81		night efish	BM,TS,JS	below PPL dam
04/19/04			RBT	176	55	ad clip	n	45242B352B	n	n	n	82		night efish	BM,TS,JS	below PPL dam
04/19/04			BRK	175	45	ad clip	n	n	n	n	n	n		night efish	BM,TS,JS	below PPL dam
04/19/04			WCT	294	225	ad clip	n	4527246339	n	n	n	83	9	night efish	BM,TS,JS	below PPL dam
04/19/04			BRN	258	180	ad clip	n	452A467F38	n	n	n	84		night efish	BM,TS,JS	below PPL dam
04/19/04			WCT	240	155	ad clip	n	45267A1839	n	n	n	85	10	night efish	BM,TS,JS	below PPL dam

04/19/04			SMB	244	190	n	n	floy 4-15049	n	n	n	86		night efish	BM,TS,JS	below PPL dam
04/19/04			SMB	325	500	n	n	floy 4-15050	n	n	n	87		night efish	BM,TS,JS	below PPL dam caught by angler 8/15-8/30 1 mile below PPL dam
04/19/04			RBT	394	535	ad clip	n	45252635A	148.640	3	10g	88	n	night efish	BM,TS,JS	surgery 7 min, staples, release Squaw Ck
04/19/04			BLT	372	393	ad clip	n	45251F6840	148.300	22	7.7g	89	11	night efish	BM,TS,JS	surgery 2.5min,staples,release Squaw Ck
04/19/04			BLT	535	1275	ad clip	n	452A4C0801	148.640	7	10g	90	12	night efish	BM,TS,JS	surgery 4min, staples, release squaw Ck
04/19/04			BLT	718	3660	ad clip	n	4525273C71	148.640	2	10g	91	13	night efish	BM,TS,JS	surgery 4min, staples, release squaw Ck
04/19/04			RBT	353	420	ad clip	n	452A5D3B13	148.300	26	7.7g	92	n	night efish	BM,TS,JS	surgery 4.5min, staples, release Squaw Ck
04/20/04	10.0	935	RBT	273	n	ad clip	n	985120007066499	n	n	n	93	n	trap	BM,MK	
04/21/04	8.0	922	LSS	410	n	LC	n	n	n	n	n	n	n	trap	JS,MK	
04/21/04	8.0	922	LSS	411	n	LC	n	n	n	n	n	n	n	trap	JS,MK	
04/22/04	8.5	846	RBT	340	376	old ad clip	y	VI V22 or V23	n	n	n	94	n	trap	JS,MK	
04/22/04	8.5	846	RBT	450	905	ad clip	n	432D366B5B	n	n	n	95	n	trap	JS,MK	
04/22/04			RBT	271	181	ad clip	n	4527353F1A	n	n	n	96	n	night efish	BM,MK,TH	Prospect Ck mouth
04/22/04			RBT	243	140	ad clip	n	452747520E	n	n	n	97	n	night efish	BM,MK,TH	Prospect Ck mouth
04/22/04			RBT	260	147	ad clip	n	4523077	n	n	n	98	n	night efish	BM,MK,TH	Prospect Ck mouth
04/22/04			RBT	378	453	ad clip	n	4529550B2A	n	n	n	99	n	night efish	BM,MK,TH	Prospect Ck mouth
04/22/04			RBT	220	292	ad clip	n	4527604740	n	n	n	100	n	night efish	BM,MK,TH	Prospect Ck mouth
04/22/04			RBT	220	135	ad clip	n	45297F4940	n	n	n	101	n	night efish	BM,MK,TH	below PPL dam
04/22/04			RBT	322	299	ad clip	n	54293E6670	n	n	n	102	n	night efish	BM,MK,TH	below PPL dam

04/22/04			RBT	303	265	ad clip	n	452A4F7955	n	n	n	103	n	night efish	BM,MK,TH	below PPL dam
04/22/04			RBT	248	139	ad clip	n	4527561811	n	n	n	104	n	night efish	BM,MK,TH	below PPL dam
04/22/04			RBT	252	143	ad clip	n	452A045009	n	n	n	105	n	night efish	BM,MK,TH	below PPL dam
04/22/04			RBT	248	169	ad clip	n	452833600	n	n	n	106	n	night efish	BM,MK,TH	below PPL dam
04/22/04			RBT	270	189	ad clip	n	452A4B3B14	n	n	n	107	n	night efish	BM,MK,TH	below PPL dam
04/22/04			RBT	266	181	ad clip	n	4529385920	n	n	n	108	n	night efish	BM,MK,TH	below PPL dam
04/22/04			RBT	222	111	ad clip	n	5423064316	n	n	n	109	n	night efish	BM,MK,TH	below PPL dam
04/22/04			SMB	332	522	n	n	floy 4-15600	n	n	n		n	night efish	BM,MK,TH	below PPL dam, caught by angler 8/15-8/30 1 mile below PPL dam
04/22/04			SMB	312	480	n	n	floy 415599	n	n	n		n	night efish	BM,MK,TH	below PPL dam
04/22/04			SMB	278	315	n	n	floy 4-15598	n	n	n		n	night efish	BM,MK,TH	below PPL dam
04/23/04	9.0	936	RBT	513	n	old ad clip	y	432C120P5E	n	n	n	n	n	trap	JS,MK,TH	fungus right eye
04/23/04	9.0	1030	RBT	438	804	ad clip	n	985120019762826	148.740	19	10g	110	n	trap	JS,MK,TH	surgery 3min, little blood, 3 staples release Squaw Ck 1110, H2O 10
04/23/04	9.0	1030	RBT	390	544	old ad clip	y	985120019763985	148.740	12	10g	n	n	trap	JS,MK,TH	surgery 3.5min, female, 5 staples, VI V26
04/23/04	9.0	1030	WCT	364	531	ad clip	n	985120019719372	148.300	25	7.7g	111	14	trap	JS,MK,TH	surgery 2.75min, 3 staples, bird wound, little blood
04/26/04	10.0	925	LSS	390	594	UC	n	n	n	n	n	n	n	trap	JS,BM,MK	
04/26/04	10.0	925	LSS	405	729	UC	n	n	n	n	n	n	n	trap	JS,BM,MK	
04/26/04	10.0	925	RBT	432	759	old ad clip	y	432B354051	148.640	10	10g	n	n	trap	JS,BM,MK	surgery 2.5min,4 staples, release Squaw Ck 1045, H2O 10.5
04/26/04	10.0	925	LSS	83	5	n	n	n	n	n	n	n	n	trap	JS,BM,MK	

04/26/04	10.0	925	RBT	389	500	ad clip	n	985120019761817	148.300	24	7.7g	112	n	trap	JS,BM,MK	surgery 3.25min, 4 staples, release Squaw Ck 1045, H2O 10.5
04/27/04	11.0	935	LSS	422	728	UC	y	n	n	n	n	n	n	trap	JS,MK	
04/27/04	11.0	935	LSS	360	433	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/27/04	11.0	935	LSS	405	660	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/27/04	11.0	935	LSS	436	802	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/27/04	11.0	935	LSS	435	819	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/27/04	11.0	935	LSS	425	769	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/27/04	11.0	935	LSS	393	570	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/27/04	11.0	935	LSS	357	520	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/27/04	11.0	1005	RBT	280	216	ad clip	n	985120019722890	n	n	n	113	n	trap	JS,MK	
04/27/04	11.0	1057	US	145	413	ad clip	n	985120019716608	n	n	n	114	15	trap	JS,MK	markings of Kokanee, mort in recovery
04/27/04	11.0	1110	RBT	383	449	ad clip	n	985120019839380	148.300	27	7.7g	115	n	trap	JS,MK	surgery 4 min, 3 sutures, female/eggs, release Squaw Ck 1255, H2O 12
04/27/04	11.0	1130	RBT	353	450	ad clip	n	985120019869665	148.300	30	7.7g	116	n	trap	JS,MK	surgery 6 min, 3 sutures, release Squaw Ck 1255, H2O 12
04/27/04	11.0	1150	RBT	420	635	old ad clip	y	985120007073167	n	n	n	n	n	trap	JS,MK	mort during surgery recovery
04/27/04	11.0	1210	RBT	455	895	old ad clip	y	985120019760960	148.640	8	10g	n	n	trap	JS,MK	surgery 8 min,4 sutures, female/eggs, release Squaw Ck 1255, H2O 12
04/28/04	11.0	905	LSS	455	927	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/28/04	11.0	905	LSS	440	899	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/28/04	11.0	905	LSS	398	592	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/28/04	11.0	905	LSS	420	724	UC	y	n	n	n	n	n	n	trap	JS,MK	
04/28/04	11.0	905	LSS	405	712	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/28/04	11.0	905	LSS	370	484	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/28/04	11.0	905	LSS	435	810	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/28/04	11.0	905	LSS	415	715	UC	n	n	n	n	n	n	n	trap	JS,MK	
04/28/04	11.0	905	LSS	380	536	UC	n	n	n	n	n	n	n	trap	JS,MK	

04/28/04	11.0	905	RBT	355	335	ad clip	n	432B0D436A	n	n	n	117	n	trap	JS,MK	
04/28/04	11.0	905	RBT	300	190	ad clip	n	432B04757A	n	n	n	118	n	trap	JS,MK	
04/28/04	11.0	1025	LSS	n	n	UC	n	n	n	n	n	n	n	trap	JS,MK	5 LSS, 1 recap
04/28/04	11.0	1025	WCT	n	n	old ad clip	y	432C7F3F00	148.300	29		n	n	trap	JS,MK	3 sutures & scar look good
04/28/04	11.0	1025	WCT	328	233	ad clip	n	432D0D794E	n	n	n	119	16	trap	JS,MK	
04/28/04	11.0	1130	RBT	345	387	old ad clip	y	432D17696C	148.740	15	10g	n	n	trap	JS,MK	surgery 2min, 3 staples, female/ripe, release squaw Ck 1230, H2O 11
04/28/04	11.0	1115	RBT	395	579	ad clip	n	432C1E6B7F	148.740	14	10g	120	n	trap	JS,MK	surgery 4min, 5 staples, female/ripe, release Squaw Ck 1230, H2O 11
04/28/04	11.0	1140	RBT	510	1010	ad clip	n	432B206105	148.640	6	10g	121	n	trap	JS,MK	surgery 2.25min, 3 staples, female/ripe, release Squaw Ck 1230, H2O 11
04/28/04	11.0	1153	RBT	415	746	ad clip	n	n	n	n	n	122	n	trap	JS,MK	very ripe female, no PIT or radio tags put in
04/28/04	11.0	1202	RBT	475	1032	ad clip	n	432C39087A	148.640	1	10g	123	n	trap	JS,MK	surgery 2.5min, 3 staples, release Squaw Ck 1230, H2O 11
04/29/04	12.0	915	LSS	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	148 LSS, water over dam, sandbags shift 1 ft., close trap for repair
04/29/04	12.0	915	PM	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	106 PM 30 - 40 fish in trap pool
04/29/04	12.0	915	NPM	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	22 NPM
04/29/04	12.0	1030	RBT	390	477	old ad clip	y	432C7F635B	n	n	n	n	n	trap	JS,MK	
04/29/04	12.0	1030	RBT	376	471	ad clip	n	432B143262	n	n	n	124	n	trap	JS,MK	
05/04/04	12.0	915	NPM	290	178	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	320	252	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	370	458	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	316	245	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	385	536	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	302	220	LC	n	n	n	n	n	n	n	trap	JS,MK	

05/04/04	12.0	915	NPM	300	217	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	302	213	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	345	301	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	305	233	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	271	158	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	305	201	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	320	255	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	310	206	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	NPM	320	241	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	PM	320	212	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	PM	304	190	LC	n	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	PM	270	179	LC	y	n	n	n	n	n	n	trap	JS,MK	
05/04/04	12.0	915	RBT	435	695	ad clip	n	432B2E2A11	n	n	n	125	n	trap	JS,MK	
05/04/04	12.0	915	RBT	376	461	ad clip	n	432B39385F	n	n	n	126	n	trap	JS,MK	
05/04/04	12.0	915	RBT	310	321	ad clip	n	432D24141F	n	n	n	127	n	trap	JS,MK	
05/04/04	12.0	915	RBT	310	273	ad clip	n	432E6D350E	n	n	n	128	n	trap	JS,MK	
05/04/04	12.0	915	RBT	552	1565	old ad clip	y	985120006335527	148.740	20	10g	n	n	trap	JS,MK	release Squaw Ck 1034, H2O 10, surgery incision healed
05/05/04	11.0	925	PM	285	151	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	279	172	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	301	221	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	256	156	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	269	149	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	289	194	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	300	228	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	290	223	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	280	180	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	PM	395	204	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	NPM	510	1193	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	NPM	405	529	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	NPM	329	266	UC	n	n	n	n	n	n	n	trap	JS,MK	

05/05/04	11.0	925	NPM	331	269	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	925	NPM	405	591	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	945	PM	260	147	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	945	PM	275	156	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	945	PM	290	207	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	945	PM	290	214	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	945	PM	285	199	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	945	LSS	405	616	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	945	LSS	390	495	UC	n	n	n	n	n	n	n	trap	JS,MK	
05/05/04	11.0	1005	RBT	364	404	ad clip	n	985120019868737	n	n	n	129	n	trap	JS,MK	
05/05/04	11.0	1005	RBT	380	485	ad clip	n	985120019754277	n	n	n	130	n	trap	JS,MK	
05/05/04	11.0	1045	RBT	230	187	ad clip	n	985120019747457	n	n	n	131	n	trap	JS,MK	
05/05/04	11.0	1045	WCT	420	528	old ad clip	y	985120007073804	148.740	18		n	19	trap	JS,MK	scar healed, sutures look good
05/05/04	11.0	1140	BLT	505	1185	ad clip	n	985120019761853	149.620	n	10.3g	133	18	trap	JS,MK	surgery 2.5min, 6 staples, release CFRR 1220, H2O 11
05/05/04	11.0	1151	WCT	395	559	ad clip	n	985120019764250	148.640	9	10g	132	17	trap	JS,MK	surgery 4min, 5 staples, release Squaw Ck 1245, H2O 9
05/05/04	11.0	945	PM	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	86 total
05/05/04	11.0	945	NPM	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	44 total
05/06/04	11.0	1000	PM	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	38 total, west radial gate part open
05/06/04	11.0	1000	NPM	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	6 total
05/06/04	11.0	1000	LSS	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	2 total
05/07/04	11.0	855	PM	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	95 total,5 boards open west end, 3 chutes submerged, water over trap/bags
05/07/04	11.0	855	NPM	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	2 total
05/10/04	11.0	855	NF	n	n	n	n	n	n	n	n	n	n	trap	JS,MK	12 boards open west end, water over dam, bags/trap moved, close trap

09/16/04	15.0	915	BRN	547	1390	ad clip	n	985120019798817	148.640	32	10g	134	n	trap	JS,JM	surgery start 0948, end 0951, 3 staples, release Squaw Ck mouth 1015 H2O 15
09/17/04	14.0	906	NF	n	n	n	n	n	n		n	n	n	trap	JS,JM	water overtopping dam, close trap 0900
10/13/04	12.0	1600	RBT	443	863	ad clip	n	985120019762501	148.640	34	10g	135	n	angling	BM,TH,JS,JM	surgery 2:55 min, 4 staples, release Squaw Ck mouth 1836, H2O 12
10/13/04	12.0	1600	RBT	452	763	ad clip	n	985120019744624	148.740	39	10g	136	n	angling	BM,TH,JS,JM	surgery 3 min, release Squaw Ck mouth 1836, H2O 12
10/13/04	12.0	1600	BLT	390	485	LC	n	985120019871607	n	n	n	137	20	angling	BM,TH,JS,JM	release below dam
10/20/04	n	1400	n	n	n	n	n	n	n	n	n	n	n	n	JS,JM	remove trap box