U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#26-2014

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: August 22 - 28, 2014

Turbine Operation

McNary had 10 to 11 units available for power generation this week. The hard constraint one percent criterion continues. On August 27, unit 3 briefly ran outside the criteria due to difficulty installing a VBS in B slot after cleaning the screen. Also, the summer unit priority sequence, known as the "saw tooth" pattern with units being alternately on or off, continues. Unit outages are recorded in Table 1.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Main Reason for Outage
11	Sep 18, 2013 to Nov 15, 2014	About one year and two months.	Turbine bearing issue continues.
4	Mar 27 to Nov 15	About 7.5 months.	Turbine bearing issue continues.
9	Aug 11 to Mar 25, 2015	About 7.5 months.	Maintenance then rewind contract.
7	Aug 25 to 28	About three days.	Annual maintenance.
8 & 10	Aug 26	1.1 hours.	ESBS camera inspections. Unit 7 was out of service.

Adult Fish Passage Facilities

On August 22, 24 and 26, the McNary fisheries biologist performed measured inspections of the adult fishways. The fisheries staff is checking the exits on all shifts when the juvenile system is in primary bypass. Visual adult fish and lamprey counting along with exit temperature monitoring continue.

On September 17, the project will raise the lamprey passage researcher's camera frame at SFEW2 for inspection.

Winter maintenance planning has begun.

Fish Ladder Exits: During measured inspections, all Fish Passage Plan criteria were met on both ladders' exits. The project continues to clean the picketed leads as required and on the weekends.

For the week, at the Washington exit, multiple exit weir alarms occurred, which the operator reset. Weir 339 had the most alarms. On August 24, the operator adjusted the exit set points. The amount of milfoil in the area is fairly light. However, the project cleaned the leads more often this week.

On the evening of August 22, a storm occurred. The next morning, we found the Oregon count station flooded. The sequence of events and the affect on fish counting are reflected in Tables 2 and 3.

Table 2. Oregon Count Station Flooding on August 23.

Time	Event
0500	Fish counter finds water coming into station from ceiling, 1 to 2 inches on floor.
0515	General maintenance and electrical staff members called in.
0530	Ladder switched to orifice flow. Two feet of flow over access walkway.
0700	General maintenance begins first cleaning of leads. Find one downstream lead damaged along bottom edge. Removed it and prepared for repairs.
0800	Electricians arrive and begin examination along with drying out station with roving operators assistants.
0815	With most of the debris removed, operators return exit to automatic operation.
1030	Count station dried out. Most systems were functional.
1115	We noted back board was within five inches of window.
1145	Picketed leads cleaned a second time, repaired lead reinstalled and back board secured into its normal position. The shaft from the motor's gearbox to the linkage was no long contented. A limit switch was also damaged.
1200	Crews went home. Exit set points adjusted.

On August 24, the mechanics examined the back board linkage, which cannot be repaired until parts are ordered or made. The project will address the issue of flooding at the Oregon count station.

Table 3. Fish Counting on August 23 to 25.

Date	Time	Event
Aug 23	0500 to 1100	No counting due to possible electrical hazard.
Aug 23	Early	Counter called supervisor.
Aug 23	1100	We noted computer key board and fish counter pad were not working. Counts were done manually. (Lamprey monitor was also not functional.)
Aug 23	Afternoon	Supervisor took the lamprey counting keyboard and fish count pad, which were then installed for fish counting. (Also, they replaced the lamprey monitor.)
Aug 23 to 24	About one day.	Entering counts at the computer was intermittent. Possibly due to moisture still being in the system. It was also noted that the computer's monitor was beginning to fail.
Aug 25	1350	Computer monitor and keyboard were replaced. Count pad remained functional.

On August 27, at the Oregon exit, the operator adjusted the set points. Picketed leads were cleaned twice that day. Debris loads in the area of the exit have fluctuated, depending on wind direction and what debris remains along the Oregon shore. Also, the operators reset one false traveling screen differential alarm. The screen differential remains low. However, the trash rack differential was from 1.7 to 2.2 feet. We will continue to monitor both differentials regularly.

During the week, the general maintenance crew installed new lifting cables on all picketed leads and the count station back board. On August 28, the resource maintenance staff installed a boom across the Oregon exit.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria. In the near future, the project will replace the LED's for W2 and W3 with a panel view.

At the Oregon ladder's entrances, all inspection points were in criteria. At the north entrance, lower tailwater elevations are causing a reduction in criteria points' values. At the south entrance, SFEW1 and SFEW2 continued to have very slight calibration drifts. Electrical upgrades of the Oregon entrances will be completed in the near future.

The collection channel velocity averaged 1.3 feet per second. We took these readings from surface observations. Again, lower tailwater elevations are probably affecting our readings.

Auxiliary Water Supply System: For the report week, the PUD turbine at the Washington ladder had no interruptions.

Fish pumps 1 and 3 ran with blade angles of 30 degrees with no interruptions. Pump 2 remains out of service for major overhaul which will require a contract for the winter of 2014–2015.

The juvenile facility continues to supplying the usual 450 cfs to the north powerhouse pool with no interruptions to report.

Juvenile Fish Passage Facility

The bypass season continues with alternating days of secondary and primary bypass with the switch occurring every morning at 0700 hours. There were no deviations from this schedule. Secondary bypass occurred on August 22, 24, 26 and 28. We bypassed 4,660 smolts, 820 juvenile lampreys and 113,470 juvenile shad this week.

For the week, we had sample tank mortality from 0.0 to 1.6 percent. The sample tank temperature was 68.7 to 69.3 degrees F. With sample tank water temperature around 70 degrees F, GBT remains halted until further notice and the sample rate will remain reduced to collect 100 fish per day.

Winter maintenance planning has begun.

Forebay Debris/Gatewell Debris/Oil: Floating forebay debris, which was milfoil along with woody material, was minimal. Also, incoming debris was minimal. Changes in wind direction moved the debris from the powerhouse to the Oregon shore and back. There is no debris at the spillway.

Our trash rack differential readings revealed no problems and no racks were cleaned this week. We observed no problems in the gatewell slots. The storm mentioned in the Adult Passage section had no ill effect on the juvenile facility.

ESBSs/VBSs: ESBS are installed at all operational units. Only units 4 and 11 are without ESBS's. The screens at 1A, 7A and 13C slots remain in timer mode. On August 26, we performed camera inspections at units 7, 8 and 10 with no problems found. We observed no lost fish of interest in the gatewell slots during the inspections.

VBS differential monitoring revealed no screens out of criteria. On August 27, the project cleaned six screens as a preventative measure. Two lost smolts were noted. VBS rehabilitation continues with unit 11 as the staging area.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Forty two orifices were open all week. During VBS cleaning, we closed the orifices at the slots the work was being done and opened spare orifices at adjacent slots.

There are no technical issues to report as all systems functioned well in automatic mode. The transition screen cleaning device will remain out of service until winter.

On August 28, the side screen cleaning device checker, which was lost in the channel on July 29, was recovered at the separator. This long, slender fiberglass pole appeared to have passed down the full flow flume with no adverse effect on fish.

Bypass Facility: During the bypass season, both 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 and all operational systems functioned well. The primary PIT tag system remains off as the bypass lines provide a better route for the fish than the PIT lines. PSMFC continues to perform weekly examinations of the PIT system. The secondary PIT/bypass gates remain off and open for bypass.

With transport no longer occurring at McNary, sections of the A and B direct barge loading lines, which were never used, were removed this week due to safety concerns. The A section leaked and was an icing hazard in the winter. The B section was too low across a walkway. On August 26, we repaired seams in the return to river line near the barge drier.

This week, one white sturgeon was detected by our PIT tag system. It was released into the Columbia River at Chelan Falls near Grand Coulee Dam from the Chelan PUD hatchery on April 21, 2011.

River Conditions

River conditions during the week are outlined in Table 4 as provide by the smolt monitoring staff, whose data day runs from 0700 to 0700 each day. Water temperature monitoring will conclude on September 1. However, we will continue to monitor the sample tanks. PSMFC records the results in a separate report.

The summer spill program, which calls for 50 percent of flow to be spilled, will conclude at 0001 on September 1. The project has maintained the 50 percent level.

Table 4. River conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temp. (^{o}F)		Water Clarity* (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
160.1	142.3	80.0	71.2	71.3	69.9	6.0	6.0

*Control Room Data.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on September 2.

Invasive Species: On August 24, the zebra mussel station examination revealed no problems.

Predatory Bird Observations: On August 2, hazing by USDA concluded. We continue to examine, monitor temperature and add oil to the outfall's water sprinkler's supply pump. We also continue to check and clean the pump's intake. Repairs to the pump are being arranged. On August 28, the pump briefly tripped off line. The fisheries staff again cleaned its intake screen.

The bird distress calls deployed along the navigation lock wing wall and around the project appear to have discouraged roosting. The fisheries staff monitors and adjust all hazing equipment as needed. All hazing techniques appear to be working well in the tailwater area with gulls, cormorants and terns concentrated at the spill. Also, cormorants and gulls are roosting on the navigation lock wing wall along with pelicans working the Washington shoreline. Tern and pelican numbers appear down. Finally, occasionally cormorants, pelicans and gulls were observed at the bypass outfall. Bird numbers appear now to be affected by the juvenile shad out migration.

In the forebay area, we observed grebes, which appear to be decreasing, along with occasional gulls and cormorants. Grebes were seen nowhere else on project. We observed gulls and cormorants on the rock by the Washington boat dock. We also noted ospreys on project.

Bird counts continue with each zone being counted by the fisheries staff once a day and usually in the morning. Counts are reflected in Table 5.

Table 5. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Aug 22	Forebay	0	3	0	0	0
	Spill	49	2	6	14	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 23	Forebay	1	0	0	0	5
	Spill	33	25	0	15	0
	Powerhouse	0	0	0	0	0
	Outfall	0	8	0	2	0
Aug 24	Forebay	4	0	0	0	4
	Spill	20	4	3	9	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 25	Forebay	0	0	0	0	6
	Spill	88	9	4	3	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 26	Forebay	1	0	0	0	4
	Spill	38	10	3	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	1	0
Aug 27	Forebay	0	0	0	0	2
	Spill	75	13	1	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	1	0	1	0
Aug 28	Forebay	0	0	0	0	1
	Spill	57	0	2	2	0
	Powerhouse	0	0	0	0	0
	Outfall	2	6	0	0	0

Research: The researcher for the juvenile salmonid survival study will complete removal of their equipment next week. GBT monitoring remained on hold due to water temperatures and will probably conclude with the spill program. The adult lamprey passage study continues. In October, preparations will begin for the adult fallback study.

Project: Ice Harbor
Biologists: Ken Fone and Charlie Dennis
Dates: August 22 - 28, 2014

Turbine Operation

Unit 3 was taken out of service on July 7 at 1346 hours to investigate a generator electrical grounding problem. Annual maintenance of unit 3 is also taking place. Unit 4 was taken out of service on August 4 at 0830 hours for annual maintenance.

Units were operated within 1% of peak turbine efficiency as specified in the Fish Passage Plan.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on August 26, 27, and 28.

Fish Ladders: The north fish ladder inspection areas (head differentials at picketed leads and fishway exit, and depth over weirs) were in criteria on all inspections. The south fish ladder inspection areas (head differentials at picketed leads and fishway exit, and depth over weirs) were in criteria on all inspections. Fish ladder exits were clear of debris and the bubblers were operating satisfactorily. Both the north and the south shore picketed leads are down in their deployed positions.

Fishway Entrances and Collection Channel (inspection date order): The south shore entrance (SFE) depth and channel/tailwater differential were in criteria on all inspections. The north powerhouse entrance (NFE) depth and channel/tailwater differential were in criteria on all inspections. The north shore entrance (NSE) depth was in criteria, but the channel/tailwater differential was out of criteria with readings of 3.0 feet, 2.1 feet, and 2.6 feet on August 26, 27, and 28, respectively. The high differentials may be due to the low tailwater levels and/or difficulty in getting accurate readings of the tailwater elevation because of turbulence from project spill. The north channel diffuser valves were closed to 50% on August 19 in an attempt to reduce the channel/tailwater differential, but the differentials continue to be high. The differentials should be in criteria more often when spill and minimum operating pool operations end for the season. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

Auxiliary Water Supply System: Two of the three north shore fish pumps were operated throughout the week. Six of eight south fish pumps were operated.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was little to no debris observed in the forebay and gatewells.

STSs/VBSs: STSs are in position for juvenile fish guidance and have been in cycle mode since July 21. Units 1, 2, 4, 5, and 6 STS inspections and unit 5 VBS inspections were performed on August 18 and 20. No significant problems were found.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass was placed in operation on March 17. Twenty orifices are open.

Juvenile Bypass Facility: The bypass is in operation.

Fish Sampling: Sampling operations began on April 2 and ended on July 15.

Removable Spillway Weir: The RSW is in operation position. Spill in support of fish passage began on April 3, 2014.

River Conditions

River conditions during the week are outlined in Table 1 below.

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
30.0	23.9	20.5	14.1	71	70	8.2	7.6

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections of units 1, 2, 4, 5, and 6 took place on August 18 and 20. A total of 21 Siberian prawn mortalities were found.

Invasive Species: No new exotic species have been found.

Avian Activity: Contracted hazing of piscivorous birds for 16 hours per day began on April 1 and ended on June 30. The piscivorous bird count program at the project began on April 1 and ended on July 15. Relatively low numbers of cormorants, gulls, and pelicans have been seen around the project.

Research: No onsite fish research is in progress at this time.

Project: Lower Monumental
Biologists: Bill Spurgeon and Ray Addis
Dates: August 22 - 28, 2014

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on August 22, 23, 24 and 27.

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 NSE2 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.

SPE1 and SPE2 weir gates were in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 5.4', 5.1', 5.3', and 5.3 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 5.5', 5.6', 5.5' and 5.8 feet. SSE2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') on all inspections.

The collection channel velocity remained in criteria (1.5 - 4.0 ft/sec) this week.

Any criteria violations at the fishway entrances are related to the failure of the PLC for automated control. Without automated control, the FCRG (fishway control regulating gate) drifts closed causing the fishway entrance head to go out of criteria at the south shore entrances. Operators are manually controlling the FCRG and fish pumps to maintain head and depth criteria at fishway entrances. The loss of the fishway PLC also caused all weir gates to be placed in local control. This results in criteria violations if monitoring and adjustment does not occur as tailwater level fluctuates. To minimize this, SPE1 and SPE2 are placed on sill.

The replacement PLC for automated control of the fishway has been received. It is currently undergoing programming. The automated system is estimated to return to service in August. The operators have been instructed to conduct a physical inspection on night shift to replace the FPP inspection via data screen conducted normally on that shift.

Auxiliary Water Supply System: All AWS pumps were in service and operating throughout this period.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 1.8 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-5% surface coverage. Oil absorbent pads were placed in 4 gatewells due to a sheen that was likely caused by grain dust.

STSs/VBSs: STSs are operating in cycle mode. STSs were inspected August 5, and 6. All screens passed inspection.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel is operating with 20 orifices open.

Collection Facility: No problem with the facility during this period.

Transport Summary: Alternate day trucking began is occurring.

River Conditions

Summer spill began at 0001 hours on June 21 and initiated the use of the Bulk spill pattern. The spill season is scheduled to end at the end of August. The dam is using Navigation friendly spills during lockage, due to low flows. 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
29.2	22.9	16.1	10.9	69	68.5	5.0+	5.0+

*Scrollcase Temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 4. No live fish were recovered. Mortalities included 1 juvenile bullhead.

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

Avian Activity: Daily tailrace counts of feeding piscivorous birds are summarized in Table 2. Gulls were the dominant species observed during inspections this week. Hazing for the season

ended on June 2. No additional action trigger points were met from the avian action plan through this time period.

Table 2. Tailrace Counts of Foraging Piscivorous Birds at Lower Monumental Dam.

Date	Time (hours)	Gulls	Cormorants	Terns
August 22	1200	1	0	0
August 23	1100	4	0	0
August 24	1200	1	0	0
August 25	1300	3	0	0
August 26	1100	2	0	0
August 27	1100	0	0	0
August 28	1100	1	0	0

Research: No onsite research is in progress at this time.

Project: Little Goose
Biologist: Richard Weis
Dates: August 22 - 28, 2014

Turbine Operation

Turbine units 1, 2, and 4 were available for this report period. Unit 3 was placed out of service on July 7 at 0700 hours for a planned six year overhaul. Unit 5 was out of service this report period due to Station Service Transformer 1 is not working properly. Unit 6 returned to service on August 23 at 1430 hours from its annual maintenance. All available turbine units were operated within 1% peak efficiency range.

Adult Fish Passage Facility

Adult fishway inspections were performed on August 24, 25 and 28.

Fish Ladder: Ladder exit differentials ranged between 0.0 and 0.1 ft. (criteria $\leq$ 0.5 ft.). Water depths over the weirs held steady at 1.2 feet (criteria 1.0-1.3 ft.). No differential was observed at the picketed leads (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 1.0 and 2.1 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.0 (sill) and 8.2 feet (criteria $\geq$ 8.0 ft). NPE weirs rested on sill and ranged between 5.2 and 5.8 feet (criteria $\geq$7.0 ft). NSE weirs are in manual and depths ranged between 4.7 and 6.8 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity near the junction pool area was measured at 1.7 fps. Surface water velocity ranged between 1.8 to 2.2 fps near the north shore entrance (criteria 1.5 to 4.0 fps).

Auxiliary Water Supply System: All fish pumps operated within criteria except unit 1. Fish pump 1 was removed from service on August 24. Pump 1 was found low on cooling oil and its condenser was replaced. Pump 1 was returned to service on August 25 at 1600. Pumps 2 and 3 were increased in RPM to make up for pump 1 being offline.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Estimated amounts of woody debris in the immediate forebay ranged between 0 and 15 sq ft. Trace amounts of oil were reported in gatewell 5A and 6C.

Spillway Weir: The spillway weir was removed from service on August 4.

ESBS/VBS: All ESBSs operated within criteria this report period. All brushes operated as designed. All ESBSs passed the monthly brush test on August 19.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile fishway operated with 22 open orifices.

Transportation Facility: The collection and transportation facility operated within criteria this report period. Daily fish collection for the week ranged between 161 and 569 and totaled 2,242. The descaling and mortality rates were 0.9% and 1.2% respectively. This weekly report period saw 7 adult lamprey removed from sample and released above the dam at Little Goose Landing.

Transport Summary: Every other day trucking continues with no problems encountered.

River Conditions

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
27.0	22.7	8.0	7.2	71.2	69.1	6.0+	6.0

*Ladder temperature.

Other

Invasive Species: No zebra mussels were observed on the substrate monitor on August 14. The next inspection is scheduled for September 13.

Cooling Water Strainers: Cooling water strainers were checked on August 22. Nothing was found.

Avian Activity: USDA-APHIS bird hazing ended on June 20.

Table 2. Maximum Daily Counts of Tailrace Foraging Piscivorous Birds at Little Goose Dam.

Date	Gulls	Cormorants	Caspian Terns	Pelicans
August 22	17	16	0	1
August 23	23	23	0	2
August 24	20	22	0	0
August 25	13	13	0	0
August 26	16	14	0	0
August 27	13	9	0	0
August 28	15	4	0	0

Gas Bubble Disease: WDFW Gas Bubble Trauma monitoring concluded July 28.

Research: The University of Idaho continues their adult salmon and adult lamprey passage study.

Project: Lower Granite
Biologists: Elizabeth Holdren and Ches Brooks
Dates: August 22 - 28, 2014

Turbine Operation

Lower Granite had five turbine units available for power generation during the report period. Turbine Unit 4 was taken out of service at 0716 hours on August 4 for annual maintenance. The expected return to service date for this unit is now September 2. Turbine units are being operated in hard constraint of the 1% operation criteria.

Adult Fish Passage Facility

On August 22, 23 and 24 COE fish biologists conducted inspections of the adult fishway system. A fourth inspection was conducted with the ODFW biologist from Little Goose Dam on August 28.

Three rented ladder cooling pumps to supplying 25 to 27 cfs water from a depth of approximately 60 feet to the fish ladder, along with an associated generator were installed in the forebay near the adult ladder exit on August 1. During the report week the rented ladder cooling pumps were run continuously with auxiliary pump 1 also operating.

The adult fish counters began visual counts at the counting window on April 1. The counting hours are from 0400 to 2000 hours PST and are scheduled to continue through October 31.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings at the south shore and north powerhouse fishway entrances remained within criteria during the weekly inspections. Head differential readings at the north shore fishway entrances met criteria on the August 22 and 24 inspections but were below criteria on the other inspections with readings of 0.9 feet on August 23 and 0.8 feet on August 28 (criterion $\geq$ 1.0 feet).

Weir depths at the south shore fishway entrances met criteria on all inspections this week. Weir depths at the north powerhouse fishway entrances remained on sill this week due to tailrace levels below 636.0 feet (at which level the gates bottom out). Weir depths at both north powerhouse entrances ranged from 5.5 to 5.9 feet. The weir depths at the north shore entrances were out of criteria all week. Weir depths at north shore entrance 1 entrances ranged from 4.4 to 4.6 feet. (criterion $\geq$ 7.0 feet). Weir depths at north shore entrance 2 entrances ranged from 3.5 to 3.7 feet (Criterion $\geq$ 7.0 feet). North shore entrance 2 remains damaged, and cannot adjust for weir depths automatically; this gate has been manually set at a compromise depth of 630.0 feet. Due to a lack of water at the north shore entrances, weir depth readings are being sacrificed in attempt to maintain the requisite 1.0 foot of head differential.

Velocity readings in the adult fishway collection channel transition pool area ranged from 0.97 to 1.16 feet per second and averaged 1.09 feet per second.

Auxiliary Water Supply System: Fish pumps one and three were run during the week with fish pump two held in standby mode.

Juvenile Fish Passage Facility

The sample rate remained at 50% for the duration of the report week.

Forebay Debris/Gatewell Debris/Oil: The amount of forebay debris varied during the week due to wind strength and direction. No debris spills took place during the week. JFF staff have been monitoring gatewells daily and removing floating debris with a hand basket in attempt to circumvent orifice blockages.

ESBSs/VBSs: ESBSs are deployed in all units and have been operating without issue. The brush cleaning cycle is set for once every two hours. ESBS/VBS monthly inspections were last conducted on June 27 and 28. The next inspections are scheduled for August 29 and 30.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours around the clock. Debris levels remained light during the week.

Transportation Facility: Operations proceeded smoothly at the facility during the week. Descaling for all species combined was 1.72% for the week and is 0.84% for the season compared to 2.27% in 2013 and 1.45% for the 2008-2012 average. Lamprey friendly tailscreens (larger screen mesh) remain installed in all raceways.

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. Every other day fish trucking operations began on August 18 using the pickup midi-tanker. Collected fish numbers have been relatively low and well within the capacity of this transport vehicle.

Removable Spillway Weir: The project began FOP summer spill operations of 18 kcfs 24 hours a day at 0001 hours on June 21; the RSW is operated as a normal part of summer spill activities which are scheduled to last through the end of August.

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* (F^{o})		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
25.8	21.7	13.0	8.9	66.1	65.0	4.8	3.7

*Cooling water intake temperature.

Other

Invasive Species: The zebra mussel substrate near the adult fishway exit was last examined for zebra mussels on the August 2 inspection. No evidence of zebra mussels was found. The next inspection will take place in early September.

Unit Cooling Water Strainers: Unit cooling water strainers were last inspected on July 24. A total of 6 lamprey mortalities were found. The combined unit run time was 1,473.0 hours. The next cooling water strainer inspections are scheduled for late August.

Avian Activity: Tailrace Piscivorous bird counts are taken daily one hour after sunrise and one hour before sunset from the juvenile fish wet separator platform (Table 2).

Table 2. Maximum Daily Counts of Tailrace Foraging Piscivorous Birds at Lower Granite Dam.

Date	Time (hours)	Gulls	Cormorants	Terns
August 22	1900	0	0	0
August 23	1900	1	0	0
August 24	1900	0	0	0
August 25	1900	0	0	0
August 26	1900	1	0	0
August 27	1900	0	0	0
August 28	1900	0	0	0

Adult Fish Trap Operations: The Lower Granite adult trap facility did not operate during the week due to water temperatures at the trap reaching near or above 70°F. The adult trap is scheduled to begin 24 hour a day trapping at 1200 hours on August 31. The initial sample rate will be 10%.

Fall Chinook Transport: Fall adult Chinook trapping/sampling protocols and brood stock transportation to Lyons Ferry Hatchery and the Nez Perce Hatchery at Cherry Lane were scheduled start on August 18. When the adult trap again (water temperature allowing) begins operation the Nez Perce will truck fish on Sunday and Monday and Lyon's Ferry Hatchery will

truck fish Tuesday through Saturday. Trucking operations will continue into November (or until hatchery needs are met).

Research: All research has concluded for the year.