U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#29-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: September 13 - 19, 2013

Turbine Operation

McNary had 10 units available for power generation this week. On April 1, the hard constraint one percent criteria began and no units ran outside the criterion this week. Unit outages are recorded in Table 1.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
4	Jun 24 – Jan 30, 2014	About seven months.	Rewind contract.
11	Jun 28 – Jan 30, 2014	About seven months.	Rewind contract.
3	Jun 4 – Sep 27	About four months.	Turbine bearing issue.
13	Sep 3 – 26	24 days.	Above water overhaul.
1, 5 & 12	Sep 17	80 minutes total.	ESBS camera inspections.
6	Sep 17	1.8 hours.	Replace torn VBS in A slot.
1 & 5	Sep 18	2.5 & 1.8 hours ea.	Trash rack cleaning A and B slots.
14	Sep 19	10.5 hours.	Transformer 7 maintenance.

Adult Fish Passage Facilities

On September 13, 15 and 19, the McNary fisheries biologists performed measured inspections of the adult fishways. Visual fish and video lamprey counting continues. Temperature monitoring has been extended to the end of the month.

When the juvenile facility is in primary bypass, the fisheries staff helped to monitor the picketed leads. On September 14, the night shift the fisheries staff found both count station differentials out of criteria due to milfoil on the leads, which the general maintenance staff cleaned the next morning.

Lowering the Oregon ladder entrance weirs, SFEW1, SFEW2, NFEW2 and NFEW3, nightly for adult lamprey passage continues. Monitoring of the weirs has revealed no problems.

On September 15, a severe thunderstorm passed over the project. Wind gusts of 100 mph were recorded. The effects of this storm will be discussed throughout the remainder of the report. Briefly, that night, the Oregon exit lost power. The roving operator cleared the alarms and reset

the exit. The Oregon count station lost phone service which has yet to be repaired. As a precaution, the chief operator reset all ladder entrances.

On September 17, PSMFC examined issues with the Oregon ladder PIT tag room.

Fish Ladder Exits: The project cleaned the exits' picketed leads regularly, including during the weekends. Eurasian milfoil continues to be a problem. On September 15, at 2100, after securing the Washington ladder exit crane, the general maintenance crew cleaned both ladder exits.

On September 14, the biologist asked for both ladders' regulating weir set points to be adjusted. Both ladders appeared to be running slightly low.

During the inspections, all Fish Passage Plan criteria were met at both ladder exits, except as described here. At the Washington exit, on September 15, the count station differential was 0.8 feet due to debris on the leads, which the project cleaned.

On September 13, at the Oregon exit and traveling screens alarmed which the operators reset. Also, that day, the head over weir measured 0.9 feet resulting in the set point adjustment mentioned above. On September 15, the count station differential was 1.1 feet. The biologist asked for the picketed leads to be cleaned. Due to encoder issues, weir 340 remains in manual mode.

Our differential monitoring of the traveling screens revealed no problems though the trash rack differential has reached 1.0 feet.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria. Weir W2, is operating well, with the digital encoder. The LED remains unplugged. This week, weir W3, was repaired, recalibrated and returned to automatic operation. On September 19, the biologist found the weir over adjusting again. The operator returned the weir to manual operation and asked the technical staff to resolve the timing issue, which occurred promptly. The weir has operated well since.

At the Oregon ladder entrances, all points were in criteria with no issues to report.

The Oregon ladder's collection channel velocity average 1.4 feet per second from surface readings.

Auxiliary Water Supply System: On September 19, the Wasco county PUD in the Washington ladder had two interruptions totaling 1.5 hours for the transformer 7 maintenance mentioned above. During the outages, the bypass system operated well.

On September 15, the thunderstorm cut the feed from the powerhouse to the well pump station resulting in the loss of potable water to the fish pumps, the project and juvenile fish facility. Potable water is used to cool the fish pumps. When using river water for cooling, there is only enough pressure for one fish pump. On September 16, at 1800, the electricians completed repairs to the feed to the well pump. Next the water tank and system had to refill. Fish pump outages are recorded in Table 2.

Table 2. Oregon Ladder Fish Pump Outages.

Date	Time	Pump	Description
Sep 15	1928 – 2055	1	Loss of cooling water. Pump 1 on river water.
Sep 16	0730 – 1037	1	Project had to boost river water pressure.
Sep 16	2152	1	Pump on potable water.
Sep 15 – 16	1928 – 1850	3	Cooling water loss.
Sep 16	1918 – 2034 2058 – 2152 2220 – 2225	3	Air in potable water line.

With no operational fish pumps the south and north differentials measured 0.0 and 0.2 feet, respectively. When one pump was operational, the differentials were 0.7 and 0.4 feet each. The project concentrated on returning the fish pumps to operation.

When operational, the pumps had blade angles of 30 degrees. Fish pump 2 remains out of service for major overhaul which will require a contract.

The juvenile facility continues to supply the usual 450 cfs to the north powerhouse pool.

Juvenile Fish Passage Facility

The season continues with alternating days of primary and secondary bypass with the switch occurring every morning at 0700. We bypassed 952 smolts and 72 juvenile lampreys. For the data day of September 18, we bypassed a peak of 419,696 juvenile shad.

Two deviations from the schedule occurred. On September 15, from 2100 to 0000, the system was in primary bypass so the technician on duty could check the juvenile collection channel and both ladders' exits for debris after the storm had passed.

On September 17, the system was in primary bypass from 1038 to 1110 due to lack of flow over the porosity unit. The technician assisting in the camera inspections and VBS cleaning closed three orifices at unit 5 without opening spare orifices resulting in a severe drop in channel elevation. The biologist responded quickly by returning to the proper orifice count. No harm to fish of interest or the system occurred. Some juvenile shad were lost at the porosity unit. Technician was cautioned and counseled.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris along the powerhouse was light consisting of Eurasian milfoil and wood. Milfoil levels continue to fluctuate. Thunderstorms and wind direction affected the debris's distribution.

The fisheries staff found 1A, 1B, 5A and 5B trash differentials at 1.5 to 1.9 feet. On September 18, the project removed five light ten yard truck loads of debris from these slots. We observed no species of interest in the debris, which was fine woody material with milfoil.

We noted no problems in the gatewell slots. Bulkheads remain at unit 13. The project will remove them next week.

ESBSs/VBSs: All ESBSs are installed all units except at unit 11and 13, which are out of service. Unit 13's ESBS's will be replaced before the unit returns to service later this month. The screens at 2A, 3A, 7B, 8C and 10C slots remain in timer mode. On September 17, camera inspections at units 1, 5 and 12 revealed no problems.

VBS differential monitoring revealed eight screens out of criteria. Six of which were measured after the storm. On September 13, 16 and 17, the project cleaned these screens and eleven others. When cleaning the VBSs, we observed one juvenile lamprey or no smolt mortalities. We noted juvenile shad lost. There was no record of mortality for September 13.

On September 17, we found the screen in 6A slot with a tear while VBS cleaning. The unit was removed from service. The project moved the 6A screen to 11C slot which was open. We use the slots at unit 11 to cycle in rehabilitated VBS's. The crew next took the screen from 3C slot and installed it at 6A which allowed the unit to return to service. Before unit 3 returns to service later this month, the project will have to install a VBS in 3C slot.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: For the week, we had 42 orifices open with no problems observed. The orifices at unit 13 remain closed with spare orifices at unit 12. For the VBS replacement, VBS and trash rack cleaning along with camera inspections, we close orifices as required and open spare orifices at adjacent units. Also, the fisheries staff continues to monitor the channel primary bypass and we are checking the channel at midnight on secondary bypass days.

On September 17, during the camera inspection at unit 5, the orifice switching procedure was inadvertently confused as VBS cleaning was also occurring at unit 7. This resulted in the low flow described above along with a low/high water alarm in the channel as the problem began and was resolved. The biologist reviewed protocols with the staff. Finally, we adjusted the north orifice operator at 5A and 5B slots.

All systems operated well in automatic mode. On September 16, while tracking electrical ground issues, the project removed power from the channel from 0808 to 0810. After the outage, the biologist stabilized the channel with no problems occurring.

On September 19, at 0920, the side screen cleaning device had a timing alarm while biologist was observing it. The mechanism stalled halfway on its upstream travel. The electrician found the motor had an over current trip. He found no other problems and returned the device to automatic operation at 1004. The electrician feels the stall was either caused by debris or a mechanical issue we have not yet found. We will continue to monitor the device.

On September 14 and 16, the project had issue with the station service air. These problems had no ill effect on the juvenile collection channel or facility.

Transportation Facility: With the bypass season, both primary and secondary bypass modes return all fish are to the river. PIT tag detection will occur in the full flow pipe during primary

bypass and throughout the facility during secondary bypass. Smolt monitoring will occur on secondary bypass days.

We turned the sample gates on and off every other day to be on with secondary. The gates functioned well. On September 15, during the unscheduled primary bypass the gates were turned off. On September 17, we left the gates on.

The primary PIT tag system remains off as the bypass lines provide a better route for the fish than the PIT lines. Also, PSMFC preformed the weekly test of the PIT system. The secondary PIT/bypass gates remain off and open for bypass season. After the thunderstorm on September 15, issues with the facility's PIT tag room air conditioning had to be resolved.

The storm also took out PSMFC's phone service until September 16. Four main flume covers were damaged by the storm. Several had been raised during it. The potable water was not available from September 15 to 16 and not drinkable until September 18.

Transport Summary: Transport will not occur at McNary this year.

River Conditions

River conditions during the week are outlined in Table 3 as provide the smolt monitoring staff, PSMFC. The data day runs from 0700 to 0700.

Table 3. River conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (^{o}F)		Water Clarity* (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
116.5	78.3	0.0	0.0	71.7	70.0	6.0	6.0

*****Control room data.

Other

Inline Cooling Water Strainers: The next cooling water strainer examination will occur in early October.

Invasive Species: The next zebra mussel station examination will be on September 22.

Avian Activity: We continue bird counts with each zone being observed once a day usually in the morning. In the forebay area, we observed an occasional cormorant or gull. We noted cormorants and gulls on the rocks by the Washington boat dock. We observed no grebes on project.

In the tailwater area, we had high counts of 231 gulls, 83 cormorants. Most of the feeding birds were in powerhouse area with others roosting on the navigation lock wing wall. Bird numbers

may be fluctuating with juvenile shad numbers. Also, the birds may have begun outmigration themselves.

We observed high counts of 28 gulls and seven cormorants by the bypass outfall.

The hazing sprinkler system remains out of service. A new system will be installed this fall. The fisheries staff continues to work with the propane cannons to keep them functioning well. The gull distress calls remain deployed.

Research: The adult lamprey passage study continues.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: September 13 - 19, 2013

Turbine Operation

Turbine unit 2 went out of service at 0715 hours September 16 for annual maintenance. Turbine unit 1 went out of service at 1047 hours September 17 for BPA line 1 outage. Turbine unit 3 went out of service 1101 hours September 18 due to high exciter current. Turbine unit 1 returned to service at 0827 September 19. Turbine unit 5 was out of service September 19 from 1040 hours to 1540 hours due to problems with the exciter rectifier. Turbine unit 6 remained out of service for annual maintenance.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fish ways September 17, 18, and 19.

Fish Ladders: The north and south shore adult fish ladder inspection areas (picketed leads, head differentials, fish way exits, and depth over weirs) were within criteria.

Adult Fish way performance: The center fish way weir 2 remains out of service. The south adult fish pumps will need to be shut down to remove the bulkhead in front of the weir. This will be accomplished during the winter maintenance period. Currently, center fish way weir 1 is being operated. Fish way entrance criterion is 8 feet depth, greater than 8 feet depth, or on sill. All fish way entrances were within criteria on sill or greater than 8 feet of depth. All channel/tail water differentials were in criteria. Channel/tail water differential criteria are 1 – 2 feet.

Auxiliary Water Supply System: 2 of the 3 north shore fish pumps were operated without problems. 6 of 8 south fish pumps were operated without problems. All are available for operation.

Juvenile Fish Passage Facility

Fore bay Debris/Gate well Debris/Oil: No problems to report. Fish ladder exits are clear of debris and the bubblers are operating.

STSs/VBSs: STSs are in cycle run operation. STS/VBS inspection were performed August 20 and 22. No problems to report. Turbine strainer inspections were done at this time, results are listed below. September inspections are scheduled for 23 and 25.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile bypass is watered up with 20 open orifices.

Juvenile Bypass Facility: No problems to report.

Fish Sampling: The first sample was April 8 and the last sample was performed July 15.

Removable Spillway Weir: The RSW is not in operation. Spill for fish began April 3, 2013 and ended August 31 at 2359 hours.

Fish Sampling: Juvenile fish sampling concluded July 15.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
26.6	15.7	1.9	1.0	69	68	8.2	8.0

*Unit 1 scrollcase temperature.

Other

Spill occurred September 18 and 19 for the line 1 outage.

Inline Cooling Water Strainers: Results of the main turbine cooling water inspections for August are outlined below.

Date	Unit	Number of Lamprey Recovered
20-Aug	6	zero
20-Aug	5	Un-watered for blade repair (not inspected).
20-Aug	4	Zero
20-Aug	3	zero
22-Aug	2	1 Juvenile Lamprey Mortality
22-Aug	1	Zero

Invasive Species: No new invasive species were detected this week.

Avian Activity: The fish facility is conducting bird observations when possible.

Research: No on-site researchers are present at this time.

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Holdren
Dates: September 13 - 19, 2013

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Unit 2 was taken out of service for annual maintenance at 0800 hours on September 9.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on September 13, 14, 15, and 18.

Fish Ladders: Fishway exit head differentials and depths over the weirs were within criteria (≤ 0.5' and 1.0'-1.3', respectively) on all inspections. Picketed lead head differentials were in criteria (≤ 0.4' and ≤ 0.3' for north and south shore fishways, respectively) on all inspections.

Fishway Entrances and Collection Channel: NSE1 and NSE 2 weir gates were in depth criteria (criteria: ≥ 8' or on sill) on all inspections. North shore channel/tailwater head was in criteria (1'-2') on all inspections.

SPE 1 and SPE 2 weir gates were in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 6.6', 6.6', 6.4', and 7.0 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 7.6', 7.7', 7.5', and 7.8 feet. SSE 2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') on all inspections.

Auxiliary Water Supply System: AWS pumps 1 and 3 were operated throughout this period. Two pump operation will continue until bearing repair and shaft alignment work is completed on pump 2, approximately October 11.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 5.0 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-15% surface coverage. No oil was observed in gatewells.

STSs/VBSs: STS's are operating in cycle mode.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel is operating with 18 orifices open.

Collection Facility: Daily collection with alternate day transport returned on September 18.

Transport Summary: Alternate day midi-tank transport is occurring with trucks departing on odd numbered days. Fish collection and trucking is scheduled to continue with the final load going out on October 1.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (^{o}F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
25.8	14.6	0.0	0.0	69.0	68.0	5.0+	4.4

*Scrollcase temperatures.

Other

Spill for fish passage ended at 0000 hours on September 1.

Inline Cooling Water Strainers: Cooling water strainers were inspected on September 11. One live lamprey was recovered. Mortalities included 5 juvenile lamprey, 1 juvenile salmon, 2 juvenile catfish, 16 Siberian prawns, and 1 unknown juvenile species.

Invasive Species: No zebra mussels were observed at the monitoring stations on September 1.

Avian Activity: Bird hazing has ceased for the season.

Research: No researchers are present on site at this time.

Project: Little Goose
Biologist: Richard Weis
Dates: September 13 - 19, 2013

Turbine Operation

Turbine units 5 and 6 were available for most of this report period. Units 1, 2, 3 and 4 returned to service on September 14 with the end of T1 doble testing. Unit 5 was removed from service on September 17 for annual maintenance. Turbine units were operated within the 1% criteria.

Adult Fish Passage Facility

USACE and ODFW fisheries biologists performed measured inspections of the adult fishway on September 15, 17 and 19.

Fish Ladder: The ladder exit head differentials held steady at 0.1 feet (criteria $\leq$ 0.5 ft.). Water depths over the weirs ranged between 1.1 and 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials remained steady at 0 feet (criteria $\leq$ 0.3 ft.). No debris was observed at the picketed leads or the ladder exit. The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily.

Fishway Entrances and Collection Channel: Channel to tailwater head differentials ranged between 1.4 and 2.1 feet (criteria 1.3 to 2.0 ft.). SSE weir depths ranged between 8.2 and 8.4 feet (criteria $\geq$8.0 ft). NPE weirs ranged between 7.0 and 7.6 feet (criteria $\geq$7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 6.9 and 7.6 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured near NPE ranged between 1.8 and 2.4 (criteria $\geq$1.5 fps). Collection channel subsurface water velocity was measured on September 10 using the Rickly Hydrologic Current Meter. Three measurements were conducted from near surface, mid depth and near bottom. The subsurface velocity average was 3.2 fps with 3 fish pumps operating and all weirs in open positions.

Auxiliary Water Supply System: All Fish pumps operated within criteria ranging between 73 and 76 rpm.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris ranged between 10 and 300 square feet in the immediate forebay area. Gatewells for the most part, remained clear of debris.

Spillway Weir: Spill for summer fish season ended on September 1.

ESBS/VBS: All ESBS operated within criteria this report period. ESBS screens were tested for proper operation on September 15. All brushes operated as designed.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile collection system was operated throughout this period with 21 open orifices.

Transportation Facility: The facility continued collection for transport. Daily fish collection for the week ranged between 317 and 859 and totaled 3,925. The descaling and mortality rate was 1.8% and 2.4% respectively. Fish with Columnaris disease continued to increase and 40 juvenile Chinook were bypassed this report period with severe infection. No problems with the facility were encountered.

Transport Summary: On September 12 daily trucking started as fish numbers again increased and exceeded every-other-day midi-tank transport capacity. Everyday trucking continued on September 13, 14 and 15 returning to every other day with the truck leaving on September 17. Fish continued to be transported below Bonneville Dam to the Smolt Monitoring Facility and released to the river via the outfall flume. A total of 3,792 fish were transported. All loading and transport operations were completed satisfactorily.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
22.2	11.6	0.6	0	72.5	68.7	6.0+	5.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers on all units were checked on September 18. No fish were found.

Invasive Species: The zebra mussel substrate monitor was last inspected on September 2. No mussels were observed. The next inspection is scheduled for October 2.

Avian Activity: Maximum bird counted from single survey included 28 cormorants, 34 gulls.

Research: UC Davis is performing underwater video monitoring of the new lamprey orifices in the adult fish ladder. University of Idaho is performing Adult Salmon Passage Studies using radio telemetry.

Project: Lower Granite
Biologists: Mike Halter and Ches Brooks
Dates: September 13 - 19, 2013

Turbine Operation

Lower Granite had turbine units #2, 3, 4 and 5 available for power generation at the beginning of the report period. Turbine unit #6 was removed from service on June 24 for cavitation repair, followed by annual maintenance. The expected return to service date is December 7. Turbine unit #1 was returned to service on September 13 at 0922 hours after the completion of annual maintenance. Turbine unit #1 was forced out of service on September 19 at 0853 hours due to a water leak from an air cooler elbow. The unit returned to service at 1150 hours the same day.

Special unit operations to improve adult passage continued with the project directed on September 13 to operate both turbine units #1 and #2 from 0500 through 0930 hours or until the daily line outage begins for roof repair work. The goal of this operation is to provide improved passage conditions for adult Fall Chinook during hours of peak passage. Roof repair requires a powerhouse outage from approximately 0930 to approximately 2100 hours Monday thru Saturday/Sunday. During this outage turbine unit #5 is run at speed no-load (5 kcfs) for station keeping. *The final line outage for roof repair work took place on September 19.* On September 19 at 1700 hours the project was directed to operate unit priority as follows: 1, 2, 3, and then 4 – 6 in any order thru October 2. The purpose of this operation is to operate turbine unit #1 as the priority continuously during all hours with minimal starts and stops - to provide improved ladder attraction flow.

Adult Fish Passage Facility

On September 13, 14 and 18 COE fish biologists conducted inspections of the adult fishway system.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings remained within criteria at the south shore and north powerhouse fishway entrances during the weekly inspections. The head differential reading at the north shore fishway entrances was out of criteria on the September 18 inspection with a reading of 0.6 feet (criterion 1.0' – 2.0').

Weir depths at the south shore fishway entrances met criteria during all weekly inspections with depths ranging from 8.0 to 8.2 feet (criterion ≥ 8.0 feet). The north powerhouse fishway entrances were on sill during the first two inspections this week with depths ranging from 6.8 to 7.2 feet due to tailwater elevations below 636.0 feet (these gates bottom out at elevations below 636.0 feet), but was in depth criteria on the September 18 inspection with depths of 8.1 feet (criterion ≥ 8.0 feet). Weir depths at the north shore entrances ranged from 4.5 to 7.0 feet (criterion ≥ 7.0 feet). Only north shore entrance 1 can adjust its' depth relative to the tailwater elevation. North shore entrance 2 is manually set at a compromise depth of 630.0 feet.

Normally weir depth readings at the north shore entrances are sacrificed in order to maintain the requisite 1.0 foot of head differential.

Velocity readings in the adult fishway collection channel transition pool area ranged from 0.84 to 1.04 feet per second and averaged 0.93 feet per second.

Auxiliary Water Supply System: Fish pumps one and three were run during the week. On September 15 at 0910 hours fish pump three tripped offline, while attempting to restart the pump the starter failed. An electrician was called in and replaced the failed part with one from fish pump two – fish pump three was successfully restarted at 1150 hours. A replacement starter and spare have been ordered. Fish pump two is now out of service awaiting this part.

Juvenile Fish Passage Facility

The sample rate remained at 100% during the report week.

Forebay Debris/Gatewell Debris/Oil: The amount of forebay debris varied during the week due to wind strength and direction; none was removed.

ESBSs/VBSs: VBS/ESBS video inspections last took place on August 23. No issues of note were reported. The next inspections are planned for late October.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours around the clock in an attempt to keep them free of materials that might impact fish passage. Debris levels increased (mostly fine material) during the report week.

The separator inclined screen at Lower Granite supplies water to the raceways and fish holding tanks. When it becomes clogged, life support to the holding facilities is threatened. It was necessary to dewater the inclined screen (dewatering structure) and rake/power-wash it on the afternoon of September 15 at 1215 hours. This cleaning event took 30 minutes.

Transportation Facility: The JFF operated smoothly during the week. There were no operational problems of any kind with fish collection, fish sampling, or fish transportation equipment (except for the fine debris problem noted above). Fish collection numbers at Lower Granite decreased substantially during the week with an average daily collection of smolts of 204 (versus a daily average of 877 last week).

Transport Summary: Every other day fish barging operations concluded on August 16. All fish barges have been returned to Lower Granite and are docked for maintenance work and winter storage. Fish trucking operations began on August 18 using the pickup midi-tanker. During the report week collected fish numbers have been relatively low and once again within the capacity of this transport vehicle and each project transported their own fish.

Removable Spillway Weir: The RSW was operated in support of general spill operations during the season. Mandatory spill operations in support of fish passage ended at 0001 hours on September 1.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1: River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
24.8	14.7	0.60	0.0	71.5	66.2	5.0+	5.0+

*Scrollcase temperature.

Other

Lower Granite Fish Facility personnel led a fish rescue operation on September 16 for the draft tube of Turbine Unit #3 at Dworshak Dam. By late afternoon the draft tube was successfully dewatered. Lower Granite personnel (and a member of the Dworshak mechanical crew) entered the draft tube and after sweeping this large area at least three times with a seine net, the draft tube was deemed clear of fish. The lack of fish being left in the draft tubes during the last three rescue missions led by Lower Granite is directly related to the timing and dewatering procedures implemented by the Dworshak team, specifically spinning the unit before dawn with the wicket gates slightly open. The support the Dworshak team provides us is always 'above and beyond'.

Video counts in the adult fish ladder counting room began on March 1 and concluded on March 31. Visual counting between the hours of 0400 and 2000 began on April 1.

Inline Cooling Water Strainers: Cooling water strainers were last inspected for lamprey entrainment on August 27. A total of 0 lamprey were found in the strainers over a combined run time of 394.9 unit hours. The next cooling water strainer inspections are scheduled for late September.

Invasive Species: The zebra mussel substrate near the adult fishway exit was last examined for zebra mussels on September 6. No evidence of zebra mussels was found. The next inspection will take place in early October.

Avian Activity: Formal bird counts and hazing started on April 1. Avian hazing activities concluded for the season on June 30.

Adult Fish Trap: The NOAA adult ladder fish trap did not operate during the week due to low water supply during auxiliary pump operations. The auxiliary fish pumps fish were shut off on September 18 at 1115 hours and Diffuser 14 placed in remote, returning the fish ladder to normal service. This was done to prepare for the reopening of the adult fish trap next week; should water temperatures moderate as expected. There are three auxiliary pumps that draw water from elevation 705 feet (about 30 feet down); these pumps were designed to supply water to the fish ladder during the reservoir drawdown test in 1992.