U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#25-2015

Project: McNary
Biologist: Bobby Johnson
Dates: August 14 – 20, 2015

Turbine Operation

Turbine unit outages are recorded in Table 1 below. McNary had 12 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 6–26	About 21 days.	High pressure lift pump system replacement and oil leak repair.
5	Aug 10–17	About 8 days.	Asbestos abatement.
13	Aug 17–24	About 8 days.	Asbestos abatement.
11, 13 & 14	Aug 18	62 minutes.	Extended-length submersible bar screen (ESBS) camera inspections.
7 thru 14	Aug 19	8.4 hours total.	Trash rack cleaning.
1 thru 7	Aug 20	7.6 hours total.	Trash rack cleaning.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on August 14, 16 and 20. Visual adult fish counts, review of video tape for adult lamprey counts and exit temperature monitoring continued.

All systems continued to be monitored diligently as warm water conditions prevailed.

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. From August 14 at 1230 hours, to August 17 at 1335 hours, the PUD unit was operated with potable cooling water. This reduced personnel call outs to clean raw water strainers.

The potable water reservoir continued to be filled by a City of Umatilla fire hydrant as needed. Operators monitored the reservoir level repeatedly. The reservoir supplies only basic water

needs. Contracted work on well pump 2 will completed next week, with the pump returning to service on August 24. Once the reservoir is filled, all systems will return to potable water. Operation of both fish pumps on raw water for cooling will continue until well pump 2 returns to service. Potable water was used for cooling during raw water strainer cleaning only. The fish pump raw water strainer was cleaned two to three times per day.

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, no set point adjustments occurred. The operators reset two regulating weir alarms on August 20. Aquatic vegetation quantities were minimal to light in the exit area.

At the Oregon ladder exit, the operators adjusted the regulating weir set point on August 14, 16 and 20. They adjusted the tilting weir set point on August 16. Weir 340 remained in bypass mode due to a failed encoder. Ladder operation was not adversely affected. Debris loads varied between very light to light as winds moved aquatic vegetation along the Oregon shore.

The operators noted that the Oregon exit forebay elevation sensor was not tracking properly when forebay elevation changes occurred and conveyed this observation to the biologist on August 15. This is one of three water elevation sensors located in the ladder. The sensors inputs are used by the programmable logic circuit (PLC) along with set point settings to automatically adjust the regulating weir and the seven tilting weirs as needed. From 1400 to 1500 hours, on August 18, the exit was in manual mode while the fisheries staff pumped two to three inches of sediment out of the forebay elevation sensor still well, which will improve the sensor accuracy.

The fisheries staff noted the Oregon count station differential was out of criteria on August 19 at 2000 hours and on August 20 at 0245 hours (0.6’ and 0.9’ respectively – criteria is 1.0’ – 1.3’). The operators were notified. The general maintenance staff reported most of the tilting weirs were lying flat on August 20 at 0900 hours. Immediately, the operators switched the exit to manual mode, adjusted the weirs to normal configuration, reset the set points and returned the ladder to automatic operation.

During normal ladder operations, two to three of the seven tilting weirs lie flat. A weir configuration with multiple weirs lying flat is not normal and results in the exit being out of criteria. During set point adjustments, one of the seven titling weirs must be selected as active before returning the exit to automatic mode. If a weir is not selected, the result is a weir configuration with multiple tilting weirs lying flat. This is what occurred above. The electrical staff will reprogram the exit PLC to insure the ladder cannot be returned to automatic mode without an active weir being selected first after a set point adjustment.

Fishway Entrances and Collection Channel: Criteria for all entrances are pool differential measured at 1.0 to 2.0 feet and weir depths measured at 8.0 feet or deeper.

At the Washington entrance, all entrance inspection points met criteria.

At the Oregon ladder, the north powerhouse entrance weirs, NFEW2 and NFEW3 measured depths were 7.6 and 7.5 feet, respectively, on August 16. A low tailwater elevation of 263.7 feet is the probable explanation. All other inspection points were in criteria. The mechanics performed scheduled maintenance on NFEW2 and NFEW3 on August 19. Collection channel surface velocities averaged 1.6 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 no interruptions in service.

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 14, 16, 18 and 20. This week, 125 juvenile lamprey and 140 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 grave concern.

The juvenile facility continued to have a limited potable water supply.

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

No high trash rack differentials were recorded. All trash racks were cleaned on August 19 and 20. Two ten yard truck loads of debris consisting of aquatic vegetation and woody material were removed. No fish were observed.

No problems were observed in the gatewell slots. The fisheries staff removed three pieces of woody material from the slots after the trash rack cleaning.

ESBSs/VBSs: All turbine units have ESBSs installed. The screens in slots 1A, 3B, 11C and 12C remained in timer mode. ESBS camera inspections at units 11, 13 and 14 revealed no problems.

No high VBS (vertical barrier screen) differentials were recorded. On August 20, the screen in slot 6B was cleaned. No fish were observed. The general maintenance staff continued to clean sponge off the downstream side of the VBSs.

On August 15, the screen in slot 8A was replaced with a rehabilitated VBS. Also, that day, a three foot square section of mesh in the lower corner of the VBS in slot 8B was reattached. The unit was in standby. Both screens were cleaned before the work began. No fish were observed. VBS rehabilitations continued.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty two orifices were in use. During VBS cleaning, exchange and repairs, trash rack cleaning and ESBS camera inspections, orifices in the affected slots were closed. Makeup water came from orifices in adjacent slots. On August 18 and 19, water elevation alarms occurred due to improper orifice switching. Protocols were reviewed with the fisheries staff.

All systems functioned satisfactorily in automatic mode.

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 smolt monitoring staff continued recording water temperature data. The results are published in a separate report.

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
162.5	144.5	81.5	72.3	71.4	70.3	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 next zebra mussel station examinations will occur on August 22.

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

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. One of two sprinkler heads jammed on August 19. The fisheries mechanic freed the sprinkler head later in the day.

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

Gulls along with a cormorant or tern were observed in the tailwater observation area feeding in the spillway flow. Gulls and cormorants were roosting on the navigation lock wing wall at times. Many gulls were juveniles. 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. Night herons were observed roosting at the juvenile fish facility. Overall bird numbers have declined except for gulls. It appears they are feeding on juvenile shad.

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

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Aug 14	Forebay	0	0	0	0	0
	Spill	55	0	5	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 15	Forebay	0	0	0	0	0
	Spill	25	0	2	5	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 16	Forebay	0	0	1	0	2
	Spill	28	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 17	Forebay	2	0	0	0	5
	Spill	39	5	0	4	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 18	Forebay	0	0	0	0	0
	Spill	6	0	0	10	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	1	0
Aug 19	Forebay	0	0	0	0	5
	Spill	0	1	0	5	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Aug 20	Forebay	0	0	0	0	4
	Spill	31	0	0	3	0
	Powerhouse	0	0	0	0	0
	Outfall	3	0	0	2	0

Research: The adult lamprey passage study continued.

Project: Ice Harbor
Biologist: Ken Fone
Dates: August 14 – 20, 2015

Turbine Operation

Unit 6 was out of service for annual maintenance from 0716 hours on July 6 to 1519 hours on August 19. Units were taken out of service one at a time for STS inspections on August 17 and 19. All available units were operated within the 1% peak efficiency range (hard constraint).

Adult Fish Passage Facility

Fish facility personnel inspected the adult fishways on August 17, 18, and 20.

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. The south shore upstream picketed lead needs to be cleaned frequently to stay within criteria. 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 3 was out of service from April 22 to August 19 (except during pump 3 tests on August 10) for pre-lubrication pump replacement. 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 unit 2 VBSs 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. Orifice light 6BS was found to be not working on July 10 due to a bad fixture. Consequently, orifice 6AS was opened and 6BS closed (with 6BN open) from July 10 to August 17. The fixture was replaced on August 11. On August 13, the cable that raises and lowers the brush on the mechanical screen cleaner at the primary dewaterer broke. The brush was manually raised out of the water and the screen cleaner was taken out of service for repair. The cable was replaced and the screen cleaner was returned to service on August 18.

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. The RSW is in operation, except that spill gate 2 has been periodically closed since August 9 whenever there has not been enough river flow occurring 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
23.7	17.6	14.0	7.4	70	69	7.3	6.5

*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 in 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 14 – 20, 2015

Turbine Operation

All available turbine units are being operated within the hard 1% operational constraint criteria. Unit 1 was removed from service on December 10, 2014 for unit rehabilitation with an estimated return to service date of January 12, 2017. Unit 3 was removed from service on August 18 from 0700 to 0815 hours to install a flow meter on the AC turbine bearing pump. Unit 5 was removed from service on August 10 at 0830 hours for annual maintenance with an estimated return of service date of August 31.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on August 14, 15, 16 and 19.

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 6.5 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 6.9 to 7.8 feet. SSE2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') on all inspections.

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 were observed in the 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: Barging ended with the last barge departing on August 14. Collection for alternate day trucking began on August 14 with the first truck departing on August 16. Trucking is scheduled to continue through 0700 hours on October 1.

River Conditions

Spill operations in support of fish passage were initiated at 0001 hours on April 3. Due to insufficient flows, the RSW was closed on August 8 and will remain in this configuration through 2400 hours on August 31. Spill during this report 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
22.2	18.2	9.8	6.0	70	69	5.0	4.5

*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 14	1110	2	2	0	0
August 15	1105	3	0	0	0
August 16	1100	6	0	0	0
August 17	1110	1	0	0	0
August 18	1100	0	0	0	0
August 19	1105	1	0	0	0
August 20	1100	0	0	0	0

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

Project: Little Goose
Biologist: Richard Weis
Dates: August 14 – 20, 2015

Turbine Operation

All turbine units were available for service throughout this report period except units 2 and 4. Unit 2 was taken out of service for digital governor installation starting July 14. 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 16 and 20.

Fish Ladder: The ladder exit head differentials held steady at 0.1 feet (criteria ≤ 0.5 ft.). Water depths over the ladder weirs ranged between 1.1 and 1.3 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials held steady at 0 feet (criteria ≤ 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. Weirs NSE 1 and 2 are in manual mode. Channel to tailwater head differentials ranged between 1.0 and 1.6 feet (criteria 1.0 to 2.0 ft.). SSE weir depths held steady at 8.5 feet (criteria ≥ 8.0 ft). NPE weir depths ranged between 4.6 and 4.8 feet and were on sill (criteria ≥7.0 ft. or on sill). NSE weir depths ranged between 6.4 and 6.5 feet (criteria ≥ 6.0 ft.). Collection channel surface water velocities measured at the North powerhouse ranged between 2.1 and 2.2 fps (criteria 1.5 to 4.0 fps). The monthly water velocity at the north powerhouse using the Rickly velocity equipment (measured 1 foot from bottom, mid depth and surface) averaged 3.8 fps.

Auxiliary Water Supply System: Fish pumps 2 and 3 operated as designed. The fish pump 1 gear box was rebuilt and is awaiting 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: ESBSs are all deployed and gatewells are clean except 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 (Juvenile Fish Facility) barged fish every other day until August 14 when collection for transport by truck was initiated. The first truck left the facility on August 16. 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 2,297 fish were collected for transport. The descaling and mortality rates were 0.3% and 0.6% respectively. This weekly report period saw 6 adult lamprey removed from sample and released upstream at Little Goose Landing.

River Conditions

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

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
22.6	17.9	7.2	5.5	69.5	69.3	5.7	5.6

*Ladder temperature.

Other

Inline Cooling Water Strainers: All cooling water strainers were checked on July 15. 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 for the daily numbers observed.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
August 14	1115	27	9	0	0
August 14	1100	38	12	0	0
August 16	1400	23	16	0	0
August 17	1300	17	24	0	0
August 18	1200	15	21	0	0
August 19	1115	6	28	0	3
August 20	1115	26	10	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 69.0 and 70.0 degrees Fahrenheit.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and Ches Brooks
Dates: August 14 – 20, 2015

Turbine Operation

All available units are operating within the hard constraint 1% operational criteria. Unit 4 was removed for service at 0920 hours on June 24 for annual maintenance/six year overhaul. 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 16, 17, 19, and 20.

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 6.0', 6.0', 6.1', and 6.1 feet. North powerhouse channel/tailwater head differential was in criteria (criteria 1'-2') with the exception of a 0.9 feet reading on August 17.

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 in criteria (criteria 1'-2') on all inspections with the exception of a 0.9 feet reading on August 19.

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 surfaces inspections continue. Floating debris is being removed daily to prevent orifice blockages. No oil was reported in 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. Adult sockeye fallback collection from Lower Granite juvenile fish facility separator ended at 1100 hours on August 18.

Transport Summary: The last barge of the season departed Lower Granite on August 14. Collection for truck transport started August 14 (following barge departure) with the first truck departing August 16.

River Conditions

Spill with no RSW (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
24.7	19.3	11.6	6.2	67.8	66.0	5.0+	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Inline cooling water strainers were inspected July 29.

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 14	0630	1	0	0
August 15	0640	4	0	0
August 16	0700	2	2	0
August 17	0700	3	0	0
August 18	0700	1	3	0
August 19	0700	2	4	0
August 20	0700	3	2	0

Adult Fish Trap Operations: Emergency trapping and transport of adult sockeye at Lower Granite to EFH (Eagle Fish Hatchery) operation ended August 18. A combined total of 51 (46 from the adult trap and 5 from the JFF) adult sockeye were collected and transported to EFH from Lower Granite during this operation.

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 did not sample during this report week.