Mill Creek Diversion Dam

Special Report on Fish Passage

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Introduction

Fish passage at the Mill Creek Diversion Dam (aka Bennington Diversion Dam, hereafter referred to as the Diversion Dam) has been an issue of concern to area fishery managers (Mendel et. al. 2002, Contor and Sexton 2003). Limited radio telemetry data and redd counts in 2003 seemed to indicate that few steelhead were able to pass the ladder. It was postulated that if steelhead were having difficulty passing the dam, it would be nearly impossible for weaker swimmers, such as bull trout, to pass.

In February 2003 an underwater camera and time-lapse VCR were installed at the Diversion Dam ladder to determine if any fish were passing. Only one rainbow trout (moving downstream) was distinguished on the video from mid-February to May 2003, further supporting the conclusion that the ladder was inadequate for fish passage. However, the camera had been placed in turbulent water making it very difficult to see, so it is unknown if fish were actually passing the dam.

A similar effort was undertaken in 2004, but the camera was installed directly upstream of the ladder exit where visibility was generally good. The results of the 2004 effort showed that several fish species were able to pass the dam at various flows.

Location and Description

The Diversion Dam is located at Mill Creek river mile 11.5 near Walla Walla, Washington. Mill Creek is a tributary of the Walla Walla River. The Diversion Dam was constructed in 1942 by the Corps of Engineers (Corps) as part of a project to protect the city of Walla Walla from flooding. No, or very limited, upstream fish passage (USACE 1981) was provided past the dam from 1942 until 1982 when the present fish ladder was constructed. Fish passage improvements were also made upstream from Roosevelt Street and at the Corps Division Dam in 1982.

The Diversion Dam fish ladder is 6.5 feet wide and 86 feet long and is designed to pass flows up to 42 cubic feet per second (cfs) at a forebay elevation of 1256 feet (msl). The downstream invert elevation is 1245 feet and the upstream invert elevation is 1250.5 feet. The operational range is between forebay elevations 1253 and 1256 feet, but in recent years an automated control was installed and the normal operation is now between 1254.5 and 1255.5, keeping the flow through the ladder relatively stable (approximately 30 to 35 cfs). The adjacent sluiceway, or low flow outlet, can pass a maximum of 400 cfs. Once Mill Creek flows exceed 400 cfs, the low flow outlet is closed and the forebay rises until water starts to flow over the spillway at 1261 feet. When flows exceed 400 cfs (or when the forebay is above 1261) the ladder exit (upstream) is partially closed so that the ladder is not overtopped. Flow velocities through the submerged exit are likely too high for fish to pass (because of excessive head over the exit). In 2004 flows were above 400 cfs (or

the forebay was above 1261, limiting fish passage) for a total of about 12 days (January 30-31, February 18, May 29-June 1, and June 10-14).

A temporary fishway, made out of concrete blocks, was installed below the Diversion Dam ladder on February 25, 2004. This fishway was intended to improve ladder entrance conditions. The blocks were extended further downstream than a similar temporary fishway constructed in 2003.

The ladder's upstream exit is designed to function as an open slot and has a 24-inch-wide by 81-inch high slide gate. Downstream flow passes through seven weirs with 12-inch wide vertical slots with head differentials varying from 10 to 22 inches depending on the forebay elevation. The ladder is over 50% shaded from above largely due to a walkway grating. When natural flows in Mill Creek are 42 cfs or less, all water is passed through the fish ladder (except for the flow that leaks past the low-flow outlet gate). The ladder is briefly dewatered for debris removal twice monthly from February to May and at least once a month at other times. Additional debris checks are made several times each week during the late winter and spring and less frequently at other times. When the ladder is "dewatered" some water remains within each level of the ladder where fish remain until flow is routed back through the ladder.

Materials and Methods

An AquaView[1] underwater camera was installed in front of the upstream exit of the Diversion Dam ladder on February 4, 2004. The camera was placed such that about the upper two-thirds of the exit could be seen at forebay elevation 1254.5. The camera was positioned perpendicular to the exit, approximately 30 inches from the center of the exit (Figure 1). The wide-angle lens allowed for a field of view that extended back into the ladder. This helped to show if fish were actually exiting the ladder, or just swimming near the exit.

[1] The use of trade names does not constitute endorsement by the U.S. Army Corps of Engineers.

Figure 1. Overhead view of the Mill Creek Diversion Dam fish ladder exit. The underwater camera was attached to the pipe on the left side of the photo and a water quality monitor was located in the white pipe on the right side of the photo.

After installation, a ruler was moved in front of the camera at varying distances to determine the approximate scale of a fish if it passed either through the far, middle, or near side of the exit so that length estimates could be made.

The camera unit was connected to a time-lapse video recorder set to record at four frames per second. This enabled at least 24 hours of video to be recorded on one standard 120 minute VHS tape. Date and time were recorded on the video. The camera was cleaned as needed, however the frequency of cleanings increased to once per week by mid May. Part way though the season, the original video recorder malfunctioned and was replaced with a similar recorder. The replacement recorder utilized high-density recording that allowed approximately 75 hours of video to be recorded on one standard 120 minute VHS tape. However, in most cases, only 24 hours of video was recorded per tape.

Tapes were changed and viewed daily. An initial viewing was performed using a standard VCR, which allowed the 24 hours of tape to be viewed in about 1.5 to 2.5 hours. Periods of darkness were not viewed. Time, direction of travel, and initial species identification were noted during the initial viewing. The standard VCR could only be stopped on every other video frame, which sometimes made positive identification of species difficult. Once the times for each fish were noted, a second viewing was performed using a time-lapse VCR. The time-lapse VCR enabled every frame to be viewed. Length estimates were made by comparing the fish images to the scale mentioned previously. Length estimates for rainbow trout were discontinued in late May due to time constraints (30 to 95 fish were seen passing the ladder in one day). When possible, length estimates for other species were made. Any adipose fin clips or other markings were also noted.

Flow data from the USGS stream gage “Mill Creek at Walla Walla” (14015000) was recorded at the time a fish appeared on the video. Flow data from this gage was used until June 30 when all flows were diverted into Yellowhawk/Garrison Creeks (one mile

downstream from the Diversion Dam), leaving the gage dry. At that point the "Mill Creek near Walla Walla" (14013000) was used. The "Mill Creek at Walla Walla" gage is typically 20 to 40 cfs lower than the amount passing the Diversion Dam, because that amount is diverted into the Yellowhawk/Garrison channels just upstream from the gage. The "Mill Creek near Walla Walla" gage is similar to flows past the Diversion Dam during the summer. Blue Creek empties into Mill Creek below the gage, but Titus Creek and other irrigation withdrawals remove some flow prior to reaching the Diversion Dam.

Water temperature data at the Diversion Dam ladder exit were recorded with a GreenSpan[1] water quality monitor until June 9 when the instrument was removed. A Hobo stowaway temperature logger was installed in the ladder on June 26 and was left in place until after the video recording was terminated on July 10. Water temperatures at the time fish appeared on the video were recorded.

Second Camera

A second underwater camera was installed from April 5 to 14. This camera was placed on the opposite side of the exit and lower than the first camera. This camera was connected to the time-lapse recorder with high-density recording mentioned earlier. The time was synchronized with the first unit. The frame frequency was inadvertently set to about 12 frames per second. The tapes were viewed with a standard VCR to quantify the number of fish observed exiting the ladder below the view of the first camera. The fish passage times from the second camera were compared to the passage times from the first camera to note duplications. Because of the VCR setting of 12 frames per second, these tapes took approximately 3.5 hours to view 24 hours of tape (minus periods of darkness).

Results

The video monitoring revealed approximately 1,187 fish apparently passing up the ladder between February 4 and July 10, 2004. In general most of the fish appeared on less than six frames. Therefore, they passed through the camera's field of view in less than 1.5 seconds. Table 1 summarizes data for the most abundant species observed on the videos. The fish species observed passing upstream on the videos include, (851) rainbow trout and (51) adult steelhead (*Oncorhynchus mykiss*), (93) suckers (*Catostomus sp.*), (68) chinook salmon (*O. tshawytscha*), (20) bull trout (*Salvelinus confluentus*), (8) Red-side shiner (*Richardsonius balteatus*), and (2) mountain whitefish (*Prosopium williamsoni*). It was sometimes difficult to distinguish between large rainbow trout and steelhead, which could affect the reported numbers. Approximately 94 unidentifiable fish were also seen. A majority of the unidentified fish were likely rainbow trout. In addition to fish species, a river otter, muskrat, beaver, and a bullfrog tadpole were also seen on the video. The complete data record is included in Appendix A. Example photos of the various species taken from the videos are included in Appendix B.

Table 1. Summary Data for Fish Passage at the Mill Creek Diversion Dam Fish Ladder, 2004.

Species	Number	Date Range	Temperature Range (C)	Flow Range (cfs)**
Rainbow trout	851	Feb. 8 to July 10*	3.6 – 23.1	13 - 225
Steelhead	51	Feb. 16 to Apr. 23	5.7 – 12.9	49 - 213
Sucker	93	Apr. 29 to July 8*	12.7 – 22.7	14 - 187
Chinook	68	May 6 to July 8*	11.0 – 22.0	21 - 237
Bull trout	20	Apr. 16 to June 30*	10.6 - 22.2	15 - 85

* Fish of this species were observed by snorkeling downstream from the dam after the last one was observed on the video.
** The actual flow at the Diversion Dam was likely 20 to 40 cfs higher than the "Mill Creek at Walla Walla" gage because of diversions into Yellowhawk/Garrison Creek.

Length estimates were made for many of the observed fish. The length estimates are available in the data tables in Appendix A. There was a wide range (3 to 6 inches) in the length estimates because it was impossible to determine how far a fish was from the camera lens.

Fish were observed exiting the ladder at all daylight hours, but were most abundant in the afternoon (Figures 2 and 3). Typically only a few fish were seen per day, but as water temperatures warmed in mid June, the number recorded per day increased to a peak of 95 on June 27. Less than ten fish per day were being seen as of July 10 when the video monitoring was terminated.

Figure 2. Rainbow Trout Passage Time by Hour of the Day for the Mill Creek Diversion Dam Fish Ladder.

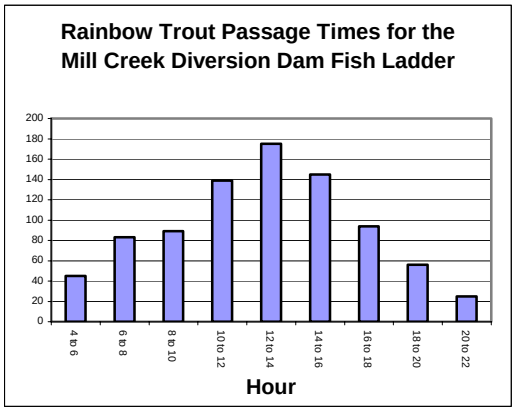
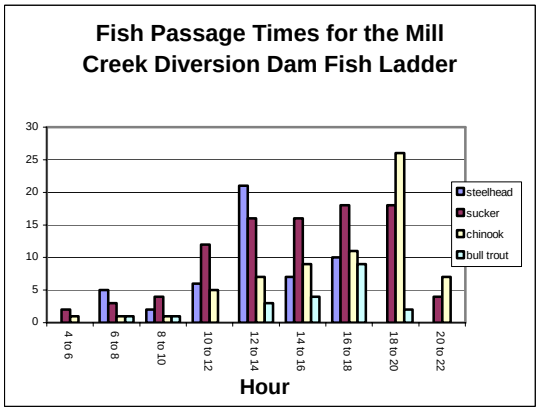


Figure 3. Fish Passage Times by Hour of the Day for the Mill Creek Diversion Dam Fish Ladder.



Second Camera

A second underwater camera, placed to determine the number of fish exiting the ladder beneath the first camera, was installed for eight days in April. During this period a total of 89 fish were observed exiting the ladder. Of these 89 fish, 62 were recorded on the first camera. For this period in April, 1.44 times more fish passed the ladder during daylight hours than were recorded on camera 1.

Table 2. Data from the Second Underwater Camera Placed at the Fish Ladder Exit, Mill Creek Diversion Dam, 2004.

Date	Cam1 & Cam2	Cam1 only	Cam2 only	Total Cam1	Total both	Ratio	Notes
5-Apr	7	1	5	8	13	1.63	one steelhead (seen by both cameras)
6-Apr	9	4	5	13	18	1.38	two steelhead (seen by both cameras)
7-Apr	8	2	5	10	15	1.50	three steelhead (seen by both cameras)
8-Apr	12	1	3	13	16	*	*Debris may have caused fish to alter their exit paths
9-Apr	9	2	0	11	11	*	*Debris may have caused fish to alter their exit paths
10-Apr	4	0	3	4	7	1.75	
11-Apr	4	0	2	4	6	1.50	
12-Apr	6	3	5	9	14	1.56	one possible sthd on Cam2
13-Apr	7	3	1	10	11	1.10	
14-Apr	3	1	1	4	5	1.25	
15-Apr							Too turbid
			Totals	62	89	1.44	

*Data from April 8-9 was not used in the totals because debris in the exit may have caused fish to alter their normal exit paths.

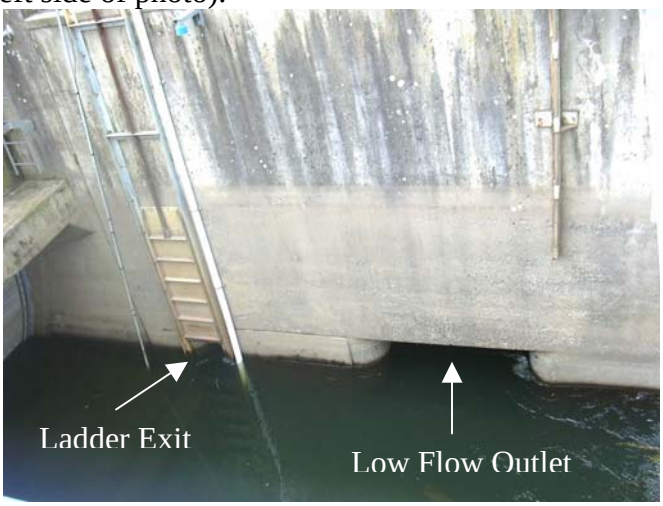
Discussion

The underwater camera was functional for most of the time during the monitoring effort. There were a few days when the equipment malfunctioned or the water turbidity was too high to see more than a few inches. The reported numbers of fish are likely lower than the actual number of fish that passed the ladder. Some fish traveled through the exit beneath the view of the camera. During an eight-day period in April, 1.4 times more fish exited the ladder during daylight hours than were recorded with the main underwater camera. In addition to the space beneath the camera, nighttime passage was not monitored. Three of five radio-tagged fish (two steelhead and three chinook) passed the exit during darkness. Only one of the five (a chinook) was captured on the video (Mahoney 2004).

Nighttime passage was monitored at Nursery Street Bridge on the Walla Walla River. In the East ladder approximately 40% (151 of 376) of the steelhead, 27% (29 of 109) of the chinook, and 36% (12 of 33) of the bull trout exited the ladder during darkness (Bronson, 2004 preliminary data). The West ladder was also monitored, but a fish trap was also operated in the ladder, which may have affected fish exit times (Barrows et. al., 2004). Faurot and Kucera (2002) measured between 39 to 94% nighttime movement of adult chinook salmon past a counting station on Lake Creek in Idaho from 1998 through 2002.

It is possible that some fish recorded at the Diversion Dam were counted more than once. Fish could reenter the ladder below the view of the camera or travel back downstream through the low flow outlet. The low flow outlet is only a few feet away from the ladder exit as shown in Figure 4. Estimates for the total number of steelhead and chinook salmon that may have passed the dam are presented in the following sections.

Figure 4. Mill Creek Diversion Dam Low Flow Outlet Entrance (right side of photo) and Fish Ladder Exit (left side of photo).

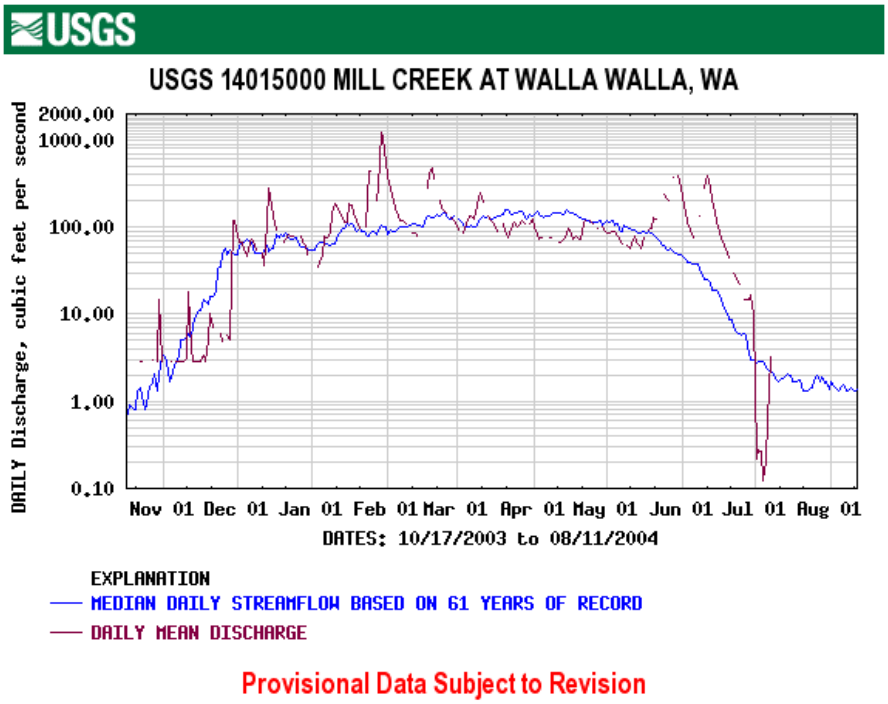


Steelhead

A total of 51 steelhead were captured on video exiting the Diversion Dam ladder between February 16 and April 23. Some steelhead might have already traveled upstream of the dam prior to initiating the video monitoring on February 4, as a steelhead was observed below the dam on February 2.

Flow during this early spring period can vary dramatically. When flows exceed 400 cfs, fish are not able to move past the Diversion Dam. Flows are typically above 400 cfs for at least a few days every year. In some years, flows can remain above 400 cfs for a week or longer. Figure 5 shows the "Mill Creek at Walla Walla" hydrograph for 2004 (broken red line) and the average over the last 61 years (solid blue line).

Figure 5. Hydrograph for Mill Creek at Walla Walla.



Two radio-tagged steelhead made it up to and past the Diversion Dam in 2004 (Mahoney 2004). Both of these fish exited the ladder without being captured on the video. One (#39) exited the ladder during darkness (00:59), the other (#21) exited in the early afternoon (12:24).

I estimate the total number of steelhead that might have passed the Diversion Dam in 2004 between 61 and 78 fish. This is based on 51 captured on the video, an estimated 1.1 times the number that were seen on the video that might have exited beneath the camera, and an estimated 10 to 40% that might have exited the ladder during darkness. No fish with apparent adipose fin clips were seen, however not all of the steelhead exited so that their adipose fins were visible.

Bull Trout

A total of 20 bull trout were captured on video exiting the Diversion Dam ladder between April 16 and June 30. It is likely that other bull trout might have passed beneath the view of the camera and during darkness. An estimated 26 to 32 bull trout might have exited the ladder during the monitoring period. This estimate is based on an estimated 1.2 times the number that were seen on the video that might have exited beneath the camera and the possible 10 to 35% that may have exited during darkness.

One bull trout was observed by snorkeling below the Diversion Dam on July 3, 2004. As with all the other species, most bull trout exited the ladder in the afternoon hours (Figure 3). Bull trout passed the ladder at lower flows than the other salmonids. Flows at the "Mill Creek at Walla Walla" gage read between 15 and 85 cfs when bull trout exited the

ladder. The actual flows past the Diversion Dam during the bull trout exit times were likely 35 to 125 cfs.

Chinook Salmon

In recent years, the Confederated Tribes of the Umatilla Indian Reservation began chinook salmon reintroduction efforts in the Walla Walla Basin, including Mill Creek. In 2000 about 105 pre-spawn, spring chinook were released into upper Mill Creek. Forty redds were later observed. In 2001, 150 pre-spawn chinook were released into upper Mill Creek. Fifty were released in 2002 (Contor and Sexton 2003). Until 2004 it was unknown how many adults, if any, would return to the upstream locations to spawn.

A total of 68 chinook were recorded on video exiting the Diversion Dam ladder between May 6 and July 8, 2004. At least five other adult chinook were observed below the Diversion Dam after July 8. There were still at least three holding below the Diversion Dam on August 10, 2004.

At least three radio-tagged chinook made it past the Diversion Dam in 2004. One (#26A) exited the ladder during daylight (4:55), the other two (#51 and #55) exited during darkness (22:42 and 23:31). Fish #26A made it through the ladder in about three hours. Fish #51 made it through the ladder in 42 minutes. Fish #55 made it completely through the ladder in 22 minutes (Mahoney 2004).

I estimate the total number of chinook that might have passed the Diversion Dam in 2004 between 81 and 96 fish. This is based on 68 captured on the video, an estimated 1.1 times the number that were seen on the video that might have exited beneath the camera, and an estimated 10 to 30% that might have exited the ladder during darkness. No fish with apparent adipose fin clips were seen, however not all of the chinook exited so that their adipose fins were visible.

Unlike typical years, 2004 had high flows late in the season (Figure 5). In a typical year flows drop below 40 cfs at the Diversion Dam (20 cfs at the "Mill Creek at Walla Walla" gage) around mid June. In 2004 fifty chinook had been captured on video passing the Diversion Dam by June 15. This represented almost 75% of the total number observed passing the dam. Some chinook were stranded and perished in the Mill Creek channel even with the unusually late high flows of 2004 (Mendel personal communication, Tice personal observation 1). It is likely that in "normal" or below normal flow years, 25 to 50% or more of the returning chinook adults will find it difficult to reach the Diversion Dam and may perish prior to spawning.

Based on the numbers of chinook that returned to Mill Creek in 2004 and the adult chinook releases from 2000 to 2002, more chinook are expected to return in 2005 and 2006. One sub-adult chinook (approximately 20 inches) was observed below the Diversion Dam on July 6, 2004 (Tice, personal observation 2).

Other species
A total of 851 rainbow trout, 93 suckers, eight shiners, and two whitefish were also captured on video exiting the Diversion Dam ladder in 2004. Rainbow trout likely use the ladder throughout the entire year and some are able to pass at flows up to at least 225 cfs (Mill Creek at Walla Walla). Suckers began using the ladder near the end of the steelhead run and continued into the summer when the video monitoring was terminated.

Recommendations and Future Monitoring

It is not clear whether the concrete blocks placed as a temporary fishway channel below the Diversion Dam ladder improved passage conditions, but they certainly did not make passage worse at most flows. The fishway leading up to the ladder entrance visually looked more conducive to passage. At the beginning of July when flows were low, the flow through the low flow outlet and flow escaping beneath the concrete blocks may have made it more difficult for some fish to find the ladder entrance. Once this situation was noticed the forebay was adjusted to operate six inches higher, which closed the low flow outlet and routed all of the flow through the ladder. The largest holes under the blocks were also plugged. These measures appeared to improve attraction flows leading to the ladder. Another problem could have been that two of the three 1100 pound concrete blocks that had been placed in the fishway to break up the flow in the fishway slid down into the pool below the entrance channel during the high flow event that ended June 14. It is recommended that a fishway similar to the temporary structure installed in 2004 is left in place or is reinstalled in future years. A permanent fishway may be warranted. Figure 6 shows the temporary fishway created in 2004.

There are several improvements that could be made to the video monitoring effort in future years. Digital video recorders are currently being tested for use at the Diversion Dam in 2005. The digital video recorders are able to detect motion and could save time enumerating passing fish. Also a more accurate length measurement system would be beneficial. A system using lasers that project two beams a known distance apart (similar to Faurot and Kucera 2002) is being considered.

Two complete video systems are being planned for use in 2005 to monitor the Diversion Dam exit. Placing one camera high and one low should allow close to 100% coverage of the exit. A lighting system so that nighttime passage can be assessed is also being considered.

Plans are also being made to install a video monitoring system at the Yellowhawk/Garrison Creek Diversion in 2005. Comparing passage results for this location and the Diversion Dam ladder would help quantify the total number of adult steelhead and chinook using Yellowhawk Creek and the Mill Creek channel through Walla Walla. The Tri-State Steelheaders and the Washington Department of Fish and Wildlife operate a fish trap on Yellowhawk Creek. However, the trap is in a location that cannot capture all of the fish that may be using Yellowhawk Creek as the channel splits downstream from the trap then rejoins upstream from the trap. In 2004 a total of 35 steelhead were caught in the trap between February 1 and April 21 (Geidl, personal communication). Since 50 steelhead were seen on the underwater video monitor at the

Diversion Dam by April 14, some steelhead had either migrated above the trap prior to February 1, some steelhead used the other available Yellowhawk Creek channel, or some steelhead migrated through the concrete Mill Creek channel through Walla Walla.

Figure 6. Looking upstream at the Mill Creek Diversion Dam. The concrete blocks below the ladder (on the right side of the creek) were placed to create a temporary fishway leading to the ladder entrance. The two lower small blocks in the fishway slid downstream during high flows in mid June.

Summary

Many more fish were observed passing the Diversion Dam ladder than was expected. It is not known if recent modifications at the Diversion Dam improved passage, but the video monitoring results seem to indicate that fish passage may no longer be as poor as it appeared to be in the past. It is still unknown precisely how many fish might be delayed or blocked from passing the dam.

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Tice, B. Personal observation 2. Approximately 20-inch chinook with severe head fungus observed in Mill Creek below the Mill Creek Diversion Dam on July 6, 2004. Corps of Engineers. Walla Walla, Washington.

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Appendix A

Underwater Video Monitoring Data

Mill Creek Diversion Dam

2004

Fish sightings from underwater camera at the Mill Creek Diversion Dam Ladder 2004

Video started on 2/4/04

Flow from "Mill Creek at Walla Walla gauge." USGS 14015000. Approximately 20 cfs goes to YH, between the dam and the gauge.

	Date	Video Time	Ad	Type	Est. Size (inches)	Ad Clipped	Direction	Flow cfs	Temp C	Notes (any times indicated are camera time)
	2-Feb			Sthd	20 to 22	?				1 Sthd caught and released below the spillway when flows receded.
1	8-Feb	15:26:20	#	RBT	8 to 10	No	upstream	97	5.85	high in exit
2	10-Feb	8:17:28	#	RBT	4 to 5	No	neutral	85	4.13	
3	10-Feb	16:39:25	#	RBT	14 to 18	No	upstream	83	6.26	may be a steelhead, high in exit
	12-Feb	8:30:44	#			?	neutral	76	3.72	Seen in background
	12-Feb	8:42:47	#	RBT	13 to 16	No	neutral	76	3.62	
4	14-Feb	17:43:15	#	RBT	7 to 9	No	upstream	68	6.12	high in exit
1	16-Feb	17:53:59	#	Sthd	18 to 22	No	upstream	78	5.67	Stream gauge problem, high in exit
										Camera offline - cables cut 2-17 to 2-21
2	22-Feb	14:41:05	#	Sthd	14 to 18	No	upstream	183	6.05	Moved camera further back, high in exit
5	23-Feb	12:24:50	#	RBT	7 to 9	?	upstream	149	5.48	
6	23-Feb	15:55:26	#	RBT	6 to 8	No	upstream	143	7.43	
7	23-Feb	16:02:16	#	RBT	7 to 9	No	upstream	143	7.43	possibly same fish?, high in exit
8	23-Feb	16:25:31	#	RBT	7 to 9	No	upstream	143	7.43	possibly same fish?, high in exit
	24-Feb	7:53:50	#	RBT	4 to 5	No	neutral	134	5.2	
3	24-Feb	13:43:19	#	Sthd	16 to 20	No	upstream	137	6.25	low in exit, maybe RBT (spotting pattern)
	25-Feb									River Otter ~ 8:02 and 8:13, Measurement test w/ruler ~ 15:45. Installed blocks at entrance.
4	27-Feb	8:51:36	#	Sthd	20 to 22	No	upstream	119	5.91	pointed snout
	27-Feb	10:45:37	#	RBT	4 to 6	No	neutral	72	6.22	good size constrast w/ last fish. (Shows the problem w/ size estimation.)
9	27-Feb	11:55:04	#	RBT	5 to 7	No	upstream	124	6.64	
5	28-Feb	12:07:33	#	Sthd	18 to 22	No	upstream	102	6.64	Forebay level dropped below camera, 21:15 to 10:15
10	28-Feb	12:23:01	#	RBT	8 to 12	No	upstream	102	6.64	Forebay level dropped below camera, 9:25 to 10:45
11	28-Feb	15:41:09	#	RBT	11 to 13	No	upstream	102	7.58	
12	28-Feb	17:43:34	#	RBT	6 to 8	No	upstream	102	7.44	
13	29-Feb	14:57:19	#	RBT	10 to 12	No	upstream	93	7.88	
14	29-Feb	15:32:57	#	RBT	10 to 12	No	upstream	93	7.88	
	1-Mar									Forebay level dropped below camera, 5:47 to 10:30
15	1-Mar	17:34:30	#	RBT	12 to 14	No	upstream	85	6.78	
16	2-Mar	15:28:43	#	RBT	9 to 12	No	upstream	79	7.8	Forebay level dropped below camera, 10:30 to 11:15
	3-Mar									Camera off-line, power problem
	4-Mar									Forebay level dropped 1:10 to 11:30
6	4-Mar	16:21:09	#	Sthd	20 to 22	No	upstream	100	6.41	Forebay level dropped 23:45 to 0:30
	4-Mar	16:25:41	#	Sthd (see no	20 to 22	No	neutral	100	6.41	Same fish as previous
	5-Mar	7:51:13	#	RBT	4 to 6	No	?	121	4.7	
17	6-Mar	14:37:45	#	RBT	12 to 14	No	upstream	116	7.25	Forebay level dropped, 1:00 to 1:30, 5:00 to 5:30, 6:15 to 13:30
18	6-Mar	15:20:35	#	RBT	11 to 14	No	upstream	113	7.25	
19	7-Mar	9:28:49	#	RBT	12 to 14	No	upstream	110	6.1	
	7-Mar	15:17:16	#	RBT	11 to 14	?	?	107	9.29	Tail only seen @ 15:17:01
20	7-Mar	15:43:44	#	RBT	11 to 14	No	upstream	107	9.29	
21	7-Mar	16:13:11	#	RBT	11 to 13	No	upstream	107	9.29	
22	7-Mar	16:46:42	#	RBT	11 to 13	No	upstream	107	9.46	
23	7-Mar	17:17:19	#	RBT	7 to 11	No	upstream	107	9.46	
24	7-Mar	17:54:43	#	RBT	14 to 17	No	upstream	107	9.27	Possible Sthd
25	7-Mar	18:18:55	#	RBT	14 to 18	No	upstream	107	9.27	Possible Sthd
7	8-Mar	10:44:00	#	Sthd	16 to 18	possibly	upstream	127	6.88	Forebay level dropped 3:55 to 9:50, and 13:55 on, Cleaning ladder ~ 15:10 (sthd spotting pattern)
26	8-Mar	16:22:06	#	RBT	12 to 13	No	upstream	120	10	Forebay level back up @ 15:55
27	8-Mar	16:53:58	#	RBT	6 to 10	No	upstream	100	10	
	9-Mar	7:50:49	#	Sthd	20+	?	neutral	194		High turbidity (snow melt), may have missed some fish
8	9-Mar	7:51:05	#	Sthd	20+	No	upstream	194		
9	9-Mar	8:48:50	#	Sthd	20	?	upstream	198		
28	9-Mar	11:20:46	#	RBT	12 to 13	No	upstream	187		
	9-Mar	14:08:16	#	?	12	?	upstream	194		Likely RBT
29	9-Mar	14:28:01	#	RBT	12 to 13	No	upstream	194		
	9-Mar	14:32:48	#	?	12	?	upstream	194		Likely RBT
30	10-Mar	13:41:19	#	RBT	12 to 14	No	upstream	213		High turbidity (snow melt), may have missed some fish
10	10-Mar	15:15:29	#	Sthd	18 to 22	No	upstream	213		
31	10-Mar	16:15:52	#	RBT	10 to 12	No	upstream	213		
	10-Mar	16:58:46	#	RBT	6 to 8	No	neutral	229		
32	12-Mar	14:00:58	#	RBT	8 to 10	No	upstream	134	9	
33	13-Mar	18:11:39	#	RBT	8 to 12	No	upstream	113	8.3	Forebay level dropped below camera 11:00 to 11:30
34	15-Mar	13:01:07	#	RBT	12 to 14	No	upstream	89	8	Forebay low until 8:30, High turbidity 12:15 to 13:30 (inwater work upstream?)
	15-Mar	13:03:18	#	RBT	12 to 14	No	?	89	8	Same fish as previous?
11	16-Mar	13:25:27	#	Sthd	22 to 26	No	upstream	85	9.1	
35	16-Mar	15:09:25	#	RBT	12 to 18	No	upstream	85	10.4	
36	16-Mar	15:48:40	#	RBT	6 to 8	No	upstream	89	10.7	
37	17-Mar	7:23:44	#	RBT	10 to 13	No	upstream	89	7.2	seen again @ 7:24:05, 7:24:41, 7:25:11
38	17-Mar	9:02:17	#	RBT	11 to 13	No	upstream	89	7.4	
12	17-Mar	9:13:01	#	Sthd	20+	No	upstream	93	7.4	
39	17-Mar	14:24:45	#	RBT	6 to 8	No	upstream	93	9.8	
40	17-Mar	14:29:19	#	RBT	?	?	upstream	93	9.8	
41	17-Mar	14:48:04	#	RBT	8 to 12	No	upstream	93	10.1	seen again @ 14:48:41
	17-Mar	15:00:08	#	?	?	?	neutral	93	10.1	seen in background
	17-Mar	16:49:06	#	RBT	6 to 10	No	?	89	10.6	
13	17-Mar	17:10:05	#	Sthd	22 to 26	No	upstream	95	10.6	
42	17-Mar	17:13:46	#	RBT	10 to 13	?	upstream	95	10.6	
43	18-Mar	7:50:39	#	RBT	8 to 12	No	upstream	93	7.6	seen again@ 7:51:55
44	18-Mar	8:44:15	#	RBT	14 to 16	No	upstream	102	7.7	
45	18-Mar	8:52:08	#	RBT	10 to 14	No	upstream	102	7.7	
46	18-Mar	10:15:20	#	RBT	13 to 16	No	upstream	102	7.9	
47	18-Mar	14:09:42	#	RBT	10 to 12	No	upstream	95	9	
48	18-Mar	14:12:36	#	RBT	11 to 13	No	upstream	95	9	
49	18-Mar	14:37:07	#	RBT	8 to 12	No	upstream	95	9	replaced camera @ 15:00
50	18-Mar	16:17:15	#	RBT	8 to 14	No	upstream	97	9.6	
51	18-Mar	17:23:58	#	RBT	8 to 10	No	upstream	95	9.5	
14	18-Mar	17:43:53	#	Sthd	26 to 34	No	upstream	95	9.4	

Count going upstream	
Steelhead	51
Chinook	68
Bull trout	20
suckers	93
whitefish	2
Rainbows	851
Unidentified	94
Redside shiner	8
Total seen passing upstream	1187

trout and ?

52	18-Mar	18:07:03	#	RBT	11 to 13	No	upstream	95	9.4						
53	18-Mar	19:02:25	#	RBT	12 to 16	No	upstream	95	9.1						
54	19-Mar	11:00:05	#	RBT	6 to 12	No	upstream	110	6.9						
55	19-Mar	11:47:52	#	RBT	12 to 14	No	upstream	110	7.6						
56	19-Mar	12:00:48	#	RBT	12 to 14	No	upstream	113	7.6						
57	19-Mar	12:33:29	#	RBT	8 to 10	No	upstream	110	7.6						
15	19-Mar	13:21:26	#	Sthd	24 to 28	No	upstream	119	8.4						
58	19-Mar	13:22:58	#	RBT	10 to 12	No	upstream	119	8.4						
59	19-Mar	14:10:57	#	RBT	11 to 13	No	upstream	113	9.1						
60	20-Mar	12:57:51	#	RBT	10 to 13	No	upstream	89	7.7	seen again @ 12:59:23, RT sthd (#21) passed @ 12:24 (13:24 video time), not seen on video					
61	21-Mar	11:40:22	#	RBT	6 to 8	No	upstream	78	8.1						
62	21-Mar	16:03:31	#	RBT	12 to 16	No	upstream	74	10.5						
63	21-Mar	18:48:27	#	RBT	5 to 8	No	upstream	72	9.8						
	22-Mar	10:43:53	#	?	?	?	upstream	78	8						
64	22-Mar	10:59:11	#	RBT	10 to 12	No	upstream	78	8	RT sthd (#39) passed @0:59, not seen on video					
65	22-Mar	11:04:58	#	RBT	8 to 12	No	upstream	78	8						
16	22-Mar	12:05:06	#	Sthd	24 to 28	?	upstream	143	8.8	Forebay level dropped below camera between 11:37 and 11:57. High flow reading caused by release.					
66	22-Mar	14:07:12	#	RBT	5 to 8	No	upstream	91	10.5						
67	22-Mar	14:35:45	#	RBT	10 to 12	No	upstream	91	10.5						
68	22-Mar	14:39:22	#	RBT	12 to 14	No	upstream	91	10.5						
69	22-Mar	16:20:30	#	RBT	12 to 16	No	upstream	91	11.6						
17	22-Mar	18:27:46	#	Sthd	20 to 24	No	upstream	91	11.4						
70	23-Mar	11:30:57	#	RBT	12 to 16	No	upstream	102	8.4						
18	23-Mar	12:23:10	#	Sthd	24 to 32	No	upstream	104	8.7						
71	23-Mar	13:02:35	#	RBT	6 to 12	?	upstream	107	9.3						
19	23-Mar	13:12:15	#	Sthd	?	?	upstream	107	9.3	Fins, Similar mark of later fish					
20	23-Mar	13:35:53	#	Sthd	20 to 22	No	upstream	110	9.3						
72	23-Mar	13:56:42	#	RBT	6 to 10	?	upstream	113	9.8						
	23-Mar	14:18:35	#	Sthd	?	?	upstream	113	9.8	Several large fish seen at bottom of view, possibly same fish as 13:12:15 and 14:37:24					
	23-Mar	14:18:38	#	Sthd	?	No	upstream	113	9.8						
21	23-Mar	14:18:44	#	Sthd	?	No	upstream	113	9.8						
22	23-Mar	14:37:24	#	Sthd	18 to 22	No	upstream	113	9.8	Several large fish seen at bottom of view					
23	23-Mar	14:37:26	#	Sthd	20 to 26	No	upstream	113	9.8						
	23-Mar	14:37:28	#	Sthd	?	?	upstream	113	9.8						
73	23-Mar	14:58:05	#	RBT	8 to 12	?	upstream	113	10.2						
74	23-Mar	15:49:44	#	RBT	6 to 8	No	upstream	113	10.1						
75	23-Mar	16:35:37	#	RBT	?	?	upstream	113	10.1						
76	23-Mar	17:03:41	#	RBT	10 to 12	No	upstream	113	10						
77	23-Mar	17:49:05	#	RBT	6 to 8	No	upstream	113	9.8						
78	24-Mar	15:56:49	#	RBT	8 to 12	?	upstream	110	8.2						
79	25-Mar	11:45:53	#	RBT	6 to 10	No	upstream	104	7.6						
80	25-Mar	12:12:41	#	RBT	12 to 14	No	upstream	107	7.6	Periods of high turbidity					
81	25-Mar	13:09:51	#	RBT	14 to 20	No	upstream	102	8.5	Possible Sthd					
24	25-Mar	14:36:23	#	Sthd	24 to 28	possibly	upstream	102	9						
82	25-Mar	15:14:25	#	RBT	10 to 12	No	upstream	97	9.4						
83	25-Mar	17:37:55	#	RBT	6 to 8	No	upstream	97	9.5						
84	25-Mar	18:34:36	#	RBT	12 to 16	No	upstream	97	9.3						
85	26-Mar	8:21:19	#	RBT	6 to 14	No	upstream	110	6.3	Debris in exit					
	26-Mar	8:24:00	#	RBT	6 to 14	No	?	110	6.3	Debris in exit					
	26-Mar	8:26:06	#	?	?	?	upstream	110	6.3	Debris in exit					
86	26-Mar	15:14:01	#	RBT	8 to 12	No	upstream	104	9	Debris cleared @ 15:04					
25	26-Mar	15:45:12	#	Sthd	22 to 26	No	upstream	97	9						
26	26-Mar	15:50:26	#	Sthd	22 to 26	No	upstream	97	9						
87	27-Mar	14:35:50	#	RBT	12 to 14	No	upstream	140	8.9	Debris in exit, possible sthd.					
88	27-Mar	14:46:05	#	RBT	8 to 12	No	upstream	140	9						
27	28-Mar	16:43:51	#	Sthd	22 to 28	No	upstream	137	11.2						
89	28-Mar	16:49:26	#	RBT	14 to 18	possibly	upstream	137	11.2	seen again @ :35, possible sthd					
90	29-Mar	12:27:11	#	RBT	10 to 14	No	upstream	102	8.5						
91	29-Mar	15:46:58	#	RBT	10 to 14	No	upstream	97	11.8						
92	29-Mar	16:32:56	#	RBT	6 to 10	No	upstream	97	11.8	seen again @ 16:33:22, seen feeding @ 16:34:02					
93	29-Mar	17:41:15	#	RBT	?	?	upstream	97	11.8	Possible sthd					
94	29-Mar	19:33:29	#	RBT	?	No	upstream	95	11.4	After dark					
28	30-Mar	7:28:14	#	Sthd	22 to 26	No	upstream	104	8.1						
	30-Mar	10:40:16	#	?	?	?	upstream	113	9.2	Possible Sthd					
	30-Mar	11:05:04	#	?	?	?	neutral	100	9.2	seen in background					
	30-Mar	11:17:03	#	?	?	?	upstream	100	9.2	seen in background					
95	30-Mar	12:37:25	#	RBT	6 to 8	No	upstream	113	10.1						
	30-Mar	12:42:00	#	?	?	?	neutral	119	10.8	seen in background					
96	30-Mar	13:01:55	#	RBT	12 to 18	No	upstream	116	10.8						
	30-Mar	13:27:26	#	RBT	?	No	neutral	113	10.8						
97	30-Mar	13:36:33	#	RBT	8 to 12	No	upstream	113	11.3						
98	30-Mar	14:30:23	#	RBT	12 to 16	No	upstream	110	11.3						
29	30-Mar	14:33:17	#	Sthd	22 to 26	No	upstream	110	11.3						
99	30-Mar	14:50:08	#	RBT	12 to 14	No	upstream	110	11.5						
100	30-Mar	17:11:02	#	RBT	10 to 12	No	upstream	107	11.2						
101	30-Mar	18:24:14	#	RBT	12 to 14	No	upstream	110	10.7						
102	31-Mar	13:17:04	#	RBT	10 to 12	No	upstream	121	8.3						
30	31-Mar	13:42:43	#	Sthd	18 to 22	No	upstream	121	8.9						
103	31-Mar	14:14:07	#	RBT	12 to 14	No	upstream	121	8.9						
	31-Mar	14:35:50	#	?	?	?	neutral	121	8.9						
	1-Apr	11:21:59	#	RBT	6 to 8	No	?	74	7.1						
31	1-Apr	12:50:28	#	Sthd	20 to 24	No	upstream	102	8.8						
32	1-Apr	12:50:33	#	Sthd	?	?	upstream	102	8.8						
104	1-Apr	17:40:34	#	RBT	8 to 12	No	upstream	89	10.4						
105	1-Apr	18:38:06	#	RBT	8 to 12	No	upstream	93	10.4	seen again @ :13					
106	2-Apr	14:40:10	#	RBT	6 to 10	No	upstream	81	10.3						
	2-Apr	14:53:13	#	?			neutral	79	10.3	seen in background					
107	2-Apr	15:00:11	#	RBT	8 to 12	No	upstream	79	10.3						
	2-Apr	15:00:33	#	?			neutral	79	10.3	seen in background					

	2-Apr	15:07:19	#	?			neutral	79	10.3	seen in background					
108	3-Apr	13:25:49	#	RBT	8 to 12	No	upstream	70	9.5						
109	3-Apr	17:43:48	#	RBT	10 to 14	No	upstream	74	10.6						
110	4-Apr	11:14:56	#	RBT	8 to 12	No	upstream	78	11	seen in background					
	4-Apr	12:36:56	#	?			?	78	11						
	4-Apr	12:37:48	#	?			?	78	11						
	4-Apr	12:39:45	#	RBT	4 to 6	No	?	78	11						
111	4-Apr	12:39:57	#	RBT	8 to 12	No	upstream	78	11						
112	4-Apr	12:49:31	#	RBT	6 to 10	No	upstream	78	11.9	same fish seen several times in next few hours?					
	4-Apr	13:27:05	#	RBT			?	78	11.9						
	4-Apr	13:27:28	#	RBT	5 to 8	No	?	78	11.9						
	4-Apr	13:35:50	#	RBT	5 to 8	No	?	78	11.9						
	4-Apr	13:38:02	#	RBT	5 to 8	No	?	78	11.9						
	4-Apr	13:38:41	#	RBT	5 to 8	No	?	78	11.9						
	4-Apr	13:44:23	#	RBT	5 to 8	No	neutral	78	12.5						
	4-Apr	15:23:28	#	RBT			neutral	74	12.9						
	4-Apr	15:23:57	#	RBT	5 to 8	No	?	74	12.9						
	4-Apr	16:16:03	#			No	?	78	13	background					
	4-Apr	18:50:56	#	RBT			?	74	11.7						
113	4-Apr	19:07:32	#	RBT	8 to 12		upstream	74	11.7						
	5-Apr	7:59:04	#	?	6 to 12		upstream		8.1						
114	5-Apr	8:57:15	#	RBT	8 to 12	No	upstream		8.4						
	5-Apr	9:24:47	#	RBT	6 to 12	No	?		8.4						
	5-Apr	9:58:58	#	RBT	5 to 8	No	?		9	fish seen several times through 10:07					
	5-Apr	10:13:45	#	?			?		9						
115	5-Apr	10:14:16	#	RBT	5 to 8	No	upstream		9	fish seen several times through 10:17					
116	5-Apr	15:19:14	#	RBT	6 to 10	No	upstream		10.7						
117	5-Apr	15:39:18	#	RBT	6 to 10		upstream		10.7						
118	5-Apr	16:46:10	#	RBT	14 to 20	No	upstream		10.6	possible Sthd					
119	6-Apr	10:10:57	#	RBT	8 to 12	No	upstream	85	8.8						
33	6-Apr	11:04:03	#	Sthd	18 to 22	No	upstream	85	9.8						
	6-Apr	13:09:50	#				?	81	11.6	Fins only, High turbidity @ 13:05					
120	6-Apr	13:10:14	#	RBT	6 to 10	No	upstream	81	11.6						
121	6-Apr	13:19:14	#	RBT	6 to 10		upstream	81	11.6						
122	6-Apr	13:46:07	#	RBT	6 to 10	No	upstream	81	12.2						
	6-Apr	14:36:20	#	RBT	5 to 8		?	81	12.2						
	6-Apr	16:18:00	#	RBT	5 to 8		?	81	12.7						
123	6-Apr	16:18:39	#	RBT	6 to 10	No	upstream	81	12.7						
34	6-Apr	17:13:54	#	Sthd	20 to 26	?	upstream	81	12.5	very large fish					
	6-Apr	17:21:11	#	?			upstream	81	12.5						
	6-Apr	17:22:27	#	?			upstream	81	12.5						
124	6-Apr	17:26:50	#	RBT	10 to 14		upstream	81	12.5	beaver seen at 19:04:51					
125	7-Apr	9:51:21	#	RBT	8 to 12	No	upstream	81	9.3	Aquaview monitor died. Used constantly for 20 days. Still provides video output to VCR.					
126	7-Apr	10:00:51	#	RBT	10 to 14	No	upstream	81	9.3						
127	7-Apr	10:30:19	#	RBT	10 to 14	?	upstream	81	9.3						
128	7-Apr	13:36:31	#	RBT	?		upstream	74	11.9						
35	7-Apr	14:14:57	#	Sthd	?	No	upstream	78	12.3	large size confirmed on cam 2					
	7-Apr	14:29:54	#	RBT	5 to 8		neutral	78	12.3						
36	7-Apr	15:26:10	#	Sthd	18 to 22	No	upstream	78	12.5						
129	7-Apr	15:28:55	#	RBT	6 to 10	No	upstream	78	12.5						
130	7-Apr	17:21:16	#	RBT	5 to 8		upstream	74	12.2						
	7-Apr	19:14:33	#	?			upstream	74	11.3						
131	8-Apr	8:34:31	#	RBT	6 to 10	No	upstream	74	8.2						
132	8-Apr	8:44:10	#	RBT	12 to 16	No	upstream	74	8.7						
	8-Apr	9:34:23	#	Sthd		No	neutral	66	8.7	Debris blocked 80% of view @ 9:42, data verified by cam 2					
133	8-Apr	11:08:12	#	RBT			upstream	85	10.2	possible Sthd					
37	8-Apr	12:12:04	#	Sthd			upstream	81	11.1	all but two of these next several fish verified on camera 2					
38	8-Apr	12:24:51	#	Sthd			upstream	81	11.1						
39	8-Apr	12:47:13	#	Sthd			upstream	81	11.8						
40	8-Apr	13:12:32	#	Sthd			upstream	81	11.8						
41	8-Apr	13:18:34	#	Sthd			upstream	81	11.8						
42	8-Apr	13:36:18	#	Sthd			upstream	79	11.8						
43	8-Apr	13:59:55	#	Sthd			upstream	79	12.4						
	8-Apr	14:10:05	#	RBT			neutral	79	12.4						
44	8-Apr	17:01:35	#	Sthd			upstream	78	12.5						
134	8-Apr	17:50:31	#	RBT	5 to 8	No	upstream	72	12						
135	8-Apr	18:17:57	#	RBT			upstream	74	12						
45	9-Apr	13:53:52	#	Sthd	18 to 24	No	upstream	74	12.4	Debris in exit					
	9-Apr	13:55:36	#	?	5 to 8	No	upstream	74	12.4						
136	9-Apr	13:55:44	#	RBT	5 to 8		upstream	74	12.4						
	9-Apr	14:35:26	#	?			upstream	74	12.8						
137	9-Apr	14:47:38	#	RBT	5 to 8	No	upstream	74	12.8						
	9-Apr	14:53:56	#	?	5 to 8		upstream	74	12.8						
	9-Apr	15:19:54	#	?			upstream	74	12.8						
138	9-Apr	15:50:37	#	RBT	6 to 10		upstream	74	12.9						
139	9-Apr	18:10:20	#	RBT	5 to 8		upstream	72	12.2						
140	10-Apr	9:35:26	#	RBT	8 to 12	No	upstream	72	8.5						
141	10-Apr	12:14:59	#	RBT	14 to 20	No	upstream	70	11.2	possible Sthd					
	10-Apr	12:46:18	#	RBT			neutral	70	12.1						
46	10-Apr	16:55:09	#	Sthd	20 to 24	?	upstream	68	12.9						
	11-Apr	13:40:03	#	?	5 to 8		upstream	66	12.9	dirty lens					
142	11-Apr	13:54:35	#	RBT	5 to 8		upstream	65	12.9						
143	11-Apr	13:58:58	#	RBT	8 to 12	No	upstream	65	12.9						
144	11-Apr	16:20:02	#	RBT	6 to 10		upstream	66	13.5						
47	12-Apr	6:40:50	#	Sthd	?	?	upstream	68	8.5	also seen on cam 2 to verify it was a large fish					
	12-Apr	12:19:27	#	?			upstream	46	11.9	Reduced flow because of ladder exit cleaning					
48	12-Apr	12:25:24	#	Sthd	?	?	upstream	49	11.9	also seen on cam 2 to verify it was a large fish					
	12-Apr	12:57:36	#	?			neutral	58	12.8						
145	12-Apr	13:08:49	#	RBT	8 to 12		upstream	58	12.8						

146	12-Apr	13:21:45	#	RBT	14 to 20	No	upstream	68	12.8	possible Sthd					
147	12-Apr	16:24:59	#	RBT	6 to 12	No	upstream	66	13.9						
	12-Apr	17:29:12	#	?			upstream	66	13.7						
	12-Apr	18:02:01	#	?			upstream	66	13.4						
148	12-Apr	18:06:52	#	RBT	5 to 8	No	upstream	66	13.4						
149	13-Apr	6:42:15	#	RBT	8 to 12	No	upstream	74	8.9						
150	13-Apr	7:05:46	#	RBT	6 to 10	No	upstream	74	8.9						
151	13-Apr	9:06:22	#	RBT	5 to 8	No	upstream	74	8.9						
152	13-Apr	10:24:30	#	RBT	5 to 8	No	upstream	74	10						
153	13-Apr	13:19:01	#	RBT	?	?	upstream	74	11.2						
154	13-Apr	15:15:17	#	RBT	6 to 12	No	upstream	74	11.6						
155	13-Apr	15:58:11	#	RBT	6 to 12	No	upstream	72	11.7						
	13-Apr	16:35:22	#	Chi?			neutral	72	11.7	juvenile, tail only					
	13-Apr	16:39:19	#	RBT			neutral	72	11.7	Two seen together					
156	13-Apr	16:40:24	#	RBT	8 to 12		upstream	72	11.5						
	13-Apr	16:44:47	#	RBT			neutral	72	11.5						
	13-Apr	16:48:12	#	?			upstream	72	11.5						
	13-Apr	16:54:39	#	?			neutral	72	11.5						
157	13-Apr	16:57:55	#	RBT	6 to 10		upstream	72	11.5	Can see camera 2 after 19:30 (after dark)					
158	14-Apr	12:09:11	#	RBT	5 to 8		upstream	83	10.5						
159	14-Apr	12:54:05	#	RBT	6 to 10		upstream	81	10.7						
49	14-Apr	16:32:17	#	Sthd	16 to 22	No	upstream	78	11.3						
50	14-Apr	16:54:10	#	Sthd	18 to 24	No	upstream	78	11.2						
	15-Apr	10:23:07	#	?	6 to 10		upstream	110	6.9	High turbidity after 9:30 (heavy rain)					
160	16-Apr	11:51:01	#	RBT	5 to 8		upstream	83	10.6	Forebay low					
	16-Apr	13:28:58	#	?			upstream	83	11.3	Forebay low					
161	16-Apr	15:32:13	#	RBT	6 to 10	No	upstream	83	11.6	Forebay low					
1	16-Apr	17:02:53	#	Bull Trout	8 to 14	No	upstream	72	10.6	Forebay back to normal @ 15:40					
	17-Apr	11:35:41	#	RBT			neutral	72	9.1	Debris in exit					
2	19-Apr	18:20:21	#	Bull Trout	14 to 18	No	upstream	68	11.8						
	20-Apr	7:58:53	#	?	8 to 12		upstream	79	8.5						
	20-Apr	14:40:00	#	?			?	74	11						
	20-Apr	15:47:57	#	RBT	5 to 8		neutral	74	11.1						
	20-Apr	17:43:38	#	RBT	5 to 8		neutral	74	10.7						
	20-Apr	17:56:22	#	RBT	5 to 8		?	74	10.7						
	20-Apr	18:02:35	#	RBT	5 to 8		?	72	10.7						
	21-Apr	13:36:48	#	RBT			?	93	9.8	2 fish, high turbidity after 14:20, heavy rain, periodic camera problems on 21st.					
	22-Apr	18:29:23	#	chi?			?	107	12.15	periodic camera problems on 22nd.					
	23-Apr	7:20:31	#	?			upstream	104	7.8						
	23-Apr	10:29:52	#	?	6 to 10		upstream	102	9.63						
	23-Apr	10:41:09	#	?	6 to 10		upstream	107	10.5						
	23-Apr	14:18:22	#	?	6 to 10		upstream	113	10.99						
162	23-Apr	15:55:08	#	RBT	5 to 8		upstream	113	10.45						
163	23-Apr	16:29:53	#	RBT	5 to 8		upstream	116	10.45						
51	23-Apr	17:10:29	#	Sthd	18 to 24		upstream	116	10.4						
164	24-Apr	10:52:22	#	RBT			upstream	119	10.08						
	24-Apr	12:12:50	#	?			neutral	119	10.97						
	24-Apr	12:45:53	#	?			?	116	11.77						
165	24-Apr	12:57:41	#	RBT	5 to 8		upstream	116	11.77						
	24-Apr	13:20:41	#	Sthd	18 to 24		neutral	116	11.77						
166	24-Apr	13:24:18	#	RBT			upstream	116	11.77						
167	24-Apr	13:33:30	#	RBT	6 to 10		upstream	116	11.77						
168	24-Apr	13:43:28	#	RBT	8 to 12		upstream	116	12.4						
169	24-Apr	13:46:58	#	RBT			upstream	116	12.4						
	24-Apr	13:47:33	#	RBT	8 to 12		neutral	116	12.4						
	24-Apr	13:50:54	#				neutral	116	12.4						
	24-Apr	14:07:36	#	RBT	6 to 10		neutral	116	12.4						
	24-Apr	14:23:58	#	RBT	8 to 12		?	116	12.4						
	24-Apr	14:33:43	#	RBT	5 to 8		?	116	12.4						
170	24-Apr	14:55:15	#	RBT	5 to 8		upstream	116	12.73						
	24-Apr	15:37:12	#	RBT	5 to 8		?	116	12.73						
	24-Apr	16:03:21	#	RBT			neutral	116	12.73						
171	25-Apr	15:46:59	#	RBT	5 to 8		upstream	104	13.68						
172	25-Apr	15:48:38	#	RBT	5 to 8		upstream	104	13.68						
1	25-Apr	19:37:01	#	whitefish	10 to 16		upstream	102	12.35						
173	26-Apr	11:46:25	#	RBT	6 to 10		upstream	104	12.58	a few others in background					
	26-Apr	15:33:55	#	?	6 to 12		upstream	93	14.74						
	26-Apr	16:13:08	#	?	8 to 12	No	upstream	93	14.88						
	26-Apr	17:36:10	#	?	8 to 12		upstream	93	14.7						
	27-Apr	10:24:46	#	?	6 to 10		upstream	102	11.68						
	27-Apr	12:52:51	#	?	5 to 8		?	95	12.63						
*	27-Apr	14:25:06	#	Sthd	26 to 34	No	upstream	93	12.56	*Eroded tail, possibly already spawned					
*	29-Apr	10:27:33	#	Sthd	18 to 24	No	upstream	97	9.73	Seen again @ 10:45:20, 10:45:38, 10:51:48, 10:55:09 Likely spawned out tagged fish # 39.					
174	29-Apr	10:57:19	#	RBT	8 to 12	No	upstream	97	10.78						
1	29-Apr	12:43:51	#	sucker	8 to 12		upstream	97	12.71						
175	29-Apr	14:58:11	#	RBT	12 to 16	No	upstream	91	13.8						
176	30-Apr	15:57:42	#	RBT	8 to 12		upstream	85	14.77						
3	1-May	13:58:53	#	Bull Trout	12 to 16		upstream	85	15.04						
	1-May	14:09:36	#	Bull Trout			?	85	15.04	Same fish?					
2	1-May	14:30:06	#	sucker	10 to 14		upstream	85	15.04						
177	1-May	14:31:07	#	RBT	8 to 12		upstream	85	15.04						
178	1-May	14:58:49	#	RBT	8 to 12	No	upstream	85	15.44						
	1-May	15:46:44	#	?			?	85	15.53						
	1-May	16:05:29	#	?			?	83	15.53	Tail only					
4	1-May	16:43:27	#	Bull Trout	14 to 18		upstream	83	15.29						
179	1-May	17:24:29	#	RBT	6 to 10		upstream	81	15.29						
	1-May	18:49:14	#	?	10 to 14		upstream	81	14						
	2-May	19:49:26	#	RBT	8 to 12		down	81	13.92						
	2-May	19:56:20	#	RBT			?	81	13.92						

	3-May	11:51:37	#	?	12 to 15		upstream	89	14.48	Possible bull trout					
	3-May	11:55:57	#	?			neutral	89	14.48						
5	3-May	16:54:01	#	Bull Trout	16 to 20		upstream	85	15.84						
6	4-May	15:27:52	#	Bull Trout	10 to 14		upstream	85	14.59	also unknown fins seen @ 17:04:23					
180	6-May	13:27:51	#	RBT	10 to 14	No	upstream	70	12.62	other neutral fish seen @ 16:18:22 and 16:43:10					
1	6-May	18:01:52	#	CH	31 to 45	No	upstream	68	12.82						
181	6-May	18:38:04	#	RBT	5 to 8	No	upstream	68	12.82	periodic tape malfunctions					
182	7-May	10:19:14	#	RBT	6 to 10	No	upstream	15 see not	11.94	periodic tape malfunctions, cleaning ladder @ 9:30					
2	7-May	15:36:01	#	CH	31 to 38	No	upstream	63	15.36						
	7-May	18:49:08	#	RBT	4 to 6		neutral	54	13.89	similar fish seen several times over next hour					
183	8-May	6:44:40	#	RBT	10 to 14	No	upstream	65	10.82						
184	8-May	12:33:27	#	RBT	4 to 6		upstream	63	13.59						
7	8-May	15:25:28	#	Bull Trout	10 to 14		upstream	65	14.04	A 14 inch bull trout was observed by Brian Mahoney while snorkeling below ladder on 5-7-04.					
	8-May	18:35:10	#	RBT	8 to 12	No	neutral	63	13.71	Two seen together several times, some tape malfunctions					
3	9-May	14:31:32	#	CH	30 to 36	No	upstream	61	14.69						
3	9-May	17:49:10	#	sucker	10 to 14		upstream	58	14.39						
4	9-May	18:50:30	#	CH	32 to 40	No	upstream	58	13.73						
185	10-May	15:11:09	#	RBT	10 to 14	No	upstream	59	11.72	Tape malfunction almost whole day. Only about 2 hours good tape. Replaced VCR.					
186	13-May	10:46:14	#	RBT	10 to 14	No	upstream		11.63						
187	13-May	14:10:22	#	RBT	8 to 12	No	upstream		14.22						
188	13-May	15:13:45	#	RBT	6 to 10	No	upstream		14.4						
189	13-May	19:23:36	#	RBT	6 to 8		upstream		12.9						
5	13-May	19:33:00	#	CH	26 to 34	No	upstream		12.9						
190	14-May	13:31:52	#	RBT			upstream		14.36	Debris in exit					
	14-May		#							Several juveniles seen periodically 16:04 to 18:06					
	15-May		#							Debris in exit (active beaver in forebay)					
191	16-May	6:23:51	#	RBT	8 to 12		upstream	78	9.88						
	16-May	15:06:39	#	RBT			?	~75	11.44						
192	17-May	14:28:20	#	RBT			upstream	74	15.22	Beaver seen @ 5:15:08, debris in exit @ ~ 7:00					
8	17-May	16:13:10	#	Bull Trout	10 to 14		upstream	74	15.73						
4	17-May	16:55:19	#	sucker	10 to 14		upstream	74	15.37						
	17-May	19:59:02	#	?			upstream	72	13.42	Muskrat seen @ 20:06:37					
193	18-May	14:18:36	#	RBT	12 to 16		upstream	89	11.93	Debris in exit all day until ~ 15:00					
6	18-May	19:08:37	#	CH	30 to 40	No	upstream	110	11.85	dirty lens					
	19-May	10:13:27	#	trout	8 to 12	No	upstream	91	11.72	some debris early, cleared by more debris @ 5:36:13, cleaned lens @ 11:20					
194	19-May	15:40:57	#	RBT	6 to 10	No	upstream	97	14.36						
195	19-May	15:54:06	#	RBT	8 to 12	No	upstream	66	14.36	2 trout					
7	19-May	17:54:02	#	CH	30 to 36	No	upstream	87	13.79	3 small notches in tail, small white on dorsal, notch in pectoral					
8	19-May	18:45:47	#	CH		No	upstream	85	13.13	no noticable markings					
9	20-May	10:41:10	#	CH		No	upstream	124	12.27	high turbidity					
10	20-May	11:14:33	#	CH		No	upstream	121	12.27	CH seen again 11:16:41, 11:17:20, 11:17:59, 11:23:59					
	20-May	16:36:10	#	trout	8 to 12		upstream	124	15.05						
	20-May	17:37:42	#	trout	10 to 14		upstream	124	14.81						
11	20-May	18:02:12	#	CH		No	upstream	124	14.23						
196	21-May	7:30:02	#	RBT	10 to 14	No	upstream	127	10.71						
197	21-May	13:53:40	#	RBT	6 to 10		upstream	124	13.26						
198	21-May	15:10:01	#	RBT	16 to 20	No	upstream	124	13.89						
12	21-May	16:02:28	#	CH	32 to 38	No	upstream	124	14.24						
	22-May	8:17:38	#	?	6 to 10		upstream	124	10.01						
199	22-May	8:34:50	#	RBT	8 to 12	No	upstream	124	10.01						
200	22-May	12:00:04	#	RBT	10 to 14	No	upstream	159	10.88						
13	22-May	13:22:21	#	CH		No	upstream	166	11.27						
	23-May		#							ladder blocked by log around 12:00, ladder cleaned @ 13:40 (yes, Sunday) also cleaned lens					
	24-May	14:46:48	#	trout			neutral	237	13.41	high turbidity					
14	24-May	15:46:39	#	CH		No	upstream	237	12.84						
15	24-May	15:59:26	#	CH		No	upstream	233	12.84						
16	24-May	16:36:05	#	CH		No	upstream	233	12.84						
201	25-May	12:16:46	#	RBT			upstream	225	12.57	high turbidity					
17	25-May	16:54:10	#	CH		No	upstream	205	13.7	sore on rt side (possible lamprey mark)					
202	25-May	18:06:13	#	RBT			upstream	202	13.22						
18	25-May	18:49:40	#	CH		No	upstream	202	12.69						
19	25-May	18:53:18	#	CH		No	upstream	202	12.69	seen again @ 18:58:29					
20	25-May	19:20:35	#	CH			upstream	202	12.69						
21	25-May	19:35:26	#	CH		No	upstream	202	12.69						
203	26-May	13:31:06	#	RBT	6 to 10	No	upstream	187	11.8	high turbidity					
204	26-May	14:43:21	#	RBT	8 to 12	No	upstream	187	12.04						
22	26-May	17:07:45	#	CH			upstream	198	11.77						
23	26-May	17:14:29	#	CH		No	upstream	202	11.77						
24	26-May	17:58:13	#	CH		No	upstream	209	11.58						
25	26-May	18:07:34	#	CH		No	upstream	209	11.58						
26	26-May	19:24:22	#	CH			upstream	233	11.42						
27	26-May	19:56:18	#	CH		No	upstream	237	11.22						
205	27-May	11:37:22	#	RBT			upstream		12.24	high turbidity					
28	27-May	12:18:11	#	CH			upstream		12.53						
206	27-May	12:30:53	#	RBT			upstream		12.53						
29	27-May	17:55:22	#	CH			upstream		11.87						
30	27-May	18:10:54	#	CH		No	upstream		11.87						
31	27-May	18:37:57	#	CH		No	upstream		11.87						
	27-May	18:38:16	#	CH			?		11.87						
	27-May	18:38:20	#	CH		No	?		11.87	Ragged Tail					
	29-May		#							Flows spilling over dam, ladder open					
	30-May		#							Flows spilling over dam, ladder open					
	31-May	5:17:29	#	?			?	241	9.51	Flows spilling over dam, ladder open					
207	1-Jun	12:52:07	#	RBT			upstream	202	13.51	Forebay lowered around 10:00, 5 chinook in stilling basin					
	1-Jun	12:57:04	#	trout			upstream	202	13.51						
	1-Jun	12:58:55	#	RBT			?	202	13.51						
32	1-Jun	13:37:46	#	CH			upstream	198	13.51						
208	1-Jun	15:16:46	#	RBT			upstream	191	14.57						
5	1-Jun	15:35:02	#	sucker	18 to 24		upstream	187	14.57						

	1-Jun	15:56:44	#	?			upstream	187	14.65							
209	1-Jun	16:06:45	#	RBT			upstream	187	14.65							
210	1-Jun	17:51:00	#	RBT			upstream	176	13.87							
33	1-Jun	18:06:10	#	CH		?	upstream	176	13.87							
34	2-Jun	10:58:58	#	CH		No	upstream	169	12.64							
211	2-Jun	12:17:37	#	RBT			upstream	146	13.56							
212	2-Jun	13:01:31	#	RBT			upstream	146	14.47							
6	2-Jun	16:38:26	#	sucker	10 to 14		upstream	137	15.93							
	2-Jun	17:20:16	#	RBT			neutral	137	15.76							
213	2-Jun	17:59:13	#	RBT			upstream	134	15.29							
214	3-Jun	6:08:05	#	RBT			upstream	124	10.91							
	3-Jun	10:03:42	#	RBT			?	116	12.55							
	3-Jun	12:32:47	#	RBT			?	116	14.59							
	3-Jun	12:37:07	#	RBT			neutral	116	14.59							
215	3-Jun	14:30:11	#	RBT			upstream	113	16.05							
7	3-Jun	17:20:18	#	sucker			upstream	107	16.4							
35	3-Jun	18:37:52	#	CH		No	upstream	102	16.06							
36	3-Jun	18:38:56	#	CH		No	upstream	102	16.06							
37	3-Jun	19:57:25	#	CH		?	upstream	102	14.92							
216	4-Jun	11:41:46	#	RBT			upstream	91	15.98	mink @ 5:49:13						
2	4-Jun	12:01:42	#	whitefish		10 to 14	upstream	91	15.98							
217	4-Jun	13:24:38	#	RBT			upstream	89	16.76							
38	4-Jun	13:30:06	#	CH		No	upstream	89	16.76							
8	4-Jun	13:49:49	#	sucker			upstream	89	17.4							
	4-Jun	14:28:24	#	RBT			?	87	17.4							
9	4-Jun	15:31:35	#	sucker	10 to 14		upstream	85	17.82							
218	4-Jun	16:25:36	#	RBT			upstream	81	17.98							
10	4-Jun	17:22:56	#	sucker	12 to 16		upstream	83	17.82							
39	4-Jun	17:25:36	#	CH		No	upstream	83	17.82							
11	4-Jun	20:21:20	#	sucker	10 to 14		upstream	81	16.08							
9	5-Jun	7:18:59	#	Bull Trout	10 to 14		upstream	81	12.89							
10	5-Jun	9:23:02	#	Bull Trout	12 to 16		upstream	83	13.31							
11	5-Jun	12:05:18	#	Bull Trout	12 to 16		upstream	78	15.63							
12	5-Jun	12:21:47	#	Bull Trout	10 to 14		upstream	78	15.63							
219	5-Jun	13:50:54	#	RBT			upstream	74	15.58							
40	5-Jun	14:46:16	#	CH		No	upstream	74	15.4	cleaned lens, observed chinook near exit @ 16:15						
220	5-Jun	19:03:27	#	RBT			upstream	72	14.54							
	6-Jun	8:42:05	#	whitefish	4 to 8		?	83	12.41							
221	6-Jun	12:54:54	#	RBT			upstream	78	15.47							
12	6-Jun	13:54:36	#	sucker	6 to 10		upstream	78	15.6							
222	6-Jun	16:23:09	#	RBT			upstream	78	15.42							
223	6-Jun	17:34:53	#	RBT			upstream	79	15.05							
224	7-Jun	14:28:56	#	RBT			upstream	72	14.91	debris in exit, removed @ 15:05						
13	7-Jun	14:49:32	#	Bull Trout	10 to 12		upstream	72	14.52							
	7-Jun	15:00:41	#	RBT			?	72	14.52							
13	7-Jun	15:39:57	#	sucker	10 to 14		upstream	72	14.52							
14	7-Jun	15:57:24	#	sucker	10 to 14		upstream	72	14.48							
	8-Jun	13:21:14	#	RBT			?	173	12.91	high turbidity						
	8-Jun	14:49:58	#	?			neutral	173	14.15	high turbidity						
41	8-Jun	14:52:22	#	CH		No	upstream	173	14.15							
	8-Jun	15:00:01	#	CH			neutral	173	14.15							
42	8-Jun	15:12:47	#	CH		No	upstream	173	14.15							
43	8-Jun	16:55:08	#	CH		No	upstream	166	13.69	seen again @16:55:25						
44	8-Jun	17:51:20	#	CH		No	upstream	163	13.41							
45	8-Jun	18:03:37	#	CH		No	upstream	163	13.41							
46	8-Jun	18:30:38	#	CH		No	upstream	159	13.41							
47	9-Jun	13:56:53	#	CH		No	upstream	176	11.01	high turbidity						
	9-Jun	19:26:44	#	?			upstream	176		Temp probe removed (by other staff)						
225	9-Jun	20:03:01	#	RBT			upstream	176								
48	9-Jun	20:15:29	#	CH		No	upstream	176								
49	9-Jun	20:31:56	#	CH		No	upstream	176								
	10-Jun		#							too turbid to see after 7:00. Spill started around 16:00						
	13-Jun	17:07:22	#	2CH			neutral	180		Still spilling						
50	14-Jun	12:42:24	#	CH		No	upstream	166		Stopped spilling around 9:30. 6 Ch in stilling basin. Cleaned ladder @ 10:30. 2 Ch in ladder.						
	14-Jun	14:06:00	#	trout			upstream	169								
	14-Jun	14:49:16	#	trout			upstream	140								
226	14-Jun	15:03:39	#	RBT			upstream	137		Cleaned lens @ 15:02 and replaced just seconds before this fish exited.						
227	14-Jun	15:43:21	#	RBT			upstream	140								
228	14-Jun	17:11:11	#	RBT			upstream	140								
	14-Jun	18:02:26	#	RBT			?	137								
229	14-Jun	19:11:00	#	RBT			upstream	130								
230	14-Jun	20:35:47	#	RBT			upstream	134								
231	14-Jun	20:36:35	#	RBT			upstream	134								
232	15-Jun	11:14:35	#	RBT			upstream	116								
233	15-Jun	14:38:21	#	RBT			upstream	116								
234	15-Jun	15:06:17	#	RBT			upstream	113								
235	15-Jun	15:49:39	#	RBT			upstream	110								
236	15-Jun	16:53:32	#	RBT			upstream	110								
15	15-Jun	18:38:39	#	sucker	6 to 10		upstream	104								
16	15-Jun	18:47:46	#	sucker	12 to 16		upstream	104								
237	16-Jun	8:47:50	#	RBT			upstream	93								
238	16-Jun	9:07:35	#	RBT			upstream	93								
17	16-Jun	17:41:43	#	sucker	8 to 12		upstream	81								
239	16-Jun	18:47:11	#	RBT			upstream	81								
240	16-Jun	19:07:55	#	RBT			upstream	81								
51	16-Jun	20:02:39	#	CH			upstream	81		some head fungus						
241	17-Jun	4:50:13	#	RBT			upstream	78								
242	17-Jun	12:33:13	#	RBT			upstream	74								
243	17-Jun	12:36:43	#	RBT			upstream	74								

244	17-Jun	13:13:19	#	RBT			upstream	74							
245	17-Jun	17:16:20	#	RBT			upstream	68							
246	17-Jun	20:09:53	#	RBT			upstream	65							
247	18-Jun	8:49:26	#	RBT			upstream	91*		Forebay dropped 8:15, debris cleared, up at 8:30. *flow skewed because of operation change.					
248	18-Jun	10:22:11	#	RBT			upstream	54							
	18-Jun	10:39:52	#	RBT			neutral	59							
249	18-Jun	10:53:59	#	RBT			upstream	68							
250	18-Jun	12:50:57	#	RBT			upstream	59							
251	18-Jun	12:59:12	#	RBT			upstream	59							
252	18-Jun	13:36:00	#	RBT			upstream	59							
253	18-Jun	14:23:21	#	RBT			upstream	59							
254	18-Jun	14:31:48	#	RBT			upstream	59							
255	18-Jun	14:46:35	#	RBT			upstream	59							
256	18-Jun	15:06:39	#	RBT			upstream	59							
	18-Jun	15:48:07	#	RBT			?	59							
257	18-Jun	17:06:33	#	RBT			upstream	59							
258	18-Jun	17:13:05	#	RBT			upstream	59							
259	18-Jun	18:31:25	#	RBT			upstream	58							
52	18-Jun	19:28:28	#	CH			upstream	49							
260	19-Jun	5:54:14	#	RBT			upstream	53							
261	19-Jun	5:58:34	#	RBT			upstream	53							
262	19-Jun	6:21:23	#	RBT			upstream	53							
263	19-Jun	7:05:15	#	RBT			upstream	53							
264	19-Jun	7:22:46	#	RBT			upstream	53							
	19-Jun	7:37:10	#	?			upstream	53							
265	19-Jun	8:37:03	#	RBT			upstream	53							
266	19-Jun	9:28:02	#	RBT			upstream	53							
267	19-Jun	9:30:33	#	RBT			upstream	53							
268	19-Jun	9:31:04	#	RBT			upstream	53							
269	19-Jun	9:58:42	#	RBT			upstream	53							
270	19-Jun	10:27:07	#	RBT			upstream	53							
	19-Jun	11:04:47	#	RBT			?	53							
271	19-Jun	11:20:16	#	RBT			upstream	53							
272	19-Jun	12:09:41	#	RBT			upstream	53							
273	19-Jun	12:15:06	#	RBT			upstream	53							
274	19-Jun	13:12:09	#	RBT			upstream	51							
275	19-Jun	13:16:02	#	RBT			upstream	51							
276	19-Jun	13:27:09	#	RBT			upstream	51							
277	19-Jun	14:13:13	#	RBT			upstream	51							
278	19-Jun	14:41:38	#	RBT			upstream	51							
279	19-Jun	16:17:04	#	RBT			upstream	49							
14	19-Jun	17:19:28	#	Bull Trout	10 to 14		upstream	48		good picture					
18	19-Jun	17:34:49	#	sucker	8 to 12		upstream	43							
	19-Jun	18:35:46	#	sucker			neutral	46							
280	19-Jun	19:31:37	#	RBT			upstream	46							
53	19-Jun	20:43:52	#	CH			upstream	46							
54	20-Jun	4:55:10	#	CH			upstream	46		Radio tagged # 26. Tagged May 21 at YH weir. Large notch missing from lower part of tail. Above Kooskooski on 7/30.					
55	20-Jun	6:11:16	#	CH			upstream	46							
281	20-Jun	6:58:30	#	RBT			upstream	46							
282	20-Jun	7:40:30	#	RBT			upstream	46							
283	20-Jun	9:10:02	#	RBT			upstream	44							
284	20-Jun	9:52:05	#	RBT			upstream	44							
285	20-Jun	10:24:56	#	RBT			upstream	46							
286	20-Jun	11:42:32	#	RBT			upstream	46							
287	20-Jun	11:50:50	#	RBT			upstream	46							
288	20-Jun	11:58:24	#	RBT			upstream	46							
289	20-Jun	13:17:06	#	RBT			upstream	46							
56	20-Jun	13:59:27	#	CH			upstream	44							
290	20-Jun	14:03:09	#	RBT			upstream	44							
15	20-Jun	14:52:09	#	Bull Trout	10 to 14		upstream	44		good picture					
19	20-Jun	16:19:07	#	sucker	10 to 14		upstream	43							
	20-Jun	18:06:34	#	RBT			?	41							
57	20-Jun	18:50:42	#	CH	24 to 28	No	upstream	41							
20	20-Jun	19:07:17	#	sucker	8 to 12		upstream	41							
	21-Jun	4:45:45	#	trout	8 to 12		upstream	29							
291	21-Jun	5:31:26	#	RBT	6 to 10		upstream	29							
292	21-Jun	5:43:55	#	RBT	6 to 10		upstream	29							
293	21-Jun	5:52:51	#	RBT			upstream	29							
294	21-Jun	6:16:57	#	RBT			upstream	31							
295	21-Jun	6:19:50	#	RBT			upstream	31							
	21-Jun	6:23:37	#	RBT			?	31							
296	21-Jun	6:31:54	#	RBT			upstream	31							
297	21-Jun	6:36:52	#	RBT			upstream	31							
	21-Jun	7:06:19	#	trout			upstream	32							
298	21-Jun	8:07:22	#	RBT			upstream	28							
299	21-Jun	8:25:55	#	RBT			upstream	28							
300	21-Jun	8:35:35	#	RBT			upstream	28							
58	21-Jun	8:49:58	#	CH	28 to 34	No	upstream	29							
21	21-Jun	11:08:46	#	sucker	6 to 10		upstream	29							
22	21-Jun	11:23:02	#	sucker	6 to 10		upstream	29							
301	21-Jun	11:36:56	#	RBT	8 to 12		upstream	29							
59	21-Jun	11:50:24	#	CH	28 to 32	No	upstream	29							
302	21-Jun	11:51:08	#	RBT			upstream	29							
303	21-Jun	12:05:08	#	RBT			upstream	29							
23	21-Jun	12:08:59	#	sucker	6 to 10		upstream	29							
304	21-Jun	12:19:44	#	RBT			upstream	29							
24	21-Jun	12:29:24	#	sucker	6 to 10		upstream	29							
	21-Jun	13:13:27	#	RBT			neutral	29							
305	21-Jun	13:35:27	#	RBT			upstream	29							

25	21-Jun	13:50:12	#	sucker	6 to 10			upstream	29							
306	21-Jun	13:54:09	#	RBT				upstream	29							
	21-Jun	14:42:30	#	RBT				neutral	29							
	21-Jun	14:46:20	#	RBT				neutral	29		seen a few times					
26	21-Jun	15:49:32	#	sucker	10 to 14			upstream	37							
	21-Jun	16:35:38	#	?				upstream	34							
16	21-Jun	17:01:16	#	Bull Trout				upstream	34							
	21-Jun	17:27:35	#	?				upstream	32							
27	21-Jun	18:13:17	#	sucker	8 to 12			upstream	32							
60	21-Jun	18:41:17	#	CH	28 to 34		No	upstream	32		large tadpole seen going downstream @ 19:23:40					
28	21-Jun	19:24:07	#	sucker	6 to 10			upstream	31							
29	21-Jun	20:06:15	#	sucker	6 to 10			upstream	31							
307	21-Jun	20:16:25	#	RBT				upstream	31							
61	21-Jun	20:27:28	#	CH	26 to 30		No	upstream	27		white patch on head.					
62	21-Jun	20:45:12	#	CH	28 to 32		No	upstream	27							
	21-Jun	20:54:11	#	?				?	27							
308	22-Jun	5:11:26	#	RBT				upstream	29							
309	22-Jun	5:34:43	#	RBT				upstream	29							
310	22-Jun	5:45:21	#	RBT				upstream	29							
311	22-Jun	6:04:39	#	RBT				upstream	31							
30	22-Jun	6:07:04	#	sucker	8 to 12			upstream	31							
312	22-Jun	6:15:43	#	RBT				upstream	31		seen again @ 6:16:17 or a similar fish.					
313	22-Jun	6:31:42	#	RBT				upstream	31							
314	22-Jun	6:56:29	#	RBT				upstream	32							
315	22-Jun	8:58:36	#	RBT				upstream	29							
316	22-Jun	9:23:26	#	RBT				upstream	29							
317	22-Jun	9:33:43	#	RBT				upstream	29							
318	22-Jun	10:10:44	#	RBT				upstream	29							
319	22-Jun	10:40:01	#	RBT				upstream	29							
320	22-Jun	11:05:27	#	RBT				upstream	29							
321	22-Jun	11:09:28	#	RBT				upstream	29							
31	22-Jun	11:57:42	#	sucker	6 to 10			upstream	29							
	22-Jun	12:35:46	#	?				?	29							
322	22-Jun	12:37:36	#	RBT				upstream	29							
323	22-Jun	13:08:41	#	RBT				upstream	29							
324	22-Jun	13:16:20	#	RBT				upstream	29							
325	22-Jun	13:59:41	#	RBT				upstream	29							
326	22-Jun	14:12:24	#	RBT				upstream	29							
32	22-Jun	14:24:01	#	sucker	6 to 10			upstream	29							
327	22-Jun	14:52:50	#	RBT				upstream	29							
328	22-Jun	14:54:07	#	RBT				upstream	29							
329	22-Jun	15:42:19	#	RBT				upstream	37							
330	22-Jun	16:27:05	#	RBT				upstream	34							
331	22-Jun	16:33:17	#	RBT				upstream	34							
332	22-Jun	16:45:34	#	RBT				upstream	34							
33	22-Jun	16:50:22	#	sucker	8 to 12			upstream	34							
333	22-Jun	17:19:22	#	RBT				upstream	32							
334	22-Jun	17:58:18	#	RBT				upstream	32							
335	23-Jun	4:55:42	#	RBT				upstream	27							
	23-Jun	4:56:33	#	trout				upstream	27							
336	23-Jun	5:12:24	#	RBT				upstream	27							
337	23-Jun	5:16:22	#	RBT				upstream	27							
338	23-Jun	5:32:19	#	RBT				upstream	27							
339	23-Jun	6:12:30	#	RBT				upstream	27							
340	23-Jun	6:27:44	#	RBT				upstream	27							
	23-Jun	6:50:41	#	?				upstream	27							
341	23-Jun	6:53:32	#	RBT				upstream	27							
342	23-Jun	6:59:47	#	RBT				upstream	27							
343	23-Jun	7:20:25	#	RBT				upstream	27							
344	23-Jun	7:46:05	#	RBT				upstream	27							
345	23-Jun	8:48:57	#	RBT				upstream	24							
346	23-Jun	9:05:18	#	RBT				upstream	25							
347	23-Jun	9:21:31	#	RBT				upstream	25							
348	23-Jun	10:26:30	#	RBT				upstream	27							
63	23-Jun	10:53:02	#	CH			No	upstream	27		Fungus on side. Seen again @ 11:08:46, 11:31:39 (and a few more glimpses at times).					
349	23-Jun	10:58:05	#	RBT				upstream	27							
	23-Jun	13:13:57	#	RBT				?	27							
350	23-Jun	13:46:21	#	RBT				upstream	27							
351	23-Jun	13:51:56	#	RBT				upstream	27							
352	23-Jun	14:01:39	#	RBT				upstream	27							
353	23-Jun	14:29:22	#	RBT				upstream	27							
354	23-Jun	14:45:01	#	RBT				upstream	27							
1	23-Jun	14:46:26	#	shiner				upstream	27							
	23-Jun	14:51:06	#	shiner				neutral	27							
355	23-Jun	15:26:13	#	RBT				upstream	25							
17	23-Jun	17:12:34	#	Bull Trout	8 to 12			upstream	24							
	23-Jun	17:45:46	#	trout				upstream	24							
	23-Jun	17:49:39	#	RBT				?	24							
	23-Jun	17:54:23	#	?				upstream	24							
	23-Jun	18:49:05	#	trout				upstream	24							
356	23-Jun	18:53:55	#	RBT				upstream	21							
357	23-Jun	19:11:28	#	RBT				upstream	21							
358	23-Jun	19:34:38	#	RBT				upstream	21							
359	23-Jun	20:11:56	#	RBT				upstream	21							
360	23-Jun	20:22:13	#	RBT				upstream	21							
361	23-Jun	20:59:01	#	RBT				upstream	21		Chinook Radio-tag # 55 passes 23:31, not seen on video (after dark).					
34	24-Jun	4:49:09	#	sucker	8 to 12			upstream	21							
35	24-Jun	4:57:12	#	sucker	10 to 14			upstream	21							
362	24-Jun	5:06:53	#	RBT				upstream	21							

363	24-Jun	5:19:51	#	RBT			upstream	21							
364	24-Jun	5:35:37	#	RBT			upstream	21							
365	24-Jun	6:00:52	#	RBT			upstream	21							
366	24-Jun	6:01:41	#	RBT			upstream	21							
367	24-Jun	6:19:53	#	RBT			upstream	21							
	24-Jun	6:23:53	#	RBT			?	21							
	24-Jun	6:33:49	#	trout			upstream	21							
368	24-Jun	6:38:16	#	RBT			upstream	21							
369	24-Jun	6:41:35	#	RBT			upstream	21							
370	24-Jun	6:52:03	#	RBT			upstream	21							
371	24-Jun	8:14:54	#	RBT			upstream	24							
372	24-Jun	9:02:53	#	RBT			upstream	24							
373	24-Jun	9:34:35	#	RBT			upstream	24							
374	24-Jun	9:55:22	#	RBT			upstream	24							
375	24-Jun	11:47:43	#	RBT			upstream	24							
376	24-Jun	11:51:58	#	RBT			upstream	24							
	24-Jun	12:47:10	#	RBT			?	24							
	24-Jun	13:30:49	#	trout			upstream	24							
377	24-Jun	13:45:48	#	RBT			upstream	24							
378	24-Jun	14:04:22	#	RBT			upstream	24							
64	24-Jun	15:30:44	#	CH	24 to 28	No	upstream	24		seen again 15:44:44, 15:57:00, 15:59:49					
	24-Jun	16:09:58	#	CH		No	?	21		same fish?					
36	24-Jun	17:03:16	#	sucker	6 to 10		upstream	21							
2	24-Jun	17:24:45	#	shiner			upstream	21							
	24-Jun	17:50:34	#	shiner			?	21							
	24-Jun	18:08:10	#	shiner			?	27							
379	24-Jun	18:14:12	#	RBT			upstream	27							
380	24-Jun	18:21:25	#	RBT			upstream	27							
37	24-Jun	19:12:03	#	sucker	10 to 14		upstream	24							
65	24-Jun	19:37:43	#	CH		No	upstream	21							
381	24-Jun	20:16:00	#	RBT			upstream	21							
66	24-Jun	20:22:13	#	CH	24 to 30	No	upstream	21							
382	25-Jun	4:56:14	#	RBT			upstream	18							
383	25-Jun	5:00:44	#	RBT			upstream	18							
	25-Jun	5:22:32	#	trout			upstream	18							
384	25-Jun	5:38:02	#	RBT			upstream	18							
	25-Jun	5:49:42	#	trout			upstream	18							
385	25-Jun	5:51:15	#	RBT			upstream	18							
386	25-Jun	5:59:42	#	RBT			upstream	18							
387	25-Jun	6:01:23	#	RBT			upstream	18							
388	25-Jun	6:06:11	#	RBT			upstream	18							
389	25-Jun	6:15:17	#	RBT			upstream	18							
390	25-Jun	6:42:31	#	RBT			upstream	18							
391	25-Jun	6:42:32	#	RBT			upstream	18							
392	25-Jun	6:42:35	#	RBT			upstream	18							
393	25-Jun	6:52:03	#	RBT			upstream	18							
	25-Jun	6:56:00	#	RBT			?	18							
394	25-Jun	6:59:48	#	RBT			upstream	18							
395	25-Jun	7:30:28	#	RBT			upstream	18							
396	25-Jun	7:40:49	#	RBT			upstream	18							
397	25-Jun	7:42:59	#	RBT			upstream	18							
38	25-Jun	7:56:38	#	sucker	10 to 14		upstream	18							
	25-Jun	8:04:08	#	RBT			?	18							
398	25-Jun	8:24:08	#	RBT			upstream	18							
399	25-Jun	8:25:56	#	RBT			upstream	18							
400	25-Jun	8:32:00	#	RBT			upstream	18							
401	25-Jun	9:21:16	#	RBT			upstream	19							
402	25-Jun	10:02:56	#	RBT			upstream	19							
	25-Jun	10:06:44	#	trout			upstream	19							
403	25-Jun	10:22:30	#	RBT			upstream	19							
404	25-Jun	10:29:11	#	RBT			upstream	19							
405	25-Jun	10:35:11	#	RBT			upstream	19							
406	25-Jun	10:44:19	#	RBT			upstream	19							
407	25-Jun	11:02:38	#	RBT			upstream	19							
408	25-Jun	11:09:41	#	RBT			upstream	19							
	25-Jun	11:38:06	#	RBT			?	19							
409	25-Jun	11:38:42	#	RBT			upstream	19							
410	25-Jun	11:48:34	#	RBT			upstream	19							
411	25-Jun	11:50:37	#	RBT			upstream	19							
412	25-Jun	12:03:57	#	RBT			upstream	19							
	25-Jun	12:04:46	#	RBT			?	19							
	25-Jun	12:31:15	#	RBT			?	19							
413	25-Jun	12:55:34	#	RBT			upstream	19							
39	25-Jun	13:03:36	#	sucker	8 to 12		upstream	19							
413	25-Jun	13:21:22	#	RBT			upstream	19							
	25-Jun	13:26:29	#	RBT			?	19							
414	25-Jun	13:28:22	#	RBT			upstream	19							
	25-Jun	13:35:16	#	trout			upstream	19							
415	25-Jun	14:07:53	#	RBT			upstream	19							
40	25-Jun	15:17:02	#	sucker	6 to 10		upstream	19							
41	25-Jun	15:17:03	#	sucker	8 to 12		upstream	19							
42	25-Jun	15:27:52	#	sucker	8 to 12		upstream	18							
	25-Jun	15:42:13	#	RBT			?	18							
416	25-Jun	15:47:10	#	RBT			upstream	18							
417	25-Jun	15:48:40	#	RBT			upstream	18							
418	25-Jun	15:51:40	#	RBT			upstream	18							
419	25-Jun	16:36:03	#	RBT			upstream	18							
	25-Jun	16:42:20	#	?			upstream	18							
43	25-Jun	18:09:08	#	sucker	6 to 10		upstream	16		Deployed temperature logger in ladder.					

44	25-Jun	18:26:22	#	sucker			upstream	14							
45	25-Jun	19:03:31	#	sucker	5 to 8		upstream	14							
420	25-Jun	20:10:29	#	RBT			upstream	14							
	25-Jun	20:42:09	#	RBT			?	15							
421	26-Jun	5:07:47	#	RBT			upstream	15	16.38	Hobo temperature logger installed in ladder.					
422	26-Jun	5:32:24	#	RBT			upstream	15	16.38						
423	26-Jun	5:47:18	#	RBT			upstream	15	16.22						
424	26-Jun	6:04:30	#	RBT			upstream	15	16.22						
425	26-Jun	6:07:02	#	RBT			upstream	15	16.22						
	26-Jun	6:12:32	#	RBT			?	15	16.07						
426	26-Jun	6:18:23	#	RBT			upstream	15	16.07						
427	26-Jun	7:50:49	#	RBT			upstream	15	16.07						
428	26-Jun	7:59:34	#	RBT			upstream	15	15.91						
429	26-Jun	8:26:35	#	RBT			upstream	15	15.91						
	26-Jun	8:33:42	#	RBT			?	15	15.91						
430	26-Jun	8:40:51	#	RBT			upstream	15	16.07						
431	26-Jun	8:53:19	#	RBT			upstream	15	16.07						
	26-Jun	9:09:00	#	RBT			?	15	16.22						
432	26-Jun	9:26:39	#	RBT			upstream	15	16.22	(nice picture)					
	26-Jun	9:32:11	#	RBT			?	15	16.22						
433	26-Jun	9:46:47	#	RBT			upstream	15	16.54						
434	26-Jun	9:48:56	#	RBT			upstream	15	16.54						
435	26-Jun	9:57:29	#	RBT			upstream	15	16.54						
436	26-Jun	10:48:36	#	RBT			upstream	15	17.34						
437	26-Jun	11:04:58	#	RBT			upstream	15	17.82						
438	26-Jun	11:10:00	#	RBT			upstream	15	17.82						
439	26-Jun	11:20:52	#	RBT			upstream	15	17.82						
440	26-Jun	11:28:02	#	RBT			upstream	15	17.82						
441	26-Jun	11:33:55	#	RBT			upstream	15	17.82						
442	26-Jun	11:46:03	#	RBT			upstream	15	18.31						
443	26-Jun	11:49:14	#	RBT			upstream	15	18.31						
444	26-Jun	11:51:22	#	RBT			upstream	15	18.31						
445	26-Jun	11:51:30	#	RBT			upstream	15	18.31						
46	26-Jun	11:56:46	#	sucker	6 to 10		upstream	15	18.31						
446	26-Jun	11:59:55	#	RBT			upstream	15	18.31						
447	26-Jun	12:00:25	#	RBT			upstream	15	18.31						
448	26-Jun	12:09:24	#	RBT			upstream	15	18.79						
449	26-Jun	12:13:48	#	RBT			upstream	15	18.79						
450	26-Jun	12:15:38	#	RBT			upstream	15	18.79						
451	26-Jun	12:16:57	#	RBT			upstream	15	18.79						
452	26-Jun	12:20:38	#	RBT			upstream	15	18.79						
47	26-Jun	12:29:52	#	sucker	6 to 10		upstream	15	18.79						
48	26-Jun	12:31:29	#	sucker	6 to 10		upstream	15	18.79						
453	26-Jun	13:57:46	#	RBT			upstream	15	20.24						
454	26-Jun	13:59:09	#	RBT			upstream	15	20.24						
	26-Jun	14:10:58	#	?			upstream	15	20.57						
	26-Jun	14:12:10	#	RBT			?	15	20.57						
455	26-Jun	14:15:46	#	RBT			upstream	15	20.57						
456	26-Jun	14:17:12	#	RBT			upstream	15	20.57						
457	26-Jun	14:20:15	#	RBT			upstream	15	20.57						
458	26-Jun	14:28:02	#	RBT			upstream	15	20.57						
459	26-Jun	14:30:16	#	RBT			upstream	15	20.57						
460	26-Jun	14:36:44	#	RBT			upstream	15	20.89						
461	26-Jun	14:48:04	#	RBT			upstream	15	20.89						
462	26-Jun	14:55:08	#	RBT			upstream	15	20.89						
49	26-Jun	15:18:23	#	sucker	8 to 12		upstream	15	21.23	has a stripe, good picture.					
463	26-Jun	15:23:24	#	RBT			upstream	15	21.23	two adult chinook observed in the pool below the dam.					
	26-Jun	16:42:20	#	?			upstream	15	21.73						
18	26-Jun	16:49:04	#	Bull Trout	8 to 12		upstream	15	21.73						
	26-Jun	17:30:13	#	trout			upstream	15	21.73						
464	26-Jun	18:11:52	#	RBT			upstream	15	21.39						
465	26-Jun	18:45:08	#	RBT			upstream	15	21.23						
50	26-Jun	19:03:27	#	sucker	8 to 12		upstream	15	21.23						
51	26-Jun	19:12:23	#	sucker	6 to 10		upstream	15	21.06						
	26-Jun	19:14:38	#	?			?	15	21.06						
52	26-Jun	19:21:29	#	sucker	6 to 10		upstream	15	21.06						
466	26-Jun	19:22:20	#	RBT			upstream	15	21.06						
467	26-Jun	19:33:21	#	RBT			upstream	15	21.06						
468	26-Jun	19:40:07	#	RBT			upstream	15	20.73						
53	26-Jun	19:50:35	#	sucker	5 to 8		upstream	15	20.73						
469	26-Jun	19:53:39	#	RBT			upstream	15	20.73						
	26-Jun	19:53:42	#	trout			upstream	15	20.73						
470	26-Jun	20:06:54	#	RBT			upstream	15	20.4						
	26-Jun	20:12:12	#	?			upstream	15	20.4						
471	26-Jun	20:12:15	#	RBT			upstream	15	20.4						
472	26-Jun	20:33:17	#	RBT			upstream	15	20.4						
473	26-Jun	20:53:58	#	RBT			upstream	15	20.08	Chinook Radio-tag # 51 passes @ 22:42, not seen on video (after dark)					
474	27-Jun	5:05:40	#	RBT			upstream	14	16.07						
	27-Jun	5:07:38	#	trout			upstream	14	16.07						
475	27-Jun	5:12:17	#	RBT			upstream	14	16.07						
	27-Jun	5:15:07	#	trout			upstream	14	16.07						
476	27-Jun	5:24:03	#	RBT			upstream	14	16.07						
477	27-Jun	5:35:25	#	RBT			upstream	14	16.07						
478	27-Jun	5:43:56	#	RBT			upstream	14	15.91						
479	27-Jun	5:46:44	#	RBT			upstream	14	15.91						
480	27-Jun	5:46:54	#	RBT			upstream	14	15.91						
481	27-Jun	6:38:37	#	RBT			upstream	14	15.75						
482	27-Jun	6:47:37	#	RBT			upstream	14	15.75						
483	27-Jun	7:01:00	#	RBT			upstream	14	15.75						

484	27-Jun	7:21:01	#	RBT			upstream	14	15.59						
485	27-Jun	7:28:14	#	RBT			upstream	14	15.59						
486	27-Jun	7:48:34	#	RBT			upstream	14	15.59						
487	27-Jun	8:05:38	#	RBT			upstream	14	15.59						
54	27-Jun	8:26:17	#	sucker	5 to 8		upstream	15	15.75						
	27-Jun	8:38:08	#	RBT			upstream	15	15.91						
488	27-Jun	8:38:08	#	RBT			upstream	15	15.91	this is not a duplicate					
489	27-Jun	8:51:45	#	RBT			upstream	15	15.91						
490	27-Jun	8:51:46	#	RBT			upstream	15	15.91						
491	27-Jun	9:12:17	#	RBT			upstream	15	16.07						
492	27-Jun	9:20:28	#	RBT			upstream	15	16.07						
493	27-Jun	9:38:35	#	RBT			upstream	15	16.38						
494	27-Jun	9:40:20	#	RBT			upstream	15	16.38						
495	27-Jun	9:48:32	#	RBT			upstream	15	16.38						
496	27-Jun	9:48:51	#	RBT			upstream	15	16.38						
497	27-Jun	9:48:57	#	RBT			upstream	15	16.38						
498	27-Jun	9:53:49	#	RBT			upstream	15	16.38						
499	27-Jun	9:54:19	#	RBT			upstream	15	16.38						
500	27-Jun	9:57:16	#	RBT			upstream	15	16.38						
501	27-Jun	10:01:51	#	RBT			upstream	15	16.38						
502	27-Jun	10:06:59	#	RBT			upstream	15	16.7						
503	27-Jun	10:14:48	#	RBT			upstream	15	16.7						
504	27-Jun	10:17:15	#	RBT			upstream	15	16.7						
505	27-Jun	10:27:09	#	RBT			upstream	15	16.7						
55	27-Jun	10:30:54	#	sucker	5 to 8		upstream	15	16.7						
506	27-Jun	10:34:41	#	RBT			upstream	15	17.18						
507	27-Jun	10:39:19	#	RBT			upstream	15	17.18						
508	27-Jun	10:47:45	#	RBT			upstream	15	17.18						
509	27-Jun	10:54:23	#	RBT			upstream	15	17.18						
510	27-Jun	10:56:25	#	RBT			upstream	15	17.18						
511	27-Jun	11:00:24	#	RBT			upstream	15	17.18						
512	27-Jun	11:01:52	#	RBT			upstream	15	17.18						
513	27-Jun	11:04:46	#	RBT			upstream	15	17.5						
514	27-Jun	11:04:49	#	RBT			upstream	15	17.5						
515	27-Jun	11:16:08	#	RBT			upstream	15	17.5						
516	27-Jun	11:16:34	#	RBT			upstream	15	17.5						
	27-Jun	11:23:36	#	?			upstream	15	17.5						
56	27-Jun	11:27:06	#	sucker	5 to 8		upstream	15	17.5						
517	27-Jun	11:27:30	#	RBT			upstream	15	17.5						
518	27-Jun	11:28:16	#	RBT			upstream	15	17.5						
519	27-Jun	11:29:24	#	RBT			upstream	15	17.5						
520	27-Jun	11:30:36	#	RBT			upstream	15	17.5						
521	27-Jun	11:40:10	#	RBT			upstream	15	17.98						
522	27-Jun	11:54:57	#	RBT			upstream	15	17.98						
523	27-Jun	11:55:00	#	RBT			upstream	15	17.98						
524	27-Jun	11:55:06	#	RBT			upstream	15	17.98						
525	27-Jun	12:20:20	#	RBT			upstream	15	18.47						
526	27-Jun	12:21:31	#	RBT			upstream	15	18.47						
527	27-Jun	12:29:36	#	RBT			upstream	15	18.47						
528	27-Jun	12:33:21	#	RBT			upstream	15	18.47						
529	27-Jun	13:32:31	#	RBT			upstream	15	19.43						
530	27-Jun	13:41:52	#	RBT			upstream	15	19.92						
531	27-Jun	13:53:13	#	RBT			upstream	15	19.92						
532	27-Jun	13:53:30	#	RBT			upstream	15	19.92						
533	27-Jun	14:24:55	#	RBT			upstream	15	20.24						
57	27-Jun	14:25:03	#	sucker	6 to 10		upstream	15	20.24						
534	27-Jun	14:26:11	#	RBT			upstream	15	20.24						
535	27-Jun	14:57:21	#	RBT			upstream	15	20.73						
58	27-Jun	15:26:03	#	sucker	6 to 10		upstream	15	21.06						
536	27-Jun	15:26:08	#	RBT			upstream	15	21.06						
537	27-Jun	15:50:05	#	RBT			upstream	15	21.23						
538	27-Jun	15:58:09	#	RBT			upstream	15	21.23						
539	27-Jun	16:03:08	#	RBT			upstream	15	21.23						
540	27-Jun	16:03:39	#	RBT			upstream	15	21.23						
59	27-Jun	16:08:50	#	sucker	6 to 10		upstream	15	21.39						
60	27-Jun	16:19:53	#	sucker	8 to 12		upstream	15	21.39						
541	27-Jun	16:24:46	#	RBT			upstream	15	21.39						
542	27-Jun	17:08:35	#	RBT			upstream	15	21.56						
543	27-Jun	17:09:49	#	RBT			upstream	15	21.56						
544	27-Jun	17:19:32	#	RBT			upstream	15	21.56						
545	27-Jun	17:19:37	#	RBT			upstream	15	21.56						
61	27-Jun	17:23:10	#	sucker	8 to 12		upstream	15	21.56						
546	27-Jun	17:45:47	#	RBT			upstream	15	21.56						
547	27-Jun	17:47:32	#	RBT			upstream	15	21.56						
62	27-Jun	18:22:39	#	sucker	8 to 12		upstream	15	21.39						
548	27-Jun	18:41:52	#	RBT			upstream	15	21.23						
549	27-Jun	19:02:32	#	RBT			upstream	15	20.89						
	27-Jun	19:05:00	#	?			?	15	20.89						
550	27-Jun	19:41:11	#	RBT			upstream	15	20.57						
551	27-Jun	19:57:02	#	RBT			upstream	15	20.57						
552	27-Jun	20:00:56	#	RBT			upstream	15	20.57						
553	27-Jun	20:19:44	#	RBT			upstream	15	20.4						
63	27-Jun	20:24:32	#	sucker	6 to 10		upstream	15	20.4						
	27-Jun	20:29:29	#	?			?	15	20.4						
	27-Jun	20:52:17	#	?			upstream	15	20.08						
554	28-Jun	5:04:04	#	RBT			upstream	15	16.54						
555	28-Jun	5:06:49	#	RBT			upstream	15	16.54						
556	28-Jun	5:30:28	#	RBT			upstream	15	16.38						
557	28-Jun	5:49:40	#	RBT			upstream	15	16.38						

558	28-Jun	5:58:14	#	RBT			upstream	15	16.38						
559	28-Jun	6:03:26	#	RBT			upstream	15	16.22						
560	28-Jun	6:21:04	#	RBT			upstream	15	16.22						
561	28-Jun	7:11:11	#	RBT			upstream	15	16.22						
562	28-Jun	7:26:56	#	RBT			upstream	15	16.22						
563	28-Jun	7:32:20	#	RBT			upstream	15	16.22						
64	28-Jun	7:47:20	#	sucker	10 to 14		upstream	15	16.22						
564	28-Jun	8:17:44	#	RBT			upstream	15	16.22						
65	28-Jun	8:23:41	#	sucker	6 to 10		upstream	15	16.22						
565	28-Jun	8:41:22	#	RBT			upstream	15	16.38						
66	28-Jun	9:00:05	#	sucker	6 to 10		upstream	15	16.38						
	28-Jun	9:21:40	#	?			upstream	15	16.54						
566	28-Jun	9:29:37	#	RBT			upstream	15	16.54						
67	28-Jun	10:30:14	#	sucker	6 to 10		upstream	15	17.34						
567	28-Jun	10:57:59	#	RBT			upstream	15	17.66						
568	28-Jun	11:22:25	#	RBT			upstream	15	18.14						
569	28-Jun	11:22:26	#	RBT			upstream	15	18.14						
570	28-Jun	11:30:29	#	RBT			upstream	15	18.14						
571	28-Jun	11:47:25	#	RBT			upstream	15	18.63						
68	28-Jun	11:48:47	#	sucker	6 to 10		upstream	15	18.63						
69	28-Jun	11:53:22	#	sucker	6 to 10		upstream	15	18.63						
70	28-Jun	12:20:10	#	sucker	6 to 10		upstream	15	19.11						
572	28-Jun	12:37:11	#	RBT			upstream	15	19.59						
573	28-Jun	12:51:30	#	RBT			upstream	15	19.59						
574	28-Jun	12:58:02	#	RBT			upstream	15	19.59						
575	28-Jun	13:02:38	#	RBT			upstream	15	20.08						
71	28-Jun	13:11:35	#	sucker	6 to 10		upstream	15	20.08						
	28-Jun	13:12:58	#	?			upstream	15	20.08						
576	28-Jun	13:21:38	#	RBT			upstream	15	20.08						
577	28-Jun	13:36:31	#	RBT			upstream	15	20.4						
578	28-Jun	13:37:16	#	RBT			upstream	15	20.4						
579	28-Jun	13:44:52	#	RBT			upstream	15	20.4						
580	28-Jun	13:47:21	#	RBT			upstream	15	20.4						
581	28-Jun	13:54:09	#	RBT			upstream	15	20.4						
	28-Jun	14:21:45	#	RBT			?	15	20.89						
582	28-Jun	14:48:47	#	RBT			upstream	15	21.39						
583	28-Jun	16:30:25	#	RBT			upstream	15	22.06						
	28-Jun	16:43:11	#	?			upstream	15	21.89						
584	28-Jun	16:54:37	#	RBT			upstream	15	21.89						
585	28-Jun	17:38:42	#	RBT			upstream	15	21.56						
586	28-Jun	18:34:29	#	RBT			upstream	15	21.06						
587	28-Jun	18:36:14	#	RBT			upstream	15	21.06						
	28-Jun	19:28:53	#	trout			upstream	14	20.89						
588	28-Jun	19:37:09	#	RBT			upstream	14	20.57						
72	28-Jun	20:02:35	#	sucker	6 to 10		upstream	14	20.57						
589	28-Jun	20:04:58	#	RBT			upstream	14	20.57						
590	28-Jun	20:33:31	#	RBT			upstream	14	20.4						
591	28-Jun	20:50:00	#	RBT			upstream	14	20.08						
	29-Jun	4:52:24	#	CH			neutral	14	16.86						
592	29-Jun	5:03:56	#	RBT			upstream	14	16.86						
593	29-Jun	5:12:24	#	RBT			upstream	14	16.7						
	29-Jun	5:18:26	#	CH			neutral	14	16.7						
	29-Jun	5:42:22	#	trout			upstream	14	16.54						
594	29-Jun	6:06:46	#	RBT			upstream	14	16.54						
595	29-Jun	6:12:27	#	RBT			upstream	14	16.54						
596	29-Jun	6:12:28	#	RBT			upstream	14	16.54						
597	29-Jun	6:24:11	#	RBT			upstream	14	16.54						
598	29-Jun	6:32:35	#	RBT			upstream	14	16.54						
599	29-Jun	6:56:52	#	RBT			upstream	14	16.38						
600	29-Jun	7:04:26	#	RBT			upstream	14	16.38						
601	29-Jun	7:10:23	#	RBT			upstream	14	16.38						
73	29-Jun	8:15:30	#	sucker	6 to 10		upstream	14	16.54						
602	29-Jun	8:27:13	#	RBT			upstream	14	16.54						
603	29-Jun	8:28:20	#	RBT			upstream	14	16.54						
604	29-Jun	8:38:17	#	RBT			upstream	14	16.7						
605	29-Jun	8:38:51	#	RBT			upstream	14	16.7						
606	29-Jun	8:40:15	#	RBT			upstream	14	16.7						
	29-Jun	9:05:10	#	RBT			neutral	14	16.86						
607	29-Jun	9:10:30	#	RBT			upstream	14	16.86						
608	29-Jun	9:37:26	#	RBT			upstream	14	17.02						
609	29-Jun	9:40:00	#	RBT			upstream	14	17.02						
610	29-Jun	9:52:48	#	RBT			upstream	14	17.02						
611	29-Jun	10:15:22	#	RBT			upstream	14	17.02						
612	29-Jun	10:24:33	#	RBT			upstream	14	17.02						
74	29-Jun	10:25:37	#	sucker	8 to 12		upstream	14	17.02						
613	29-Jun	10:40:05	#	RBT			upstream	14	17.5						
614	29-Jun	10:48:01	#	RBT			upstream	14	17.5						
615	29-Jun	11:05:20	#	RBT			upstream	14	18.14						
616	29-Jun	11:42:24	#	RBT			upstream	14	18.79						
617	29-Jun	13:06:32	#	RBT			upstream	14	19.76						
75	29-Jun	13:10:59	#	sucker			upstream	14	19.76						
	29-Jun	13:19:12	#	RBT			?	15	19.76						
618	29-Jun	13:26:57	#	RBT			upstream	15	19.76						
619	29-Jun	13:43:03	#	RBT			upstream	16	20.08						
76	29-Jun	13:59:09	#	sucker	8 to 12		upstream	16	20.08						
	29-Jun	14:12:06	#	trout			upstream	16	20.57						
620	29-Jun	14:18:16	#	RBT			upstream	16	20.57						
	29-Jun	14:31:17	#	shiner			?	16	20.57						
	29-Jun	14:45:24	#	?			upstream	16	21.06						

621	29-Jun	14:50:15	#	RBT			upstream	16	21.06						
622	29-Jun	15:11:08	#	RBT			upstream	16	21.39						
77	29-Jun	15:20:51	#	sucker	6 to 10		upstream	16	21.39						
623	29-Jun	15:28:30	#	RBT			upstream	16	21.39						
624	29-Jun	15:33:22	#	RBT			upstream	16	21.39						
	29-Jun	15:42:51	#	RBT			?	16	21.73						
625	29-Jun	15:42:52	#	RBT			upstream	16	21.73						
626	29-Jun	15:49:23	#	RBT			upstream	16	21.73						
627	29-Jun	15:52:08	#	RBT			upstream	16	21.73						
	29-Jun	15:56:14	#	RBT			neutral	16	21.73						
628	29-Jun	15:58:10	#	RBT			upstream	16	21.73						
629	29-Jun	16:19:06	#	RBT	14 to 18		upstream	16	21.73	big fish					
630	29-Jun	17:13:55	#	RBT			upstream	16	21.89						
631	29-Jun	17:25:07	#	RBT			upstream	16	21.89						
632	29-Jun	17:30:19	#	RBT			upstream	16	21.89						
19	29-Jun	17:35:20	#	Bull Trout	8 to 14		upstream	16	21.89						
	29-Jun	17:39:56	#	RBT			?	16	21.89						
	29-Jun	17:42:17	#	RBT			neutral	15	21.73						
	29-Jun	17:48:14	#	RBT			?	15	21.73						
634	29-Jun	18:34:04	#	RBT			upstream	15	21.56						
635	29-Jun	18:38:17	#	RBT			upstream	15	21.56						
78	29-Jun	18:39:22	#	sucker	6 to 10		upstream	15	21.39						
	29-Jun	18:54:20	#	?			?	15	21.39						
	29-Jun	18:57:43	#	RBT			neutral	15	21.39						
636	29-Jun	19:05:53	#	RBT			upstream	15	21.23						
637	29-Jun	19:16:58	#	RBT			upstream	15	21.23						
79	29-Jun	19:17:14	#	sucker	6 to 10		upstream	15	21.23						
	29-Jun	19:47:01	#	?			upstream	15	21.06						
80	29-Jun	19:47:23	#	sucker	5 to 8		upstream	15	21.06						
638	29-Jun	19:50:44	#	RBT			upstream	15	21.06						
639	29-Jun	20:06:22	#	RBT			upstream	15	20.73						
	29-Jun	20:12:28	#	trout			upstream	15	20.73						
	29-Jun	20:15:11	#	?			?	15	20.73						
	29-Jun	20:49:59	#	sucker			neutral	15	20.73						
640	30-Jun	4:57:17	#	RBT			upstream	14	17.18						
641	30-Jun	5:15:20	#	RBT			upstream	13	17.18						
	30-Jun	5:22:19	#	RBT			?	13	17.18						
	30-Jun	5:25:38	#	?			upstream	13	17.18						
642	30-Jun	5:46:27	#	RBT			upstream	13	17.02						
643	30-Jun	6:01:44	#	RBT			upstream	13	17.02						
644	30-Jun	6:14:48	#	RBT			upstream	13	17.02						
	30-Jun	6:39:48	#	trout			upstream	13	16.86						
645	30-Jun	9:35:16	#	RBT			upstream	0.6	17.34	All flow diverted to YH. This is downstream from ladder. Flows ~25-35 cfs at ladder.					
646	30-Jun	9:45:34	#	RBT			upstream	32*	17.66	*Flow readings from Mill Creek Near Walla Walla (USGS 14013000)					
647	30-Jun	9:55:12	#	RBT			upstream	32*	17.66						
	30-Jun	10:15:21	#	RBT			?	32*	17.98						
648	30-Jun	11:00:48	#	RBT			upstream	32*	18.31						
	30-Jun	11:56:28	#	trout			upstream	32*	18.79						
649	30-Jun	12:57:24	#	RBT			upstream	32*	20.24						
81	30-Jun	12:58:04	#	sucker	5 to 8		upstream	32*	20.24						
	30-Jun	13:20:23	#	?			upstream	32*	20.73						
650	30-Jun	14:23:47	#	RBT			upstream	31*	21.56						
651	30-Jun	14:37:41	#	RBT			upstream	31*	22.06						
652	30-Jun	14:40:01	#	RBT			upstream	31*	22.06						
3	30-Jun	14:48:19	#	shiner			upstream	31*	22.06						
653	30-Jun	14:49:02	#	RBT			upstream	31*	22.06						
654	30-Jun	14:58:28	#	RBT			upstream	31*	22.06						
	30-Jun	15:18:02	#	RBT			?	31*	22.23						
655	30-Jun	15:19:21	#	RBT			upstream	31*	22.23						
656	30-Jun	15:19:42	#	RBT			upstream	31*	22.23						
657	30-Jun	15:20:21	#	RBT			upstream	31*	22.23						
	30-Jun	15:24:18	#	RBT			?	31*	22.23	more than one fish					
82	30-Jun	15:28:18	#	sucker	8 to 12		upstream	31*	22.23						
658	30-Jun	15:31:07	#	RBT			upstream	31*	22.23						
659	30-Jun	15:32:27	#	RBT			upstream	31*	22.23						
660	30-Jun	15:35:41	#	RBT			upstream	31*	22.56						
	30-Jun	15:57:29	#	RBT			?	31*	22.56						
661	30-Jun	16:00:48	#	RBT			upstream	31*	22.56						
662	30-Jun	16:07:46	#	RBT			upstream	31*	22.56						
663	30-Jun	16:08:05	#	RBT			upstream	31*	22.56						
664	30-Jun	16:19:33	#	RBT			upstream	31*	22.56						
665	30-Jun	16:22:07	#	RBT			upstream	31*	22.56						
83	30-Jun	16:52:31	#	sucker	8 to 12		upstream	31*	22.73						
666	30-Jun	17:31:03	#	RBT			upstream	30*	22.56						
667	30-Jun	18:37:19	#	RBT			upstream	30*	22.39						
20	30-Jun	18:52:00	#	Bull Trout	10 to 14		upstream	30*	22.23						
668	30-Jun	18:58:43	#	RBT			upstream	30*	22.23						
669	30-Jun	19:48:01	#	RBT			upstream	30*	21.73						
	30-Jun	19:51:30	#	shiner			?	30*	21.73						
670	30-Jun	20:42:12	#	RBT			upstream	30*	21.23						
	1-Jul	5:09:36	#	?			upstream	32*	17.5						
671	1-Jul	5:42:55	#	RBT			upstream	32*	17.5						
672	1-Jul	9:15:37	#	RBT			upstream	32*	17.66						
673	1-Jul	9:51:36	#	RBT			upstream	32*	17.98						
674	1-Jul	10:44:00	#	RBT			upstream	32*	18.63						
675	1-Jul	11:00:00	#	RBT			upstream	32*	18.63						
676	1-Jul	11:21:12	#	RBT			upstream	31*	19.11						
677	1-Jul	11:29:50	#	RBT			upstream	31*	19.11						
84	1-Jul	11:32:24	#	sucker	6 to 10		upstream	31*	19.11						

678	1-Jul	11:38:50	#	RBT			upstream	31*	19.59						
679	1-Jul	11:40:32	#	RBT			upstream	31*	19.59						
85	1-Jul	11:53:27	#	sucker	8 to 12		upstream	31*	19.59						
680	1-Jul	11:55:18	#	RBT			upstream	31*	19.59						
681	1-Jul	12:08:35	#	RBT			upstream	31*	20.08						
682	1-Jul	12:35:45	#	RBT			upstream	31*	20.08						
683	1-Jul	12:35:48	#	RBT			upstream	31*	20.08						
684	1-Jul	12:43:04	#	RBT			upstream	31*	20.57						
685	1-Jul	12:58:41	#	RBT			upstream	31*	20.57						
686	1-Jul	13:06:35	#	RBT			upstream	31*	21.06						
687	1-Jul	13:10:48	#	RBT			upstream	31*	21.06						
688	1-Jul	13:25:19	#	RBT			upstream	31*	21.06						
689	1-Jul	13:30:53	#	RBT			upstream	31*	21.06						
4	1-Jul	14:22:07	#	shiner			upstream	30*	21.89						
690	1-Jul	14:28:07	#	RBT			upstream	30*	21.89						
5	1-Jul	14:49:26	#	shiner			upstream	30*	22.23						
691	1-Jul	14:55:30	#	RBT			upstream	30*	22.23						
692	1-Jul	15:43:41	#	RBT			upstream	30*	22.73						
693	1-Jul	15:52:44	#	RBT			upstream	30*	22.73	At least 5, maybe 6 adult chinook in pool below ladder.					
694	1-Jul	16:24:01	#	RBT			upstream	28*	22.89						
	1-Jul	16:25:39	#	shiner			?	28*	22.89						
	1-Jul	17:14:48	#	RBT			?	28*	23.06						
695	1-Jul	17:15:35	#	RBT			upstream	28*	23.06						
696	1-Jul	17:25:14	#	RBT			upstream	28*	23.06						
67	1-Jul	19:59:08	#	CH			upstream	30*	22.06						
697	1-Jul	20:03:00	#	RBT			upstream	30*	21.56						
698	2-Jul	5:26:43	#	RBT			upstream	31*	17.18						
699	2-Jul	6:02:42	#	RBT			upstream	31*	17.02						
700	2-Jul	6:48:59	#	RBT			upstream	31*	16.86						
701	2-Jul	7:13:02	#	RBT			upstream	31*	16.7						
702	2-Jul	7:51:38	#	RBT			upstream	31*	16.7						
	2-Jul	8:47:49	#	?			upstream	31*	17.02						
703	2-Jul	9:07:23	#	RBT			upstream	31*	17.18						
704	2-Jul	9:08:09	#	RBT			upstream	31*	17.18						
705	2-Jul	9:56:46	#	RBT			upstream	30*	17.5						
706	2-Jul	10:18:29	#	RBT			upstream	30*	17.82						
707	2-Jul	10:18:43	#	RBT			upstream	30*	17.82						
	2-Jul	10:19:53	#	RBT			?	30*	17.82						
708	2-Jul	10:27:41	#	RBT			upstream	30*	17.82						
709	2-Jul	10:41:16	#	RBT			upstream	30*	18.31						
710	2-Jul	10:58:45	#	RBT			upstream	30*	18.31						
	2-Jul	10:58:48	#	trout			upstream	30*	18.31						
711	2-Jul	11:10:50	#	RBT			upstream	30*	18.63						
	2-Jul	11:14:47	#	trout			upstream	30*	18.63						
712	2-Jul	11:37:02	#	RBT			upstream	30*	18.63						
713	2-Jul	11:53:53	#	RBT			upstream	28*	19.11						
714	2-Jul	11:56:26	#	RBT			upstream	28*	19.11						
86	2-Jul	12:09:56	#	sucker	6 to 10		upstream	30*	19.59						
715	2-Jul	12:13:27	#	RBT			upstream	30*	19.59						
	2-Jul	12:24:03	#	RBT			?	30*	19.59						
6	2-Jul	12:29:21	#	shiner			upstream	30*	19.59						
716	2-Jul	12:34:10	#	RBT			upstream	30*	19.59						
717	2-Jul	12:39:46	#	RBT			upstream	30*	20.08						
718	2-Jul	12:49:39	#	RBT			upstream	30*	20.08						
719	2-Jul	12:52:58	#	RBT			upstream	30*	20.08						
720	2-Jul	12:55:10	#	RBT			upstream	30*	20.08						
721	2-Jul	12:57:02	#	RBT			upstream	30*	20.08						
722	2-Jul	13:00:12	#	RBT			upstream	30*	20.57						
723	2-Jul	13:04:02	#	RBT			upstream	30*	20.57						
724	2-Jul	13:15:58	#	RBT			upstream	30*	20.57						
725	2-Jul	13:16:18	#	RBT			upstream	30*	20.57						
726	2-Jul	13:16:34	#	RBT			upstream	30*	20.57						
727	2-Jul	13:25:38	#	RBT			upstream	30*	20.57						
728	2-Jul	13:36:26	#	RBT			upstream	30*	20.57						
729	2-Jul	13:45:29	#	RBT			upstream	30*	21.06						
	2-Jul	14:17:32	#	trout			?	28*	21.56						
730	2-Jul	14:47:02	#	RBT			upstream	28*	21.89						
	2-Jul	14:47:30	#	RBT			?	28*	21.89						
731	2-Jul	15:09:21	#	RBT			upstream	28*	22.23						
732	2-Jul	15:11:01	#	RBT			upstream	28*	22.23						
7	2-Jul	15:11:58	#	shiner			upstream	28*	22.23						
87	2-Jul	15:44:15	#	sucker	5 to 8		upstream	28*	22.39						
733	2-Jul	15:59:42	#	RBT			upstream	28*	22.39						
734	2-Jul	16:33:51	#	RBT			upstream	28*	22.39	Raised forebay 6" to create better attraction flow. At least 4 chinook below dam.					
735	2-Jul	16:40:51	#	RBT			upstream	28*	22.39						
736	2-Jul	16:45:21	#	RBT			upstream	28*	22.56						
737	2-Jul	16:45:31	#	RBT			upstream	28*	22.56						
738	2-Jul	16:46:06	#	RBT			upstream	28*	22.56						
739	2-Jul	16:46:26	#	RBT			upstream	28*	22.56						
740	2-Jul	16:56:48	#	RBT			upstream	28*	22.56						
741	2-Jul	17:06:13	#	RBT			upstream	28*	22.56						
742	2-Jul	17:58:55	#	RBT			upstream	28*	22.39						
743	2-Jul	18:11:34	#	RBT			upstream	28*	22.23						
744	2-Jul	18:19:18	#	RBT			upstream	28*	22.23						
88	2-Jul	18:31:44	#	sucker	8 to 12		upstream	28*	22.23						
745	2-Jul	18:42:56	#	RBT			upstream	28*	22.06						
746	2-Jul	18:51:48	#	RBT			upstream	28*	22.06						
747	2-Jul	19:09:16	#	RBT			upstream	28*	21.89						
748	2-Jul	19:54:40	#	RBT			upstream	28*	21.56						

	2-Jul	20:34:24	#	RBT			?	28*	21.23						
	2-Jul	21:03:11	#	RBT			?	28*	21.23						
	3-Jul	5:20:14	#	RBT			neutral	30*	17.34						
749	3-Jul	5:44:42	#	RBT			upstream	30*	17.18						
750	3-Jul	6:12:05	#	RBT			upstream	30*	17.18						
751	3-Jul	9:26:31	#	RBT			upstream	30*	17.18						
	3-Jul	9:39:52	#	RBT			neutral	30*	17.18						
	3-Jul	10:09:59	#	RBT			neutral	30*	17.82						
	3-Jul	10:50:58	#	RBT			neutral	30*	18.14						
752	3-Jul	10:55:30	#	RBT			upstream	30*	18.14						
753	3-Jul	11:01:08	#	RBT			upstream	30*	18.63						
754	3-Jul	11:23:44	#	RBT			upstream	30*	18.63						
755	3-Jul	11:26:33	#	RBT			upstream	30*	18.63						
756	3-Jul	11:30:40	#	RBT			upstream	30*	18.63						
757	3-Jul	11:44:40	#	RBT			upstream	30*	18.95						
758	3-Jul	11:49:17	#	RBT			upstream	30*	18.95						
759	3-Jul	11:55:27	#	RBT			upstream	30*	18.95						
760	3-Jul	11:53:29	#	RBT			upstream	30*	18.95						
	3-Jul	12:02:52	#	CH			neutral	30*	19.27						
761	3-Jul	12:04:47	#	RBT			upstream	30*	19.27						
	3-Jul	12:06:35	#	RBT			neutral	30*	19.27						
762	3-Jul	12:26:48	#	RBT			upstream	30*	19.27						
763	3-Jul	12:27:46	#	RBT			upstream	30*	19.27						
764	3-Jul	12:35:34	#	RBT			upstream	30*	19.76						
765	3-Jul	12:47:38	#	RBT			upstream	30*	19.76						
766	3-Jul	12:49:19	#	RBT			upstream	30*	19.76						
89	3-Jul	13:10:22	#	sucker	6 to 10		upstream	30*	20.08						
767	3-Jul	13:16:28	#	RBT			upstream	28*	20.08						
768	3-Jul	13:22:55	#	RBT			upstream	28*	20.08						
769	3-Jul	13:42:30	#	RBT			upstream	28*	20.57						
770	3-Jul	13:45:03	#	RBT			upstream	28*	20.57						
771	3-Jul	13:51:26	#	RBT			upstream	28*	20.57						
772	3-Jul	14:19:16	#	RBT			upstream	28*	21.06						
773	3-Jul	14:24:18	#	RBT			upstream	28*	21.06						
774	3-Jul	14:28:45	#	RBT			upstream	28*	21.06						
775	3-Jul	14:32:09	#	RBT			upstream	28*	21.06						
776	3-Jul	15:21:17	#	RBT			upstream	28*	22						
777	3-Jul	17:19:26	#	RBT			upstream	28*	22.39	Three chinook, one bull trout in pool below dam.					
	3-Jul	17:56:11	#	sucker			neutral	28*	22.23						
778	3-Jul	18:04:04	#	RBT			upstream	28*	22.06						
	3-Jul	19:07:39	#	sucker			neutral	28*	21.73						
779	3-Jul	19:09:55	#	RBT			upstream	28*	21.73						
	3-Jul	19:11:03	#	RBT			neutral	28*	21.73						
	3-Jul	19:14:03	#	sucker			neutral	28*	21.73						
	3-Jul	20:13:14	#	?			upstream	28*	21.06						
	3-Jul	20:23:55	#	?			upstream	28*	21.06						
	3-Jul	20:39:02	#	?			upstream	28*	20.73	possible CH					
	3-Jul	21:09:34	#	?			upstream	28*	20.24						
	4-Jul	5:03:06	#					30*	16.7	three neutral fish					
780	4-Jul	5:04:10	#	RBT			upstream	30*	16.7						
	4-Jul	5:27:24	#	RBT			downstrean	30*	16.7						
781	4-Jul	8:13:36	#	RBT			upstream	30*	16.38						
	4-Jul	9:21:57	#	shiner			downstrean	30*	16.7						
782	4-Jul	9:25:09	#	RBT			upstream	30*	16.7						
783	4-Jul	10:34:17	#	RBT			upstream	30*	17.18						
784	4-Jul	10:48:30	#	RBT			upstream	30*	17.66						
785	4-Jul	11:26:35	#	RBT			upstream	30*	17.98						
786	4-Jul	11:30:01	#	RBT			upstream	30*	17.98						
787	4-Jul	11:56:23	#	RBT			upstream	30*	18.47						
788	4-Jul	12:00:05	#	RBT			upstream	30*	18.47						
789	4-Jul	12:17:58	#	RBT			upstream	30*	18.95						
790	4-Jul	12:25:43	#	RBT			upstream	30*	18.95						
791	4-Jul	12:32:59	#	RBT			upstream	30*	18.95						
	4-Jul	12:52:46	#	RBT			neutral	30*	19.43						
792	4-Jul	13:08:52	#	RBT			upstream	30*	19.92						
793	4-Jul	13:18:00	#	RBT			upstream	30*	19.92						
794	4-Jul	13:24:51	#	RBT			upstream	28*	19.92						
795	4-Jul	13:25:38	#	RBT			upstream	28*	19.92						
	4-Jul	13:47:36	#	RBT			?	28*	20.4						
796	4-Jul	14:20:36	#	RBT			upstream	28*	20.89						
797	4-Jul	14:52:16	#	RBT			upstream	28*	21.23						
798	4-Jul	15:45:54	#	RBT			upstream	28*	21.73						
799	4-Jul	19:47:03	#	RBT			upstream	28*	21.23	neutral CH seen several times					
800	4-Jul	20:48:22	#	RBT			upstream	28*	20.57						
	5-Jul	4:51:28	#	CH			neutral	34*	16.86						
	5-Jul	4:54:20	#	CH			neutral	34*	16.86						
801	5-Jul	6:13:49	#	RBT			upstream	34*	16.54						
	5-Jul	6:15:34	#	?	12 to 16		upstream	34*	16.54						
	5-Jul	6:36:10	#	RBT			?	34*	16.54						
802	5-Jul	6:48:54	#	RBT			upstream	34*	16.38						
803	5-Jul	7:22:32	#	RBT			upstream	34*	16.38						
804	5-Jul	7:24:05	#	RBT			upstream	34*	16.38						
805	5-Jul	7:24:10	#	RBT			upstream	34*	16.37						
806	5-Jul	8:49:29	#	RBT			upstream	32*	16.54						
807	5-Jul	10:01:40	#	RBT			upstream	30*	17.02						
808	5-Jul	10:44:11	#	RBT			upstream	30*	17.82						
	5-Jul	11:06:59	#	RBT			neutral	30*	18.31	Three fish seen several times.					
809	5-Jul	12:48:21	#	RBT			upstream	30*	19.76						
810	5-Jul	12:50:51	#	RBT			upstream	30*	19.76						

811	5-Jul	12:56:36	#	RBT			upstream	28*	19.76						
	5-Jul	13:01:49	#	RBT			?	28*	20.24						
812	5-Jul	14:48:49	#	RBT			upstream	28*	21.73						
813	5-Jul	15:14:07	#	RBT			upstream	28*	22.06	At least one chinook below dam. (spot on left side of tail).					
814	5-Jul	15:19:10	#	RBT			upstream	28*	22.06	Log partially blocked exit.					
	5-Jul	15:33:04	#	RBT			downstrean	28*	22.06						
	5-Jul	15:42:49	#	RBT			neutral	28*	22.23	fish seen several times.					
815	5-Jul	16:37:33	#	RBT			upstream	28*	22.56						
816	5-Jul	18:40:55	#	RBT			upstream	28*	22.39						
	5-Jul	18:44:31	#	sucker			?	28*	22.39						
	5-Jul	19:17:47	#	RBT			neutral	28*	22.06						
	5-Jul	20:31:32	#	CH			neutral	28*	21.56						
	5-Jul	20:47:12	#	RBT			neutral	28*	21.23						
	5-Jul	20:58:18	#	?			upstream	28*	21.23						
	6-Jul	8:36:13	#	RBT			neutral	30*	17.34	Debris in exit					
817	6-Jul	8:46:37	#	RBT			upstream	30*	17.34						
	6-Jul	10:52:01	#	RBT			?	28*	18.47						
	6-Jul	11:27:15	#	?			upstream	28*	18.79						
818	6-Jul	13:55:45	#	RBT			upstream	35*	20.4						
	6-Jul	13:57:44	#	RBT			?	35*	20.4	Debris removed from exit					
	6-Jul	15:57:14	#	RBT			?	28*	21.56						
90	6-Jul	16:02:02	#	sucker	6 to 10		upstream	28*	21.73						
91	6-Jul	16:04:29	#	sucker	6 to 10		upstream	28*	21.73						
8	6-Jul	16:07:13	#	shiner			upstream	28*	21.73						
819	6-Jul	16:16:03	#	RBT			upstream	28*	21.73						
820	6-Jul	16:18:15	#	RBT			upstream	28*	21.73						
	6-Jul	17:09:48	#	RBT			?	28*	22.06						
	6-Jul	17:18:36	#	RBT			?	28*	22.06						
	6-Jul	17:20:28	#	shiner			downstrean	28*	22.06						
821	6-Jul	17:40:47	#	RBT			upstream	28*	22.06						
	6-Jul	18:27:37	#	RBT			?	28*	21.89						
	6-Jul	18:34:59	#	RBT			?	28*	21.73						
822	6-Jul	19:24:13	#	RBT			upstream	28*	21.56						
823	6-Jul	19:42:16	#	RBT			upstream	28*	21.23	Beaver @ 19:56:29					
	6-Jul	20:22:58	#	RBT			?	28*	20.89						
	6-Jul	21:13:11	#	?			upstream	28*	20.24						
	7-Jul	5:10:15	#	CH			neutral	30*	17.66	Several sightings, 5:24:52, 5:26:58(2 CH), 5:31:00, several more until about 7:30					
824	7-Jul	8:12:58	#	RBT			upstream	30*	16.86						
825	7-Jul	8:22:26	#	RBT			upstream	30*	16.86						
826	7-Jul	8:37:10	#	RBT			upstream	30*	16.7						
827	7-Jul	9:36:24	#	RBT			upstream	30*	17.02						
828	7-Jul	9:55:50	#	RBT			upstream	30*	17.02						
	7-Jul	10:49:28	#	3 rbt			?	28*	17.66	Three fish					
829	7-Jul	12:33:13	#	RBT			upstream	44*	18.63						
830	7-Jul	13:19:57	#	RBT			upstream	31*	19.27						
	7-Jul	14:02:37	#	RBT			?	30*	19.92						
831	7-Jul	14:15:24	#	RBT			upstream	30*	19.92						
832	7-Jul	14:19:43	#	RBT			upstream	30*	19.92						
833	7-Jul	14:38:37	#	RBT			upstream	30*	20.4						
834	7-Jul	15:20:44	#	RBT			upstream	28*	20.73						
835	7-Jul	15:40:58	#	RBT			upstream	28*	20.89						
836	7-Jul	16:28:30	#	RBT			upstream	28*	21.06						
837	7-Jul	16:41:01	#	RBT			upstream	28*	21.06						
92	7-Jul	17:14:14	#	sucker	5 to 8		upstream	28*	21.06						
	7-Jul	19:27:52	#	CH			neutral	28*	20.24	Stayed in view of the camera almost constantly until 20:40.					
	7-Jul	20:14:52	#	RBT			neutral	28*	19.59						
838	7-Jul	20:16:36	#	RBT			upstream	28*	19.59						
	7-Jul	20:54:39	#	RBT			?	28*	19.27						
	8-Jul	4:45:45	#	CH			neutral	28*	16.07	seen several times.					
839	8-Jul	5:36:43	#	RBT			upstream	28*	15.91						
840	8-Jul	13:23:25	#	RBT			upstream	28*	19.11						
841	8-Jul	14:31:49	#	RBT			upstream	28*	19.92						
842	8-Jul	14:52:08	#	RBT			upstream	28*	20.24						
68	8-Jul	15:42:28	#	CH			upstream	28*	20.89						
843	8-Jul	15:55:48	#	RBT			upstream	28*	20.89						
93	8-Jul	16:18:58	#	sucker	6 to 10		upstream	28*	21.06						
	8-Jul	16:38:46	#	CH			neutral	27*	21.06						
844	8-Jul	18:19:52	#	RBT			upstream	27*	21.06						
845	8-Jul	18:31:26	#	RBT			upstream	27*	21.06						
846	8-Jul	19:25:00	#	RBT			upstream	27*	20.57						
	8-Jul	20:00:16	#	RBT			downstrean	27*	20.4						
	8-Jul	20:26:24	#	CH			neutral	28*	20.08						
	9-Jul	4:58:05	#	CH			neutral	28*	16.07						
	9-Jul	6:30:13	#	2CH			neutral	28*	15.75						
	9-Jul	10:15:50	#	CH			neutral	28*	16.7						
847	9-Jul	12:35:20	#	RBT			upstream	28*	18.31						
848	9-Jul	14:12:04	#	RBT			upstream	28*	20.08	1 CH below dam (likely missed others in riprap). Also an 18 inch RBT (measured).					
	9-Jul	18:48:43	#	CH			neutral	27*	20.89						
	9-Jul	19:42:42	#	RBT			?	27*	20.57						
849	9-Jul	20:59:37	#	RBT			upstream	27*	20.08						
850	10-Jul	15:36:15	#	RBT			upstream	27*	21.23	3 CH below dam. One with spot on left side of tail (blind), one with smaller mark on left side of tai hiding in riprap. One with split in upper part of tail, hiding in riprap (This female was found dead below 5-mile Bridge on July 29).					
851	10-Jul	16:01:42	#	RBT			upstream	28*	21.23	Removed Camera. That's all folks!					
	23-Jul									One (likely missed 2 others) CH below dam, smaller mark on left side of tail. One CH 4th weir downstream from dam, spot on tail, blind.					
	28-Jul									Three CH below dam, all appear healthy.					

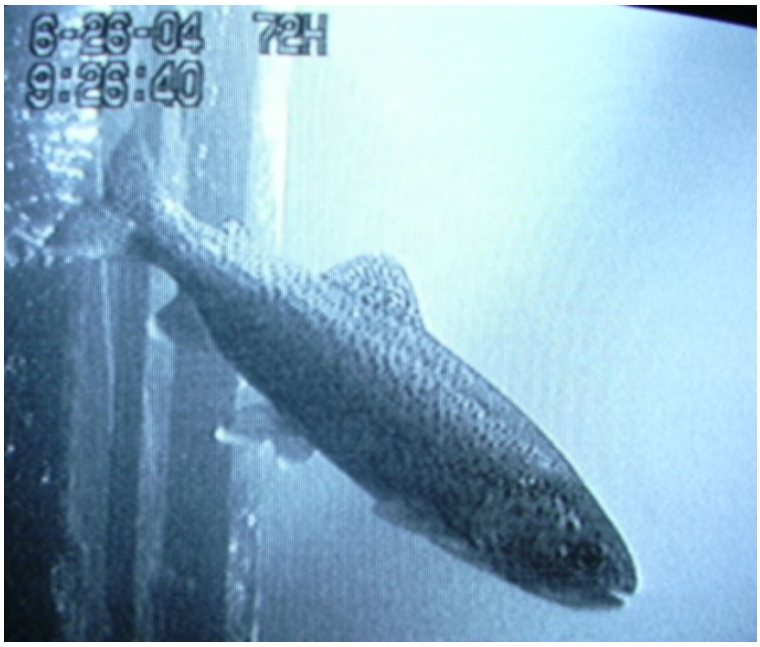
Appendix B

Photographs of Various Species From Underwater Video

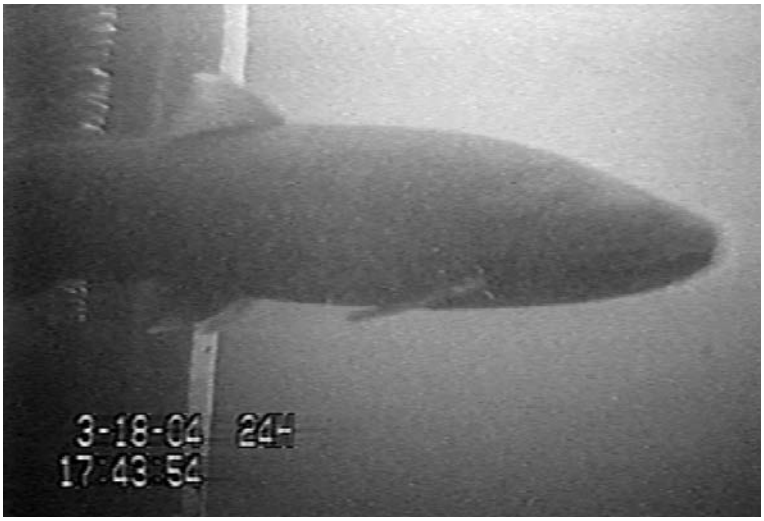
Mill Creek Diversion Dam

2004

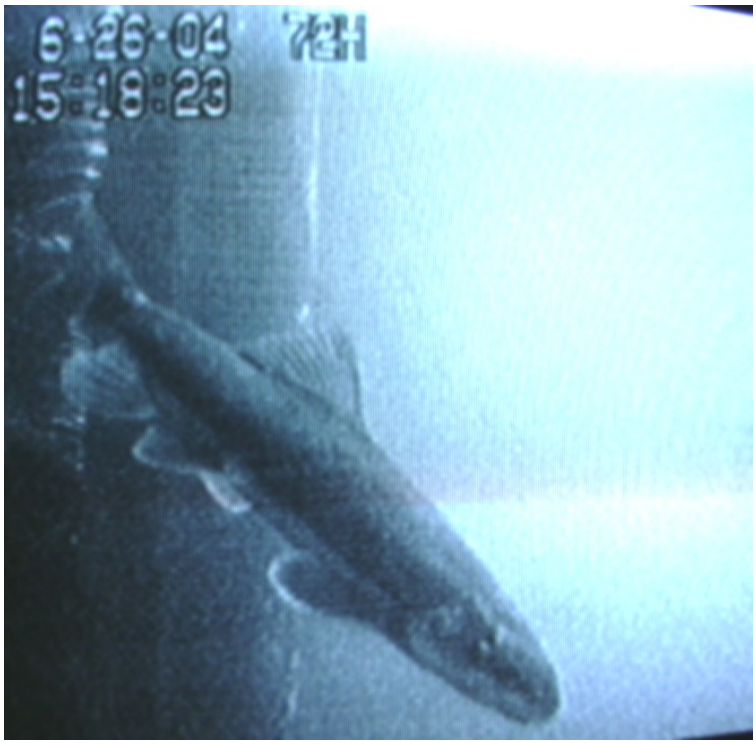
Rainbow trout



Steelhead



Sucker

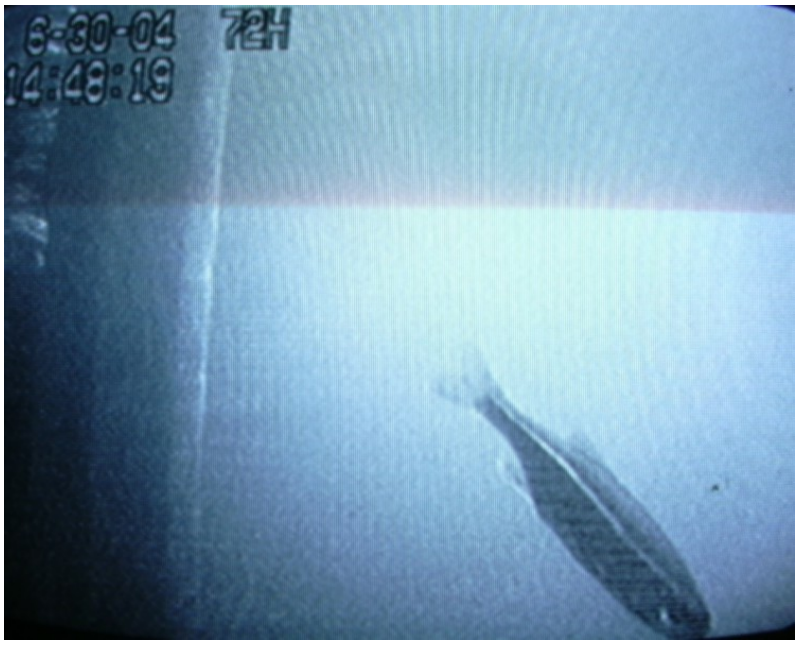


Bull trout

Chinook salmon

Whitefish

Shiner



River otter