U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#26-2015

Project: McNary
Biologist: Bobby Johnson
Dates: August 21 – 27, 2015

Turbine Operation

Turbine unit outages are recorded in Table 1 below. McNary had 11 to 13 of 14 units available for power generation. The hard 1 percent constraint and the saw tooth unit priority continued. No turbine units ran outside the constraint.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
7	Aug 6–27	About 22 days.	Unit returned to service for 72 hours test run.
13	Aug 17–24	About 8 days.	Asbestos abatement.
14	Aug 24–31	About 8 days.	Asbestos abatement.
10	Aug 24–27	About 4 days.	Annual maintenance.
9, 10 & 12	Aug 25	1.4 hours.	Extended-length submersible bar screen (ESBS) camera inspections.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on August 22, 24 and 26. Visual adult fish counts, review of video tape for adult lamprey counts and exit temperature monitoring continued. On August 24, the technical staff upgraded the fish ladder control system programming in the control room. On August 27, NOAA (National Oceanic & Atmospheric Administration) fisheries personnel performed their monthly inspection. On August 24, scheduled mechanical maintenance was performed on the Oregon ladder exit and entrance weirs.

All systems continued to be monitored diligently as warm water conditions persist although temperatures have declined slightly.

The Oregon ladder fish pumps and the Wasco County Public Utility District (PUD) turbine unit in Washington ladder remained on raw river water for cooling until August 24 at 1713 hours when they were permanently switched back to potable water. From August 21, at 1134 hours to August 24, at 1329 hours, the PUD unit operated with potable cooling water. This reduced personnel call outs to clean raw water strainers.

Operation of both fish pumps on raw water for cooling continued until well pump 2 returned to service. Potable water was used for cooling during raw water strainer cleaning. The fish pump raw water strainer was cleaned one to two times per day from August 21 to 24.

The potable water reservoir continued to be filled by a City of Umatilla fire hydrant as needed until August 24 at 1447 hours when well pump 2 permanently returned to service. Operators monitored the reservoir level repeatedly and the reservoir supplies only basic water needs up that time. Once the reservoir was filled, all systems returned to potable water.

Fish Ladder Exits: Both ladder exits met all criteria, which are 1.0 to 1.3 feet for head over weir, and 0.0 to 0.5 feet for count station differential. Picketed leads were cleaned at both exits as required, including weekends.

At the Washington ladder exit, regulating weir set point adjustments were noted on August 22, 24 and 26. A tilting weir set point adjustment was noted on August 22. The operators reset two regulating weir alarms on August 22. Aquatic vegetation quantities were minimal to light in the exit area.

On August 24, Washington ladder exit weir 338 failed and was switched to manual mode. The exit PLC (programmable logic circuit) was adjusted to bypass the weir. On August 25, at 2100 hours, a low ladder flow water alarm came in. The operator adjusted the exit set points which returned the ladder to criteria. On August 26, the technical staff returned weir 338 to service and upgraded the exit PLC programming.

At the Oregon ladder exit, the operators adjusted the regulating weir set point on August 22 and 24. They adjusted the tilting weir set point on August 26. Weir 340 remained in manual mode and bypassed until the encoder was replaced on August 26. Weir 340 appeared to be slightly out of position on August 25 and 27. On both occasions, the operators reset the weir. The Oregon exit forebay elevation sensor appears to be tracking properly since the sensor still well was cleaned last week. Debris loads varied between light to moderate as winds moved aquatic vegetation along the Oregon shore. The Biologist cleaned the exit traveling screen debris trough on August 24.

From August 24 to 26, the technical staff upgraded the Oregon ladder exit PLC programming. These upgrades will eliminate the possibility of tilting weirs lying flat after set point adjustments, which was an issue recorded in previous reports. The Washington exit PLC programming was also upgraded as stated above to insure the ladder cannot be returned to automatic mode without an active weir being selected first after set point adjustments.

Fishway Entrances and Collection Channel: All fishway entrances have the same criteria. Pool differentials should be between 1.0 and 2.0 feet, and weir depths should measure 8.0 feet or deeper. At the Washington entrance, all entrance inspection points met criteria.

At the Oregon ladder on August 22 and 26, the north powerhouse entrance weir, NFEW3 depths measured 7.9 and 7.7 feet, respectively. On August 26, the biologist examined previous ladder inspection reports and found the weir had not moved since August 8. The electrical staff

immediately examined the weir and found the overload breaker had tripped. This issue was noted previously in Weekly Report 23 (July 31 – August 6). All other inspection points were in criteria. Collection channel surface velocities averaged 1.7 feet per second.

Auxiliary Water Supply System: The PUD turbine unit in the Washington ladder had no interruptions in service this week.

Two of the three Oregon ladder fish pumps operated satisfactorily with blade angles of 30 degrees with one interruption in service. On August 24, from 1624 to 1629 hours, fish pump 1 tripped off line. No reason was recorded.

Fish pump 2 is currently under contract for major overhaul. If pump shaft replacement is required, the fish pump overhaul completion might be delayed to April, 2016. Completion was previously scheduled for September, 2015.

The juvenile facility continued to supply 450 cubic feet per second to the north powerhouse pool.

Juvenile Fish Passage Facility

The fish passage season consists of alternating days of primary and secondary bypass modes. The switch occurs every morning at 0700 hours. There were no deviations in the schedule. Secondary bypass occurred on August 22, 24 and 26. This week, 64 juvenile lamprey and 64 smolts were bypassed. Juvenile shad were the predominant species sampled.

The B side sample tank water temperature and fish in all areas continued to be monitored. Warm water temperatures continued to be a concern though the temperatures have decreased slightly.

The juvenile facility continued to have a limited potable water supply until August 24 when well pump 2 returned to service. Bottled water dispensers remained distributed around the project.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load was minimal to light and scattered across the powerhouse face and along the Oregon shore. New incoming debris was minimal and consisted mostly of aquatic vegetation.

No high trash rack differentials were recorded and no trash racks were cleaned.

No problems were observed in the gatewell slots.

ESBSs/VBSs: All turbine units have ESBSs (Extended-length Bar Screens) installed. The screens in slots 1A, 3B, 11C and 12C remained in timer mode. ESBS camera inspections at units 9, 10 and 12 revealed no problems on August 25.

No high VBS (vertical barrier screen) differentials were recorded. On August 25, the screens in slots 1A, 1B and 8A were cleaned. No fish were observed. The general maintenance staff continued to clean sponge off the screens downstream side. VBS rehabilitations continued.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty two orifices were in use. During VBS cleaning, orifices in the affected slots were closed, with makeup water coming from orifices in adjacent slots.

All systems functioned satisfactorily in automatic mode. The rectangular screen cleaning brush cycling time was decreased from 240 to 180 minutes and from 180 to 150 minutes on August 25 and 26, respectively, as debris loads increased. On August 26, at 0555 hours, the rectangular screen brush stalled on debris while traveling downstream. The technician on duty repositioned the device, which cleared the debris. No other problems occurred.

On August 27, at 0900 hours, a brief power outage of the channel systems had no adverse affect.

Bypass Facility: During the bypass season, primary and secondary bypass modes return all fish are to the river. Passive integrated transponder (PIT) tag detection occurs in the full flow pipe during primary bypass and throughout the facility during secondary bypass. Smolt monitoring occurs only on secondary bypass days.

The sample gates are turned on and off every other day so that they are in service only during secondary bypass. The gates and all operational systems functioned well. The PIT tag sample gates remained turned off. The facility bypass lines provide a superior route for the fish over the PIT tag sample release lines downstream of the PIT tag sample gates. Pacific State Marine Fish Commission (PSMFC) maintenance staff continued their weekly checks of the PIT tag detection system. The A and B side flume bypass gates remain off and open for secondary bypass.

Algae removal from the system continued on every primary bypass day.

River Conditions

River conditions during the week are outlined in Table 2 below as provided by the smolt monitoring staff. The data period runs from 0700 to 0700 hours each day. Flows and spill are recorded in one-thousand cubic feet per second. Temperature is recorded in degrees Fahrenheit. The routine summer spill program in support of fish passage continued with 50 percent of river flow being spilled. The spill pattern was altered for navigation as required. The summer spill program will concluded on September 1 at 0001 hours.

The smolt monitoring staff continued recording water temperature data. The results are published in a separate report. Temperature monitoring will conclude on August 31.

Table 2. River Conditions at McNary Dam.

Daily Average River Flow		Daily Average Spill		Water Temperature		Water Clarity* (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
160.8	141.9	80.8	71.0	71.2	69.3	6.0	6.0

*Control room data.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on September 1.

Invasive Species: The zebra mussel station examinations on August 22 revealed no problems.

Avian Activity: Avian counts are recorded in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Aug 21	Forebay	0	0	0	0	0
	Spill	223	15	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 22	Forebay	1	0	0	0	3
	Spill	79	7	0	3	0
	Powerhouse	0	0	0	1	0
	Outfall	0	0	0	0	0
Aug 23	Forebay	0	0	0	0	2
	Spill	98	37	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 24	Forebay	0	0	0	0	0
	Spill	188	4	0	3	0
	Powerhouse	0	0	0	0	0
	Outfall	2	0	0	1	0
Aug 25	Forebay	3	0	0	0	1
	Spill	68	16	0	3	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 26	Forebay	1	0	0	0	0
	Spill	75	18	0	0	0
	Powerhouse	0	1	0	0	0
	Outfall	0	0	0	0	0
Aug 27	Forebay	11	0	0	0	2
	Spill	80	20	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	1	0

Bird hazing distress calls remain deployed around the project and continued to function satisfactorily. The fisheries mechanic and the general maintenance staff continued to clean the bird hazing water cannon pump intake three times a week.

In the forebay observation zone, an occasional gull, grebe, cormorant or osprey was observed. Occasionally, a flock of gulls would roost on the forebay in the afternoon. Gulls and cormorants were roosting on the rocks by the Washington shore boat dock, which is outside the forebay observation zone.

Gulls and cormorants were observed in the tailwater observation area feeding in the spillway flow. Gulls and cormorants were also roosting on the navigation lock wing wall. Pelicans were feeding and roosting along the spill flow edge and the shorelines. Pelicans were also observed roosting on the rocks downstream in the wildlife park. Overall bird numbers have declined except gulls and cormorants. It appears they are feeding on juvenile shad.

Occasionally, a gull or pelican was observed near the juvenile bypass outfall.

Research: The adult lamprey passage study continued. On August 26, the researcher raised, examined and cleaned the camera frame installed at SFEW2.

Project: Ice Harbor
Biologist: Ken Fone
Dates: August 21 – 27, 2015

Turbine Operation

All units were available for service. Units were operated within the 1% peak efficiency range (hard constraint).

Adult Fish Passage Facility

Fish facility personnel inspected the adult fishways on August 24, 25, 26, and 27.

Fish Ladders: The north fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. The south fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. Criteria for head differentials at ladder exits and picketed leads, and depth over the weirs are 0.5 feet or less, 0.3 feet or less, and 1.0-1.3 feet, respectively. The water surfaces above the fish ladder exits were clear of debris and the bubblers were operating satisfactorily.

Fishway Entrances and Collection Channel: The south shore entrance (SFE-1) depth and channel/tailwater differential were in criteria on all inspections. The north powerhouse entrance (NFE-2) depth and channel/tailwater differential were in criteria on all inspections. The north shore entrance (NSE-1) depth and channel/tailwater differential were in criteria on all inspections. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

The south shore channel velocity was in criteria on all inspections. The channel velocity criterion is 1.5-4.0 feet/second.

Auxiliary Water Supply (AWS) System: Two of the three north shore AWS pumps were operated throughout the week. North shore pump 1 was out of service from 1119 hours on August 19 to 1515 hours on August 25 to repair an oil leak. Six of the eight south shore AWS pumps were operated throughout the week.

Juvenile Fish Passage Facility

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

STSs/VBSs: The STSs are being operated in cycle-run mode. Inspection of the STSs in units 1 through 5 and the VBSs in unit 2 occurred on August 13, 17, and 19. There were no screen problems observed.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The bypass is operating with 20 orifices open. Orifices were routinely cycled and back-flushed once per day.

Juvenile Fish Facility: Fish are being routed through the bypass.

Fish Sampling: Fish sampling is done for the season.

Removable Spillway Weir (RSW): Mandated spill for fish passage began on April 3. Spill gate 2 was kept closed during this reporting period because there was not enough river flow available to operate the RSW.

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
20.8	16.7	11.0	7.0	70	69	8.3	7.3

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: The turbine cooling water strainers for units 1 through 5 were inspected on August 17 and 19. There were 3 juvenile channel catfish, 1 juvenile shad, and 7 Siberian prawns found (all mortalities).

Invasive Species: No new exotic species have been found.

Avian Activity: In general, a moderate amount of piscivorous birds were around the dam during the week, with the majority of birds roosting on Eagle Island.

Research: Sensor fish release pipes were installed on the STS framework from gatewell slot 1B on August 13, in preparation for the turbine environment characterization study occurring in September.

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: August 21 – 27, 2015

Turbine Operation

The units are being operated within the hard 1% constraint criteria. Unit 1 was removed from service on December 10, 2014 for rehabilitation with an estimated return to service date of January 12, 2017. Unit 5 was removed from service on August 10 at 0830 hours for annual maintenance and returned to service on August 27 at 1615 hours.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on August 21, 22, 23 and 26.

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, both gate depth readings ranged from 6.4 to 6.8 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, gate depth readings ranged from 7.4 to 7.5 feet. SSE2 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, 2, and 3 were operated throughout this period.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 7 square yards of forebay debris observed during this period. Gatewell debris ranged from 0 - 5% surface coverage.
No problems observed in gatewells.

STSs/VBSs: STS operations changed to cycle-run mode on August 7 as average sub-yearling Chinook length became greater than 120 mm.

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

Collection Facility: Operated in collection for transport mode. No problems occurred.

Transport Summary: Every-other-day truck transport is occurring and scheduled to continue through 0700 hours on October 1.

River Conditions

Routine spill operations in support of fish passage were initiated at 0001 hours on April 3. Due to insufficient flows, the RSW (Removable Spillway Weir) was closed on August 8. This spill configuration will continue through 2400 hours on August 31. Spill this period conformed to specified requirements.

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

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
21.0	15.9	8.7	3.6	70.5	69	5.0	4.7

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 3. There were no live fish recovered. Mortalities included 3 American shad and 7 Siberian prawns.

Invasive Species: No zebra mussels were observed at the monitoring stations on August 2.

Avian Activity: Daily tailrace counts of feeding piscivorous birds are summarized in Table 2 below. Gulls and cormorants were the dominant species observed during inspections this week. Hazing ended on June 2.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
August 21	1100	2	0	0	0
August 22	1110	3	0	1	0
August 23	1055	0	0	0	0
August 24	1110	1	0	0	0
August 25	1100	0	0	0	0
August 26	1100	0	0	0	0
August 27	1115	2	1	0	0

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

Project: Little Goose
Biologist: Richard Weis
Dates: August 21 – 27, 2015

Turbine Operation

All turbine units were available for service throughout this report period except for units 2, 3 and 4. Unit 2 was taken out of service for digital governor installation and returned to service on August 21. Unit 2 again went out of service on August 24 due to a wiring problem between Unit 2 and the Secondary Control Console (SCC), subsequently returning to service on August 27. Unit 3 was placed out of service on August 25 for digital governor installation and unit 4 was removed from service on August 18 for annual maintenance. Hard constraint 1% peak efficiency criteria are in effect. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on August 23, 26 and 27.

Fish Ladder: The ladder exit head differentials held steady at 0.0 feet (criteria $\leq$ 0.5 ft.). Water depths over the ladder weirs held steady at 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials ranged between 0.0 and 0.1 feet (criteria $\leq$ 0.3 ft.). The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily.

Fishway Entrances and Collection Channel: The adult fishway system is in automatic mode. We are still getting incorrect gate elevation readings when the gate is in the lower quarter of the fish channel at the NSE. NSE 1 and 2 are in manual mode. Channel to tailwater head differentials ranged between 1.1 and 1.7 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.2 and 8.6 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 4.2 and 4.8 feet and were on sill (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 6.0 and 6.5 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 1.6 and 1.8 fps (criteria 1.5 to 4.0 fps). The monthly water velocity measured at the north powerhouse using the Rickly velocity equipment averaged 3.8 fps. Velocity measuring points include 1 foot from bottom, mid depth and surface.

Auxiliary Water Supply System: Fish pumps 2 and 3 operated as designed. The fish pump 1 gear box was rebuilt and is waiting on parts to allow placement of the gearbox into position.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: The trash/shear boom is currently still on shore. Efforts are underway to have it repaired. Woody debris in the immediate forebay was 0 square feet for the week.

Spillway Weir: The spillway weir was removed for the season on June 18.

ESBS/VBS: All ESBSs are deployed and gatewells are clean except for gatewell 5A which still has oil absorbent pads deployed as a slight sheen of oil had been seen. Drawdowns were not performed this week.

Orifices, Collection Channel, Dewatering Structure, and Flume: The Juvenile bypass system is running with 21 open orifices.

Transportation Facility: The JFF continues to transport fish every other day by truck. GBT (Gas Bubble Trauma) sampling ended for the season.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 1,032 fish were collected for transport. The descaling and mortality rates were 0.3% and 0.5% respectively. This weekly report period saw 5 adult lamprey removed from sample and released upstream at Little Goose Landing.

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
20.6	16.1	7.3	2.8	70.2	69.6	5.6	4.4

*Ladder temperature.

Other

Inline Cooling Water Strainers: All cooling water strainers were checked on August 26. No fish were seen.

Invasive Species: The zebra mussel substrate monitor was inspected on August 17. No zebra mussels were detected.

Avian Activity: Bird hazing ended on June 16. See Table 2 below for the numbers observed.

Table 2. Daily maximum tailrace piscivorous bird counts at Little Goose Dam*.

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
August 21	1030	16	20	0	0
August 22	1045	9	13	0	0
August 23	1145	10	34	0	0
August 24	1420	22	22	0	0
August 25	1045	15	21	0	0
August 26	1045	8	20	0	3
August 27	0800	10	8	0	0

*Bird counts are taken from a single observation, Forebay and Tailrace.

Scroll Case Temperature: Little Goose Dam has only one temperature probe on the Scroll Case in unit 1 only. The temperature ranged between 69.5 and 71.0.

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

Project: Lower Granite
Biologist: Elizabeth Holdren
Dates: August 21 – 27, 2015

Turbine Operation

Units are operating within the hard constraint 1% criteria. Unit 4 was returned to service at 1205 hours on August 26. Unit 6 was removed from service at 0945 hours on August 12 for annual maintenance.

Adult Fish Passage Facility

The adult fishway was inspected by Corps or Blue Leaf Environmental biologists on August 22, 24, 26, and 27.

Fish Ladder: Fish ladder exit head differential and depth over the weirs were in criteria (≤0.5' and 1.0-1.3', respectively) on all inspections. Picketed lead head differential was in criteria (≤ 0.3') on all inspections.

Fishway Entrances and Collection Channel: SSE1 and SSE2 weir gates were in depth criteria (criteria ≥8' or on sill) on all inspections. South shore channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

NPE1 and NPE2 weir gates were in sill criteria (criteria ≥8' or on sill) on all inspections. While on sill, the weir gate depth readings were 6.3', 6.5', 5.8', and 6.0 feet. North powerhouse channel/tailwater head differential was in criteria (criteria 1'-2') with the exception of a 0.8 feet reading August 22.

NSE1 remains closed. NSE2 is set with a chain fall hoist at 626.5 feet. NSE2 was in depth criteria (criteria ≥7' or on sill) on all inspections. North shore channel/tailwater head differential was out of criteria (criteria 1'-2') on all inspections measuring 0.8 feet reading August 22, 0.9 feet on August 24, 0.8 feet on August 26, with the exception of a 1.1 feet reading on August 27.

Collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections with readings ranging from 1.0 – 0.9 fps and a weekly average of 1.0 fps. Alternative methods of measuring collection channel velocity are being investigated.

Auxiliary Water Supply System: The fish ladder is in two pump operation with AWS pumps 1 and 2 operating and pump 3 is in standby mode.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Forebay debris was minimal. Daily gatewell surface inspections continue. Floating debris is being removed daily to prevent orifice blockages. No oil was reported in the gatewell slots.

ESBSs/VBSs: Video inspections are scheduled for late August.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours.

Collection Facility: Collection for juvenile transport and condition sampling continues.

Transport Summary: The last barge of the season departed Lower Granite on August 14. Collection for truck transport began August 15, with the first truck departing on August 16. Every other day transport continues.

River Conditions

Spill with no RSW (Removeable Spillway Weir) using Fish Passage Plan (FPP) Table LWG-9 continues. River conditions during the week are outlined in Table 1 below.

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
20.4	15.9	7.6	3.3	67.0	64.7	5.0+	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected August 27. No organisms were recovered.

Invasive Species: No evidence of zebra/quagga mussel was observed August 9.

Avian Activity: Piscivorous bird observation counts are taken from the juvenile fish separator platform one hour after sunrise and one hour before sunset. Maximum piscivorous bird counts are summarized in Table 2 below.

Table 2. Daily maximum tailrace piscivorous bird counts at Lower Granite Dam.

Date	Time (hours)	Gulls	Cormorants	Terns
August 21	1900	1	0	0
August 22	0700	1	0	0
August 23	0700	2	1	0
August 24	0700	1	0	0
August 25	0700	1	0	0
August 26	0700	1	0	0
August 27	0700	1	0	0

Adult Fish Trap Operations: Emergency trapping and transport of adult sockeye at Lower Granite to EFH operation ended August 18. The trap was operated on Saturday August 22 and again on August 27 from 0700 to 1100 for brood stock collection.

Fish Ladder Temperature Mitigation: Auxiliary pump 1 (supplies water to the ladder exit) and the three temporary ladder cooling pumps remain in 24 hour operation.

Fish Rescue Operation: No fish rescues occurred.

Research

U.S. Geological Survey (USGS) Early Life History of Juvenile Fall Chinook: The project focuses on research, monitoring, and evaluation of spawning and early life history of Snake River fall Chinook salmon, develop strategies to reduce non-indigenous fish, and enhance research on salmon predators and invasive species. LGR and LGO reservoirs food web changes are being investigated to determine importance of non-native Siberian prawn and opossum shrimp in juvenile salmon diets. USGS sampled a total of 45 unclipped sub yearling Fall Chinook on August 24.